Draft Initial Environmental Examination Report

April 2017

India: Odisha Skill Development Project (OSDP)

Prepared by the Skill Development and Technical Education Department (SDTED), Government of Odisha for the Asian Development Bank

CURRENCY EQUIVALENTS
(as of 7 April 2017)

Currency unit	–	Indian rupee/s (Re/Rs)
Re1.00	=	$0.01547
$1.00	=	Rs64.6142

ABBREVIATIONS

ASTI	- Advance Skill Training Institute
CGWA	- Central Ground Water Authority
CO	- Carbon Monoxide
DG	- Diesel Generator
DPR	- Detailed Project Report
DTET	- Directorate of Technical Education & Training
EHS	- Environment, Health & Safety
EMP	- Environmental Management Plan
ESMC	- Environment and Social management Cell
GoI	- Government of India
GoO	- Government of Odisha
GRC	- Grievance Redressal Committee
IT	- Information Technology
ITC	- Industrial Training Centre
ITES	- Information Technology Enabled Service
ITI	- Industrial Training Institute
LPG	- Liquid Petroleum Gas
MoEFCC	- Ministry of Environment, Forest and Climate Change
MoSDE	- Ministry of Skill Development and Entrepreneurship
MSME	- Micro Small and Medium Enterprises
NCVT	- National Council for Vocational Training
NOC	- No Objection Certificate
NOx	- Oxides of Nitrogen
OSDA	- Odisha Skill Development Authority
OSDP	- Odisha Skills Development Project
OSDS	- Odisha Skill Development Society
OSEM	- Odisha State Employment Mission
OSPCB	- Odisha State Pollution Control Board
RPL	- Recognition of Prior Learning
RSPM	- Respirable Suspended Particulate Matter
SDTED	- Skill Development and Technical Education Department
SDEC	-Skill Development and Employment Centre
SEIAA	- State Environment Impact Assessment Authority
SO_2	- Sulphur dioxide
SPCB	- State Pollution Control Board
SPM	- Suspended Particulate Matter
SPS	- Safeguard Policy Statement
STP	- Sewage Treatment Plant
ToT	- Training of Trainers

CONTENTS

List of Tables

List of Figures

List of Appendix

EXECUTIVE SUMMARY

1. **Background.** The Government of Odisha (GoO) has taken several initiatives to improve its skills development system and address skills shortages. It had set up a high-level Odisha State Employment Mission (OSEM) in 2005−2006 to specifically address the problems of youth unemployment and underemployment. It has established the Skill Development and Technical Education Department (SDTED)[1] to bring together Directorate of Technical Education and Training (DTET), OSEM, employment generation services, and labor regulation under one department. While the establishment of SDTED improved coordination among different agencies, it has not necessarily enhanced the operational efficiency of its sub-units. DTET is unable to meet industry demands due to poor infrastructure and outdated standards, assessment, and certification processes.

2. The existing training capacity and quality in the state is inadequate to meet the 12th five year plan target of training one million people. Recognizing weak institutional capacity for market-relevant training, the GoO has also established an autonomous implementation institution, the Odisha Skill Development Society (OSDS) in 2015, to implement market-responsive skills programs. This institutional arrangement aims to train one million people and provide greater access to quality training in tribal interior areas of Odisha. In May 2016, the GoO also established the Odisha Skill Development Authority (OSDA) headed by an eminent industry leader with the aim of bringing OSEM and OSDS under one umbrella to ensure effective formulation, implementation and monitoring of skill development programs in Odisha. The Odisha Skill Development Project (OSDP) will help the GoO to streamline this arrangement.

3. In Odisha, the Industrial Training Institutes (ITI) and Industrial Training Centers (ITC) have an estimated combined capacity of around 75,000 seats per year, far below to address the skill potential in the state. Hence, to assist in overcoming these challenges and to enhance the employability of the youth of Odisha and their productivity on employment, the Asian Development Bank (ADB) is supporting the GoO to foster the skill initiatives in the state. OSDP shall be a significant contributor to GoO's vision of skilling 1 million people, by skilling 20% of the State's targets, i.e. skilling of 2,00,000 persons in 5 years.

4. The OSDP has multi-pronged strategy focusing on (a) establishing and operationalizing 8 Advanced Skills Training Institutes[2] (ASTIs) in different locations in the State, which will also enhance the capacity of the 30 Government ITIs; (b) skill development in higher end manufacturing and services sectors for which the existing training capacity is inadequate and non-attractive due to high capital investment; (c) design of courses as per the market demand and industry standards; and (d) enhancement in skill delivery capacity of the state through training of trainers (ToT). The ASTI and the nearby ITIs will operate under the hub and spoke model wherein, each ASTI would act as a 'hub' while the nearby ITIs would be linked as 'spokes'. This shall contribute towards increased access and optimize the usage of existing training infrastructure. The 8 ASTIs (proposed at Bhubaneshwar including an extension center in Cuttack, Rourkela, Jharsugada, Berhampur, Bolangir, Jeypore, and at two locations yet to be finalized) would act as hubs to 30 Government ITIs one in each district of Odisha. OSDP would upgrade the spoke ITIs to enable them to play their role as spokes in the hub and spoke model. The OSDP will also include (i) ToT; (ii) expanding training reach through recognition of prior learning (RPL); (iii) establishment of career counselling centers; (vi) building capacities for effective project management; and (vii) quality assurance services.

5. **Project description:** OSDP will set-up eight new ASTIs by constructing buildings to house classrooms, laboratories, libraries, hostels, and other associated utilities. The first 6 ASTIs proposed under Model A will be established on government land and most of these will be within the premises of existing educational and training institutes. The permanent sites for ASTIs at Jharsuguda, Rourkela, Bhubaneshwar, Bolangir (Titilagarh), Jeypore, and Behrampur have been

[1] In 2012, Odisha established the Employment, Technical Education and Training Department, which was renamed as Skill Development and Technical Education Department (SDTED) in 2015

[2] The project will support two models: (i) Under Model A, Odisha Skill Development Authority (OSDA) (one of the key implementing agencies) will provide land, new buildings and equipment and will engage public or private operators for operations and maintenance of the 6 ASTIs; and (ii) under Model B, OSDA will provide equipment, but the public or private operators to be engaged for operations and maintenance of 2 of the ASTIs would have to provide land and building.

identified. An existing institute, Center for Finishing Skills and Entrepreneurship, has also been identified in Cuttack as an extension center of Bhubaneshwar ASTI. Since, it would take nearly 24 to 36 months for the construction of new ASTIs, it has been proposed that the operations of ASTIs would be initiated at temporary locations by utilizing the existing training institutes and colleges in those respective towns. In consultation with the officials of DTET and ITI principals, the locations at Bolangir, Jharsuguda, Rourkela, Bhubaneshwar, Ambaguda (for Jeypore ASTI) and Berhampur have been identified to initiate temporary operations of ASTIs. Once the new infrastructure is ready, the temporary operations will be discontinued.

6. Further, OSDP will upgrade 30 ITIs of the state government spread all over the state. At present all 30 ITIs are in operation. While the cost of civil works (for hostel and strengthening of existing structures if required), and the equipment will be borne by the GoO, OSDP will develop necessary training /skill enhancement programs for these ITIs.

7. Based on the field based due diligence, and the environmental investigations undertaken, the OSDP is classified as Environment Category B as per ADB's *Safeguard Policy Statement (SPS) 2009.* The detailed project report is under preparation due to which the layouts and designs of the ASTIs including the type of equipment/instrumentation to be installed are yet to be finalized. Therefore, the present initial environmental examination (IEE) report is considered to be a draft. The environmental implications will be reviewed again as and when the detailed project reports are ready and based on this assessment, the mitigation measures will be revised, if required and the draft IEE report will be updated/revised and finalized. The execution of civil works will not commence till the IEE report is finalized and approved by ADB. This draft IEE report captures the environmental implications associated with six ASTIs proposed for both, temporary and permanent operations; one ASTI extension center; and 30 ITIs. The draft IEE report also includes mitigation and monitoring measures to address environmental impacts as a result of the subprojects. The sites for permanent operations of two ASTIs under Model B (anywhere in Odisha)are yet to be finalized. Therefore, the environmental assessment for these activities will be carried out later. An environmental assessment and review framework (EARF) has been prepared separately in accordance with ADB's *Safeguard Policy Statement, 2009* for these sub-projects.

8. **Implementation arrangements.** The SDTED will be executing agency (EA) for the OSDP. The implementing agency (IA) will be Odisha Skill Development Authority (OSDA). A team of technical, administrative and financial officials, including safeguards specialists, will be provided at the SDTED under a Project Management Unit (PMU) to implement, manage and monitor project implementation activities. An Environment and Social Management Cell (ESMC) will be established within PMU for management of safeguards. The PMU will be assisted by a Project Management Consultant (PMC). The PIU will be staffed by qualified and experienced officers and responsible for the day to-day activities of sub-project implementation in the field, and will be under the direct administrative control of the PMU. The PMC will have individual consultants to ensure compliance to accounts, finance, gender, social and environmental safeguard requirements under the project.

9. **Description of the environment**. The baseline environmental status in and around the project sites has been defined based on secondary data available in public domain, site visits, discussion with various relevant government agencies and focused group discussions (FGDs). All proposed sites are within existing campus of educational and training institutes in inhabited areas, except the proposed site of Bolangir ASTI at Titilagarh. There are no national parks, sanctuaries, tiger reserves and bio-spheres within 10 Km radius of the study area, except that the proposed extension of ASTI Bhubaneshwar at Cuttack is within 10 Km (approx. 9.30 Km) from Nandankanan sanctuary buffer zone boundary. The Hon'ble High Court of Odissa had passed an order in 2002 restricting construction activities within a radius of one kilometer from the boundary of Nandankanan sanctuary. Further, the state is processing a proposal to define the eco-sensitive zone (ESZ) of 500 m width in Khordha district and 100 m in Cuttack district. Currently, the proposed extent of the ESZ under processing is 100 meter on all sides except swampy area on southern side where it extends up to 560 meter. The proposed location for ASTI extension center at Cuttack is an inhabited area and there will not be any new construction due to proposed activity under OSDP.

10. **Environmental management**. The construction of building for educational institutions has been exempted from obtaining prior environmental clearance under the provisions of the EIA Notification, 2006 subject to compliance with environmental conditions stipulated in the recent MoEFCC notification no, S.O. 3999 (E) of 9 December 2016 during pre-construction, construction, and operation stages as applicable. The anticipated environmental risks and impacts during pre-construction, construction and operation phase have been presented in Chapter-5 of the report. The environmental management plan (EMP) and the environmental monitoring plan including the respective budget during pre-construction, construction and operation stages have been presented in Chapter-8 of the report. The detailed building design will cover a separate collection, treatment and disposal of domestic, , laboratory, workshop, and medical waste generated from ASTI from permanent sites. The site specific EMP will be prepared later as and when the design and drawings are finalized by the civil works contractor and the IEE report shall be updated.

11. To ensure compliance with the EMP for the subprojects, the contractors shall prepare the diagrams of the facilitites, which depict the location of the stockpiles, chemicals and other construction materials within proposed ASTI sites. The proper placing and storage of materials are important to ensure that no hazard originates from the storage facility onto nearby water bodies and the neighboring community. In case of temporary operations of ASTIs, separate arrangements for collection, treatment and disposal of waste generated from different packages of the project will be provided.

12. **Public Consultation, information disclosure and grievance redress.** The stakeholder's consultations with respect to sub-projects have been undertaken. FGDs, in local language, have been carried out near proposed ASTI sites at Bhubaneshwar, Cuttack (extension of ASTI Bhubaneshwar), Jharsuguda, Rourkela, Titilaragh (for Bolangir ASTI), and Jeypore with local representatives and ITI beneficiaries. The FGDs covered the aspects on infrastructural facilities, areas of influence, aspiration, concerns, challenges and environmental impacts. The draft and final IEE reports (hard and soft copies) will be disclosed in local language by OSDA. The copies will also be maintained at the ASTI sites. In order to establish a documented and structured approach towards understanding community expectations and manage their concerns, a Grievance Redressal Mechanism (GRM) for the community will be constituted. The GRM outlines the process and steps to be taken and the time limit within which the issue would need to be resolved to the satisfaction of the complainant. The team of safeguards specialists with the site manager will endeavor to get all complaints recorded and addressed in a uniform and consistent manner. This grievance mechanism will respond to the concerns and grievances of local communities, NGOs, Panchayats and any other aggrieved party or stakeholder(s). OSDP will share information about these mechanisms to the stakeholders through locally appropriate communication tools.

13. **Monitoring and reporting.** The OSDA will be responsible for environmental monitoring. The PMC will submit monthly, quarterly, and semi-annual environmental monitoring reports to the ESMC. The ESMC will consolidate the semi-annual reports, and provide to OSDA and SDTED for onward submit to ADB. ADB will review and disclose the environmental monitoring reports on its website.

14. **Conclusions and recommendations.** All clearance(s) /NOC(s) /permission(s) /approval(s) as applicable for water withdrawal, power supply, layout plan of premises, removal of trees, etc. will be obtained before start of construction activities. An occupancy certificate before occupying constructed building will be required from respective municipal corporation /local development authority (as applicable). Under the Air and Water Acts, consent to establish (CTE) and consent to operate (CTO) will be required from the state pollution control board before commencing the construction and operations of the facilities. The proposed subprojects are unlikely to cause any significant adverse impacts. The potential impacts that are associated with design, construction and operation can be mitigated without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures. Based on the findings of the draft IEE, the environment category of OSDP as "B" is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be indertaken to comply with ADB SPS, 2009 or Government of India's EIA Notification, 2006.

1. INTRODUCTION

1.1. Project Background

1. With a total population of 42 million, Odisha's economy is shifting from agriculture to industry and services. However, Odisha's economic transformation has not generated equitable income growth for the state's population. Odisha has one of the highest poverty rates in India. More than half of the working population continues to be engaged in agriculture, while only 24% are employed in industry and another 25% in services. A mere 15% of households in Odisha report to have a regular salary earner[3]. The core problem in Odisha is the low employability of its young workforce in the formal sector due to low education and skill levels. Nearly 34% of Odisha's population is in the ages of 15-34, yet, 33% of this 15-34 age group have education just up to grade 8 and another 25% up to grade 10. Only about 7% have diploma or above certificate and very small proportion of the youth in Odisha have any formal vocational training (1.1% compared to 2.8% for India).

2. The Government of India (GoI) is emphasizing skilling the youth for quality jobs and higher wages in manufacturing and services sectors. However, states like Odisha, comprising a large tribal and disadvantaged population and a large young workforce with inadequate vocational training, face significant challenges in moving its workforce to more productive formal sectors from less productive agriculture and informal sectors. According to the 2012 skill-gap study commissioned by the National Skill Development Corporation for the State of Odisha, demand for semi-skilled and skilled workers will be increasingly high. It is estimated that the incremental demand-supply gap in its workforce for 2011-2026 will be around 4 million, mainly in healthcare, hospitality/tourism, information technology (IT) and IT enabled services, construction, transport/logistics, and food processing. Since Odisha is also a net exporter of workers to other parts of India and abroad, demand for skilled workers is likely to be even greater.

3. While Odisha aims to train one million people by the end of 12th five-year plan i.e. 2017, the existing training capacity and quality falls far short of meeting this target. The state has only been able to train about 330,000 in the last two years and now aims to train 800,000 by 2019. The current skills development system of Odisha faces many constraints: (i) the system is fragmented with weak institutional coordination; (ii) access to training institutions is not geographically even and their capacity is insufficient to meet the 12th plan target; (iii) quality and relevance of training is weak due to outdated curriculum, inadequate equipment, and lack of industry experienced trainers, especially in ITIs; (iv) training programs are not closely linked to employers or labor market demand; (v) there is a lack of reliable labor market information system; (vi) a robust quality assurance system is lacking to benchmark training institutions to international standards; (vii) lack of mentor institutions makes it difficult for exiting ITIs to transform into more effective institutions; and (viii) lack of viable training models for higher-cost capital intensive manufacturing hampers the development of more advanced training programs.

4. The GoO has taken several initiatives to improve its skills development system and address skills shortages. It had set up a high-level Odisha State Employment Mission (OSEM) in 2005−2006, chaired by the Chief Minister, to specifically address the problems of youth unemployment and underemployment. It has established the Skill Development and Technical Education Department (SDTED)[4] to bring together Directorate of Technical Education and Training (DTET), and labor regulation under one department. While the establishment of SDTED improved coordination among different agencies, it has not necessarily enhanced the operational efficiency of its sub-units. DTET is unable to meet industry demands due to poor infrastructure and outdated standards, assessment, and certification processes.

[3] National Sample Survey, 2011-12

[4] In 2012, Odisha established the Employment, Technical Education and Training Department, which was renamed as Skill Development and Technical Education Department (SDTED) in 2015

5. Recognizing weak institutional capacity for market-relevant training, the GoO established an autonomous implementation institution, the Odisha Skill Development Society (OSDS) in 2015, to implement market-responsive skills programs. This institutional arrangement aims to train one million people and provide greater access to quality training in tribal interior areas of Odisha. In May 2016, the GoO also established the Odisha Skill Development Authority (OSDA) headed by an eminent industry leader with the aim of bringing OSEM and OSDS under one umbrella to ensure effective formulation, implementation and monitoring of skill development programs in Odisha. OSDP will help the government to streamline this arrangement.

6. The proposed project will support the GoO to improve the employability, productivity, and income of its working-age population by enhancing the capacity to supply high-quality, market-responsive skills training in line with the state's development strategies in priority sectors, such as manufacturing, construction, and services. The project design incorporates emerging national and international good practices. The impactof OSDP will be increased employability and productivity of Odisha's working age population. The outcome will be increased skills and employment in priority sectors for males and females. The OSDP includes the following features:

(i) **Hub-and-spoke model.** The project will establish a network of 8 Advanced Skills Training Institutions (ASTIs) as hubs which will mentor 30 government ITIs as spokes to train around 195,000 people, which will include around 120,000 by the ASTIs, 50,000 by the ITIs, and 25,000 through RPL in pedagogy, technology use, industry linkages, employment assistance, training of trainers, recognition of prior learning (RPL), apprenticeships, etc. For 6 ASTIs, the OSDA will provide land, new buildings and equipment, and engage public and/or private training providers for operations and maintenance of the ASTIs. For the other 2 ASTIs, the OSDA will provide equipment, while the public and/or private training providers will provide land and buildings to optimize the use of existing facilities. The construction of new buildings and lab equipment for 6 ASTIs will be through ADB funds, and the construction of hostels, workshops, and lab equipment for 30 ITIs will be through GoO funds. The hub-and-spoke model will leverage project resources to optimize and complement other government training programs to meet their training targets. Each hub-and-spoke would focus on priority sector and trades aligned with labor market demands in Odisha, other parts of India, and overseas. The strategic spread of the hubs in 8 different locations of Odisha will also provide more equitable access to quality training. The OSDP also aims at creation of a pool of around 250 master trainers and establishment of a mechanism for training around 20,000 trainers including around 1,000 assessors.

(ii) **Private sector engagement.** OSDA will engage experienced private training institutions to operate and maintain the new ASTIs in partnership with international partners. This arrangement will support the "Make in India" and "Skill India" campaign, which requires establishing viable training models by incentivizing private operators to scale up skills training for job opportunities in manufacturing and services within Odisha, other parts of India, and overseas. OSDA will also establish an industrial advisory group for each priority sector to facilitate on-the-job training, up-skilling of existing workers, linkages with employers and mobilize resources from corporate social responsibility to ensure sustainability.

(iii) **Convergence with national policies and priorities.** The OSDP is aligned with the National Policy for Skill Development and Entrepreneurship 2015, which was approved by the Ministry of Skill Development and Entrepreneurship (MSDE) in July 2015. This alignment ensures that training courses comply with the requirements of the National Skill Qualification Framework. It also ensures that a robust quality assurance system is in place by applying emerging standards set by the sector skills councils and National Skill Development Agency, enhancing the capacity to train the trainers and assessors, benchmarking ASTIs and ITIs, and institutionalizing a credible assessment and certification system.

7. The OSDP will set-up eight new ASTIs[5] at Bhubaneshwar, Rourkela, Jharsugada, Behrampur, Bolangir, and Jeypore (under Model A); and the locations (towns) for the remaining two ASTIs (under Model B) by constructing buildings to house classrooms, laboratories, libraries, hostels, and other associated utilities. The ASTIs proposed under Model A will be established on government land and most of these will be within the premises of existing educational and training institutes. The sites for all six ASTIs under Model A have been identified. Further, an existing Cuttack based institute, Center for Finishing Skills and Entrepreneurship, has also been identified as an extension center of Bhubaneshwar ASTI. The construction of new buildings and lab equipment for 6 ASTIs will be through ADB funds. While the cost of civil works (for hostel and strengthening of existing structures as required), and the equipment for these 30 ITIs will be borne by the GoO, ADB will develop necessary training and skill enhancement programs for these ITIs. The details of eight ASTIs with their spoke ITIs forming eight ASTI clusters are given in **table 1**.

Table 1: List of ASTIs and ITIs

S. No.	Hub (ASTIs)	Spokes (existing ITIs) (30 districts with 1 ITI per district)
1.	ASTI, Bhubaneshwar (location of site is known)	1. ITI Cuttack 2. ITI Bhubaneshwar 3. ITI Puri 4. ITI(SIPT) Patamundi 5. ITI Nayagarh (Existing ITI) 6. ITI Jagatisinghpur (at Paradeep commencing during 2016-17)
2.	ASTI, Berhampur (location of site is known)	7. ITI Berhampur 8. ITI Phulbani 9. ITI Chandragiri
3.	ASTI, Rourkela (location of site is known)	10. ITI Rourkela 11. ITI Barkote
4.	ASTI, Jharsuguda (location of site is known)	12. ITI Hirakud 13. ITI Bargarh 14. ITI, Jharsuguda
5.	ASTI, Bolangir (site is located at Titilagarh - approx 80 Km from Bolangir)	15. ITI Sonpur 16. ITI Khariar Road, Naupada 17. ITI Balangir 1
6.	ASTI, Jeypore (location of site is known)	18. ITI Bhawanipatna 19. ITI Raygada 20. ITI Malkangiri 21. ITI Umarkot 22. GITI Ambaguda
7.	ASTI (town and location of site is yet to be finalized)	23. ITI Balasore 24. ITI Takhatpur 25. ITI Bhadrak (Bhadrak DHQ commencing during 2016-17) 26. ITI Jajpur
8.	ASTI (town and location of site is yet to be finalized)	27. ITI Talcher 28. ITI Dhenkanal 29. ITI Barbil 30. ITI Boudh

8. The target being setup for the skilling/upskilling through this OSDP project in next 5 years is 2,00,000 out of which the 8 ASTIs will be training 1,20,000 candidates and the ITIs or the 'spokes' will be training 80,000 candidates. In addition to above, it is estimated that OSDP would extend training to professionally develop 250 master trainers and 20,000 trainers including 1000 assessors. The key stakeholders of the project include GoO authorities including various state

[5] The project will support two models: (i) Under Model A, Odisha Skill Development Authority (OSDA) (one of the key implementing agencies) will provide land, new buildings and equipment and will engage public or private operators for operations and maintenance of the six ASTIs; and (ii) under Model B, OSDA will provide equipment, but the public or private operators to be engaged for operations and maintenance of remaining two of the ASTIs would have to provide land and building.

departments, ITIs, polytechnics and engineering colleges, private sector, sector skill councils, industry, trainees etc.

9. SDTED will be the executing agency and OSDA will be the implementing agency. The executing and implementing agencies will hire project management consultant (PMC), contractors, and operators, and other expert agencies for various activities to be carried out during design, pre-construction, construction and operation phases.

1.2. ADB Safeguard Policies and Environment Category of the Project

10. The Asian Development Bank has defined its Safeguard requirements under its *Safeguard Policy Statement 2009* (SPS 2009). The SPS 2009 requires environmental assessment, mitigation and commitment towards environmental protection. The prime objectives of these safeguard policies are to (i) avoid adverse impacts of projects on the environment and affected people, where possible; and (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible. ADB as per SPS 2009 classifies a project into Environment Category[6] A, B or C depending on potential adverse environmental impacts.

11. Based on the field based due diligence, and the environmental investigations undertaken, the OSDP is classified as Environment Category B as per ADB's Safeguard Policy Statement (SPS) 2009. The detailed project report is under preparation due to which the layouts and designs of the ASTIs including the type of equipment/instrumentation to be installed are yet to be finalized. Therefore, the present initial environmental examination (IEE) report is considered to be a draft. The execution of civil works will not commence till the IEE report is finalized and approved by ADB. The environmental implications will be reviewed again as and when the detailed project reports are ready and based on this assessment, the mitigation measures will be revised, if required and the draft IEE report will be updated/revised and finalized. This draft IEE report captures the environmental implications associated with six ASTIs proposed for both, temporary and permanent operations; one ASTI extension center; and 30 ITIs. The draft IEE report also includes mitigation and monitoring measures to address environmental impacts as a result of the subprojects. The sites for permanent operation of two ASTIs under Model B (location anywhere in Odisha) are yet to be finalized. Therefore, the environmental assessment for these activities will be carried out later. An environmental assessment and review framework (EARF) has been prepared separately in accordance with ADB's SPS, 2009 for these sub-projects. The Rapid Environmental Impact Assessment (REA) checklist is given in **Appendix 1**.

[6] **Category A**. A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.
Category B. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.
Category C. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

2. LEGAL FRAMEWORK & LEGISLATIVE REQUIREMENTS

12. The legal framework and legislative requirements[7] are covered in this chapter. The Ministry of Environment, Forest and Climate Change (MoEFCC), Govt. of India (GoI) has the overall responsibility to set policy and standards for environment, flora & fauna protection along with the Central Pollution Control Board. This includes setting of air, noise, and water quality standards, and the requirements for environment clearance, forest clearance and others for projects where applicable. The implementation of this project will be governed by the national, state and local level relevant acts, rules, regulations, and standards. The executing and implementing agencies will ensure that full compliance with statutory environmental requirements at the national, state, municipal, and local levels by the facility owners and the contractors in all stages of the project implementation including design, construction, operation and maintenance. Some of the major laws and acts that will be applicable during construction and operation phases are detailed below:

The Environment (Protection) Act, 1986 and the Environmental Impact Assessment Notification, September 2006 and amendments thereof

13. The Environment (Protection) Act was enacted for the nationwide protection and improvement of environment which includes water, air and land and their interaction with human beings and other ecosystem. The Central Government may make rules in respect of quality of air, water or soil for various areas and purposes if it deems necessary. It can also specify maximum allowable limits of concentration of various environmental pollutants.

14. According to Environmental Impact Assessment (EIA) Notification, 2006 and amended thereof, developmental projects are classified as category A and Category B (Category B is further subdivided into B1 and B2 categories) based on their size, nature, location and possible environmental impacts. The Environmental Impact Assessment Authority (EIAA) will issue Environmental Clearance based on recommendations of the Expert Appraisal Committee (EAC) constituted at MoEFCC, Government of India (GoI) for Category A projects. All the projects included in Category B1 shall require prior Environmental Clearance from State/Union territory Environment Impact Assessment Authority (SEIAA), based on recommendations of a State level Expert Advisory Committee (SEAC). The list of projects or activities requiring environmental clearance and their categorization is given in schedule of this notification. According to this notification, all building/construction/infrastructure projects and townships are classified as Category B irrespective of their size, nature, location and possible environmental impacts.

15. As per MoEFCC notification (**Appendix 2**) dated 09 December 2016, the school, college, hostel for educational institution shall not require any environmental clearance and shall ensure sustainable environmental management, and implement environmental conditions stipulated in Appendix XIV of the above notification.The consent to establishment and consent to operate before commencing the construction and operation shall be obtained from Odisha State Pollution Control Board (OSPCB) as applicable.

16. The salient provisions under The Environment (Protection) Act, 1986 include but not limited to the following:

- Restrict or prohibit industries, operations or processes in specified areas;
- Undertake environmental impact assessment for certain categories of industries to inform the decision making in approval of new or expansion projects;
- Restrict or prohibit handling of hazardous substances in specified areas;
- Protect and improve the quality of the environment and prevention, control and abatement of environmental pollution;
- Lay down standards for the quality of the environment, emissions or discharges of environmental pollutants from various sources;

[7] SPS 2009 mandates all ADB-financed activities to be compliant with the host country environmental regulatory framework/regulations

- Lay down procedures and safeguards for the prevention of accidents, which may cause environmental pollution;
- Bar on filling of any suit or legal proceedings against the Government or officials empowered by it for action taken in good faith, in pursuance of the Act; and
- Bar of jurisdiction to Civil Court to entertain any suit or proceedings in respect of anything done, action taken or directions issued by the Central Government or any other authority empowered by it, in pursuance of the Act.

The Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof

17. The Water (Prevention and Control of Pollution) Act, 1974 resulted in the establishment of the Central and State level Pollution Control Boards (CPCB and SPCB) whose responsibilities include managing water quality and effluent standards (**Appendix 3**[8]), as well as monitoring water quality, prosecuting offenders and issuing licenses for construction and operation of developmental projects requiring water as a resource. It is to be noted that OSPCB is considering reducing the BOD_3 and COD levels in treated sewage to 10 mg/l and 50 mg/l respectively to make it more eco-friendly for using in flushing, gardening and horticulture purposes. Under the Water Act, Consent to Establish (CTE) or No Objection Certificate (NOC) is required for setting up a new project or for expansion of the existing facility prior to starting the project activity. Consent to Operate (CTO) is required before commencing the project.

The Water (Prevention and Control of Pollution) Cess Act, 1977 and amendments thereof

18. This Act provides for levy and collection of Cess on water consumed and water pollution caused. It also covers specifications on furnishing of returns, assessment of Cess, interest payable for delay in payment of Cess and penalties for non-payment of Cess within the specified time.

The Air (Prevention and Control of Pollution) Act, 1981 and amendments thereof

19. Under the Air Act, Consent to Establish (CTE) or No Objection Certificate (NOC) is required for setting up a new project or for expansion of the existing facility prior to starting the project activity. Consent to Establishment (CTE) and Consent to Operate (CTO) is required before commencing the construction and operations of the proposed project respectively. The Air (Prevention and Control of Pollution) Act, 1981, empowers the SPCBs to enforce ambient air quality standards set by the CPCB enclosed as **Appendix 4**[9].

Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof

20. Under the new regulation, different areas and zones are to be identified as industrial, commercial, residential and silence areas and anyone exceeding the specified noise level (**Appendix 5**[10]) would be liable for action.

Municipal Solid Wastes (Management and Handling) Rules 2016 and amendments thereof

21. These rules were implemented to ensure proper collection, reception, treatment, storage and disposal of municipal solid wastes generated at the site.

The Batteries (Management and Handling) Rule, 2001 and amendments thereof[11]

22. These rules apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof. It lays down the responsibilities of a consumer or bulk consumer in terms of disposing off the used batteries and filing a half-yearly return to the state board.

The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016

23. The rule states the requirement for handling and managing wastes categories as hazardous under the schedule. It lays down requirement for:

8 www.envfor.nic.in/ www.ospcboard.org
9 www.envfor.nic.in/www.ospcboard.org
10 www.envfor.nic.in/ www.ospcboard.org
11 Rules are under revision

- Authorization for collection, reception, storage, transportation and disposal of hazardous wastes;
- Filing of annual return under the rules;
- Authorization by SPCBs/CPCB to vendors accepting waste/used oil;
- Liability of the occupier, transporter and operator of a facility. The occupier, transporter and operator of a facility shall be liable for damages caused to the environment resulting due to improper handling and disposal of hazardous waste listed in schedules to the Rules.

The e-waste (Management and Handling) Rule, 2016 and amendments thereof

24. These rules apply to every producer, consumer or bulk consumer involved in manufacture, sale, and purchase and processing of electrical and electronic equipment or components as specified under these rules. The consumer or bulk consumers of such equipment will have to ensure that e-waste generated is disposed through authorized channels. They also have to maintain the record of e-waste generated in the prescribed format.

The Plastic (Management and Handling) Rule, 2016 and amendments thereof

25. These rules apply for restricting the manufacture and use of plastic carry bags and for setting up of plastic waste management system by the municipal authorities.

Forests (Conservation) Act, 1980 and Rules 1981 and amendments thereof

26. The act and rules regulate the diversion of forest land for non-forest purposes. According to Section 2 of the Act “prior approval of the Central Government is required for diversion of forestland to use for any non -forest purpose; assign any forest land to any private person or entity not controlled by the Government; clear any forest land of naturally grown trees for the purpose of using it for reforestation etc.

The Wildlife (Protection) Act, 1972 and amendments thereof

27. The Act provides for protection to listed species of flora and fauna and establishes a network of ecologically important protected areas.

- It empowers the Central and State Governments to declare any area to be a Wildlife Sanctuary, National Park or a closed area.
- There is a blanket ban on carrying out any industrial process or activity inside any of these protected areas.
- In case forestland within the protected areas network is to be diverted for any non-wildlife use, a no objection has to be obtained from the Indian Board of Wildlife and the State Legislature, before the final consideration by MoEFCC.
- The schedules categorize animals, birds, and plants. Schedule I lists endangered species of mammals, reptiles, amphibians, birds, crustaceans and insects. Any possession, transportation etc. of these species without prior permission is offence under the Act.

Wetlands (Conservation and Management) Rules, 2010 and amendments thereof

28. These rules apply for defining the wetlands to be protected and restriction on activities to be performed within wetlands with or without permission of Central and State Wetland Authority.

Coastal Regulation Zone (CRZ) Notification, 2011 and amendments thereof

29. This notification notifies the coastal stretches as coastal regulation zone and imposing restriction on industries, operations or processes and manufacture or handling or storage or disposal of hazardous substances in the CRZ with or without permission of Central and State Coastal Management Authority.

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 & Rules 2007 and amendments thereof

30. The Act stipulates conditions for diversion of forest land for activities such as skill upgradation, vocational training center.

The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 & Rules 1998 and amendments thereof

31. These apply to every establishment which employs or had employed on any day of the preceding twelve months, ten or more building workers in any building or other construction work. These take care of issues related to building workers such as hours of work, welfare measures and other, safety and health etc.

The Child Labour (Prohibition and Regulation) Act 1986

32. A child is defined as a person who has not completed 14years of age. The Act prohibits employment of children in certain occupation and processes (part II, Section 3). The Act also specifies conditions of work for children, if permitted to work. These include a working day of maximum of 6 hours a day (including rest), no work period exceeding 3 hours at a stretch, and no overtime (Section 7). The Act requires maintenance of a register for employed children (Section 11). The Constitution of India (Part III, Article 24 - Fundamental Rights) describes that no child below the age of fourteen years shall be employed to work in any factory or engaged in any other hazardous employment.

The Bonded Labour (Abolition) Act 1976

33. The act states that all forms of bonded labour stands abolished and every bonded labourer stands freed and discharged from any obligations to render any bonded labour.

The Trade Union Act 1926

34. Provides procedures for formation and registration of Trade Unions and lists their rights and liabilities. It encompasses any combination, permanent or temporary, that gets formed to regulate relationship between workmen and their employers.

Minimum Wages Act 1948

35. Minimum Wages Act, 1948 requires the Government to fix minimum rates of wages and reviews this at an interval of not more than 5 years. As per, The Payment of Wages Act, 1936, amended in 2005, every employer shall be responsible for the payment to persons employed by him of all wages required to be paid under this Act. As per the Equal Remuneration Act 1976, it is the duty of an employer to pay equal remuneration to men and women workers for same work or work of a similar nature.

Workmen's Compensation Act 1923

36. The Act requires that, if personal injury is caused to a workman by accident arising out of and in the course of his employment, his employer shall be liable to pay compensation in accordance with the provisions of this Act.

Maternity Benefit Act, 1961

37. The act states that no employer shall knowingly employ a woman in any establishment during the six weeks immediately following the day of her delivery or her miscarriage. No pregnant woman shall, on a request being made by her in this behalf, be required by her employer to do during the period any work which is of an arduous nature or which involves long hours of standing, or which in any way is likely to interfere with her pregnancy or the normal development of the foetus, or is likely to cause her miscarriage or otherwise to adversely affect her health.

2.1. Applicability of legal framework

38. The legal framework with respect to environmental issues, relevant legislation, its applicability, enforcement agency and responsibility lies to have been listed in **table 2.**

Table 2: The Legal Framework

Issues	Relevant Legislation	Applicability	Enforcement Agency	Responsibility
Environmental Clearance	EIA notification, 14 September, 2006 and amendments thereof.	As per MoEFCC notification (**Appendix 2**) dated 09 December 2016, the schools, colleges, hostels for educational institutions shall not require any environmental clearance, and shall ensure sustainable environmental management, and implement environmental conditions stipulated in Appendix XIV of the above notification.	OSPCB /MoEFCC / Local Urban Bodies and the Development Authorities	Contractor and Implementing agency as applicable
Water	The Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof	• Applicable • Consent to establishment and consent to operate before commencing construction and operation. • Annual return on water usages. • DG sets and fuel burning machinery's stack height and emission limit as per the norms notified under this act and CPCB guidelines.	OSPCB	Contractor and Implementing agency as applicable
	The Water (Prevention and Control of Pollution) Cess Act, 1977 and amendments thereof			
Ambient Air	The Air (Prevention and Control of Pollution) Act, 1981 and amendments thereof			
Noise	The Environment (Protection) Second Amendment Rules, 2002 (Noise Limits for New Generator Sets) The Noise Pollution (Regulation and Control) Rules, 2000 and amendments thereof	• Applicable • Noise limit standards for DG sets and ambient noise level as prescribed under these act and rules.		Contractor and Implementing agency as applicable
Hazardous Substances & Wastes	The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	• Applicable • Authorization for hazardous waste handling from the OSPCB; • Disposal of hazardous waste via authorized vendors by OSPCB	OSPCB	Contractor and Implementing agency as applicable
Batteries waste	The Batteries (Management and Handling) Rule, 2001 and amendments thereof	• Applicable • Disposal of battery waste via authorized vendors by OSPCB	OSPCB	Contractor and Implementing agency as applicable
e-waste	The e-waste (Management and Handling) Rule, 2016 and amendments thereof	• Applicable • Disposal of e-waste via authorized vendors by OSPCB	OSPCB	Contractor and Implementing agency as applicable
Groundwater	Guidelines for ground	• Applicable	Odisha State Water	Contractor and

Issues	Relevant Legislation	Applicability	Enforcement Agency	Responsibility
withdrawal	water extraction prescribed by the Central Ground Water Authority (CGWA) , 2012	• Permission from the State Water Resource Department for extracting ground water in accordance with the conditions stipulated in the CGWA guidelines. • Similarly permission will be required, if the source of water is going to be municipal or river, from the municipality or irrigation department respectively	Resource Department;	Implementing agency as applicable
Labour	• Building and Other Construction Workers Act, 1996 and amendments thereof; • The Child Labour (Prohibition and Regulation) Act, 1986 and amendments thereof; • Minimum Wages Act, 1948 and amendments thereof; • Workmen's Compensation Act, 1923 and amendments thereof; The other labour related legislations applicable for the Project include the following: • Equal remuneration Act, 1976 and amendments thereof • The employees state insurance act, 1948 • The E.P.F. and Miscellaneous Provisions act, 1952 and amendments thereof • Payment of Bonus Act, 1965 and amendments thereof • Payment of Gratuity Act, 1972 and amendments thereof • Public Provident Fund Act, 1968 and	• Applicable • Obtain "certificate of registration" in case ten or more building workers or other construction worker will be employed and ensure issues related to building workers such as hours of work, welfare measures and other, safety and health etc. • Ensure that no child labour is engaged at site for construction or operation works either directly or by the subcontractors • Ensure payment of minimum wages as fixed by the government • In case of any personal injury caused to workman during construction or operational phase, ensure the payment of compensation in accordance with the provisions of act • Ensure appropriate insurance cover is taken to cover un-skilled, semi-skilled and skilled laborers. • Ensure implementation of all labour related acts/rules.	District Labour Commissioner	Contractor and Implementing agency as applicable

Issues	Relevant Legislation	Applicability	Enforcement Agency	Responsibility
	amendments thereof • The maternity benefit Act, 1961 and amendments thereof • The personal injuries (compensation insurance) act, 1963 and amendments thereof • The personal injuries (emergency) Provisions Act, 1962 and amendments thereof • ESI (Employees State Insurance) Act, 1948 and amendments thereof • The Contract Labour (Regulation & Abolition) Act, 1970 and Rules and amendments thereof • The inter-state migrant workmen (Regulation of employment and conditions of service) Act, 1979 and amendments thereof • Employer's Liability Act, 1938 and amendments thereof • The Bonded Labour (Abolition) Act, 1976			
Layout design, Occupancy certificate	• National Building Code -2005 and amendments thereof; • Relevant district/city development authority and municipal corporation regulations	• Wherever applicable • This code and its various provisions including, but not limited to, landscaping, fire safety plan, structural design etc. will be followed during design and planning. • Development Authority (ies) has delegated the power for approval of layout plan and issuing occupancy certificate to the Municipal Corporation in case the land is coming under Municipal	• Respective Development Authority; • Respective Municipal Corporation; • Respective Chief Fire Officer; • Civil Aviation Authority;	Contractor and Implementing agency as applicable

Issues	Relevant Legislation	Applicability	Enforcement Agency	Responsibility
		Corporation otherwise approval shall be granted by respective Development Authority • Approval of layout plan before commencing construction and Occupancy certificate before occupying constructed building will be required from respective municipal corporation/local development authority (as applicable). • Fire approval will be obtained at the time of issuing of occupancy certificate. • The height restrictions with respect to approach Funnels and Transitional area of Airport as detailed in **Appendix 6** will be adhered to Project will comply with all the prescribed standards as per development authority's rules and regulation.		
Usages of designated forest land	• Forest Act 1980 and Rules 1981 and amendments thereof • The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 & Rules 2007 and amendments thereof	Not applicable	MoEFCC, and State Forest Department	Contractor and Implementing agency as applicable
Presence of wild life sanctuary within an area of 10 Km radius around the project site	Wild life (protection) Act 1972 and amendments thereof	Applicable[12]	National Wild Life Board	Contractor and Implementing agency as applicable
Presence of wetlands	Wetlands (Conservation and Management) Rules, 2010 and amendments thereof	Not applicable[13]	State Wetland Authority	Contractor and Implementing agency as applicable
Clearance for CRZ	Coastal Regulation Zone (CRZ) Notification, 2011 and amendments thereof	Not applicable[14]	State Coastal Management Authority	Contractor and Implementing agency as applicable
Removal of trees	Relevant district/city development authority and municipal corporation	• Applicable • Permission for removing of tree(s) will be taken from District Forest Officer (DFO) of the City	City Forest Division	Contractor and Implementing agency as applicable

[12] ESZ notification under processing. To be reconfirmed prior to commencing with works.
[13] To be reconfirmed once site layouts finalized.
[14] To be reconfirmed once site layouts finalized.

Issues	Relevant Legislation	Applicability	Enforcement Agency	Responsibility
	regulations	Forest Division, as regulatory agency • As a mandatory requirement, plantation will be carried out as stipulated in approval/ NOC for removal of tree(s) • As per OM dated 9 June 2015 by MoEFCC, ratio of plantation defined is 1:3 of trees removed. • The ratio of plantation may be more stringent as defined by local DFO.		
Natural Disaster	• National Disaster Management Act, 2005, and amendments thereof; • Odisha State Disaster Management Policy; • Odisha State Disaster Management Plan	• Applicable Measures, as outlined in the State Disaster Management Plan, will be adopted for prevention and mitigation of disasters	Odisha State Disaster Management Authority	Contractor and Implementing agency as applicable
Vehicular Movement	Motor Vehicles Act, 1988 and Rules, 1989 and amendments thereof	• Applicable • Project will follow up Central Motor Vehicle (CMV) rules for transportation of diesel or any other hazardous substance	Local Transportation Authority	Contractor and Implementing agency as applicable

3. DESCRIPTION OF THE PROJECT

3.1 Scope of OSDP

39. The scope of sub-projects under OSDP includes (i) setting up of 8 ASTIs; (ii) support to existing 30 ITIs; (iii) training of trainers (ToT); (iv) expand training reach through recognition of prior learning (RPL); (v) establishment of career counselling centers;; (vi) building capacities for effective project management; and (vii) quality assurance services. OSDP will set-up eight new ASTIs[15]. Out of these 8 ASTIs, the locations for 6 ASTIs have been finalizedat Bhubaneshwar, Rourkela, Jharsugada, Behrampur, Bolangir (Titilagarh), and Jeypore. These will be constructed under Model A. The towns and locationsof the remaining two ASTIs (to be constructed under Model B) are yet to be finalized, The civil works mainly involve constructing buildings to house classrooms, laboratories, libraries, hostels, and other associated utilities. The ASTIs proposed under Model A will be established on government land and most of these are within the premises of existing educational and training institutes. At present the sites for ASTIs at Jharsuguda, Rourkela, Bhubaneshwar, Bolangir (Titilagarh), Jypore, and Berhampur have been identified. An existing institute, Center for Finishing Skills and Entrepreneurship, has also been identified in Cuttack as an extension center of Bhubaneshwar ASTI. Since, it would take nearly 30 to 36 months for the construction of new ASTIs, it has been proposed that the operations of the ASTIs would be initiated at temporary locations by utilizing the existing training institutes and colleges in those respective towns with minor, bare minimum modifications. In consultation with the officials of DTET and ITI principals, the institutes at Bolangir, Berhampur, Jharsuguda, Rourkela, Bhubaneshwar, and Ambaguda (for Jeypore ASTI) have been identified to initiate temporary operations of ASTIs. Once the new infrastructure is ready, the temporary operations will be discontinued.

40. Further, the OSDP will upgrade 30 existing and operating ITIs of the state government spread all over the state.. While the cost of civil works (for hostels and strengthening of existing structures if required), and the equipment will be borne by the state government, the OSDP will develop necessary training /skill enhancement programs to these ITIs.

3.2 Details for ASTIs

41. **Temporary sites for ASTIs:** Since it would take nearly 30 to 36 months for the construction of new ASTIs, it has been agreed that the operations of ASTIs would be initiated at temporary locations. In consultation with the officials of DTET and ITI principals, the ITIs have been identified to initiate the temporary operations of ASTI, given in **table 3**. A copy of GoO notification for use of ITIs as temporary ASTIs is given in **Appendix 7**. Currently the design details are not finalized. The environmental implications will be reviewed again as and when the detailed designs are finalized, and based on the assessment, additional environmental mitigation measures, if any, will be planned for these sites. Also, in case the temporary locations are changed later, the environmental implications shall be reviewed and environmental management plans (EMP) shall be revised. The proposed environmental management and environmental monitoring plans will also be modified to reflect these additional mitigation requirements as required.

Table 3: Temporary ASTI sites

S.N.	ASTI	Site for Temporary Location	Current Status	Action Requested
1.	Jharsuguda	Skill Development and Employment Centre (SDEC) Building and ground floor of ITI New Workshop Building, Jharsuguda Engineering School campus, Jharsuguda	SDEC - Ground floor is built and ready for occupancy. Also the new workshop-Ground floor available	Usage rights / permissible possession to be earmarked for OSDP
2.	Rourkela	Premises of the ITI Rourkela –SDEC	SDEC building-	Usage rights /

[15] The project will support two models: (i) Under Model A, Odisha Skill Development Authority (OSDA) (one of the key implementing agencies) will provide land, new buildings and equipment and will engage public or private operators for operations and maintenance of the 6 ASTIs; and (ii) under Model B, OSDA will provide equipment, but the public or private operators to be engaged for operations and maintenance of 2 remaing ASTIs would have to provide land and buildings.

S.N.	ASTI	Site for Temporary Location	Current Status	Action Requested
		building, and Ground floor of ITI Workshop building	Ground floor is built and ready for occupancy, New Work shop-Ground floor available	permissible possession to be earmarked for OSDP for SDEC building
3	Bhubaneshwar	a) ITI, Bhubaneshwar at Gandamunda, Bhubneshwar (Biju Patnayak University of Technology (BPUT) Camp office and Odisha Joint Entrance Examination (OJEE), Gandamunda. b) Centre for Finishing Skills and entrepreneurship, Cuttack as extension Centre of ASTI, Bhubneshwar	The Ground floor of ITI building (BPUT camp office) to be vacated and handed over to Principal Government of ITI, Bhubneshwar	Process of vacating and handing over the ground floor key of BPUT camp office to ITI Principal Bhubaneshwar.
4	Bolangir/ Titlagarh	SDEC building and ground floor of ITI Workshop building at Gandhamardan ITI, Bolangir	The SDEC building at Govt. ITI (ITI-1) The New workshop building at Gandhamardan ITI (ITI-2) is ready,	Usage rights / permissible possession to be earmarked for OSDP
5	Berhampur	Ground floor of ITI workshop building at ITI, Berhampur	Workshop building - not in use	Usage rights / permissible possession to be earmarked for OSDP
6	Jypore	SDEC building and ground floor of ITI workshop building at Gopabandhu, ITI, Ambaguda	New Workshop-Ground floor and SDEC building	Usage rights / permissible possession to be earmarked for OSDP

42. The details of permanent ASTIs at Jharsuguda, Rourkela, Bhubaneshwar, Bolangir (Titilagarh), Jypore, and Berhampur for which the sites have been identified, are given in **table 4** below.

Table 4: Permanent sites for ASTIs

S.N.	Location of ASTI	Land allocated (area)	Independent land or within premises of existing facility
1	Jharsuguda	~ 27,275.8 sq.m (6.74 acres)	The proposed land is located about 750 m from Jharsuguda Engineering School (JES) campus in an easterly direction. The proposed ASTI site's latitude is $21^0$51''33" N and longitude is $84^0$2''53"E and is shown on google map (**Appendix 8**). The proposed land has 20 small, medium and big trees. The land is more or less plain having contours ranging from 96.1 m to 99.9 m RL. Electric lines are running across the allotted land. A statue of Sai Baba and chabutra of Lord Shiva has been observed at one corner within the designated boundary. The engineering school is currently meeting its water requirement from groundwater. The wastewater from the engineering school is being discharged into soak-pits within the JES premises. The municipal solid waste generated from JES is being collected by the municipality on a regular basis. The proposed site can be accessed via NH-200 (Kolabira road). The capital of Odisha, Bhubaneswar, is about 335 Km and the Jharsuguda railway station is about 5 Km from the proposed site.
2	Rourkela	~ 15,378.1 sq.m (3.80 acres)	The proposed land, currently being used as a driving track, is situated near Cino club within ITI campus. The proposed ASTI site's latitude - 22°14'2.48"N and longitude - 84°48'59.50"E and is shown on google map (**Appendix 8**). It is a plain land. The tree (1 no.) observed at site could be saved as it is at one of the corners.
3	Bhubaneshwar	14,164 Sq.m (3.50 Acres)	The vacant land is situated in the campus of BPUT camp office and OJEE office, Gandamunda. The proposed ASTI site's latitude is

S.N.	Location of ASTI	Land allocated (area)	Independent land or within premises of existing facility
			20°14'44.12"N and longitude is 85°48'26.28"E and is shown on google map (**Appendix 8**). About 100 trees of different varieties such as Neem, Mango, Babool, and Jamun have been observed at site, out of which around 60 trees can be saved and to cut the remaining 40 trees, requisite permission will be obtained from the authorities. One deep bore well is in operation at proposed site. The ASTI site for extension center is proposed at Centre for Finishing Skill & Entrepreneurship in Cuttack (latitude-20°28'53.00"N and longitude -85°52'18.00"E) and is shown on google map (**Appendix 8).** For ASTI operations, one room at ground floor, 2 rooms each at the first and second floors will be made available. It is a newly constructed building, and Odisha Central Placement Cell is utilizing part of the ground and first floors. .
4	Bolangir (Titilagarh)	20,234.3 Sq.m (5.00 Acre)	• The identified permanent ASTI site is at Jagua village, Titilagarh, which is approximately 80 Km from Bolangir. The latitude and longitude of proposed site is 20°15'47.93"N and 83°7'7.56"E respectively and is shown on google map (**Appendix 8**). • The proposed site is government land and one electric line of 11 KV is passing through it, which needs to be shifted. • The Naumunda water tank (pond) of approx. dimension 300ft x 200ft is next to proposed ASTI site in south east direction. Pond has bund all around its perimeter. This pond is being used by local villagers for bathing. The main canal (Bankel to Jagua) is about 225 meter in north east direction and the branch canal is about 275 meter in north direction from proposed site. These water bodies shall not be polluted due to ASTI activities. • Titilagarh sub-division is well connected by railway lines and has a railway junction on Titilagarh, which is approximately 4.5 Km from proposed ASTI site. • Titilagarh is well connected to all major cities of India and Odisha by NH-59 (previous NH-217), which is about 3.00 Km from proposed ASTI site. The MDR-10 is next to proposed ASTI site. • The land for ASTI at Titilagarh has been identified by the Collector, Bolangir, however the land transfer is yet to be done.
5	Jeypore	20,234.3 Sq.m (5.00 Acre)	• The proposed ASTI site is in between the LIC Building and the Veterinary hospital at Jagadhatripur mouza on NH-26. It is fallow land (vacant land), which has been used as solid waste dumping site sice 1986. The proposed site has many undulations varying from 0.5 m to 1.5 m and the exact quantities of dumped solid waste shall be evaluated after the soil investigation. • At present, the solid waste disposal (SWD) site is operational at Mokaput, Jeypore, which is about 2.5 Km from proposed ASTI site since 2009. • The excavated municipal waste shall be dumped at authorized solid waste disposal site and Environmental clearance shall be obtained from SEIAA, Odisha. • The latitude and longitude of proposed ASTI site is 18°52'19"N and 82°33'42"E respectively and is shown on google map (Appendix 8). • 33 KV electrical lines and two towers exist on proposed site, which needs to be shifted before commencement of civil works; • The Jeypore railway station is about 4.00 Km and proposed bus terminal is about 500 m from proposed ASTI site. • Branch canal is on west direction next to proposed ASTI site. It shall not be polluted due to ASTI activities; • The Jeypore air strip is about 1.5 Km from proposed site in northwest direction, which is not functional and very occasionally, it is being used for small air crafts. • The land for ASTI at Jeypore has been identified by the Collector,

S.N.	Location of ASTI	Land allocated (area)	Independent land or within premises of existing facility
			Koraput, however the land transfer is yet to be done.
6	Berhampur	~ 6070.28 sq.m (1.5 acre)	• Out of 4 acres land within the existing campus of the Berhampur Polytechnic and Govt. ITI, the idendified land for proposed ASTI is nearly 1.5 acre (6070.28 sq.m) and the sub-project will not require the use of any of the land on which the staff quarters are located. • The proposed site has latitude as 190 20' 23'' North, and longitude as 840 52'51 '' east. • Currently, the Govt. ITI is receiving water from the municipality and the electricity is being provided by the Government. The proposed site and the Govt. ITI are on the opposite side of NH-59 and is about 3 Km from NH-5. The nearest railway station (Berhampur) is about 4 Km from the site. The nearest airport is Bhubaneswar airport, which is about 170 Km from the proposed site. The proposed land is surrounded by a post-office, ITI Girl's hostel, and ITI principal quarters. The surrounding area has few educational institutes, residential and commercial buildings. The coastal area is more than 10 Km away from the proposed site. The nearest river is "Rushikulya" river which is more than 15 Km away from the proposed site. • One side of the boundary wall of the proposed land is broken and an approach road, passing through the proposed land, is being used by the general public on the other side of the wall to connect to NH-59. However, there is an existing alternate route available to connect to NH-59.

43. **Proposed infrastructure at ASTIs:** Although the ASTIs are proposed to be constructed within the existing premises of ITIs, new construction is proposed for housing lecture halls, workshops, administrative offices, hostels and staff quarters, and associated facilities related to ASTIs. The land usage rights will be transferred to the OSDA for constructing proposed facilities. The detailed designs and layouts are under preparation. The academic area will be 4 or 5 storied building (including ground floor). The structures will be constructed above the recorded high flood level. The buildings will follow the National Building Code. Adequate provisions will be provided for emergency management and evacuation. The detailed design shall provide hoisting of equipment to higher floor labs and workshops, with provision for gantries. The hostels and trainer accommodation facilities will be reasonable spacious and well ventilated. The facilities will be provided with (i) adequate potable water supply systems; (ii) wastewater treatment systems for liquid wastes emanating from laboratories and workshops, as well as for sewage generated by the occupants; (iii) municipal solid waste management systems; and (iv) arrangements as required under the sustainable environmental management plan recommended by MOEFCC. The following compliances will be ensured by the Contractor. The Indicative infrastructure requirements for ASTIs are given in **table 5**.

- Compliance with relevant bye laws of local urban bodies.
- All designs shall comply with relevant byelaws, National Building Code, Fire and safety regulations.
- Such provisions as may be required by Odisha Disaster Management Agency shall be met.
- The submitted designs shall have area calculation charts and sufficient explanation to show compliance with the above.
- Location of transformers, meter room etc shall be in compliance with the State Electricity Board.
- Shifting of electric poles, water lines etc shall be carried out if required, and no charges apart from those payable to municipality or utility companies shall be reimbursed on this account.
- Sustainable building parameters as prescribed by statutory bodies shall be achieved, whether specifically mentioned elsewhere or not.

- Minimizing cutting of trees, and where required obtaining approval for cutting and re plantation.

Table 5: Indicative infrastructure requirements for ASTIs

S.N.	Parameter	Description	
1	Total area allotted	Jharsuguda -27,275.8 sq.m (6.74 acres); Rourkela -15,378.1 sq.m sq.m (3.8 acres); Bhubaneshwar-14,164 Sq.m (3.50 Acres); Extension of ASTI Bhubaneshwar at Centre for Finishing Skill & Entrepreneurship, Cuttack Bolangir- 20,234.3 Sq.m (5.00 acres) at Titilagarh; and Jypore- 20,234.3 Sq.m (5.00 acres) at Jagadhatripur Berhampur-6070.28 sq.m (1.5 acres)	
Details as given below are for one ASTI, which shall be same for all six (06) ASTIs			
2	Details of land usages	• Covered area- Maximum 60% of the total area • Open area for green belt/landscaping –40% of total area • Land usage rights will be transferred to ASTI • Approval of layout plan from the respective district Municipal Corporations will be obtained.	
3	Total maximum population at one time	**During operation phase** • Total training capacity at any time will be around 600 to 700 students (30% girls). • Hostel capacity will be 400 to 500 (max.) with 100-150 rooms will be for girls. • Total staff shall be 70 which include 59 as training staff and 11 as administrative and supportive staff; • In addition to above, support functions like gardening, cleaning and security shall be outsourced.	**During Construction phase** • 90-100 (maximum)
4	Water requirement & its source	**During operation phase** • Water Consumption: • For Training purpose on an average work-day – 10,875 KL (43.5 KLD @ 250 days/annum); • For Hostel – 108 KLD (135 lit per day for 800 persons including staff)[16]	**During Construction phase** • 15-20 KLD (maximum)
		• Source is ground water; • Permission from withdrawal of ground water via bore wells will be obtained from water resource department.	
5	Power requirement from grid	**During operation phase** ❑ 2400 KVA	**During Construction phase** ❑ As per requirement
		• Permission from state electricity authority for withdrawal/availability of power is to be obtained.	
6	Backup power	**During operation phase** • Only for Training Facilities: 2 x 250 kVA DG Set and 1x500 kVA DG Set • Only for Training Facilities: - UPS: 1 x 300 kVA and 1 x 200 kVA • Only for Hostels: 1 x 600 kVA DG Set and 1 x 300 kVA DG Set	**During Construction phase** • DG sets as per requirement
7	Waste water management	**During operation phase** • Waste water shall be mainly generated from domestic activities., however waste	**During Construction phase** Waste water shall be generated during civil and mechanical works on site and shall be managed as

[16] Source BIS:1172:1993 reaffirmed in 2007

S.N.	Parameter	Description	
		water shall also be generated from laboratories and workshops; • Waste water generation @ 80% of total water consumed : 87 KLD • STP @ 100 m^3/day as per details given in **Appendix 9** shall be provided and treated waste water will be used for flushing in toilets and for gardening and irrigation purposes within premises. • Waste water from laboratories shall be treated separately to the level of inlet to STP before sending to STP. • Capacity of STP is estimated based on requirement; Storm water drainage system shall be commissioned.	per given hereunder: • Appropriate surface run-off drainage systems (eg silt traps); • Proper drainage system or collection pits for transportation/ collection of waste water; • Isolation and disposal of all the debris resulting from the site from the waste water; • Domestic waste water, if any shall be drained to soak pit. • The existing septic tank and soakpit will be maintained before operation of temporary sites.
8	Solid waste management	**During operation phase** • Municipal solid waste shall be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste shall be sent to disposal site of municipal corporation; • Sludge from STP shall be used as manure with the premises after getting confirmation of its nature as non-hazardous. Otherwise, it shall be disposed of via authorized vendors by OSPCB. • All hazardous waste including e-waste, batteries, plastic, bio-medical from in-house dispensary etc shall be disposed of via authorized vendors by OSPCB.	**During Construction phase** • Debris to be generated during construction phase shall be used for levelling of site and if in excess then it shall be disposed of via local vendors for land filling; • Scrap materials to be generated shall be sold to local vendors for recycle/reuse; • Municipal solid waste shall be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste shall be sent to disposal site of municipal corporation; • Most of the labour to be engaged shall be from local area only; • All hazardous waste including e-waste, batteries, plastic waste shall be disposed of via authorized vendors by OSPCB.
9	Air emission management	**During operation phase** • In addition to DG sets, sources of air emission shall be laboratories and workshops • Stack height of DG sets shall be as per formula $H=14Q^{0.3}$ where Q is the release of SO2 in Kg/hr • For DG sets ranging from 19 to 800 KW capacity, emission shall be such as PM<0.3kg/kw-hr, NOx<9.2kg/kw-hr, CO<3.5kg/kw-hr, HC<1.3kg/kw-hr. • Welding booths, hoods, torch fume extractors, flexible ducts, and portable ducts shall be provided	**During Construction phase** • Storage and handling of construction material, civil and mechanical works shall be the main sources of dust generation. • DG sets, diesel driven machinery and equipment, painting and welding shall be main sources of gaseous emission. • Stack height of DG sets shall be as per formula $H=14Q^{0.3}$ where Q is the release of SO2 in Kg/hr • For DG sets ranging from 19 to 800 KW capacity, emission shall be such as PM<0.3kg/kw-hr, Nox<9.2kg/kw-hr,

S.N.	Parameter	Description	
			CO<3.5kg/kw-hr, HC<1.3kg/kw-hr. • Flexible ducts and portable ducts shall be provided to the maximum possible extent.
10	Firefighting system	• Firefighting system shall be designed in line with standard prescribed in National Building Code-2005 and approval from Chief Fire Officer shall be obtained as mandatory part of getting occupancy certificate from respective Municipal Corporation or Development Authority as applicable.	
11	Others	• Roof top water harvesting system shall be commissioned; • 40% of total area allotted shall be covered under greenbelt/landscaping; • Energy conservation measures shall be as per recommended in the Energy Conservation Building Code (ECBC) 2007 of the Bureau of Energy Efficiency, Government of India. • Attempt shall be made to the maximum extent to adopt the concept of green building for conservation of energy and water resources at design stage; etc.	

3.3 Details of ITIs:

44. It is proposed to construct hostel facilities and undertake strengthening of existing buildings (if deemed necessary) at the existing ITIs under state government funding. The ADB will provide funding in soft components such as training modules only. The detail project reports are under preparation and therefore, no exact details are available regarding the additional infrastructure proposed. The hostel is proposed to accommodate 100 students in a 4 storied building with 25 to 30 students per floor; and about 200 sq. ft. area is earmarked per student. The maximum built up area for the ITI is expected to be less than 40000 sq.ft. Based on the MoEFCC guidelines, such hostel and college buildings shall ensure sustainable environmental management, solid and liquid waste management, drainage, rain water harvesting and may use recycled materials such as fly ash bricks. These buildings need to be compliant with the requirements of the local urban bodies and obtain 'Occupancy Certificate' prior to commencement of operations. The Indicative infrastructure requirements for ITIs are given in **table 6**.

Table 6: Indicative infrastructure requirements for ITIs

S.N	Parameter	Description	
1	Total area allotted	A hostel accommodating 100 students (4 floors, 25 students per floor) with each requiring about 200 Square feet of area	
2	Details of land usages	• Covered area- 200*25= 5000 square feet • Open area for green belt/landscaping –40% of total area • Layout plan – yet to be finalized • Present land use as per revenue records • Approval of layout plan from Municipal Corporation/Development Authority is to be obtained.	
3	Built up area	40,000 square feet with four floors (G+3)	
4	Total maximum population at one time	**During operation phase** • Max 100 students.	**During Construction phase** • 90-100 (maximum) for construction purposes
4	Water requirement & its source	**During operation phase** • Annual Water Consumption: o 100*135 lpd = 13500 lpd = 13.5 KLD	**During Construction phase** • 15-20 KLD (maximum) for construction purposes
		• Source of water is not known;	
5	Power requirement	**During operation phase**	**During Construction phase** As per requirement

S.N	Parameter	Description	
	from grid	100 KVA	
		Permission from state electricity authority for withdrawal/availability of power is to be obtained.	
6	Backup power	**During operation phase** • 1 x 100 kVA DG Set	**During Construction phase** DG sets as per requirement
7	Waste water management	**During operation phase** • Waste water generation @ 80% of total water consumed : 10.8 KLD • STP as per details given in **Appendix 9** shall be provided and treated waste water shall be used for flushing in toilets and for irrigation purposes within premises. • Storm water drainage system shall be commissioned.	**During Construction phase** Waste water shall be generated during civil and mechanical works on site and shall be managed as per given hereunder: • Appropriate surface run-off drainage systems (eg silt traps); • Proper drainage system or collection pits for transportation/collection of waste water; • Isolation and disposal of all the debris resulting from the site from the waste water; • Domestic waste water, if any shall be drained to soak pit.
8	Solid waste management	**During operation phase** • Solid waste shall be generated from domestic activity and operation of STP. • Municipal solid waste shall be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste shall be sent to disposal site of municipal corporation; • Sludge from STP shall be used as manure within the premises after getting confirmation of its nature as non-hazardous. Otherwise, it shall be disposed of via authorized vendors by OSPCB. • All hazardous waste including e-waste, batteries, plastic, bio-medical etc shall be disposed of via	**During Construction phase** • Municipal solid waste shall be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste shall be sent to disposal site of municipal corporation; • All hazardous waste including e-waste, batteries, plastic waste shall be disposed of via authorized vendors by OSPCB.

S.N	Parameter	Description	
		authorized vendors by OSPCB.	
9	Air emission management	**During operation phase** • DG sets, shall be the source of air emission. • Stack height of DG sets shall be as per formula $H=14Q^{0.3}$ where Q is the release of SO2 in Kg/hr • For DG sets ranging from 19 to 800 KW capacity, emission shall be such as PM<0.3kg/kw-hr, NOx<9.2kg/kw-hr, CO<3.5kg/kw-hr, HC<1.3kg/kw-hr.	**During Construction phase** • Storage and handling of construction material, civil and mechanical works shall be the main sources of dust generation. • DG sets, diesel driven machinery and equipment, painting and welding shall be main sources of gaseous emission. • Stack height of DG sets shall be as per formula $H=14Q^{0.3}$ where Q is the release of SO2 in Kg/hr • For DG sets ranging from 19 to 800 KW capacity, emission shall be such as PM<0.3kg/kw-hr, NOx<9.2kg/kw-hr, CO<3.5kg/kw-hr, HC<1.3kg/kw-hr. • Flexible ducts and portable ducts shall be provided to the maximum possible extent.
10	Firefighting system	• Firefighting system shall be designed in line with standard prescribed in National Building Code-2005 and approval from Chief Fire Officer shall be obtained as mandatory part of getting occupancy certificate from respective Municipal Corporation or Development Authority as applicable.	
11	Others	• Roof top and rain water harvesting system shall be commissioned; • 40% of total area allotted shall be covered under greenbelt/landscaping; • Energy conservation measures shall be as per recommended in the Energy Conservation Building Code (ECBC) 2007 of the Bureau of Energy Efficiency, Government of India. • Attempt shall be made to the maximum extent to adopt the concept of green building for conservation of energy and water resources at design stage; etc.	

4. DESCRIPTION OF THE ENVIRONMENT

4.1. Odisha as State

45. Odisha is a state on the eastern part of India, located between $17^0$49' and $22^0$36' North latitudes and between $81^0$36' and $87^0$18' East longitudes. It spreads over an area of 1,55,707 sq Km. and is broadly divided into four geographical regions, i.e. Northern Plateau, Central River Basins, Eastern Hills and Coastal Plains. Nearly 85% of its population live in rural areas and depend mostly on agriculture for their livelihood. The state has abundant mineral resources including precious and semi-precious stones. It has also plentiful water resources. The total cultivable land is nearly 65.59 lakh hectares. Odisha is the eleventh largest state in area and eleventh in population in the country, accounting for 5% of the geographical area and 4% of the population of the country. Cultivators and Agricultural labourers constitute 65% of the total workforce. Agriculture provides direct or indirect employment to 65% of the total work force and contributes 26% of the net state domestic product. All states of India are governed by parliamentary system of government. Odisha contributes 27 members to Lok Sabha as lower house and 10 members to Rajya Sabha which is the upper house in Parliament of India. There are 30 districts in Odisha which are placed under three different revenue divisions for smoothing the governance. The divisions are North, South and Central, with their headquarters at Sambalpur, Berhampur and Cuttack respectively given in **table 7**. Each division consists of 10 districts. Its administrative head is the Revenue Divisional Commissioner (RDC). The position of the RDC in the administrative hierarchy is that between that of the district administration and the state secretariat. The RDCs report to the Board of Revenue, which is headed by a senior officer of the Indian Administrative Service. Odissa state at glance is given in **table 8**.

Table 7: Revenue divisions of Odissa

North Division	Central Division	South Division
Dhenkanal Angul	Cuttack	Ganjam
Balangir	Jajpur	Gajapati
Subarnapur	Jagatsinghpur	Kandhamal
Sambalpur	Kendrapada	Kalahandi
Bargarh	Balasore	Nuapada
Kendujhar	Bhadrak	Koraput
Sundargarh	Puri	Nabrangpur
Jharsuguda	Khurda	Malkangiri
Deogarh	Nayagarh	Rayagada
	Mayurbhanj	Boudh

Table 8: State at a glance[17]

Total area (Sq. Km)	155,707
Total population	4,19,47,358
Total population-Male	21,201,678
Total population-Female	20,745,680
Number of Districts	30
Number of Sub-divisions	58
Number of Tehsils	316
Number of Gram Panchayat	6,234
Number of Blocks	314
Number of Villages	51,313
Number of Municipal corporations	03
Number of Municipalities	37
Number of Notified area council	63
Number of Industrial towns	02

[17] Source: National Disaster Risk Reduction Portal (2011-12) http://nidm.gov.in/pdf/dp/Orissa.pdf

46. The baseline environmental status in and around the project sites has been defined based on secondary data available in public domain, site visits, discussion with various relevant government agencies and focused group discussions (FGDs). As per availability of data from secondary sources, the environment status has been defined based on state level, district level, sub-district level and study area (an area covered for 10 Km radius around the project site has been considered as study area).

4.2 Environment setting of the study area around ASTI project site

47. The details of environment settings of the study area around ASTI project sites in Jharsuguda, Rourkela, Bhubaneshwar, Bolangir (Titilagarh), Jeypore, and Berhampur are given in **table 9**.

Table 9: Analysis of environment settings of the study area (ASTI)

S. N.	Particulars	Name	Minimum distance from project site (Km)	Direction from project site
Jharsuguda				
1	Forest Area/Plantation	NA	NA	NA
2	Water bodies	Ib river	10	W
3	Hospital/ Medical Institutions	NA	NA	NA
4	Educational Institution	LN college	1.2	SE
5	Railway line and National Highway	NH200	0	
		Railway line	3.67	E
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				
Rourkela				
1	Forest Area/Plantation	Sunaparbat Reserved Forest (RF)	8	ESE
		Hathi Bandha RF	3.5	SSE
		Butukupiri RF	5	SSW
		Balanda RF	5	SW
		Mudra RF	6	North
		Durga RF	5	East
		Kacharu RF	6.5	NNE
		Harapali RF	8	NNE
		Tangrani PF	8	ENE
		Reun RF	8	ENE
		Bamni pahar RF	4.5	N
2	Water Bodies	Brahmani river	2.7	W
		Koel river	5.5	N
		Sankh River	3.2	WNW
3	Hospital/Medical Institutions	ESIC model hospital	0.8	W
		Vesaj patel hospital	1	S
		Lifeline hospital	1	S
		Hitech medical college and hospital	1	S
		Shanti memorial hospital	1.4	SE
4	Educational Institution	Utkalmani Gopabandhu Institute of Engineering	0.16	S
		Rourkela Municipal college	2.2	SE
		Hrushikesh Ray Mahavidyalya	0.42	N
5	Railway line and National Highway	NH23	3	W
		Railway line	4.2	E
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				
Bhubanshwar				
1	Forest Area/Plantation	Chandaka Dampara	15	NW and N

S. N.	Particulars	Name	Minimum distance from project site (Km)	Direction from project site
		Wildlife Sanctuary and Nandankanak Wildlife Sanctuary		
2	Water Bodies	Daya river	15	E
3	Hospital/Medical Institutions	Capital Hospital	5	NW
4	Educational Institution	Soa University	2	W
5	Railway line and National Highway	Lingaraj station and Bhubaneshwar station	2 and 7	S and NE
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				
Cuttack (Extension of ASTI site, Bhubaneshwar)				
1	Forest Area/Plantation	Chandaka Dampara Wildlife Sanctuary and Nandankanak Wildlife Sanctuary	18 and 9.30 Km	SW
2	Water Bodies	Mahanadi	0.5	N
3	Hospital/Medical Institutions	SCB Medical College & Hospital	3	NE
4	Educational Institution	Ravenshaw University	3	SE
5	Railway line and National Highway	Cuttack Railway station and NH-5	3.5 and 4	SE
• The proposed location of Center for Finishing Skills and Entrepreneurship, Cuttack for extension of ASTI Bhubaneshwar falls within 10 Km from boundary of Nandankanan sanctuary. The Hon'ble High Court of Odissa has passed order dated 16.05.2002 restricting construction activities within a radius of one kilometer from the boundary of Nandankanan sanctuary; • Further, a High level Committee was constituted by Forest & Environment department (F&E) headed by Chief Wildlife Warden (CWLW) with the representative from H&UD, Industry & F&E Department, IDCO, Collector, BDA, CDA, BMC, etc. It was decided to have ESZ area of 500 m width in Khordha district and 100 m in Cuttack district especially in Barang side. The matter was discussed at the Government level on 10.05.2014 and it was decided that the extent of the ESZ will be 100 meter on all sides except swampy area on southern side where it extends up to 560 meter; • Requisite information on above matter has already been sent to Odisha Government on 22 January 2014 by Chief Conservator of Forests (Wildlife). Further, the CCF (Wildlife) has requested to fix the date for presentation before Honorable Chief Minister, Odisha on 29 January 2014 and till date it is under process. (Copy of CCF (Wildlife) letter is given in **Appendix A**); and • The proposed location of Center for Finishing Skills and Entrepreneurship, Cuttack is inhabited area and there will not be new construction due to proposed project. Hence, the impact due to proposed project will be negligible.				
Bolangir (Titilagarh)				
1	Forest Area/Plantation	Barne Jardevan	10 Km 08 Km	NE and E
2	Water Bodies	Under river, canal & branch canal and Naumunda tank (pond)	08 Km 225 meter, and Next to proposed site	N NE SE
3	Hospital/ Medical Institutions	Sub-divisional Hospital, Titilagarh	4 Km	N
4	Educational Institution	DAV college, and Government Women College	3 Km, and 6 Km	N
5	Railway line and National Highway	Titilagarh railway junction and NH-59 (previous NH no-217)	4.5 Km and 3.0 Km	NE
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				
Jeypore				
1	Forest Area/Plantation	(i) Penagi RF (ii) Naktidongra RF	2.00 Km 3.5 Km	NE SE

S. N.	Particulars	Name	Minimum distance from project site (Km)	Direction from project site
		(iii) Kunturu Khala RF (iv) Ghataghumara RF	3.0 Km 5.5 Km	SW NE
2	Water Bodies	(i) Kolab River (ii) Branch canal	3.00 Km At the boundary of proposed site	South west West
3	Hospital/ Medical Institutions	District Hospital	2.00 Km	South
4	Educational Institution	DAV college, Jeypore	1.5 Km	South
5	Railway line and National Highway	(i) Jeypore Railway station (ii) NH-26	4.00 Km Next to proposed site	North East
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				
Berhampur				
Forest Area/Plantation		Cashew Plantation	9.5	SE
Water Bodies		Rushikulya canal	8	NW
		Canal	6.5	WSW
Hospital/ Medical Institutions		NA		
Educational Institution		University	6	ESE
		Medical college	2.75	W
Railway line and National Highway		NH217	0.75	ESE
		AH45	9	ENE
		Railway line	0.25	S
		NH5	1.25	S
There are no notified Eco-Sensitive Zones within 10 Km radius of the study area or monuments protected by Archeological Survey of India (ASI) within 300 meter from proposed tempoarray and parmanaent ASTI locations.				

Jharsuguda

48. Mineral rich Jharsuguda district is one of the industrially developed districts of Odisha. Jharsuguda district was established on 1st April, 1994. Earlier it was a part of Sambalpur district. It was created by amalgamation of the erstwhile Jamindars of Rampur, Kolabira, Padampur and Kudabaga. The district is surrounded by Sundargarh district in the North, Sambalpur district in the East, Bargarh district in the South and Chattisgarh state in the West. The town situated at 21.82o north longitude and 84.1o latitude. As per the administrative set up of the district is concerned, Jharsuguda district has got one sub division namely Jharsuguda. There are total five Tahsils (Jharsuguda, Lakhanpur, Laikera, Kolabira-N and Kirmira-N) in the district. Total five Blocks (Jharsuguda, Lakhanpur, Kolabira, Laikera, Kirimira) are there in the district[18].

Sundergarh (Rourkela)

49. Rourkela[19] is located at 84.54E longitude and 22.12N latitude in Sundergarh district of Odisha at an elevation of about 219 meters above mean sea level. The area of Rourkela is 200 square kilometres approximately. Being situated on Howrah-Mumbai rail track, Rourkela had an added advantage of the steel plant being set up there. Red and laterite soils are found here which are quite rich in minerals. The area near Rourkela is rich in iron-ore hence a steel plant is situated in Rourkela. Bolani and Barsuan are the two most prominent mines situated near the town. Rourkela is situated in a hilly region. A small hill range named Durgapur runs from the heart of the town dividing it into plant area and the steel township. The Sundargarh town is the district headquarters. Geographically, the district is not a compact unit and consists of widely dissimilar tracts of expansive and fairly open, dotted with tree, clad isolated peaks, vast inaccessible forests, extensive river valleys and mountainous terrain. Broadly speaking, it is an undulating tableland of different elevations broken up by rugged hill ranges and cut up by

[18] Source: Governmental Portal
19 https://en.wikipedia.org/wiki/Rourkela

torrential hill streams and the rivers IB and Brahmani. The general slope of the district is from north to south. Because of this undulating, hilly and sloping nature of landscape, the area is subjected to rapid runoff leading not only to soil erosion but also to scarcity of water for both agriculture and drinking purposes. Brahmani, Sankh, Koel and IB are the major rivers flowing though this district. Covering a geographical area of 9712 sq.kms, Sundargarh district is the second largest district of the state, accounting for 6.23 percent of its total area[20]. Out of this total area, forests cover 4232.57 sq Km, this being the second largest in the state, accounting for 8.53 percent of the state total.

Khordha

50. Bhubaneshwar[21] is the capital of Odisha and falls in Khordha district. It is in the eastern coastal plains, along the axis of the Eastern Ghats mountains. The city has an average altitude of 45 m (148 ft) above sea level. It lies southwest of the Mahanadi River that forms the northern boundary of Bhubaneswar metropolitan area, within its delta. The city is bounded by the Daya River to the south and the Kuakhai River to the east; the Chandaka Wildlife Sanctuary and Nandankanan Zoo lie in the western and northern parts of Bhubaneswar, respectively. Bhubaneswar is topographically divided into western uplands and eastern lowlands, with hillocks in the western and northern parts. Kanjia lake on the northern outskirts, affords rich biodiversityand is a wetland of national importance. Bhubaneswar's soils are 65 per cent laterite, 25 per cent alluvial and 10 per cent sandstone. The Bureau of Indian Standards places the city inside seismic zone III on a scale ranging from I to V in order of increasing susceptibility to earthquakes.

Cuttack

51. Cuttack is the former capital and the second largest city in the eastern Indian state of Odisha. It is also the headquarters of the Cuttack district. The name of the city is an anglicized form of Katak which literally means The Fort, a reference to the ancient Barabati Fort around which the city initially developed. Cuttack is also known as the Millennium City as well as the Silver City due to its history of 1000 years and famous silver filigree works. It is also considered as the judicial capital of Odisha as the Odisha High Court is located here. It is also the commercial capital of Odisha which hosts a large number of trading and business houses in and around the city. The old and the most important part of the city are centred on a spit of land between the Kathajodi River and the Mahanadi River, bounded on the southeast by Old Jagannath Road. Cuttack stretches from Phulnakhara across the Kathajodi in the south to Choudwar in north across the Birupa River, while in the east it begins at Kandarpur and runs west as far as Naraj. The city is located at the central point of four rivers which are the distributaries of River Mahanadi; namely Mahanadi, Kathajodi, Kuakhai, Birupa and further Kathajodi is distributed into Devi and Biluakhai which often makes the geographical area look like fibrous roots. Cuttack and Bhubaneswar are often referred to as the Twin-Cities of Odisha.

Bolangir:

52. Balangir district is situated in the western region of Odisha. The district has an area of 5,165 Km², and a population of 1,335,760 (2011 census). The town of Balangir is the district headquarters. The composition of the land is predominantly rural. Other important big & small towns in Balangir district are Titilagarh, Patnagarh, Kantabanji, Loisingha, Saintala, Belpada, Tushra, Agalpur, Deogaon, Chudapali, and Biripali. The Bolangir district is surrounded by Subarnapur district in east, Nuapada district in the west, Kalahandi district in the south and Bargarh district in the north. The district lies between $20^0$11'40" to $21^0$05'08" north latitude and $82^0$41'15" to $83^0$40'22" East longitude.

53. The south-west monsoon is the principal source of rainfall in the district. Average annual rainfall of the district is 1229.47mm. About 80% of the total rainfall is received during the period from June-September. Droughts are quite common in the district. The rainfall is scanty in the west and west-central parts of the district i.e. in the Patnagarh subdivision, which increases in

20 District Portal Sundargarh
21 https://en.wikipedia.org/wiki/Bhubaneswar

east and southern directions. Blockwise average annual rainfall varies from 946.0 mm to 1492.10-mm. The climate of the district is tropical with hot and dry summer and pleasant winter. The summer season extends from March to middle of June followed by the rainy season from June to September. The winter season extends from November till the end of February.

54. The stage of Groundwater development is well within Safe Category and there is no overexploitation and major threat of Groundwater pollution and depletion. Hence, no area has been notified by CGWA.

Koraput:

55. Koraput District is located in the backdrop of green valleys contemplating immaculate freshness, was established on 1st April, 1936. Decorated by forests, waterfalls, terraced valleys and darting springs, the District draws the nature loving people. The Koraput district lies at 17.4° to 20.7° North latitude and 81.24° to 84.2° east longitude. The district is bounded by Rayagada in the east, Bastar district of Chhattisgarh in the west and Nabarangpur district in the south. The district covers an area of 8379 sq.km.

56. The district of Koraput is located on a section of Eastern Ghat in two agro-Climatic Zones namely Eastern Ghat High Land (entire Koraput Sub-Division and Kotpad Block) and South-Eastern Ghat Zone (Jeypore, Borigumma, Kundura and Boipariguda blocks). The district has attitude ranging between 300 metres to 1000 metres above mean sea level. The district of Koraput is having undulating topography with a number of streams.

Ganjam

57. Ganjam district is broadly divided into two divisions, the coastal plains area in the east and hill and table lands in the west. The eastern ghats run along the western side of the district. The plains lies between the eastern ghats and the Bay of Bengal. Since the hills are close to the sea, the rivers flowing from hills are not very long and are subject to sudden floods. The plains are narrow because of the absence of big rivers. The coastal plains in the east contain more fertile and irrigated lands. Towards the centre and south it is hilly with beautiful well watered valley. The south eastern portion is fertile. The extreme north east is occupied by a portion of the famous Chilika lake.Spreading over an area of 8206.0 Sq.Km, it is surrounded by Kandhamal in the North-West, Nayagarh in the North, Khurda in the North-East, Gajapati district in the West and Bay of Bengal in the SouthEast. On its Southern periphery the district borders the state of Andhra Pradesh.The Ganjam district has total geographical area of 8206.00 sq.Km.

58. The district is characterized by an equitable temperature all through the year, particularly in the coastal regions. The average annual rain fall of the district is 129.60 cms. The rainfall generally increases from the coast towards the interior hilly tracks of the district. The relative humidity is high throughout the year specifically in coastal areas.

59. The stage of Groundwater development is well within safe category and there is no overexploitation and major threat of Groundwater pollution and depletion. Hence, no area has been notified by CGWA.

4.3 Physical Environment

Climate

60. Climate of the Jharsuguda district is characterized by dry hot summer, monsoon rains and cold winter. May is the hottest month and December the coldest. From April to August the wind blows from south and southwest whereas from September onwards wind blows from North West. Jharsuguda is situated at a height of 700-750 feet above mean sea level[22].

22 Source: Government portal

61. Rourkela[23] has a tropical climate and receives high rainfall during Southwest monsoon (June- September) and retreating Northeast monsoon (December-January). The minimum and maximum temperatures are in the range of 5^0C to 47^0C with a mean minimum and maximum temperature range of 9.8^0C to 39.2^0C during coldest and hottest months.

62. Bhubaneswar[24] is located on the coastal plains of Odisha, south-west of the River Mahanadi. It experiences typical tropical weather conditions, and succumbs to the heat and cold waves that sweep in from north India. The summer months from March to May are hot and humid, and temperatures often shoot past 40°C in May. Pleasant weather conditions prevail during November in Bhubaneswar, but December and January face the chilly winds from the North North-east at average speeds of 7 miles/hour. Temperatures drop to approximately 15°C during these months.

63. Bolangir: The south-west monsoon is the principal source of rainfall in the district. Average annual rainfall of the district is 1229.47mm. About 80% of the total rainfall is received during the period from June-September. Droughts are quite common in the district. The rainfall is scanty in the west and west-central parts of the district i.e. in the Patnagarh subdivision, which increases in east and southern directions. Block-wise average annual rainfall varies from 946.0 mm to 1492.10-mm. The climate of the district is tropical with hot and dry summer and pleasant winter. The summer season extends from March to middle of June followed by the rainy season from June to September.

64. Koraput: The district enjoys tropical climate characterized by hot summer, cold winters & rainy seasons. The winter season generally commences from late November & continues up to the end of February. The temperature in winter drops below 1^0C at places like Pottangi otherwise it is in the range of 10^0C to 13.5^0C in the valley plains. The summer season commences from March & continues till middle of June. The summer is quiet pleasant here with the mean daily maximum temperature around 40^0C while the mean daily minimum temperature is around 14^0C.

65. Ganjam: The district is characterized by an equitable temperature all through the year, particularly in the coastal regions. The average annual rain fall of the district is 129.60 cms. The rainfall generally increases from the coast towards the interior hilly tracks of the district. The relative humidity is high throughout the year specifically in coastal areas. Winds are fairly strong particularly in coastal regions in summer and monsoon months.

66. Temperature and Humidity of Jharsuguda, Rourkela, Bhubneshwar, Cuttack, Titilagarh (Bolangir), Koraput, and Ganjam are given in **table 10**.

Table 10: Temperature & Humidity

ASTI locations	Maximum temperature (^{o}C)	Minimum temperature (^{o}C)	Mean humidity %
Jharsuguda[25]	38	15	59-71
Rourkela[26]	47	5	37-50
Bhubaneshwar[27]	46.5	15.6	60-85
Cuttack[28]	37	16	60-85
Titilagarh[29] (Bolangir)	43.3	13.7	48-65
Koraput[30]	38	12	55-85
Ganjam[31]	38.5	14.2	78-85

23 https://en.wikipedia.org/wiki/Rourkela
24 http://www.orissatourism.org/travel-to-orissa/bhubaneshwar/bhubaneswar-weather.html
25 Source: http://odisha.gov.in/e-magazine/Orissareview/2009/Jan/engpdf/52-54.pdf
26 Comprehensive District Annual Plan, Government of Odisha
27 https://en.wikipedia.org/wiki/Bhubaneswar
28 http://www.orissatourism.org/travel-to-orissa/cuttack/cuttack-weather.html
29 https://en.wikipedia.org/wiki/Titlagarh
30 https://en.wikipedia.org/wiki/Koraput_district
31 http://www.appendics.org/ganjam-district-at-a-glance/

Rainfall

67. The total rainfall details of Jharsuguda, Sundergarh (Rourkela), Kodhra (Bhubaneshwar), Bolangir, Koraput, and Ganjam district are given in **table 11**.

Table 11: Rainfall

Rainfall in mm												
Jharsuguda[32]												
Year	**Jan**	**Feb**	**March**	**April**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
2009	0.0	0.0	0.0	1.7	43.9	34.1	535.2	271.4	69.2	135.9	13.4	0.0
2010	0.6	1.8	0.0	0.0	30.9	198.1	291.0	311.0	131.5	55.9	6.7	41.1
2011	0.4	11.1	0.2	39.5	42.4	171.2	261.8	259.2	497.2	4.3	0.0	0.0
2012	49.3	6.4	0.0	43.4	0.3	196.8	402.5	740.3	229.8	54.3	43.1	4.3
2013	1.4	9.6	6.8	35.4	17.1	175.8	411.1	267.9	165.2	193.5	0.0	0.0
Sundargarh[33]												
2009	0	0	0.8	0.9	71	90.1	448.6	305.7	120.7	89.1	22.2	0
2010	1.2	2.2	0	6.3	36	139.6	265.7	276.4	133.8	56.9	10.2	42.7
2011	0.2	15.1	2.5	78.8	54	219.3	288	376.1	558.8	27.5	0	0
2012	37.7	24.2	0	32.3	1.4	201.3	304	572.2	252.8	47.2	33.9	11.2
2013	6.7	10.2	3.7	54.7	27.6	169.4	455.4	377.9	188.7	209.9	0	0
Kodhra (Bhubaneshwar)[34]												
2009	0	0	0	43	524	740	5678.2	2912.4	2065.1	1377.5	623.5	0
2010	43	7	0	6.0	1320	2397.1	1931.3	3440.6	2273	2375	640	463
2011	0	389	0	366	1298.5	1762	2413	2874.9	2410.1	232	0.0	0.0
2012	421	0	0	345.5	286	1238.4	3773.8	3264.2	1773	694	1510	0.0
2013	92	0	0	448	614	2485.5	3123	1980	2995	6961	0	0
Bolangir[35]												
2009	0	0	0	0	28.2	88.7	943.7	370.1	129.9	52.1	33.6	0
2010	10.7	0	0	0.6	35.4	76.8	426.4	252.9	296.5	73.9	15.2	30.7
2011	0	7.2	3.5	50.8	23.2	144.6	184-5	435.9	351.3	7.4	o	o
2012	21.0	0	o.8	5.7	4-4	223.3	240.3	317.1	261.8	47.8	7.7	o
2013	1.3	4.3	0.9	47.2	20.0	189-3	437.2	247.5	164.4	195.2	o	o
Koraput[36]												
2009	0	0	2.7	3.4	28.2	53.8	100.2	491.8	142.3	150.7	48.2	5
2010	27.8	11.7	5.6	23.7	35.4	58.1	136.3	471.6	378.3	160.1	76.3	18.3
2011	0	11.4	5.0	69.5	23.2	48.9	140.6	178.3	273.1	17.6	0	11.7
2012	28.8	3.5	3.8	69.2	4.4	28.1	98.4	381.2	259.2	28.1	102.5	0
2013	0	13.9	0.9	98.4	20.0	10.5	478.4	349.1	151.1	207.1	8.7	0
Ganjam[37]												
2009	0	0	8.6	7.3	81.1	99-5	476.9	207.1	129.0	164.8	89.4	0
2010	58-5	2.1	7.8	3.8	145.1	194.6	140.6	323.4	195.2	264.3	134.4	87.6
2011	0	31.4	0.1	68.3	93.6	107.9	184.8	268.5	160.2	18.9	0	3.2
2012	53.2	1.0	0.6	57.0	36.9	88.6	291.8	229.2	183.6	80.9	273.1	0
2013	0.1	8.1	0.5	63.7	15.7	206.2	320.4	160.2	272.1	772.0	2.3	0

Ambient Air Quality

68. The Ambient Air Quality data near the proposed locations of ASTIs at Bhubaneshwar and Cuttack, Jharsuguda, Rourkela, Titilagarh (Bolangir), Jeypore, and Berhampur is not available. The ambient air quality baseline data will be carried out by the Contractor though NABL/OSPCB recognized environmental laboratory prior to commencement of civil works. The ambient air quality monitoring report will be updated in IEE report.

Ground water quality

69. The Ground water quality data is not available for the locations of ASTIs at Bhubaneshwar, Cuttack, Jharsuguda, Rourkela, Titilagarh (Bolangir), Jeypore, and Berhampur and the baseline ground water quality monitoring will be carried out by the by the Contractor though NABL/OSPCB recognized environmental laboratory prior to commencement of civil works. The ground water quality monitoring report will be updated in IEE report.

32 http://www.imd.gov.in/section/hydro/distrainfall/webrain/orissa/jharsuguda.txt
33 http://www.imd.gov.in/section/hydro/distrainfall/webrain/orissa/sundergarh.txt
34 http://www.odisha.gov.in/disaster/src/RAINFALL/RAINFALL1/RAINFALL.html
35 http://www.imd.gov.in/section/hydro/distrainfall/webrain/orissa/bolangir.bct
36 http://www.imd.gov.in/section/hydro/distrainfall/webrain/orissa/koraput.txt
37 http://www.imd.gov.in/section/hydro/distrainfall/webrain/orissa/ganjam.txt

Surface Water Quality

70. OSPCB has carried out annual surface water quality monitoring in Ib and Brahmani rivers which flows through Jharsuguda and Rourkela area and the values of critical parameters [pH, DO (mg/l), BOD (mg/l), TC (MPN/100 ml)] in these rivers based on the assessment are given in **table 12**. In addition, baseline monitoring of the nearest surface water source will be carried out by the contractor though NABL/OSPCB recognized environmental laboratory for all 6 ASTIs (Bhubaneshwar and Cuttack, Jharsuguda, Rourkela, Titilagarh (Bolangir), Jeypore, and Berhampur) prior to commencement of civil works. The surface water quality monitoring report will be updated in IEE report.

Table 12: Surface water quality

ASTI location	Distance from sampling location	Sampling location	pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	Fecal coliform
Jharsuguda	9 Km	Ib river	7.9 (7.0 – 8.2)	7.3 (5.9 – 8.3)	0.6 (0.3 – 1.2)	4306 (78 – 24000)	NA
Rourkela	2 Km	Rourkela, R. Brahmani	7.6 (7.1-8.3)	7.6 (5.9-13.5)	3.8 (2.7-5.0)	44091 (17000 –160000)	NA

Source: Odisha State Pollution Control Board

71. The noise monitoring data near the 6 ASTI sites is not available. Hence, the baseline noise levels will be measured by the contractor though NABL/OSPCB recognized environmental laboratory for all the 6 ASTI sites (Bhubaneshwar and Cuttack, Jharsuguda, Rourkela, Titilagarh (Bolangir), Jeypore, and Berhampur) prior to commencement of civil works. The noise levels monitoring report will be updated in IEE report.

Geology, Hydrology and Seismology:

72. The seismic zone classification of Jharsuguda, Sundargarh,Bhubaneshwar, Bolangir, Koraput, and Berhampurare given in **table 13**.

Table 13: Seismic zone classification

ASTI locations	Seismic zone[38]	Damage zone
Jharsuguda	Zones I to II	Low & moderate damage risk zones (MSK –VI & VII)
Sundargarh	N & NE- Zone II W- Zone III	N & NE- Low damage risk zone (MSK –VI) W-Moderate damage risk zone (MSK –VII).
Bhubaneshwar	Zone III	
Bolangir	Zone II	Low damage risk zone (MSK —VI)
Koraput	Zone II	Low damage risk zone (MSK —VI)
Berhampur	Zone II	Low damage risk zone (MSK —VI)

Jharsuguda

73. Ib River is a tributary of Mahanadi river in North-Eastern Central India. The district is under moderate risk zone for cyclone. It joins Mahanadi river directly into the Hirakud Reservoir. The river originates in hills near Pandrapet at an elevation of 762 metres (2,500 ft). It passes through Raigarh district and Jashpur district of Chhattisgarh and Jharsuguda and Sundargarh District of Odisha and finally meets Mahanadi at Hirakud Dam in the state[39]. Also there are plans to set up a comprehensive storm water drainage system in Jharsuguda District as per India's Project database on 01 Aug 2014[40].

Rourkela

74. Sundargarh district comes under Moderate Damage risk zone due to wind and cyclone conditions and it is a designated no flood zone. Brahmani and Ib are the two principal rivers of the district. Ib originates from the Khudia plateau in the ex-state of Jaspur in Chhatisgarh and enters the district from the North at Tilijora. It passes through Sundargarh and merges in the

[38] National Disaster Management Authority (NDMA)
[39] Source:wikipedia
[40] Source: http://www.projectreporter.co.in/ProjectsNews.aspx?Tags=ViUK0Dsc9T3K+IoETQJG9g

Hirakud reservoir on Mahanadi at Brajarajnagar of Jharsuguda district. The Tumga and the Ichha rivers along the western bank and the Safei on the Eastern bank are the principal tributaries of Ib. The confluence of the Koel and the Sankha rivers at Panposh is the beginning of river Brahmani, the second largest river of Odisha. Besides these two major rivers, a number of small natural streams flow throughout the district[41].

Bhubaneshwar & Cuttack

75. Even though the City[42] is located on Earthquake Zone-III, it is the high density of residential buildings which makes its more vulnerable to damage and loss. The Local Resilience Action Plan (LRAP) says that about 34 percent residential built-up areas constituting about 33 percent of residential houses are in the extreme and high earthquake risk zones of the City. More than half of wards 30 and 38 of Bhubaneswar Municipal Corporation come under the extreme and high earthquake risk categories. Besides, the impact of an earthquake could be felt most in commercial areas which are concentrated in central parts while industries are in the fringe areas of Bhubaneswar. The study says, about 56 percent of the commercial areas come under both extreme and high cyclone risk categories. If that is not all, at least 85 percent of commercial areas are seen as vulnerable to extreme and high flooding and 60 percent of it is also prone to earthquake hazard. Forty-eight percent of industrial areas are in the high risk category so far as earthquake is concerned. Similarly, a large segment of industrial areas are also concentrated in the extreme risk areas for both cyclone and flood.

Bolangir.

76. The district is classified as region 3 (moderate risk zone) for cyclone in the district coming under cyclone. The Tel, Suktel , Rahul, Udei and Ong are the principal rivers flowing in the district. The Tel river, a perennial river along the eastern boundary of the district and confluences with the Mahanadi at Sonepur. The Suktel, which emanates from the hill ranges of the western part of the district trickles through Patnagarh, Bolangir and Loisingha blocks and finally joins the Tel in Subaranpur district. The Ong river enters the district in Agalpur Block.

77. The district has two physiographic regions viz, hills of west and south and plains of north and east. The district forms a part of the crystalline soil region of the Deccan plateau. The western and southern part is in undulating plain, rugged and isolated with hill ranges rising in various directions, a lofty irregular hill range, forming a natural boundary to the west and North West. Manganese, Graphite, Quartz, Galena, Gem Stone, Lime stones etc. are the important mineral deposits of the district.

Koraput

78. The district is classified as region 3 (moderate risk zone) for cyclone in the district coming under cyclone. The Kolab river also known as Sabari in lower reaches is a tributary of Godavari river and originates from the Sinkaran hills of the eastern ghats in Koraput district. The river is about 418 Km long upto the confluence of Godavari river before joining it near the village Kunavaran.

79. The district of Koraput is located on a section of Eastern Ghat in two agro-Climatic Zones namely Eastern Ghat High Land (entire Koraput Sub-Division and Kotpad Block) and South-Eastern Ghat Zone (Jeypore, Borigumma, Kundura and Boipariguda blocks). The district has attitude ranging between 300 metres to l000 metres above mean sea level. The district of Koraput is having undulating topography with a number of streams.

Ganjam.

80. The area, as per seismic records available, is less prone to natural hazards like Earthquake, Volcano eruption and Tsunami. However it is very vulnerable to cyclones which generally occur during June to October. Ganjam district is broadly divided into two divisions, the

[41] Comprehensive District Annual Plan (2013)

42http://www.newindianexpress.com/states/odisha/Bhubaneswar-Cuttack-Fall-in-Moderate-Damage-Risk-Zone/2015/05/10/article2807609.ece

coastal plains area in the east and hill and table lands in the west. The Eastern Ghats run along the western side of the district. The plains lie between the Eastern Ghats and the Bay of Bengal. Since the hills are close to the sea, the rivers flowing from hills are not very long and are subject to sudden floods. The plains are narrow because of the absence of big rivers. The coastal plains in the east contain more fertile and irrigated lands. Towards the centre and south it is hilly with beautiful well-watered valley. The south eastern portion is fertile. The extreme north east is occupied by a portion of the famous Chilika Lake.

4.4 Environmental Setting of ITIs in the Study Area

81. In the **table 14**, it has been analyzed if there are any designated Eco-Sensitive Zones (ESZ) in the study area i.e. within 10 Km radius of 30 ITIs locations. The analysis is based on assessment of google maps and Survey of India topo sheets..

Table 14: Presence of ESZ in ITIs study area

SL No.	ITI Name	ESZ within 10 Km radius	Remarks if any
1	Dhenkanal	Kapilash Wild Life Sanctuary	The sub-project is approximately 2.50 Km away from eco-sensitive zone (ESZ) boundary of Kapilash Wildlife Sanctuary, hence there will not be any impact.
2	Talcher	No	
3	Barbil	No	
4	Boudh	No	
5	Baleswar	No	
6	Takatpur	No	
7	Bargarh	No	
8	Hirakud	Debrigarh Wildlife Santuary	The sub-project is approximately 6.00 Km away from ESZ boundary of Debrigarh Wildlife Sanctuary, hence there will not be any impact.
9	Nuapada	No	
10	Phulbani	No	
11	Cuttack	Nandankanan Wildlife Sanctuary	The subproject is approximately 8.50 Km from boundary of Nandankanan Wildlife Sanctuary. The proposed location for ITI Cuttack is an inhabited area and there will not be any new construction due to proposed activity under OSDP. The Hon'ble High Court of Odissa had passed an order in 2002 restricting construction activities within a radius of one kilometer from the boundary of Nandankanan Sanctuary. Further, the state is processing a proposal to define the eco-sensitive zone (ESZ) of 500 m width in Khordha district and 100 m in Cuttack district. Currently, the proposed extent of the ESZ under processing is 100 meter on all sides except swampy area on southern side where it extends up to 560 meter.
12	Puri	No	
13	Pattamundei	No	
14	Sonepur	No	
15	Ambaguda	No	
16	Umerkote	No	
17	Malkangiri	No	
18	Rayagada	No	
19	Bhawanipatna	Karlapat Wildlife Sanctuary	The sub-project is approximately 4.00 Km away from ESZ boundary of Karlapat WLS, hence there will not be any impact.
20	Chandragiri	No	
21	Bhubaneswar	Chandaka Dampara Wildlife Sanctuary, Nandankanan Wildlife Sanctuary	The sub-project is approximately 11.50 Km away from ESZ boundary of Chandaka Dampara WLS and approximately 12.00 Km from boundary of Nandankanan Wildlife Sanctuary. Hence, there will not be any impact.
22	Bolangir 1	No	
23	Berhampur	No	
24	Rourkela	No	
25	Jharsuguda	No	

SL No.	ITI Name	ESZ within 10 Km radius	Remarks if any
26	Nayagarh	No	
27	Jagatisinghpur (at Paradeep)	No	
28	Barkote	No	
29	Bhadrak	No	
30	Jajpur	No	

4.5 Physical Environment of ITI locations and the study area:

82. The physical environment of the ITI locations and the study area is described in **table 15**.

Table 15: Physical environment details of ITI locations

Towns	ITI	Temperature & Humidity[43]	Rainfall (mm)[44]	Geology, Hydrology and Seismology [45]	Soil[2]	Reserved forests, sanctuary if any[46]	ASI Monument[47]
Bargarh	ITI Bargarh	Temp-10^0-46^0C Extreme type climate	1527	Seismic zone II, Major river- Mahanadi	Major soils: Lateritic, mixed & yellow and brown forest soils.	No Sanctuaries and National parks	No ASI monuments
Boudh	ITI Boudh	Temp-10^0-45^0C, Sub-tropical climate	1623	Seismic zone II, Major rivers- Mahanadi and the Tel	Dominated by Red and black soils	Phulbani forest & Tikabali Phulbani range	No ASI monuments
Cuttack	ITI Cuttack	Temp-10^0-40^0C, Tropical climate	1724.52	Seismic zone III, Major rivers- Mahanadi and Kathajodi	Dominated by alluvial red lateritic soil	Falls within 10 Km (8.50 Km) of Nandankanan Wildlife Sanctuary The notification ESZ boundary (upto 10 Km distance) is under process.	Ancient monuments of Barabati Fortress and the ruins
Debagarh	ITI Barkote	Temp-8^0-43^0C, Moderate climate	1582.5	North- Seismic zone II South- Seismic zone III	Dominated by Red soil	No Sanctuaries and National parks	No ASI monuments
Dhenkanal	ITI Dhenkanal	Temp-16.7^0-46^0C, Tropical climate	1429	Seismic zone III	Dominated by red sand loamy soil and lateritic soil	Kapilash forest range, saptasajya forest, dhenkanal forest	No ASI monuments
Gajapati	ITI Chandragiri	Temp-16^0-40^0C	1423.6	Seismic zone II Major river: Vamsadhara river	Dominated red loamy soil	South Odisha Eastern Ghat range	No ASI monuments
Jajapur	ITI Jajpur	Temp-12^0-38^0C, Normal climate	1559.9	Seismic zone III Major rivers- Brahmani and Baitarani	Dominated alluvial red lateritic soil	No Sanctuaries and National parks within 10 Km radius	No ASI monuments
Kalahandi	ITI Bhawanipatna	Temp-11^0-45^0C, Extreme type climate	1330.5	Seismic zone II Major river-	Dominated by red and yellow soil	Gundi Reserved forest,	Paschima Samnat

[43] Odisha District Portal
[44] Department of Agriculture and Cooperation, Odisha
[45] National Disaster Management Authority (NDMA)
[46] Survey of India
[47] Archaeological Survey of India

Towns	ITI	Temperature & Humidity[43]	Rainfall (mm)[44]	Geology, Hydrology and Seismology[45]	Soil[2]	Reserved forests, sanctuary if any[46]	ASI Monument[47]
				Tel river		Phatadhara RF, Singapaharah RF, Brahmani RF Karlapat wildlife sanctuary (outside the ESZ)	ha, Bhubaneswara and Kapilesvara temples
Kandhamal	ITI Phulbani	Temp-10^0-46^0C, Sub-tropical climate	1726.5	Seismic zone II	Dominated by red soil	Phulbani forest	No ASI monuments
Kendrapara	ITI Pattamundi	Temp-13^0-34^0C, Moderate climate	1582.5	Seismic zone III Major rivers- Mahanadi, Brahmani, Kharasrota, Baitarani river	Dominated by alluvial soil	No Sanctuaries and National parks within 10 Km radius	No ASI monuments
Kendujhar	ITI Barbil	Temp-7^0-38^0C	1488.7	Seismic zone II, Major river- Baitarani	Dominated by red soil	Saranda Singhbhum range	No ASI monuments
Malkangiri	ITI Malkangiri	Temp-13^0-47^0C, High humidity	1349.2	Seismic zone II Major river- Pateru and Sabari river	Dominated by red soil	No Sanctuaries and National parks within 10 Km radius	No ASI monuments
Mayurbhanj	ITI Takatpur	Temp-8.4^0-41.2^{0}C, Sub-tropical climate	1600.2	Seismic zone II, Major river- Subarnarekha and Kharkai	Dominated by lateritic and red sand loamy soil	Krishnachandrapur Betanoti forest	Ruins of ancient fort, Haripurgarh
Nabarangapur	ITI Umarkote	Temp-12^0-40^0C	1569.5	Seismic zone II, Major river- Tel and Indravati	Dominated by sandy loam soil	No Sanctuaries and National parks within 10 Km radius	No ASI monuments
Nayagarh	ITI Nayagarh	Temp-10^0-40^0C, Tropical climate	1354.3	Major river- Mahanadi	Dominated by mixed red and black soil	Dasapalla Elephant range, Nayagarh Odagaon Sulia range, Khandapad forest range, Bolagarh forest	No ASI monuments
Naupada	ITI Naupada	Temp-10^0-46^0C	1116	Seismic zone II, Major river- Sundar river		No Sanctuaries and National parks within 10 Km radius	No ASI monuments
Puri	ITI Puri	Temp-16^0-33.9^0C Tropical climate	1449.68	Seismic zone II, Major rivers- Daya and Bhargabi	Dominated by alluvial soil	Balukhand Konark reserve forest	Shri Jagannath Temple and subsidiary shrines, Bridge of eighteen openings over the Madhupur stream known as Athara

Towns	ITI	Temperature & Humidity[43]	Rainfall (mm)[44]	Geology, Hydrology and Seismology[45]	Soil[2]	Reserved forests, sanctuary if any[46]	ASI Monument[47]
							Nala Bridge
Rayagada	ITI Rayagada	Temp-10^0-42^0C	1455.74	Seismic zone II, Major river-Vamsadhara ad Nagavali	Dominated by red loam soil	South Odisha Eastern Ghats	No ASI monuments
Sambalpur	ITI Hirakud	Temp-11.8^0-47^0C	1495.7	N&S-Seismic zone II Centre-Seismic ZoneIII, Major river-Mahanadi	Dominated by mixed red and black soil	(Outside the ESZ)	No ASI monuments
Subarnapur	ITI Sonepur	Temp-20^0-45^0C	1418.5	Seismic zone II, Major river-Mahanadi	Dominated by red and yellow soil	Deogarh forest range	No ASI monuments
Bhubaneswar	ITI Bhubaneswar	11.1 ^{0}C to 42.2 ^{0}C	660	Seismic zone III Daya and Kuakhai	Lateritic soils	Chandaka Dampara Wildlife Sanctuary, Nandankanan National Park (Outside the ESZ)	Lingaraj temple
Rourkela	ITI Rourkela	10 0C to 48 0C	120-660	Seismic zone II, Brahmani and Ib rivers	red soil laterite and lateritic soils and black soil	No Wildlife Sanctuaries and National Parks	No ASI monuments
Bolangir	ITI Bolangir 1	12.4 to 49 ^{0}C	10 to 950	Seismic zone II Suktel River	Mixed Red & Yellow, Red & Black, Black, Late-rite and Brown forest	No Wildlife Sanctuaries and National Parks	No ASI monuments
Berhampur	ITI Berhampur	22-40^0C	99.5-772.5	Seismic zone II, River Bahuda and Rushikulya	alluvial soil in east and laterite soil in west and black cotton soil at the center	No Wildlife Sanctuaries and National Parks	No ASI monuments
Koraput	ITI Ambaguda	12-38 ^{0}C	10 to 500	Seismic zone II Kolab River	Red soils Alluvial soils Mixed Red and Yellow soils Red and black soils	No Wildlife Sanctuaries and National Parks	No ASI monuments
Balasore	ITI Balasore	Hot & humid 10.6-43.1 ^{0}C	1701	Seismic zone II	Alluvial	No Wildlife Sanctuaries and National Parks	No ASI monuments
Angul	ITI Talcher	10-40 ^{0}C, varied climate	1401.9	N&S-Seismic zone II Centre-Seismic Zone III, River-Mahanadi, Brahmani	Red Loam, clay	No Wildlife Sanctuaries and National Parks	No ASI monuments

Towns	ITI	Temperature & Humidity[43]	Rainfall (mm)[44]	Geology, Hydrology and Seismology [45]	Soil[2]	Reserved forests, sanctuary if any[46]	ASI Monument[47]
Bhadrak	ITI Bhadrak	Hot with high humidity Temperature - Max. 48^{0}C- Min. 17^{0}C	Annual Normal Rainfall - 1427.9 mm.	Seismic Zone III, Salandi River	1-Alfisol, 2-Aridisol, 3-Entiso	No Wildlife Sanctuaries and National Parks	No ASI monuments
Jharsuguda	ITI Jharsuguda	Hot with humidity- varies 59-71 Temperature - Max. 38^{0}C- Min. 15^{0}C	Average rain fall 1527 mm	Zones I to II, Mahanadi and Ib river	Soil Taxonomy such as Alfisols, Entisols, Inceptisols and Vertisols	No Wildlife Sanctuaries and National Parks	No ASI monuments
Jagatisinghpur	ITI Jagatisinghpur	The maximum and minimum temperature is 38^0 C and 12^0 C Relative humidity varies from 62% in April-May to 83% in August. The RH reaches as high as 93% and often above 80% in monsoon period	Average annual rainfall of the district is about 1514.6 mm	Zones III, Mahanadi and Paika river in north and Devi river in the south east.	Laterite, alluvial and saline soil.	No Wildlife Sanctuaries and National Parks	No ASI monuments

4.6 Forest Cover

83. The forest cover in Odissa state [48]is 48,855 sq. kms of which 7,073 sq. kms is very dense forest. The moderately dense forest extends over 21,394 sq. kms while open forest is over 20,388 sq. kms. The forest cover in the state constitutes 31.38% of the geographical area. Besides this, there exists tree cover outside the forest over 2.85% of the geographical area of the State. Thus the forest and tree cover in the state is 34.23% of the geographical area. The district wise recorded forest for the year 2006 of Jarsuguda, Sundargarh, Kordha, Cuttack, Bolangir, Koarput, and Ganjam districts are given in **table 16**. The forest cover map[49] of Odisha is given in **figure 3.1**.

Table 16: District wise recorded forest (Year-2006)[50] in sq.Km

District Name	Geographical Area	Total Forest	Forest land under control of Forest department		Forest land under control of Revenue Departement		
			Reserved Forest	Unclassified Forest (UF)	Demarketed Protected Forest (DPF)	Un-demarketed Protected Forest (UDPF)	Other forest under Revenue department
Jharsuguda	2081	202.44	35.53	0.04	109.97	-	56.90
Sundargarh	9712	4957.53	2651.88	1.72	837.06	-	1466.87
Khordha	2813	618.67	298.81	0.68	209.87	-	109.31
Cuttack	3932	789.09	522.39	0.45	102.60	-	163.65
Bolangir	6575	1543.85	1105.68	0.14	3.63	-	434.40
Koarput	8807	1879.53	478.86	0.68	984.58	-	415.41
Ganjam	8206	3149.90	1485.69	0.86	143.54	1167.36	352.45

Source: http://www.odisha.gov.in/pc/Download/2007-08/ANX6.1.pdf

[48] State of Environment Report-Odisha, 2007
[49] http://www.orissalinks.com/orissagrowth/wp-content/uploads/image/20080216%20orissa%20forest.jpg
[50] State of Environment Report-Odisha, 2007

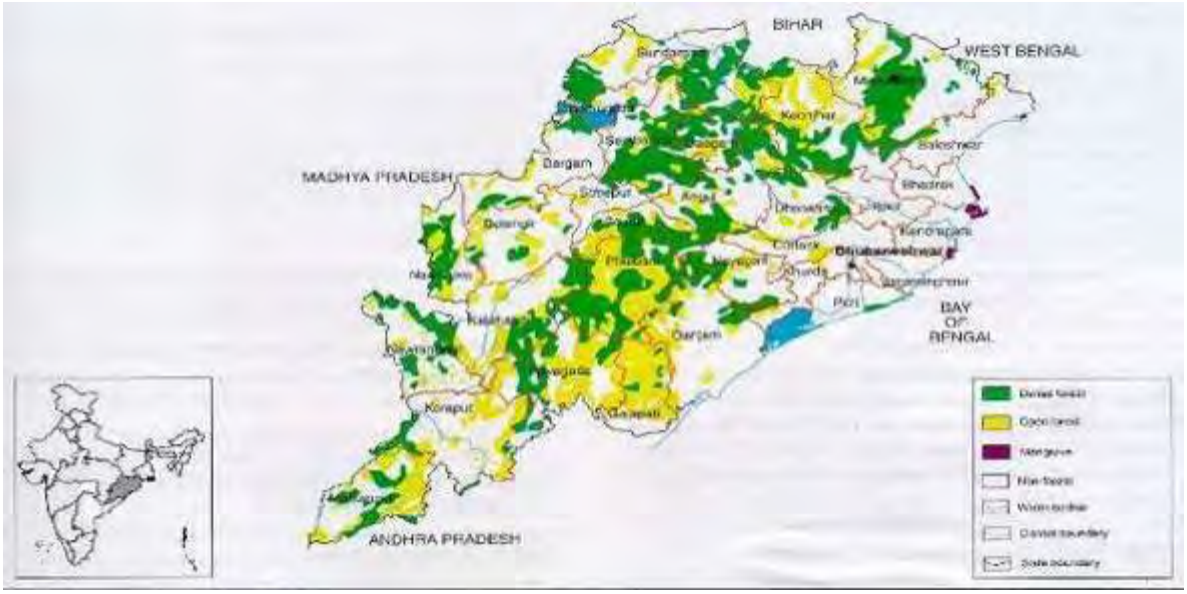

Figure 3.1: Forest cover map of Odisha

84. There is no forest within identified ASTI sites at Bhubaneshwar & Cuttack, Jharsuguda, Rourkela, Titilagarh (Bolangir), Jeypore, and Berhampur

4.7 Bio-diversity

85. Odisha host rich biodiversity in variety of habitats. There are two National parks, 18 Sanctuaries and one Biosphere Reserve in the State. There are two notified and one proposed Tiger Reserves namely Similipal, Satkosia and Sunabeda (proposed).There are three elephant reserves in the State namely Mayurbhanj, Sambalpur and Mahanadi. The protected area for wildlife management constitutes 4.25% of the total geographical area of the State. The wetland management in the State has received International accreditation. Chilika Ramsar site is the Asia's largest brakish water lagoon having rich esturine and marine fauna including 152 Irrawady dolphins (as per 2013 Jan, census). The list of National Parks and Wildlife Sanctuaries in Odisha is given in **table 17**.

Table 17: National Parks and Wildlife Sanctuaries in Odisha

Sl.	Name of National Park and Wild life Sanctuary	District	Area (Km. sq.)
NATIONAL PARK			
1	Similipal	Mayurbhanj	845.70
2	Bhitarkanika	Kendrapara	145.00
SANCTUARY			
1	Bhitarkanika	Kendrapara	672.00
2	Similipal	Mayurbhanj	2200.00 Core:845.70 Buffer :1924.30
3	Satkosia	Gorge Angul/Baudh/ Cuttack / Nayagarh	795.52
4	Hadgarh	Keonjhar	191.06
5	Nandankanan	Khurda	4.40
6	Baisipalli	Nayagarh	168.35
7	Kotagarh	Kondhmal	399.05
8	Chandaka-Dampara	Khurda/Cuttack	175.79
9	Khalasuni	Sambalpur	116.00
10	Balukhand-Konark	Puri	71.72
11	Kuldiha	Balasore	272.75
12	Debrigarh	Bargarh	346.91
13	Lakhari Valley	Gajapati	185.78
14	Chilika (Nalaban)	Puri	15.53
15	Badrama	Sambalpur	304.03
16	Sunabeda	Nuapada	500.00
17	Karlapat	Kalahandi	147.66
18	Gahiramatha (Marine)	Kendrapara	1435.00

Chandka Elephant Sanctuary:

86. Chandka Elephant Sanctuary is located in north western fringe of Bhubaneswar in the Indian state of Odisha. Nestled on Khurdha uplands of 'Eastern Ghats' biotic region, Chandaka forest spread over 175.79 square kilometers (67.87 sq mi) small sprawling hillocks of Khurdha and Cuttack Districts. It was designated as an elephant reserve in December 1982. Floral diversity is distributed in 6 types, viz., secondary moist miscellaneous semi-evergreen forests, moist Kangada (Xylia xylocarpa) forests, Coastal Sal forests (Shorea robusta), thorny bamboo brakes (Bambusa bambos), planted Teak andEupatorium scrub. Main tree species are Kochila, Kalicha, Belo, Kangada, Giringa, Sunari, Sal, Kumbhi, Jamu, Karanja, Teak and Sidha. Male bamboo (Dendrocalamus strictus) has a very restricted distribution. Common medicinal plants of the sanctuary are Duramari, Baidanka (Mucuna pruriens), Brudhadaraka, Bhuinlimbo, Guluchi lata, Salparni (Desmodium gangeticum), Satabari, Bhuin-kakharu, Indrajaba, Thalkudi, Apamaranga, Kurchi, Patalgaruda etc. A few species of ground Orchids, Ferns, Club mosses, Bryophytes and Lichens are distributed in shady wet pockets and rock escarpments.

87. Chital, barking deer, mouse deer, wild pig, common langur, rhesus monkey, small Indian civet, common Indian mongoose, small Indian mongoose, ruddy mongoose, pangolin, sloth bear, ratel, Indian wolf and hyena are other mammals of the area. Wild dogs are occasionally seen. Prominent birds of the sanctuary are peafowl, red junglefowl, crested serpent eagle, great horned owl, black headed oriole, paradise flycatcher, coucal and stone curlew. The Zoological Survey of India (in 2002) has reported 37 species of mammals, 167 species of birds, 33 species of reptiles, 13 species of amphibians and 28 species of fishes in this sanctuary.

88. A draft notification for Chandaka Dampara ESZ has issued by MoEFCC, dated 01 May, 2015. ESZ is varies from 500 m to 8.99 Km from the boundary of the Chandaka Dampara Wildlife Sanctuary. The ASTI Bhubaneshwar is about 15 Km from Chandaka Dampara. The extension of ASTI Bhubaneshwar Cuttack is more than 18 Km Chandaka Dampara.

Nandankanan

89. Nandankanan sanctuary is a 400-hectare (990-acre) zoo and botanical garden in Bhubaneswar established in 1960, it was opened to the public in 1979 and became the first zoo in India to join World Association of Zoos and Aquariums (WAZA) in 2009. It also contains a botanical garden and part of it has been declared a sanctuary. A fusion of an animal zoo, a botanical garden, Kanjia Lake and an amusement park, Nandankanan wildlife sanctuary is known for housing 67 kinds of mammals, 18 varieties of reptiles and 81 species of birds. Some of the endangered species such as Asiatic Lion, Three Indian Crocodilies, Sangal Liontailed Macaque, Nilgiri Langur, Indian Pangolin and Mouse Deer can be found at Nandankanan Wildlife Sanctuary. Tigers and White Gharials are the main inhabitants of the sanctuary51. As per MoEFCC proposal dated 31 July 2013, the default area of 10 Km will continue till the ESZ is finally notified. Existing regulation will continue in respect of such area.

90. The ASTI Bhubaneshwar is about 15 Km from Nandankanan sanctuary. The extension of ASTI Bhubaneshwar at Cuttack is within 10 Km (9.30 Km) from Nandankanan sanctuary. The proposed location of Center for Finishing Skills and Entrepreneurship, Cuttack for extension of ASTI Bhubaneshwar falls within 10 Km from boundary of Nandankanan sanctuary. The Hon'ble High Court of Odissa has passed order dated 16.05.2002 restricting construction activities within a radius of one kilometer from the boundary of Nandankanan. Further, a High level Committee was constituted by Forest & Environment department (F&E) headed by Chief Wildlife Warden (CWLW) with the representative from H&UD, Industry & F&E Department, IDCO, Collector, BDA, CDA, BMC, etc. It was decided to have ESZ area of 500 m width in Khordha district and 100 m in Cuttack district especially in Barang side. The matter was discussed at the Government level on 10.05.2014 and it was decided that the extent of the ESZ will be 100 meter on all sides except swampy area on southern side where it extends up to 560 meter. Requisite information on above matter has already sent to Odisha Government on 22 January 2014 by Chief Conservator of

51 http://www.wildlifeorissa.com/nandankanan-wildlife-sanctuary.html

Forests (Wildlife). Further, the CCF (Wildlife) has requested to fix the date for presentation before Honorable Chief Minister, Odisha on 29 January 2014 and till date it is under process. (Copy of CCF (Wildlife) letter is given in **Appendix A**).

91. The proposed location of Center for Finishing Skills and Entrepreneurship, Cuttack is inhabited area and there will not be new construction due to proposed project. Hence, the impact due to proposed project will be negligible.

Archaeological Monuments and Tourism:

92. None of the ASI site is within 300 meter from proposed ASTI and ITI locations.

4.8 Socioeconomic Environment

93. Socio-economic profile has been defined based on Census data 2011 of concern districts. The demographic and literacy details for different districts are given in **table 18** and **table 19** respectively.

Table 18: Demographic details

ASTI Locations	District	Area (in sq Km.)	Population (Year 2011)					Sex ratio (No of females per 1000 males)	Density of population (persons per sq. Km)
			Total	Male	Females	Rural	Urban		
Jharsuguda	Jharsuguda	2114	5,79,505	2,96,690	2,82,815	3,48,340	2,31,165	953	274
Rourkela	Sundargarh	9712	20,93,437	10,61,147	10,32,290	13,55,340	7,38,097	973	216
Bhubaneshwar	Kordha	2813	22,51,673	11,67,137	10,84,536	11,67,357	10,84,316	929	800
Extension of ASTI Bhubaneshwar at Cuttack	Cuttack	3932	26,24,470	13,52,760	12,71,710	18,88,423	7,36,047	940	667
Titilagarh	Bolangir	6575	16,48,997	8,30,097	8,18,900	14,51,616	1,97,381	987	251
Jeypore	Koraput	8807	13,79,647	6,78,809	7,00,838	11,53,478	2,26,169	1,032	157
Berhampur	Ganjam	8206	35,29,031	17,79,218	17,49,813	27,61,030	7,68,001	983	430

Source: District Census Handbook, 2011

Table 19: Literacy

ASTI Locations	District	Odisha			District-Wise (Year 2011)		
		Total (Nos.)	Male (Nos.)	Females (Nos.)	Total (Nos.)	Male (Nos.)	Females (Nos.)
Jharsuguda	Jharsuguda	2,67,42,595	1,50,89,681	1,16,52,914	4,05,879	2,28,092	1,77,787
Rourkela	Sundargarh				13,42,322	7,50,147	5,92,175
Bhubaneshwar	Kordha				17,49,936	9,57,515	7,92,421
Extension of ASTI Bhubaneshwar at Cuttack	Cuttack				20,11,469	11,03,033	9,08,436
Titilagarh	Bolangir				9,27,260	5,45,672	3,81,588
Jeypore	Koraput				5,68,090	3,40,843	2,27,247
Berhampur	Ganjam				22,10,050	12,62,652	9,47,398

Source: District Census Handbook

Economy

Jharsuguda[52]

94. The Economy of the Jharsuguda District is solely an industrial economy. Due to concentration of economically important minerals, especially coal, many small and large scale industries have found a conducive environment for their growth and development. To prop up the economic development the District Industries Centre (DIC), Jharsuguda started functioning independently for Jharsuguda Revenue District from January 2000. The Small scale industries set up at the basic level provide support to the Jharsuguda District. The small scale industries provide employment to a large number of inhabitants, which serve the domestic economy of the District. The economic in Jharsuguda district has brought about by the growth of the large-scale industries centering the Mahanadi coalfields. Since its invention the Mahanadi coal belt has been serving the domestic industries by providing raw materials and at the same time involves a vast

[52] District Portal Jharsuguda. Govt. of Odisha

chunk of native workforce. The Jharsuguda District has a unit of Ultratech Cement of the Aditya Birla Group at Dhutra, which is India's largest cement manufacturing company. Small scale and medium scale steel units are being set up in the District including Vedanta Alumina, Bhusahan Power Steel Limited, SMC power Generation Ltd. The district of Jharsuguda is considered as one of the developed urbanized economy in Odisha.

Sundergarh[53]

95. In Sundargarh there are diverse industrial facilities such as Steel Plant, Fertilizer Plant, Cement factory, Ferro Vanadium Plant, Machine building factory, Glass and China Clay Factory and Spinning Mills. At Rourkela there is Rourkela Steel Plant which was the first government sector steel plant built with foreign (German) collaboration and was the first in India to use LD oxygen technology. Rajgangpur is an important town situated between Rourkela and Sundergarh. It has a cement plant (OCL India Limited) and many small industries and Taran Textiles. In Kansbahal there is fabrication plant (L&T).

Bhubaneshwar & Cuttack:

96. Bhubaneswar[54] is an administrative, information technology, education and tourism city Bhubaneswar was ranked as the best place to do business in India by the World Bank in 2014. Bhubaneswar has emerged as one of the fast-growing, important trading and commercial hub in the state and eastern India. Tourism is a major industry, attracting about 1.5 million tourists in 2011. Bhubaneswar was designed to be a largely residential city with outlying industrial areas. The economy had few major players until the 1990s and was dominated by retail and small-scale manufacturing. With the economic liberalisation policy adopted by the Government of India in the 1990s, Bhubaneswar received investment in telecommunications, information technology (IT) and higher education.

97. As of 2001, around 2.15% of the city's workforce was employed in the primary sector (agriculture, forestry, mining, etc.); 2.18% worked in the secondary sector (industrial and manufacturing); and 95.67% worked in the tertiary sector (service industries).

98. In 2011, according to a study by Associated Chambers of Commerce and Industry of India, Bhubaneswar had the highest rate of employment growth among 17 Tier-2 cities in India. It has been listed among the top ten emerging cities in India by Cushman and Wakefield, taking into consideration factors like demographics, physical, social and real estate infrastructure, current level and scope of economic activities and government support. In 2012, Bhubaneswar was ranked third among Indian cities, in starting and operating a business by the World Bank.

99. Bhubaneswar has been traditionally home to handicrafts industry, including silver filigree work, appliqué work, stone and wood carvings and patta painting, which significantly contributes to the city's economy. The late 2000s saw a surge of investments in the real estate, infrastructure, retail and hospitality sectors; several shopping malls and organised retails opened outlets in Bhubaneswar.

100. The Department of Industries established four industrial areas in and around Bhubaneswar, in the Rasulgarh, Mancheswar, Chandaka, and Bhagabanpur areas. In the informal sector, 22,000 vendors operate in regulated or unregulated vending zones.

101. Cuttack[55] is widely known as the commercial capital of Odisha. It is believed to have the largest GDP among all cities in Odisha due to its large business houses and wide range of industries ranging from ferrous alloys, steel and logistics to agriculture and traditional industries like textiles and handicrafts. There are many trading houses in the city renowned nationally and internationally. The Paradip Port which is around 85 Km from the city facilitates this process. The city is one of the largest hub for textiles in eastern India. The city's annual textile trade generates over a billion dollars of revenue. A large textile park is planned, giving a face lift to the erstwhile Odisha Textile Mills in city outskirts. Cuttack is famous for its silver filigree works and only

[53] District Portal Sundergarh. Govt. of Odisha
[54] https://en.wikipedia.org/wiki/Bhubaneswar
55 https://en.wikipedia.org/wiki/Cuttack

because of these works it is also known as the silver city of India. Cuttack is also famous for its handicraft works using cow horn. Generally the horn of dead cattle is used and is performed by licensed craftsmen only. This peculiar artifact is limited to Cuttack only and anything of such kind is found nowhere else in the world. These fine and unique handicraft works add significantly to the local economy.

Bolangir

102. Bolangir is a predominantly agrarian district with more than 70% of the population dependant on agriculture for their livelihood. Cotton plantation is another important bough of agriculture which has immense popularity in Bolangir other than that of paddy, till, mustard etc which are also cultivated in the district. Most of the areas follow a single cropping pattern. According to 1997 survey, out of 329700 households, 201310 nos are BPL households in the district. Many poor migrate to cities like Hyderabad, Raipur to work there as "Dadan Sramik". This is a major constraint for education of their children. 50 percent of the women involve in agro based Activity and 90 percent of rural women supplement their income through NTFP (Non timbers forest produces) like Kendu leaf, Mahula, Broom and collection of various forest products. Since last few years, a number of SHG (Self Help Group) have been organised by both Government & NGOs to supplement their livelihood. Apart from this, various Income generating programme for women like SGSY have been introduced by Government.

Koarput

103. The Economy of Koraput district is primarily based upon forest and agriculture (including shifting cultivation), the bulk of commodities used domestically for everyday use are agricultural and forests products. The district with semi evergreen to deciduous vegetation endowed with various wild plants as a natural resource. There are many industrial sectors that contributes to the growth of the economy of the Koraput district. HAL factory (Hindustan Aeronautics Limited, a defence enterprise of the Government of India) is 15 Km from Koraput town. It has employed 6000 engineers and technicians. The National Aluminium Company Ltd.(NALCO), Damanjodi also has its significance to boost up the economy of Koraput district. Around 2500 engineers & technicians are engaged in the process of extraction of Alumina from Bauxite. Other than the employees there are thousands of workers engaged by hundreds of contractors.

Ganjam

104. The economy of the Ganjam District is supported by both industry and agriculture. The District is well known for its food grain production and its export. The agricultural sector supplies about 75 percent of the total workforce of the Ganjam District. The animal husbandry also adds economical support to the District. There are a considerable section of people who are living on animal rearing. The share of industries in the economic development of Ganjam District is also important. Ganjam District has store a variety of economically important minerals like limestone, soapstone, chinaclay, fireclay, graphite, granite and quartz. Agriculture forms the backbone of the District's economy, with more than 70 Percent of the population being dependent on it. The district has alluvial soil at the eastern part (coastal region) and late rite soil on the west (hilly table land) with small patches of black cotton soil at the centre and in the north east close to Chilika. This helps in obtaining a substantial agricultural yield. Availability of mineral resources and forest resources also contributes to the District's economy. Abrasives and grinding materials, lime stone (kankar), manganese, monazite, sand and talc are some of the chief economic minerals found in the District. Black granite stones are abundantly available in the District, sustaining the stone crushing and stone polishing units. Matikhala mines, operated by Indian Rare Earths Limited (IRE) is one mine in the district that exploits sand deposits containing monazite, zircon and rutile illuminate. The forests of the District provide a wide range of raw materials contributing to its economic growth. Timber, bamboo, tamarind, mahua, resin, kendu leaves, siali leaves, sal leaves, neem and karanja seeds are the main forest products. As regards livestock resources, the rich live stock population of the District contributes in its own way to the District's economic development. This District fulfills the major portion of the total lime needs of the state, with the rich resource of lime shells that its long coast line offers. Ganjam and Humma area and the area near the mouth of river Bahuda and Rushikulya are the rich sources of salt production, catering not only to the needs of the district but also of the state. There are a number of industries

functioning in the district. The district also has three industrial estates, located at Berhampur, Bhanjanagar and Chatrapur respectively.

105. Agriculture[56]: The agricultural scenario of Jharsuguda, Rourkela, Khurdha, Cuttack, Bolangir, Koarput, and Ganjam (Berhampur) districts are presented in **table 20**.

Table 20: Agricultural scenario

ASTI Locations	Jharsuguda	Rourkela	Khurdha[57]	Cuttack[58]	Bolangir	Koraput	Berhampur
Net sown area (area in '000 ha)	78	292	128	157	324	287	380
Area sown more than once (area in '000 ha)	34.7	86	105.5	164	148	99.7	306
Gross cropped area (area in '000 ha)	112.7	378	232.65	309	472	386.7	686
Net irrigated area (area in '000 ha)	101.1	292	52.61	97.43	53.92	97	242.4
Gross irrigated area	143.3	86	82.89	149.6	84.04	153.8	297.5
Rainfed area	278.8	378	74.39	59.57	270	189.9	164
Major field crops cultivated	Paddy, sesamum, blackgram, horsegram, groundnut, mustard	Blackgram, paddy, maize, greengram, redgram, groundnut, sesame, wheat	Paddy Maize, Ragi, Pulses, Arhar, Gram, Groundnut, Sugarcane	Paddy, Blackgram, Greengram, Groundnut, Sugarcane, Jute	Rice, mung, bin, cotton, seasamum, groundnut, sunflower	Paddy, finger millet, maize, niger, arhar, sugarcane	Rice, groundnut, cashew, papaya, pineapple, Banana

106. **Industrial clusters[59]:** The industrial scenario of Jharsuguda, Rourkela, Khurdha,Cuttack, Bolangir, Koraput, and Berhampur (Ganjam) districts are presented in **table 21**. The Economy of ITIs region is given in **table 22**.

Table 21: Industrial scenario

ASTI Locations	Jharsuguda	Rourkela	Khurdha[60]	Cuttack[61]	Bolangir	Koraput	Berhampur
Registered industrial unit	730	4182	3948	5778	1270	1547	3677
Total industrial unit	1601	11171	7113	13126	4557	4938	9921
Total medium & large unit	18	75	10	19	5	4	3
Employment in small scale industries	6782	81229	42827	78215	29635	29840	27406
Employment in large and medium industries	7707	49558	1046	2708	3652	7756	4504
No. of industrial area	2	6	11	8	7	3	5

[56] Department of Agriculture & Cooperation
[57] http://agricoop.nic.in/Agriculture%20Contingency%20Plan/Orissa/Orissa%2029-%20Khurdha%2004.10.2011.pdf
58 http://agricoop.nic.in/Agriculture%20Contingency%20Plan/Orissa/Orissa%202-Cuttack%2031.05.2011.pdf
[59] Town level background paper on Berhampur town (2011). http://www.tiss-uirf.in/documents/ResearchReports/BackgroundPapers/TownLevelBackgroundNotes/BerhampurTLBN(English).pdf.
[60] http://dcmsme.gov.in/dips/BIPS-Khorda-2012.pdf
61 http://dcmsme.gov.in/dips/bips-new-cuttack.pdf

Table 22: Economy in the region where ITIs are located

ITI locations	Number of industries large, medium, small industries [62]	Agriculture – main crop, cultivated land ('000 ha)[63]	Number of education facilities[64]	Number of health facilities[65]
Bargarh	Large & Medium scale industries-5 Micro, Small & Medium Enterprises-1191	Net irrigated area-149.4 Major crops-Paddy, groundnut, maize, sugarcane, mung, biri	Pharmacy College Barpali, Vikash Junior College, Sri Sri Nrusinghanath Ayurvedic College Paikmal, Panchayat College Bargarh, Larambha College, Bargarh Law college, Anchal College Padampur, Attabira College, Padmashree Krutartha Acharya College of Engineering Bargarh.	SC-205 PHC-46 CHC-14
Baudh	Micro, Small & Medium Enterprises-372 Small scale industries including food based, metallurgical based, textile based, forest based, engineering based and chemical based. Mining industry is quite developed	Net irrigated area-40.96 Major crops-Paddy, moong, biri, arhar, sesamum		SC-67 PHC-12 CHC-5
Bhadrak	Large & Medium scale industries-1 Micro, Small & Medium Enterprises-1598 Big industries like FACOR, one of the largest manufacturers of quality Ferro Chrome in the country and a large number of small industries like AB Electricals, Abhigoura Rice Mill and Aloknath Ice Factory etc.	Net irrigated area-111.8 Major crops-Paddy, greengram, blackgram, mustard, sunflower, groudnut	Bhadrak Autonomous College, Bhadrak Women's College, Bhadrak High School or Zilla School are also some of the leading educational institutes of the District, Bhadrak Institute of Engineering and Technology, Industrial Training Centers and Diploma Colleges are the epitomes of technical education of the District.	SC-177 PHC-50 CHC-7
Cuttack	Large & Medium scale industries-19 Micro, Small & Medium Enterprises-6241 District has a rich tradition of handicraft and cottage industries. The micro and small industries functioning here are chemical based, textile based, leather based or any other category based.	Net irrigated area-97.43 Major crops-Paddy, blackgram, greengram, groundnut, sugarcane, jute	Ravenshaw University, SCB Medical College, Madhusudan Law College, disha School of Engineering (BOSE), IPSAR, Institute of Textile Technology (ITT), National Law University (NLU) etc. Central Rice Research Institute (CRRI), National Institute of Rehabilitation and Training (NIRTAR), Regional Spinal Injury Centre (RSIC) and Acharya Harihar Regional Cancer Research Centre (AHRCRC)	SC-333 PHC-58 CHC-21 Ashwini Hospital, Shanti Hospital, Sun Hospital Pvt. Ltd.
Debagarh	Large & Medium scale industries-1 Micro, Small & Medium Enterprises-212	Net irrigated area-18.52 Major crops-Paddy, sesamum, blackgram, greegram, groundnut	P.S Snatak Mahavidyalaya, PS +3 Degree College, Palsama Science College, Reamal College, Deogarh Government College etc are the important colleges of the District.	SC-42 PHC-7 CHC-4

[62] NIC, Directorate of Industries, Odisha, Cuttack
[63] Department of Agriculture and Cooperation, Odisha
[64] Odisha District Portal
[65] Odisha HMIS Analysis Report

ITI locations	Number of industries large, medium, small industries [62]	Agriculture – main crop, cultivated land ('000 ha)[63]	Number of education facilities[64]	Number of health facilities[65]
Dhenkanal	Large & Medium scale industries-13 Micro, Small & Medium Enterprises-1476 Dhenkanal consists of many chief minerals like chrome ore and granaite stone sustaining many industries. Some large scale industries like Nilachal Refractories, Utkal Asbestos Ltd, M/S Nababharat Ventures Ltd., Bhusan Steel & Strips Ltd., GMR Energy Ltd. And Shakti Sugars are established in the District. The Dhenkanal District is famous all over the world for its Dokra casting, Bell Metals, Horn works, Straw works, Wood carving, Stone carving, Tribal jewellery and Silver Filigree.	Net irrigated area-51.7 Major crops-Paddy, horsegram, blackgram, greegram, groundnut, mustard	Dhenkanal District is famous all over the world for Indian Institutes of Mass Communication (IIMC). Educational Institutes like Dhenkanal College, Dhenkanal Law College, Brajanath Badajena High School, Sarangadhar High School, Kamakhyanagar and Jawahar Navodaya Vidyalaya, Sarang are in the Dhenkanal District.	SC-167 PHC-32 CHC-10
Gajapati	Micro, Small & Medium Enterprises-550	Net irrigated area-23.9 Major crops-Paddy, maize, ragi, arhar, sesamum, total fibres	SKCG College, Women's College, JITM, Centurion University, and Kendriya Vidyalaya are some of the major educational institutions of the District.	SC-136 PHC-20 CHC-8
Jagatsinghapur	Large & Medium scale industries-6 Micro, Small & Medium Enterprises-1292	Net irrigated area-61.8 Major crops-Paddy, maize, ragi, wheat, mung, biri, kulthi, cowpea, gram, groundnut, mustard, til, sunflower	Swami Vivekananda Memorial (Autonomous) College, Jagatsinghpur, Adikabi Sarala Das Mahavidyalaya, Tirtol, Sidha Baranga Junior College of Education and Technology Punanga, Keduapada Higher Secondary School Kaduapada, Biju Patnaik (Junior) College Ashrampatna, Swami Vivekananda Memorial (Junior) College Jagatsinghpur, Swagatika College of Science and Education Jagatsinghpur are the famous educational institutes of the District.	SC-189 PHC-37 CHC-9
Jajapur	Large & Medium scale industries-14 4 small steel plants are operating and 9 more are on their way to start production. Big plants like Mesco, Neelachal Ispat, Maithan, Tata Steels, Brahmani Rever Pellets Limited and Jindal Stainless Limited have set up their operations here. Daitari mines are famous for the mining extracts	Net irrigated area-54.3 Major crops-Paddy, groundnut, greengram, blackgram, jute, sugarcane	B.B. High School, Dasarathpur High School, N.C.College, V.N College, N.C College, Biraja Women's College, Biraja Law College, B.S.College, Sukinda College, and A.P.College are some of the major educational institutes thriving on the principles of imparting quality education.	SC-160 PHC-56 CHC-12
Kalahandi	Large & Medium scale industries-2	Net irrigated area-135.57 Major crops-Paddy, cotton, greengram, blackgram, arhar, maize, cowpea		SC-242 PHC-43 CHC-16
Kandhamal	Micro, Small & Medium Enterprises-1419	Net irrigated area-18.7 Major crops-Rice, maize, arhar, blackgram, niger		SC-172 PHC-37 CHC-14
Kendrapara	Micro, Small & Medium Enterprises-1090	Net irrigated area-67.04 Major crops-Paddy, greengram, blackgram,	Balia Women's College, Kendrapara Law College, Chandol College, Derabish College, Kendrapara College, Marsaghai College, Tulsi	SC-227 PHC-45 CHC-9

ITI locations	Number of industries large, medium, small industries [62]	Agriculture – main crop, cultivated land ('000 ha)[63]	Number of education facilities[64]	Number of health facilities[65]
		groundnut, jute, sunflower	Women's College, Kendrapara Institute of Engineering and Technology are the important colleges of the District.	
Kendujhar	Large & Medium scale industries-31 Micro, Small & Medium Enterprises-1971 The Kalinga Iron Works (Barbil), Ferro Manganese Plant (Joda), Ipitata (Beleipada), Charge Crome (Brahmanipal) are the major names in the industrial scene of Keonjhar. There are also engineering and metal based industries (53 numbers), chemical and allied industries including plastic industries (48 numbers) and agro and marine based industries (242 numbers) functioning in this District.	Net irrigated area-63 Major crops-Rice, maize, blackgram, horsegram, niger, greengram		SC-351 PHC-60 CHC-17
Malkangiri	Micro, Small & Medium Enterprises-216	Net irrigated area-136 Major crops-Paddy, maize, greengram, groundnut, sesamum		SC-158 PHC-26 CHC-8
Mayurbhanj	Large & Medium scale industries-2 Micro, Small & Medium Enterprises-2637	Net irrigated area-108.5 Major crops-Paddy, maize, blackgram, horsegram, arhar, greengram, groundnut, niger		SC-589 PHC-82 CHC-28
Nabarangapur	Large & Medium scale industries-1 Micro, Small & Medium Enterprises-632	Net irrigated area-181 Major crops-Paddy, maize, blackgram, ragi, arhar, sugarcane, cowpea, linseed, groundnut, niger	District has one Technical Institute i.e Women's I.T.I of Umerkote. Govt. Secondary Training School, Nabarangpur and Govt. Secondary Training School, Umerkote are the professional Training Colleges running in the District. Jabahar Navadaya Vidyalaya, Khatiguda is the Central Government run special School also serving the Educational requirement of the District.	SC-289 PHC-39 CHC-11
Nayagarh	Large & Medium scale industries-1 Micro, Small & Medium Enterprise-743	Net irrigated area-39.7 Major crops-Paddy, greengram, blackgram, sesame, sugarcane	Raghunath Samabaya Mahavidyalaya, Ranapur College, Pathani Samanta College, Nayagarh Autonomous college are the important colleges of the Nayagarh District.	Sc-166 PHC-37 CHC-12
Naupada	Micro, Small & Medium Enterprises-315	Net irrigated area-45.2 Major crops-Paddy, greengram, blackgram, groundnut, mustard, sunflower		Sc-96 PHC-17 CHC-6
Puri	Micro, Small & Medium Enterprises-1598	Net irrigated area-97.8 Major crops-Paddy, ragi, maize, arhar, sesame, cotton	Sri Jagannath Sanskrit Vishwavidyalaya, Samanta Chandra Sekhar Autonomous College, Rastriya Sanskrit Santhan Deemed University, Sadasiv Parishar, Gangadhar	SC-244 PHC-46 CHC-17

ITI locations	Number of industries large, medium, small industries [62]	Agriculture – main crop, cultivated land ('000 ha)[63]	Number of education facilities[64]	Number of health facilities[65]
			Mohapatra Law College and Biju Pattnaik National Steel Institute are some of the leading educational institutions of this District.	
Rayagada	Large & Medium scale industries-4 Micro, Small & Medium Enterprises-1265	Net irrigated area-40.3 Major crops-Paddy, pulse, oilseeds, fibres, sugarcane		SC-236 PHC-36 CHC-11
Sambalpur	Large & Medium scale industries-16 Micro, Small & Medium Enterprises-1402	Net irrigated area-61.38 Major crops-Paddy, greengram, blackgram, kulthi, redgram, maize, fieldpea, cowpea, groundnut, sesame, mustard, castor, sunflower, mesta, turmeric , sugarcane	Gangadhar Meher College, Gayatri College of Pharmacy, University college of Engineering, VSS Medical college and hospital, Dr P.M Institute of Advanced studies in Education, Gayatri College of Management, Gayatri College of Pharmacy, Lajpat Rai Law College, and Sambalpur Nursing college are the famous educational institutes in the District.	SC-172 PHC-32 CHC-11 Sanjivani Nursing Home
Subarnapur	Micro, Small & Medium Enterprises-311	Net irrigated area-44.1 Major crops-Paddy, green gram, black gram, sesamum, red gram, sunflower, mustard, sugarcane		SC-89 PHC-18 CHC-5
Bhubaneswar	Pharmaceuticals, brass utensils cottage industries, cable factory, Spinning mills, watch repairing factory, railway coach repairing factory, oil Industries, Coca-Cola bottling plant and small metal industries	Cultivable Area - 138 Cultivated Area – 124 Paddy Area- 109 Ha Irrigated Area – Kharif -44% Rabi- 25%	Total primary school- 1041 Total high school- 399	
Rourkela	Registered Industrial Unit-4182 Total Industrial Unit- 11171 Registered Medium & Large Unit- 75	Cultivated Area-313 Total Paddy area-226 Total Non-Paddy Area -870	Total primary school- 1843 Total high school-413	PHC-10
Bolangir	70% of the population dependent on agriculture	Total Area -657 Forest cover-154 Non-agricultural land-53 Cultivable barren land-23	Total primary school-1362 Total high school-355	CHC 15 PHC 42 SC 226
Berhampur	The industrial estate located at Berhampur covers an area of around 30 acres having 54 industrial sheds. There are around 750 small scale industrial units in and around the town	Cultivated Area - 406 Paddy Area-223 High land Paddy-19 Medium land Paddy- 103 Low land Paddy – 100	Total primary school-2432 Total high school-628	PHC-10 CHC-5
Koraput	HAL, NALCO	Total Area -881 Forest cover-93 Non-agricultural-land-40 Cultivable barren land-126	Total primary school- 1720 Total high school- 218	SC- 1 CHC-16 PHC-48
Baleswar	MSME- 2569 Large & Medium- 10	Net irrigated area-177.53 Crops- Paddy, ground nut, moong, biri, maze	Fakir Mohan University is a reputed university of Baleswar town	SC-275 PHC-68 CHC-17

ITI locations	Number of industries large, medium, small industries [62]	Agriculture – main crop, cultivated land ('000 ha)[63]	Number of education facilities[64]	Number of health facilities[65]
Talcher	Many public sector undertakings have setup up plants and offices here, like National Aluminium Company Limited (NALCO), Mahanadi Coal Fields Limited (MCL), National Thermal Power Corporation (NTPC) and Talcher Thermal Power Station (TTPS). One of the major coalfields is the Talcher coalfield, which contains huge reserves of power grade non-coking coal. Engineering Units, Rice Mills, Hotels, Fly Ash Brick units, Stone Crushers, Service Units, Bleaching units, Bread and Bakery units, Tyre Retreading units, Flour Mills and Spices Grinding units etc. are some of the small scale industries functioning here. Micro, small and medium-1322 Large and medium scale-5	Net irrigated area-42.93 Major crops-Paddy, sesamum, black gram, green gram, ground nut, red gram, mustard, maze, sunflower, sugarcane.	Angul district has many Government and Private Institutes. Government College (Angul), Angul Women's College (Angul) and Talcher College (Talcher) are the important educational institutions of the District. There are other training institutes of the District, like Police Training College (PTC) Angul, Forest Rangers College Angul and a number of industrial training institutes	SC-175 PHC-31 CHC-9

SC-Sub Centres, PHC- Public Health Centres, CHC- Community Health Centres

5. POTENTIAL ENVIRONMENTAL IMPACTS

107. Generally, the environmental risks/impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly by the project and secondary impacts are those, which are indirectly induced and typically include the associated investment and changed patterns of social and economic activities by the proposed actions. The details of criteria opted for impacts assessment are as per described hereunder:

108. Processes that may create risk to the site specific environment parameter are considered and are analyzed in terms of key potential environmental impacts based on the location specific actual and foreseeable events, including operational and typical events of the proposed programme.

109. The environmental risks/impacts may include all those that are beneficial or adverse, short or long term (acute or chronic), temporary (reversible) or permanent (irreversible), direct or indirect, cumulative & induced and local or regional. The adverse impacts may include all those leading to harm to living resources, damage to human health, hindrance to other activities, impairment of quality for use, reduction of amenities, damage to cultural and heritage resources, damage to physical structures etc. While the beneficial impacts may include socio-economic development on regional basis due to development of super specialty skills leading to enormous opportunity of direct and indirect employment and business. For each identified potential environmental and social impact, the associated environmental and social risk is assessed based on its likelihood and significance. For the proposed proposal, the impacts assessment is being performed in three steps:

Step 1: Identification of interactions between activities and receptors

Step 2: Identification of potentially significant environmental and social risks/impacts

Step 3: Evaluation of all significant environmental and social risks/impacts

110. In Step 1, based on the description of activity proposed to be undertaken and environmental baseline description, a detailed matrix of activities and receptors is prepared. Then based on the legal framework and baseline environment and social data, it is determined whether an interaction exists between an activity and a receptor.

111. In Step 2, based on the interactions identified in Step 1, potentially significant impacts due to the proposed changes are identified. The impacts may be beneficial/adverse, direct/indirect, reversible/irreversible and short-term/long-term as per criteria given in **table 23**.

Table 23: Risk/Impact rating assessment matrix

Impact		Criteria
Nature of impact	Beneficial	Positive
	Adverse	Negative
	Direct	Impacts are directly contributed by project activities
	Indirect	Impacts are induced by project activities
Duration of impact	Short term	Impacts shall be confined to a stipulated time
	Long term	Impacts shall be continued till the end of life of proposal
Impacted Area	Localized	Impacts shall be confined within an area of 10 Km radius around the project location
	Regional	Impacts shall be continued beyond an area of 10 Km radius around the project location.

112. In Step 3, all the potentially significant impacts are evaluated and a qualitative evaluation is made. An impact level is rated as “low”, “medium” or “high”. The impact rating is based on two parameters i.e. the “severity of impact” and the “likelihood of occurrence of impact”.

- Severity of Impact: The severity of an impact is a function of a range of considerations including impact magnitude, impact duration, impact extent, compliance of prescribed legal framework and the characteristics of the receptors/ resources; and
- Likelihood of Occurrence: How likely is the impact (this is particularly important consideration in the evaluation of unplanned/ accidental events)

113. The significance of each impact is determined by assessing the impact severity against the likelihood of the impact occurring as summarized in the impact significance assessment matrix provided below in **table 24** and its explanation is given in **table 25**.

Table 24: Severity & Likelihood of Impacts

Impact Severity	**Impact Likelihood**			
	Unlikely (e.g. may not expected to occur during project lifetime)	Low Likelihood (e.g. occur once or twice during project lifetime)	Medium Likelihood (e.g. occur every few year)	High Likelihood (e.g. Routine, happens several times a year)
Slight	Negligible Impact	Negligible Impact	Negligible Impact	Negligible Impact
Low	Negligible Impact	Negligible Impact	Negligible to Minor Impact	Minor Impact
Medium	Negligible Impact	Minor Impact	Minor–Moderate Impact	Moderate Impact
High	Minor Impact	Moderate Impact	Major Impact	Major Impact

Table 25: Explanation of Impacts

Negligible Impact	:	Defined as magnitude of change comparable to natural variation
Minor Impact	:	Defined as detectable but not significant
Moderate Impact	:	Defined as insignificant; amenable to mitigation; should be mitigated where practicable
Major Impact	:	Defined as significant; amenable to mitigation; must be mitigated

114. As described above, the proposed proposal has two components i.e. 1) creation of infrastructure needed and 2) operation of facility to meet the objectives of the proposed programme. The details of risks/impacts on various environment during creation of infrastructure and operation phase with mitigation measures, mentioned as a part of EMP, are described as per given hereunder:

5.1. Risks/Impacts during construction phase: The anticipated risks/impacts during pre-construction and construction phase are given in **table 26**.

Table 26: Anticipated risks/impacts during pre-construction and construction phase

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
Clearance from environment regulatory authority	• Environment clearance under EIA rules; • Consent to Establish and Operate under water and air act	Moderate & adverse	Short term	local	low	High	• As per MoEFCC notification (**Appendix 2**) dated 09 December 2016, the school, college, hostel for educational institution shall not require any environmental clearance and shall ensure sustainable environment management, and implement environmental conditions given in Appendix XIV of above notification. • The consent to establishment and consent to operate before commencing the construction and operation shall be obtained by EA from OSPCB. • The site specific EMP will be prepared later as and when the design and drawings are finalized by the Contractor and the IEE report shall be updated accordingly. Subsequently, the updated IEE report will be submitted to ADB for review and approval before commencement of civil works.
Land	• Possession of land • Clearing of land • Removal of trees • Removal of electrical lines	Moderate & adverse	Short term	local	low	High	• Right of usages is yet to be transferred to OSDA. • For any tree removal, permission shall be obtained from local DFO and recommended compensatory plantation will be carried out as per stipulated condition. • However, as per OM dated 9 June 2015 of MOEFCC, plantation should be carried out in 1 to 3 ratio in case removal of trees • Debris to be generated during construction phase will be used for levelling of site and if in excess then it shall be disposed of via local vendors for land filling; • Scrap materials to be generated will be sold to local vendors for recycle/reuse; and • Jeypore ASTI-33 KV electrical lines and two towers exist on proposed site, which needs to be shifted.
Terrestrial ecology	• Mobilization and demobilization of machinery/equipment; • Clearing and leveling of site; • Removal of trees • Storage of construction materials, fuels and chemicals; • Civil and mechanical work including operation of diesel driven machinery, equipment and electricity generators; etc	Moderate & adverse	Short term	local	low	High	• Jharsuguda - There are large to small sized trees across the land that is being allocated and need to be removed • Rourkela - There is 1 tree within proposed site (Diving track) and need to be removed. • 40% of total allotted area will be earmarked for plantation/landscaping. • For any tree removal, permission shall be obtained from local DFO and recommended compensatory plantation will be carried out as per stipulated condition. • However, as per notification dated 9 December 2016 of MOEFCC, plantation would be carried out in 1 to 3 ratio in

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
							case removal of trees • Debris to be generated during construction phase will be used for levelling of site and if in excess then it will be disposed of via local vendors for land filling; • The excavated municipal waste from proposed Jeypore ASTI shall be dumped at authorized solid waste disposal site. The Municipality department, Jeypore has confirmed to provide the disposal site as and when required for dumping of waste generated from proposed ASTI site. • Scrap materials to be generated will be sold to local vendors for recycle/reuse; • Activity will be confined to earmarked area only.
Topography and Drainage pattern	• Clearing and leveling of the site • Civil and mechanical works	Negligible & adverse	Short term	local	low	low	• Activity will be confined to earmarked area only.
Water Resources	• Water requirement for construction and domestic activities	Moderate & adverse	Short term	Local	High	Medium	• During construction phase, estimated water requirement for each site is 15-20 KLD and source shall be ground water. • Permission of withdrawal of ground water will be obtained from State Water Resource Department. • Bolangir (Titilagarh): main canal, branch canal and water tank (pond) shall not be impacted due to ASTI activities; and • Jeypore: branch canal shall not be impacted due to ASTI activities.
Ambient air quality	Generation of Dust and gaseous pollutants such as SO2, NOx, CO etc due to: • Mobilization and demobilization of machinery/equipment • Clearing and leveling of the site • Operation of heavy machinery/equipment • Storage of construction materials • Civil and mechanical works • Operation of DG sets and other fuel driven machinery to be used for civil and mechanical works • Movement of traffic • Approach roads, if any	Moderate & adverse	Short term	Local	High	Medium	• Ambient air quality monitoring will be carried out by the Contractor before commencing construction activities at each ASTI site. • Activity will be confined to earmarked area only. • NAAQS 2009 for industrial, residential, rural and other areas will be guiding standards • While removing the municipal waste from proposed ASTI site at Jeypore, there will be chance of methane explosion, hence preacautionary measures shall be taken before excavation and removal of dumped solid waste.
Noise level	• Mobilization and demobilization of machinery/equipment • Clearing of the site • Operation of heavy machinery/equipment	Moderate & adverse	Short term	local	High	Medium	• Noise level monitoring will be carried out by the Contractor before commencing construction activities at each ASTI site. • Ambient noise level standard 2000 for silence zone will be guiding standard.

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
	• Civil and mechanical works • Operation of DG sets and other fuel driven machinery to be used for civil and mechanical works • Movement of traffic						• Activity will be confined to earmarked area only. • Silencers and scheduling of activities during daytime be implemented especially where there are sensitive receptors.
Waste water discharge	• Mobilization and demobilization of machinery/equipment • Clearing and leveling of the site • Operation of heavy machinery/equipment • Civil and mechanical works • Movement of traffic • Camp site	Moderate & adverse	Short term	local	High	Medium	• Appropriate surface run-off drainage systems (eg silt traps); • Proper drainage system or collection pits for transportation/collection of waste water; • Isolation and disposal of all the debris resulting from the site from the waste water; • Domestic waste water, if any will be drained to soak pit/existing sewage disposal system. • Renovation of existing BPUT building including septic tank and soakpit at Gandamunda for ASTI Bhubaneshwar will be done before use of temporary site. • Separate collection, treatment and disposal of waste water generated from ASTI laboratory shall be provided. • Activity will be confined to earmarked area only. • Bolangir (Titilagarh): Main canal, branch canal and water tank (pond) shall not be polluted due to ASTI activities; • Jeypore: branch canal shall not be polluted due to ASTI activities.
Soil & Solid wastes	• Mobilization and demobilization of machinery/equipment • Clearing and leveling of the site • Operation of heavy machinery/equipment • Civil and mechanical works • Movement of traffic • Camp site	Moderate & adverse	Short term	local	High	Medium	• Removal and disposal of trees will be done through vendors associated with forest department. • Soil and other debris generated during dismantling of flats and foundation work will be used for levelling and if it is excess then same will be disposed of through vendors for levelling of land only. • Scrap materials to be generated during dismantling of flats shall be sold to local vendors for reuse/recycle. • Municipal solid waste will be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste will be sent to disposal site of municipal corporation; • All hazardous waste including e-waste, batteries, plastic waste will be disposed of via vendors authorized by OSPCB. • Presently solid generated from existing premises is dealt as per details given hereunder; • Recyclable waste such as paper, glass and empty containers will be sold to vendors; • Other waste including kitchen waste is being disposed as Municipal Solid waste to the municipal landfill site(s)

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
							• Activity will be confined to earmarked area only. • The excavated municipal waste from proposed Jeypore ASTI shall be dumped at authorized solid waste disposal site.
Occupational Health & Safety	Dust, gas cutting, welding, bruises, cuts, and abrasions because of manual handling, accidents due to common reasons like fall from height and entrapment of limbs in machinery due to: • Mobilization and demobilization of machinery/equipment • Clearing and leveling of the site • Operation of heavy machinery/equipment • Civil and mechanical works • Movement of traffic	Moderate & adverse	Short term	local	High	Medium	• Activity will be confined to earmarked area only. • While removing the municipal waste from proposed ASTI site at Jeypore, there will be chance of methane explosion, hence preacautionary measures shall be taken before excavation and removal of dumped solid waste. • The Contractor shall also prepare an emergency preparedness plan considering the possible hazards and accidents at construction site along with contact person details.
Employment & Socio economic	• Direct and indirect employment • Utilization of local available resources	Minor & beneficial	Short term	local	High	Low	• Total manpower envisaged is 90-100 for each site. • Completion of construction activity within 36 months. • Preference will be given local labour and vendors.
Disturbance to community resources & safety	• Mobilization and demobilization of machinery/equipment • Clearing and leveling of the site • Operation of heavy machinery/equipment • Civil and mechanical works • Movement of traffic	Moderate & adverse	Short term	local	High	Medium	• Approach road to allotted site is reasonably good. • Activity will be confined to earmarked area only.
Natural disaster	• Design of infrastructure • Civil and mechanical works	Moderate & adverse	Short term	local	High	Medium	• Cyclone is the main natural disaster: • All measures as per NBC-2005 will be inbuilt at design stage • All operational measures as per Disaster Management plan for Odisha by Panchayati Raj Department, Odisha will be implemented.
Culture and heritage	• Migration of labour • ASTI Jharsuguda proposed site-Sai Baba statue and Shiv temple is available	Moderate & adverse	Short term	local	low	Slight	• Preference will be given to local labour and vendors. • The Sai Baba statue and Shiv temple will be protected and separate entrance will be provided. • The playground will be developed in ITI Rourkela to compensate the loss of driving track, which is presently also used as playground. The land is available within ITI Rourkela campus and needs proper levelling of the same.
Operation of ASTI from temporary	• Generation of air emission, waste water and solid waste;	Major & adverse	Short term	local	High	High	• Environmental implications will be reviewed and based on the assessment mitigation measures will be planned before commencing operation on temporary basis”

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
locations							

5.2. Risks/Impacts during operation phase: The anticipated risks/impacts during operation phase are given in **table 27**.

Table 27: Anticipated risks/impacts during operation phase

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
Management of clearance/NOC from regulatory authorities including ADB	• Compliance of conditions stipulated: 1. As per MoEFCC notification dated 22.12.2014 and OM dated 9 June 2015; 2. By OSPCB as a part of Consent to establishment and operate 3. As per approved IEE report	Moderate & adverse	long term	local	low	High	• Details pertaining to compliance of stipulated conditions as a part of consent to establishment and to operate will also be submitted to OSPCB. • Also, details pertaining to conditions as per approved IEE report
Terrestrial ecology	Plantation/landscaping	Negligible & beneficial	Long term	local	High	Slight	• 40% of total allotted area will be earmarked for plantation /landscaping; In lieu of removal of trees, additional plantation shall be done to comply the condition of regulatory agency i.e. local DFO or in 1:3 ratio as defined in OM dated 9 December 2016 of MOEFCC whichever is stringent.
Ambient air quality	Generation of dust, gaseous pollutants such as SO2, NOx, CO, VOC etc due to: • DG sets; • Movement of Traffic; • Operation of paint shops, welding machines etc • Fuel burning for any other purposes in workshops; etc	Negligible & adverse	Long term	local	High	Slight	• DG sets for power back as per details given hereunder: o Only for Training Facilities: 2 x 250 kVA DG Set and 1x500 kVA DG Set o Only for Training Facilities: - UPS: 1 x 300 kVA and 1 x 200 kVA o Only for Hostels: 1 x 600 kVA DG Set and 1 x 300 kVA DG Set • Stacks with adequate height (as per norms) to DG sets • Adequate hoods and ventilation via exhausts as per NBC-2005 will be provided in workshops. • Plantation/landscaping will be carried out in 40% of total allotted land. NAAQS 2009 for industrial, residential, rural and other areas will be guiding standards.
Noise Level	Generation of noise level due to: • Machines/equipment in workshops	Negligible & adverse	Long term	local	High	Slight	• Adequate precautions will be taken at design stage to keep noise level 75 dBA at 1 m from source. • Blowing horn will be discouraged within premises.

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
	• DG sets; • Movement of Traffic; etc						• Plantation/landscaping will be carried out in 40% of total allotted land. • Ambient noise level standard 2000 for silence zone will be guiding standard.
Water Resources	• Water requirement for domestic and other purposes	Moderate & adverse	Long term	local	High	Medium	• Water Consumption at each site shall be: o For Training purpose on an average work-day – 1087o KL (43.5 KLD @ 250 days/annum); o For Hostel – 108 KLD (135 lit per day for 800 persons including staff).(source BIS:1172:1993 reaffirmed in 2007) • Source shall be ground water Permission will be obtained from water resource department
Waste Water discharge	• Waste water generation from domestic activity and laboratory, workshops, if any	Moderate & adverse	Long term	local	High	Medium	• Waste water will be mainly generated from domestic activities however waste water shall also be generated from laboratories and workshops; • Per site, waste water generation @ 80% of total water consumed : 87 KLD • At each site, STP@100 m^3/day as per details given in **Appendix 9** shall be provided and treated waste water will be used for flushing in toilets and for gardening and irrigation purposes within premises. • At each site, waste water from laboratories and clinical waste from dispensary will be treated separately to the level of inlet to STP before sending to STP. • For each site, capacity of STP is estimated based on requirement; however same will be re-confirmed in final IEE report. • Renovation of existing BPUT building at Gandamunda for ASTI Bhubaneshwar will be done before use of temporary site. • Storm water drainage system will be commissioned.
Solid Waste	• Municipal solid waste • Solid waste from office work; • E-waste; • Lead battery; • Bio-medical waste; etc	Moderate & adverse	Long term	local	High	Medium	• Municipal solid waste will be segregated and recycle materials such as paper, plastic, glass, empty bags & containers etc shall be sold to vendors while kitchen waste shall be sent to disposal site of municipal corporation; • Sludge from STP will be used as manure with the premises after getting confirmation of its nature as non-

Aspects	Activity	Risk/Impacts					Remarks
		Significance and Nature	Duration	Area	Likelihood of occurrence	Severity	
							hazardous. Otherwise, it shall be disposed of via authorized vendors by OSPCB. • All hazardous waste including e-waste, batteries, plastic, bio-medical from in-house dispensary etc shall be disposed of via authorized vendors by OSPCB.
Natural disaster	• Operation of ASTI	Moderate & adverse	Short term	local	High	Medium	• Cyclone is the main natural disaster • All operational measures as per Disaster Management plan for Odisha by Panchayati Raj Department, Odisha shall be implemented.
Fire & Toxic Hazards	Fire in office, store room, laboratory etc	Moderate & adverse	Long term	local	High	Medium	• Fire plan approval will be obtained from Chief Fire Officer before occupying the buildings; • Occupancy certificate from municipal corporation/development authority shall be obtained before occupying building. • Firefighting system will be in place as per NBC-2005.
Employment and Economic Growth	Generation of more employment due to availability of more super specialty skilled workers	Major and beneficial	Long term	Regional	High	High	• Direct and indirect employment opportunities to locals for serving and supplying the operation of facility • Increase in per capita income.
Disturbance to community resources & safety	• Movement of traffic • Visit and stay of students and faculties for training • Visit and stay of trainers	Moderate & adverse	Short term	local	High	Medium	• Students and others to be trained are mainly from adjacent areas • Total training capacity at any time will be around 600 to 700 students (30% girls). • Hostel capacity will be 400 to 500 (max.) with 100-150 capacity hostel will be for girls. • In addition to above, regular staff (70 in number) will also be part of facility.
Culture & heritage		Negligible & adverse	Long term	local	High	Slight	• Students and others to be trained are mainly from adjacent areas
Operation of ASTI from temporary location	• Generation of air emission, waste water and solid waste;	Major & adverse	Short term	local	High	High	• Environmental implications will be reviewed and based on the assessment mitigation measures will be planned before commencing operation on temporary basis”

6. ANALYSIS OF ALTERNATIVES

115. Odisha accounts for 3.47% of the country's population; it is positioned to be one of the biggest contributors of the skilled workforce in the country. However, the core problem faced by the state is the low employability of the young workforce due to low current level of skills, weak training capacity in terms of quality and numbers, fragmented skills ecosystem and poor industry linkages. Further, the current training capacity and quality is inadequate to meet the 12th five year plan target of training one million people. In Odisha, the Industrial Training Institutes (ITI)/ Industrial Training Centers (ITC) combined has an estimated capacity of around 75,000 seats per year, far below to address the skill potential in the state. Hence, the proposed program is the necessity of today for Odisha.

116. The construction of six ASTIs will be on government land and most of these will be within the premises of existing educational and training institutes. At present the sites for ASTIs at Jharsuguda, Rourkela, Bhubaneshwar, Bolangir (Titilagarh), Jypore, and Berhampur have been finalised. An existing institute, Center for Finishing Skills and Entrepreneurship, has also been identified in Cuttack as an extension center of Bhubaneshwar ASTI. As the construction of ASTIs will be within existing ITIs campus, it reduces the impacts on flora and fauna.

7. INSTITUTIONAL ARRANGEMENT & RESPONSIBILITIES

117. The executing agency for the project will be the Government of Odisha (GoO) acting through the Skill Development and Technical Education Department (SDTED). A Project Management Unit (PMU) will be established in SDTED. The project will be implemented through the PMU (SDTED) and IA (OSDA).

118. The OSDA will be responsible for (a) establishing and operating the ASTIs; (b) managing project funds including but not limited to payments, accounting, auditing, etc.; (c) contracting all civil works, consultants, service providers, and other contracts; and (d) coordinating with PMU for smooth implementation of the project. The PMU, and OSDAwill be supported by a team of project management consultant (PMC) who would be engaged by OSDA. There will be an Environment and Social Management Cell (ESMC) within OSDA headed by environment, health and safety (EHS) professional having more than 10 years' experience with qualification as Master of Engineering (Environment) or Ph.D. He/she will be assisted by three associates having EHS experience more than 2 years with qualification as Master of Engineering/Science or a Ph.D. in environment located at different locations. Additionally, Head of ESMC will be authorized to hire services of external agency (ies)/expert(s) as per requirement to meet the objective of EMP.

119. Similarly, the civil works contractor at each site and the PMC will also have one designated EHS officer having experience of 5 years. He/she will be responsible for implementing the proposed EMP. In case of non-mobilization of EHS officer by contractor, a penalty of Rs 1000 per day will be imposed.

120. The role of PMC in OSDP is of critical importance in not only providing technical and knowledge services through a dedicated cadre of professionals in different domains of the project but also assist the core team of OSDA in strengthening the eco-system of skills development in the state of Odisha and develop a pioneering example of support and capacity building services in skills development.

121. The PMC would have one environmental specialist with following responsibilities:

Role	Description	Eligibility	No. of persons
Environment Specialist	• Responsible for risk mitigation and grievance redressal for any environmental impact due to activities of ASTI at temporary and permanent sites. • Ensure compliance with respect to environmental management plans (EMP), and environmental assessment and review framework (EARF) • Contribute to the project in ensuring the civil works comply with environmental norms, people safety norms, green buildings, disaster management etc.	National Expert having good understanding of environment issues.	1

8. ENVIRONMENTAL MANAGEMENT PLAN

122. The Environmental Management Plan (EMP) is the key to ensure the minimum degradation in environmental quality and better socio-economic conditions within the local area and/or region due to the construction and operation of the proposed facility. The EMP with monitoring plan focuses on direct impacts, which are identified as having the potential to cause significant impacts on the environment aspects and identifies:

- Specific control measures that will be taken to prevent, reduce or manage the environmental and social impacts; and
- Where it is not possible to specify these at this stage, the level of environmental and social performance that will be expected.

123. It will be ensured that environmentally critical actions are undertaken as per the various relevant regulatory requirements. There will be an ESMC for all ASTIs at the IA, overseeing all environment, safety and social responses to ensure that implementation of mitigation measures and monitoring program including findings from monitoring results.

124. The extent of monitoring activities, including their scope and periodicity, will be commensurate with the project's risks and impacts. The parameters to be monitored, frequency and duration of monitoring as well as the locations to be monitored will be as per the monitoring plan prepared as part of the EMP. Implementation of the EMP during construction will be done by the contractor and supervised by environmental expert, PMC.

125. The site specific EMP will be prepared later as and when the detailed design and drawings are finalized by the Contractor and the IEE report shall be updated accordingly. To ensure compliance with the EMP for the subprojects, the contractors shall prepare the diagrams of the facilitites which depicts the location of the stockpiles, chemicals and other construction materials within proposed ASTI site. The proper placing and storage of materials are important to ensure that no hazard originates from the storage facility onto nearby water bodies and the neighboring community. The updated IEE report will be submitted to ADB for review and approval before commencement of civil works.

126. The budget for environmental monitoring will be included as part of civil works. This plan will require environmental monitoring mechanisms to be used to indicate the effectiveness of the EMP in mitigating negative impacts.

127. The EA has the overall responsibility of fulfilling environmental requirements of the GoO, and monitoring the implementation of the EMPs for ASTIs.

128. During the design and preconstruction stage, monitoring will be the responsibility of the IAs supported by the EA. This is mainly in the form of review and verification of designs and incorporation of mitigation measures into design and contract documents. Mitigation measures to be taken during the construction stage will be mostly implemented by the main contractor.

129. During the operation stage, monitoring will be the responsibility of the facility owner or the operator, such as the ASTI operator to be hired by the IA. The OSPCB may carry out third party monitoring in line with the regulatory requirements of India. Although sufficient care and appropriate mitigation will be incorporated into the design of these facilities, performance monitoring during operation will be essential to making the investments environmentally suitable and socially acceptable.

130. The proposed EMP has been prepared on the basis of project details, requirements of resources and infrastructures during construction and operation phase, baseline environmental details available from secondary sources, FGDs, etc. The EMP shall be modified by incorporating changes as a part of detailed DPR & other studies, if any and also again based on the conditions stipulated by regulatory agencies at the time of requisite Clearance(s)/NOC(s)/Permission(s)/Approval(s). The details of proposed environmental mitigation measures in addition to the details provided in MoEFCC notification (S.O. 3995) during construction and operation phase based on identified associated risks/impacts are as provided below:

8.1. **Environment Management Plan during design/pre-construction and construction phase:**

131. The EMP during design/ pre-construction and construction stage is given in **table 28**.

Table 28: EMP during design/ pre-construction and construction phase

S. No.	Impact on	Mitigation Measures	Primary Responsibility
1	Compliance to legal framework	• All clearance(s)/NOC(s)/permission(s)/ approval(s) as applicable for environment clearance, water withdrawal, power supply, layout plan of premises, removal of plantation, labour related issues etc as applicable will be obtained before start of construction • DPR for the facility will be prepared in line with National Building Code -2005; etc • Following institutional arrangement shall be in place: • There will be an Environment Management Cell at Center point headed by environment, health and safety (EHS) professional having more than 10 years' experience with qualification as Master of Engineering (Environment) or PhD. He will be assisted by three associates having EHS experience more than 2 years with qualification as Master of Engineering/PhD/MSc in environment located at different locations. Additionally, Head of EMC will be authorized to hire services of external agency (ies)/expert(s) as per requirement to meet the objective of EMP. • In the same line, contractor at each site and/or Project Management Consultant will also have one designated EHS officer having experience of 5 years. He shall be responsible for implementing the proposed EMP and report to Site Manager -contractor. In case of non-mobilization of EHS officer by contractor, a penalty of Rs 1000 per day will be imposed. • The site specific EMP will be prepared later as and when the design and drawing are finalized by the Contractor and the IEE report shall be updated accordingly. Subsequently, the updated IEE report will be submitted to ADB for review and approval before commencement of civil works.	Contractor and Implementing agency as applicable
2	Land Use	• All necessary protocols will be followed and legal requirements will be implemented with respect to local regulation pertaining to use of land for commercial activities and removal of plantation; • Mark out the site boundaries to ensure that land taken is restricted to pre-agreed area; • Minimum utilization of land and clearing of site and removal of existing plantation on site for construction; • 40% of the total area allotted should be kept as open area for landscaping and development of plantation; etc	Contractor and Implementing agency as applicable
3	Terrestrial ecology	• Mark out site boundaries; • Minimize the disturbance of vegetation present in and around, if any; • Plantation will be carried out as per condition stipulated by local DFO as a part of clearance for removal of existing plantation on site or in the ratio of 1:3 as prescribed in OM dated 9 June 2015; • For cleared areas, retain top soil in stockpile where possible on perimeter of site for subsequent re-spreading onsite during restoration; • Retain vegetation on edge of site to serve as seed bank for future site re-vegetation during restoration; etc • All bulldozer operators involved in site preparation will be trained to observe the defined site boundaries; • Attempt will be made to develop landscaping/plantation in the area earmarked for the same (40% of total allotted area); • Kerosene oil/LPG will be used for domestic purpose; etc	Contractor and Implementing agency as applicable
4	Topography and Drainage pattern	• Minimize area and extent of site clearance, by staying within defined boundaries; • Stockpile of topsoil wherever possible at the edge of site; • Adequate diversion for storm water will be provided within the project premises; etc	Contractor and Implementing agency as applicable

S. No.	Impact on	Mitigation Measures	Primary Responsibility
5	Water Resources	• Permission for ground water withdrawal from water resource department will be obtained. • Adequate water supply arrangement will be made at construction site; • Continuous attempt will be made to avoid wastage and leakage of water; • Continuous attempt will be made to optimize/reduce the use of water; • Foundation work will not be carried out during monsoon season; and • Toilets and bathrooms on temporary basis will be provided at site.	Contractor and Implementing agency as applicable
6	Ambient air quality	• Emission from DG sets and other machinery will confirm the standards as prescribed for combustion sources; • Stack height for each point source where fuel combustion takes place will be as per $14Q^{0.3}$, where Q is the SO_2 generation in Kg/hr; • For DG sets, emission will be well within the standards as PM<0.3kg/kw-hr, NOx<9.2kg/kw-hr, CO<3.5kg/kw-hr, HC<1.3kg/kw-hr; • Welding booths, hoods, torch fume extractors, flexible ducts, and portable ducts will be provided; • Any dry, dusty materials (chemicals, construction materials etc) will be stored in sealed containers or properly fenced storage yard; • Curtails/screens will be placed to confin the dust generation; • Arrangement of water spray on the road and in storage yard on regular basis will be made; • Preventive maintenance of vehicles and machinery; • Regular testing of the combustion efficiency of the vehicles/machinery; • Ambient air quality as per enclosed monitoring plan and stipulated by environment regulatory agencies will be carried out during pre-construction and construction phase to conform NAAQS 2009 for industrial, residential and rural; etc	Contractor and Implementing agency as applicable
7	Noise	• Selection of low noise generating machinery/equipment; • Engineering specifications will be stipulated during tendering as a condition to maintain noise level equal to or less than 75 dB(A) at 1 m from each source; • Provision of rubber padding/noise isolators/silencers to modulate the noise generated by machinery/equipment, wherever possible; • The high noise zones at site will be demarcated within site and enclosures & barriers, if required will be provided; • Provision of protective devices like ear muff/ plugs to the workers; • Preventive maintenance of machinery/equipment and vehicles; • Information on noise, the risks of exposure to noise and the appropriate control measures will be disseminated in a manner appropriate to the workplace; • All employees will receive appropriate training and education as and when required; • Construction activities shall be limited to day time (6:00 AM to 10.00 PM) only and contractor will ensure that there will not be any impact due to construction activities at sensitive area such as school, college and hospitals. • In no case, workers will be exposed more than 85 dB (A) at 1m from source; and • Regular monitoring of ambient noise level as per enclosed monitoring plan and stipulated by environment regulatory agencies will be carried out during pre-construction and construction phase to conform noise level standard 2000 for silence zone; etc	Contractor and Implementing agency as applicable

S. No.	Impact on	Mitigation Measures	Primary Responsibility
8	Waste water Management	• Proper drainage system or collection pits will be provided for transportation/collection of waste water; • All the debris resulting from the site will be isolated from the waste water and disposed off separately; • Effective bunds capable of containing 110% of the volume of the largest container within and enclosing all potentially contaminating materials to be used for fuel lubricants and chemicals storage area; • Non-contaminated and potentially contaminated run-off will be kept separately. Non-contaminated run-off will be routed to off-site areas via silt traps. Potentially contaminated surface run-off will be routed through oil traps; • The storage areas will be inspected and cleaned at regular intervals; • Oil drip pans will be used wherever there is significant potential for leakage including, but not limited to; o Electric generator engine, DG sets, earth moving machinery/equipment etc o Compressors, pumps or other motors o Maintenance areas o Fuel transfer areas • All spills/leaks to be contained, reported and cleaned up immediately; • Oil absorbent /spill containment material to be deployed to contain spills; • Adequate sanitary facilities will be provided; • Minimize suspended solids loads to watercourses by installing appropriate surface run-off drainage systems (eg silt traps); • No untreated discharge to be made to water course/land; and • Regular monitoring of the waste water to be discharged as per enclosed monitoring plan and stipulated by environment regulatory agencies will be carried out during construction phase to conform standard for general waste water discharge; etc.	Contractor and Implementing agency as applicable
9	Soil & Solid wastes	<u>Soil Erosion</u> • Minimize area and extent of site clearance, by staying within defined boundaries; • Stockpile of topsoil wherever possible at the edge of site; • Install and maintain effective run-off controls, including siltation ponds, traps and diffusion methods so as to minimize erosion; and • Avoid removing undergrowth where possible so as to retain land stability. <u>Solid waste</u> • Recyclable non-hazardous materials such as empty container, bags & canes, paper, plastic etc will be sold to vendors and uprooted vegetation, food & kitchen waste will be sent to municipal site for disposal; • Soil and other debris generated during dismantling shall be used for levelling and if it is excess then same shall be disposed of through vendors for levelling of land only. The door and window panels generated during dismantling shall be disposed off through authorized vendors; • Waste such as waste lubricating oil, spent oil, empty containers of paints and chemicals, oily cotton, waste/discarded welding electrodes, e-waste, discarded waste etc will be collected separately and will be handed over to vendors authorized by OSPCB for disposal; • All fuels, lubricants, surface treatment materials, welding rods/ gases, chemicals etc to be placed in controlled storage i.e. properly fenced area and in clearly marked vessels and containers; • Storage and liquid impoundment areas for fuels, construction materials, solvents, chemicals and waste should be designed with secondary containment (e.g., dikes and berms) to prevent spills and the contamination of soil, groundwater, and surface waters; • Impervious liners will be in place for fuel, lubricants and chemicals storage area;	Contractor and Implementing agency as applicable

S. No.	Impact on	Mitigation Measures	Primary Responsibility
		• Effective bunds capable of containing 110% of the volume of the largest container within and enclosing all potentially contaminating materials to be used for fuel lubricants and chemicals storage area; etc	
10	Disturbance to community resources & safety	• Preference will be given to have local construction labour. Accommodation(s), in case required for construction workers or contractor will be kept minimum and provided within premises of polytechnic institute; • Adequate barricading will be provided to ensure safety from pollution and accidents; • Proper activity wise planning and communication with administrative authorities of existing premise and traffic police; • Advance notice to administrative authorities of existing premise and local administration about the activities; • Proper cordon off the site with sign boards; • Diversion of traffic within premises and on approaching roads, if required; • A traffic management plan in line with transporting construction materials shall be submitted by the Contractor and approval of the same shall be accorded by the EA. Placing the warning board on the vehicles during transportation of machinery and materials; • Proper training to drivers about public safety; • Periodic third party assessment will be carried out; • Notice boards will be put up with details about complaint handling officer and contact details.	Contractor and Implementing agency as applicable
11	Culture and heritage	• Preference will be given to local labour and vendors. • The Sai Baba statue and Shiv temple will be protected and separate entrance will be provided. • The playground will be developed in ITI Rourkela to compensate the loss of driving track, which is presently also used as playground. The land is available within ITI Rourkela campus and needs proper levelling of the same.	Contractor and Implementing agency as applicable
12	Employment & Socio economic	• Close monitoring on the type of loss to local habitats, if any. In case of any loss to locals, adequate compensation will be provided as per the law or on mutually agreed terms; • Preference will be given to locals for temporary direct and indirect employment; • Local suppliers for machineries and construction materials will be given preference; • Local transporters will be preferred for transportation of machinery/materials; etc	Contractor and Implementing agency as applicable
13	Occupational Health & Safety	• Due care will be taken to maintain continuous water supply in the water spraying system and all efforts would be made to suppress the dust generated during storing and handling the construction material and loose soil; • Any workers found to develop symptoms of dust related diseases will be immediately taken to nearby hospital by the Contractor for medical treatment and compensation and payment shall be given till the recovery of the same; • **General Safety Measures** a) Shield guards or guard railings will be installed at all belts, pulleys, gears and other moving parts; b) Electrical equipment will be grounded, well insulated and conform with applicable codes; • Employees will be provided with helmets, safety boots, eye and ear protection, and snug fitting gloves as appropriate; • Masks and dust-proof clothing will be provided to personnel working in areas with high dust levels; and • Procedures will be strictly enforced for the storage, handling, and transport of explosives, flammable and hazardous materials.	Contractor and Implementing agency as applicable

S. No.	Impact on	Mitigation Measures	Primary Responsibility
		• **General Health Measures** a) Gender segregated sanitary facilities will be well equipped with supplies and employees will be encouraged to wash frequently, particularly those exposed to dust, chemicals or pathogens; b) Personnel required to work in areas of high temperature and/or high humidity will be allowed to take frequent breaks away from these areas; and c) Medical examinations of all personnel will be provided by the contractor on quarterly basis throughout the construction and operation stage of the project. d) Medical camps, HIV/STD awareness camps, first aid at site, fire safety systems at site, proper accommodation/shelter arrangements, potable water supply – insurance cover – PPE for laborers and strict usage of PPE as per legal requirement; etc e) A comprehensive medical plan to ensure the health and safety of the workers shall be submitted by the contractor and the same shall be approved by the EA. f) The Contractor shall also prepare an emergency preparedness plan considering the possible hazards and accidents at construction site along with contact person details.	
14	Natural disaster	• Design of facilities as per NBC-2005; • Placing of all equipment above Highest Flood Level (HFL) • Storage of chemical products and flammable products in closed cupboards with latches at the bottom shelves • Provisions of shelters • Development of an Emergency Plan (what to do, where to hide, what not to do) • Preparation of an Emergency Survival Kit • Emergency telephone numbers (doctor, hospital, police, etc.) • Establishment of response team to guide residents of premises and to coordinate with local Natural Disaster Management response team; • Imparting training on various hazards and responses including first-aid to everyone; • Organizing mock drill internally on regular basis; • Procurement of insurance policy for damage cover	Contractor and Implementing agency as applicable
15	Operation of ASTI from temporary location	• Mitigation measures including monitoring plan, if any as recommended in proposed study on environment implications and mitigation measures shall be implemented • An emergency preparedness plan considering the possible hazards and accidents during operation of ASTI at temporary site shall be prepared along with contact person details	Contractor and Implementing agency as applicable

8.2. **EMP during operation phase:** The EMP during operational phase is given in **table 29**.

Table 29: EMP during operation phase

S.No.	Impact on	Mitigation Measures	Primary Responsibility
1	Legal compliance	• Occupancy certificate, approval of firefighting plan, permission of water withdrawal, approval of firefighting plan, consent to operate under water and air act will be obtained before occupying the facility (as per OSPCB, educational institutes will be exempted from management of consent soon); • All conditions stipulated by regulatory agencies as part of clearance(s)/NOC(s)/permission(s)/approval(s) will be complied especially pertaining to environment clearance, removal of plantation/ permission of water withdrawal, approval of firefighting plan etc • Following institutional arrangement shall be in place: o There will be an Environmental and Social Management Cell within OSDA, headed by environment, health and safety (EHS) professional having more than 10 years' experience with	Implementing agency /Operator

S.No.	Impact on	Mitigation Measures	Primary Responsibility
		qualification as Master of Engineering (Environment) or PhD. He/she will be assisted by three associates having EHS experience more than 2 years with qualification as Master of Engineering/PhD/MSc in environment located at different locations. Additionally, Head of ESMC will be authorized to hire services of external agency (ies)/expert(s) as per requirement to meet the objective of EMP. o In the same line, operator at each site and/or Project Management consultant will also have one designated EHS officer having experience of 5 years. He/she shall be responsible for implementing the proposed EMP and report to Head of ASTI. In case of non-mobilization of EHS officer by operator, a penalty of Rs 1000 per day will be imposed.	
2	Terrestrial ecology	• Plantation carried out as per condition stipulated by local DFO as a part of clearance for removal of existing plantation /diversion of forest land will be guarded and maintained ; • Landscaping/plantation in the area earmarked for the same (40% of total allotted area) will be developed and maintained; • Local species will be given preference and CPCB guidelines for green belt development will be considered; etc	Implementing agency /Operator
2	Ambient air quality	• Emission from DG sets and other machinery /shops will confirm the standards as prescribed for combustion sources; • Stack height for each point source where fuel combustion takes place will be as per $14Q^{0.3}$, where Q is the SO_2 generation in Kg/hr; • For DG sets, emission will be well within the standards as PM<0.3kg/kw-hr, NOx<9.2kg/kw-hr, CO<3.5kg/kw-hr, HC<1.3kg/kw-hr; • Welding booths, hoods, torch fume extractors, flexible ducts, and portable ducts specially for paint shop, automotive shop etc will be provided; • Regular monitoring of each point source will be carried out as per monitoring plan; • Attempt will be made to use low sulphur fuel to the possible extent; • Regular maintenance; • All vehicles and their exhausts would be well maintained and regularly tested for emission concentration; • Minimize use of roads at any particular time by planning vehicles movements; • Ambient air quality as per enclosed monitoring plan and stipulated by environment regulatory agencies will be carried out to conform NAAQS 2009 for industrial, residential and rural areas etc	Implementing agency /Operator
3	Noise Level	• Enclosure to DG set and other noise generating source(s) will be provided to ensure noise level well below prescribed standard of 75 dB(A); • The high noise zones at site will be demarcated and enclosures & barriers, if required will be provided; • Preventive maintenance of machinery/equipment and vehicles; • By provision of green belt /plantation in and around the premises; and • Regular in-house monitoring of noise level at 1 m from noise generating source(s); • Noise level monitoring as per enclosed monitoring plan and stipulated by environment regulatory agencies will be carried out to conform ambient noise level standard, 2000 for silence zone; etc	Implementing agency /Operator
4	Water Resources	• Permission of withdrawal of ground water for operation phase will be in place; • Continuous attempt will be made to optimize/reduce the use of water; • Continuous attempt will be made to avoid wastage and leakage of water; • Attempt will be made to use 100% treated waste water in toilet flushing, irrigation for area under landscaping/plantation; • Regular record of water consumption on daily basis will be maintained; • Toilets and bathrooms will be provided within premises; • Roof top water harvesting will be implemented; • Regular monitoring of water as per monitoring plan shall be carried out on regular basis; etc	Implementing agency /Operator

S.No.	Impact on	Mitigation Measures	Primary Responsibility
5	Waste Water management	• No waste water will be discharged from the premises; • Adequate pre-treatment will be provided to the waste water to be generated from laboratories, dispensary and workshops, if any before sending to STP for treatment; • Sewage Treatment Plants (STP) will be provided for treatment of domestic waste water to the stipulated standards; • Attempt will be made to use 100% treated waste water in toilet flushing, irrigation for area under landscaping/plantation; • Attempt will be made to use excess treated waste water, if any for irrigation for area under landscaping/plantation; • Regular monitoring of treated wastewater quality will be carried out on regular basis for the relevant parameter as per enclosed monitoring plan and stipulated by environment regulatory agencies to conform standard for general discharge of waste water on land for irrigation; etc • Regular maintenance of STP shall be done	Implementing agency /Operator
6	Solid Waste	• Recyclable non-hazardous materials such as empty container, bags & canes, paper, plastic etc will be sold to vendors and food & kitchen waste will be sent to municipal site for disposal; • Hazardous waste such as waste lubricating oil, spent oil, empty containers of paints and chemicals, oily cotton, waste/discarded welding electrodes, e-waste, discarded waste, bio-medical waste from dispensary etc will be collected separately and will be handed over to vendors authorized by OSPCB for disposal; • Adequate record of waste generation and disposal especially hazardous and e-waste, discarded batteries, bio-medical waste etc will be maintained; • Effective bunds capable of containing 110% of the volume of the largest container within and enclosing all potentially contaminating materials to be used for fuel lubricants and chemicals storage area; • At storage area of domestic waste, pesticides will be used; etc	Implementing agency /Operator
7	Fire & Toxic Hazards	• Detailed off site and on site emergency plan defining role and responsibility for individuals will be prepared and implemented which will be in line with the hazards identified; • MSDS of all chemicals to be used in workshops will be readily available and SOPs will be in place based on identified hazards; • Adequate firefighting facilities will be installed in line with the National Building Code 2005 and advise of Chief Fire Officer as a part of approval of firefighting plan; • Adequate training will be imparted to workers at all levels ; • Adequate ventilation will be provided in workshops; and • Safety audit will be carried out by third party on regular basis.	Implementing agency /Operator
8	Natural disaster	• Development of an Emergency Plan (what to do, where to hide, what not to do) • Preparation of an Emergency Survival Kit • Emergency telephone numbers (doctor, hospital, police, etc.) • Establishment of response team to guide residents of premises and to coordinate with local Natural Disaster Management response team; • Imparting training on various hazards and responses including first-aid to everyone; • Organizing mock drill internally on regular basis; • Procurement of insurance policy for damage cover	Implementing agency /Operator
8	Employment and Economic Growth	• Local population will be preferred for semi-skilled and unskilled job opportunities; • Local vendors will be preferred for supply of resources (vegetables, food grains, office stationary, chemicals and other items for workshops); • Design of courses to be implemented have been based on need based assessment of the region and state; • Regular interaction will be maintained with various industries; • Regular training cum exposure will be provided to students; • Banks may be encouraged to grant loans to pass out students for starting their own business; • Attempts will be made to provide placement via campus interviews; • Visiting faculty (having industrial experience) will be encouraged; etc	Implementing agency /Operator

8.3 EMP Review and Amendments

132. The EMP provided with this report is an environment management tool which needs to be reviewed periodically to address changes in the design details of project, process or regulatory requirements. The site specific EMP will be prepared later as and when the detailed design and drawings are finalized by the Contractor and the IEE report shall be updated accordingly. Subsequently, the updated IEE report will be submitted to ADB for review and approval before commencement of civil works.

8.4 Inspection, Monitoring & Audit

133. This EMP will be monitored as per monitoring plan and all outcomes will be audited in accordance with existing EHS commitments. The monitoring process will cover all stakeholders including contractors, laborers, suppliers and the local community during construction and operation phase. Inspection and monitoring of the environmental impacts of construction and operation phase activities will increase the effectiveness of suggested mitigations. Through the process of inspection, audit, and monitoring will ensure that all the contractors comply with the requirements of conditions for all applicable permits including suggested action plans. The inspections and audits will be done by trained team and external agencies/experts.

134. The entire process of inspections and audits (by in-house team of EMC and contractor) will be documented. The frequency of audit will be once in three months during construction period and once in six month during operation period.

8.5 Environment Monitoring

135. The recommended frequency and parameter of environment monitoring for **each ASTI** is as per given before commencing the construction (pre-construction) and during construction and operation phase in **table 30**, **table 31**, and **table 32** respectively. Monitoring plan, if any stipulated by OSPCB will be addition to proposed monitoring plan:

Table 30: Environment Monitoring Plan during Pre-Construction phase (baseline data to be established by the Contractor before commencement of civil works)

S.N.	Component	Parameter	Locations	Frequency	Number of samples
1	Ambient Air	PM_{10}, $PM_{2.5}$, SO2, NOx, CO, HC (methane & non-methane)	One location near/on the allotted land	Once-12 hourly samples, twice in a week for one week (results should also be reported on 24 hourly basis)	2
2	Noise Level	Hourly Leq	Noise levels at project site near sensitive receptors, if any/ on the allotted land	Once-Continuously on hourly basis for 24 hours twice in a week for one week	2
3	Water quality[66]	As per IS:10500:2012 with additional parameter such as BOD, COD etc	2 samples (one from allotted site and second from well/tubewell from nearby area (within 100 m radius) nearby well)	Once	2
4	Soil quality	Physical and chemical parameter including heavy metals	One surface soil samples (up to 0.5 m depth) from allotted land	Once	1

Table 31: Environment Monitoring Plan during Construction

S.N.	Component	Parameter	Locations	Frequency	Number of samples
1	Ambient Air	PM_{10}, $PM_{2.5}$, SO2, NOx, CO, HC (methane & non-methane)	3 locations at the boundary of allotted land	12 hourly samples, (results should also be reported on 24 hourly basis) – once in three month except monsoon	27 (assuming construction period of 36 months)
2	Waste Water/ Surface water sampling	pH, TDS, SS, BOD5, COD, Oil & grease and Heavy metals	Inlet to soak pit/existing waste water treatment and disposal system	Once in three month except monsoon	9 (assuming construction period of 36 months)
3	Noise Level	Hourly Leq	3 locations within and at the boundary of allotted premises	Continuously on hourly basis for 24 hours, once in three month except monsoon	27 (assuming construction period of 36 months)

[66] Water quality testing from Naumunda tank (pond) at Bolangir (Titilagarh) site.

Table 32: Environment Monitoring Plan during Operation

S.N.	Component	Parameter	Locations	Frequency	Number of samples per year
1	Ambient Air	PM_{10}, $PM_{2.5}$, SO2, NOx, CO, HC (methane & non-methane)	3 locations within and at the boundary of allotted land	24 hourly samples, twice in a week, once in three months except monsoon (for 12 months period)	9
2	Stack	SPM, SO2, NOx, CO. HC	Stacks attached to seven (07) DG sets	Once in a year	7
3	Noise Level	Hourly Leq	3 locations at the boundary of the premises	Continuously on hourly basis for 24 hours hour, once in three months except monsoon (for 12 months period)	9
4	Water quality	As per IS:10500:2012 with additional parameter such as BOD, COD etc	One sample from source of supply	Once in six month (for 12 months period)	2
5	Waste water	As per GSR 422 (E) for inland surface water	At outlet of STP	Once in three months except monsoon (for 12 months period)	3

136. The external agency (NABL approved/OSPCB recognized) will be engaged for the proposed monitoring and testing which will be carried out as per the methods recommended by CPCB/OSPCB. The details of estimated capital and recurring cost of the proposed environmental monitoring plan are as per given in **table 33**.

Table 33: Estimated capital and recurring cost of the proposed environmental monitoring

S. N.	Particulars	Unit Rate in Rs.	Cost (Rs. in lacs) for each ASTI		
			Pre-construction Phase (Total)	Construction Phase (Total)	Operation Phase (per annum)
1	Ambient Air Quality	10000 per sample	0.2	2.7	0.9
2	Stack Monitoring	5000 per stack	0.0	0.0	0.35
3	Water and Waste water Quality	10000 per sample	0.2	0.9	0.5
4	Noise level	10000 per day	0.2	2.7	0.9
5	Soil quality	10000 per sample	0.1	-	-
	Total		**0.7**	**6.3**	**2.65**

8.6 Reporting and Review

137. The IA will develop and implement a programme of reporting through all stages of the project – pre-construction, construction and operation. The IAs and the civil works contractors will be required to fully comply with the reporting requirements in terms of timely submission of monthly reports with acceptable level of details. The reporting will be done in form of environmental, health and, safety check list (as per attached format-**Appendix 10**), incident record register, complaint register, environmental, health and safety performance reports (weekly, monthly, quarterly, half yearly, yearly etc). All complaints and enquiries will be appropriately dealt with and records will be maintained in a complaint/enquiry register by head of ESMC. The EA will also submit biannual environmental monitoring reports (EMR) to ADB on the progress of implementation of the EMP. The ADB will review, approve, and disclose the EMR on ADB web site.

138. The IAs shall undertake regular inspections (each institute visited at least once in two months) in order to verify compliance with the EMP and progress towards the expected outcomes. Necessary corrective actions shall be identified based on the verifications and a corrective action plan shall be formulated. The IAs shall ensure effective implementation of these corrective actions and submit the status of implementation of corrective actions along with the biannual monitoring report submitted to ADB.

139. The inspection and audit observations along with their improvement program will be regularly reported to the senior management of the IAs and the EA for their consideration. The same are also to be communicated within the staff working on the project. To maintain open communication between the staff and management on EHS issues the following will be used:

- Team Briefings,
- On-site work group meetings;
- Work Specific Instructions; and
- Meeting with stakeholders.

8.7 Documentation and Record Keeping

140. Documentation and record keeping system will be established to ensure updating and recording of requirements specified in EMP. Responsibilities will be assigned to relevant personnel for ensuring that the EMP documentation system is maintained and that document control is ensured through access by and distribution to identified personnel in form of the following:

- Documented environmental management system;
- Legal register;
- Operation control procedures;
- Work instructions;
- Incident reports;
- Emergency preparedness and response procedures;
- Training records;
- Monitoring reports;
- Auditing reports; and
- Complaints register and issues attended/closed.

8.8 Budget for Environmental Management Plan

141. The budget for implementation of mitigation measures and the EMP to mitigate and monitor the potential adverse impacts during the construction and operation phase for each ASTI is summarized in **table 34**. The site specific EMP will be prepared later as and when the detailed design and drawings are finalized by the Contractor and the IEE report shall be updated accordingly. Subsequently, the updated IEE report will be submitted to ADB for review and approval before commencement of civil works.

Table 34: Budget for EMP

Component	Stage	Items	Cost of EMP for each ASTI	
			Capital Cost (Lacs of Rs)	Recurring Cost (Lacs of Rs) per month*
Air	Construction	Dust Management with Sprinkling of Water	2.0	0.5
		Covers for Vehicles during transportation of construction materials	0.5	0.0
		Shed for de-dusting of cements bags	0.5	0.0
Water	Construction	Sanitary Facilities for Construction Workers	1.0	0.1
		Oil & Grease Traps	0.25	0.1
	Operation	Rainwater Harvesting	part of project cost	0.05
		Storm Water Management	part of project	0.0
		Installation of STP	part of project cost	5.0
Soil	Construction	Preservation of top soils	2.0	0.0
		Cement Flooring at Fuel Storage Yard	0.5	0.0
Energy Conservation	Operation	As per Energy Conservation Building Code (ECBC) 2007	part of project cost	0.2
Waste Management	Construction	Pits for collection of waste from sites	0.25	0.10
	Operation	Waste collection and segregation	2.0	0.10
Noise	Construction	Ear plugs and muff	0.5	0.10
	Operation	Ear plugs and muff	1.0	0.10
Landscaping	Operation	Landscaping and Greenery including compansotry tree plantation against number of tree to be cut	part of project cost	0.5
Community safety	Construction	Barricading to hostels and workshops, water spray, guarding & patrolling	part of project cost	0.5
	Operation	Guarding & patrolling	-	1.0
Environment monitoring*	Pre-construction	As per table no.35 given above	0.7	
	Construction		6.3	
	Operation		2.65	
Updation of IEE report for proposed site			3.0	
Sub-total (Pre-construction)			**0.7**	
Sub-total (Construction)			**13.8**	
Sub-total (Operation)			**5.65**	

8.9 Environmental performance indicators

142. The performance indicators of implementation of environmental management plan has been provided in **table 35**.

Table 35: Performance Indicators of EMP

S. No	Performance Indicators	Target	Achievement in Semi-annually and annually
1	Budget	Environmental Budget (EMP Budget)	Expenditure till date
	Performance Indicators of Monitoring Plan		

2	Ambient Air Quality	Total Number of samples as per Environmental Monitoring Plan	Total Number of samples collected
3	Noise Level	Total Number of samples as per Environmental Monitoring Plan	Total Number of samples collected
4	Water Quality	Total Number of samples as per Environmental Monitoring Plan	Total Number of samples collected
5	Safety of Workers	List of PPE as per the number labours	List of PPEs actually provided in the project
Performance Indicators of Environmental Management Plan			
6	Permissions,/ NoCs/Consents requirement	Target timeline to obtain the permit/NoC/ consents and its validity	List of Permission and NoCs / consents obtained till date and status of its validity.
7	Public Consultation	Total Number of planned Public Consultation with timeline and coverage of people.	Number of public consultation conducted till date and actual coverage of the people.
8	Grievance redressal	Total number of complaints received, its timeline to response and resolution	Actual number of complaints resolved in percentage, response time.
9	Issues raised in public consultation	Target to attend the issues raised in the Public Consultation	Status of compliance to the issues of Public consultation
10	Information disclosure	List of information and locations where information to be disclosed	Actual locations where information has been disclosed.
11	Education of site staff on Environmental training	Total Number of staffs to be trained	No of staff actually
12	Capacity Building	Total number of sessions to be covered Total Number of contractors, and PIUs to be covered	Number of Sessions completed and Number of contractors, PIUs and PMC.
13	Implementation of EMP mitigation Measures	All items of Environmental Management Plan with timeline and its respective regulatory standards like for Ambient air Quality – NAAQS, 2009 standards, Drinking water – IS:10500 and Ambient Noise levels	Implementation status of EMP items till date
14	Reporting	List and number of Report to be submitted	List and number of reports submitted

9. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

143. The ADB SPS 2009 requires the project proponent to undertake consultation with concerned stakeholders and facilitate their informed participation in the project/programme. The primary objective of the consultation process to understand stakeholder's concerns, apprehensions, overall opinion and solicit recommendations to improve project design.

9.1. Stakeholder analysis

144. The stakeholders can be broadly classified into three different groups:

1. Government players: Central and State Government departments and agencies directly or indirectly involved in the project. These include:
   a) Employment and Technical Education & Training Department, Government of Odisha
   b) Directorate of Technical Education & Training
   c) Odisha Skill Development Society
   d) National Council for Vocational Training
   e) Government ITIs
   f) Government Polytechnic and Engineering colleges
   g) Regulatory agencies such as MoEFCC, OSPCB, CRZMA, NBWL, Labour commissioner, DFO and Wild Life officer, Water Resource Department etc
2. Private Players: These are the private agencies involved directly or indirectly in the project. These include:
   a) Sector Skill Councils
   b) Industry
   c) Private Polytechnics and Engineering colleges
3. Others: These cannot be categorized as either the government or the private player. These include:
   a) NGOs
   b) Contractors
   c) Consultants
   d) Local residents
   e) Existing students and faculty of ITIs
   f) Trainees

145. The detailed Stakeholder analysis depicting the involvement, influence and the key roles and responsibilities of the stakeholder for the project is given in the **table 36**:

Table 36: Stakeholder analysis

S. No.	Stakeholder	Influence	Involvement	Roles
Government				
1.	SDTED	High	High	• Executing agency • Policy level support for the project • Funds sanction for project activities • Overall project supervision • Project support – linkages with different departments
2.	DTET	High	High	• Implementation support to OSDA • Capacity building support to existing ITIs
3.	OSDA	High	High	• Function as project management unit /implementing agency of OSDP • Establishment of the ASTIs • Establishing Management Contract with capable private partner(s) under the Public-Private Partnership (PPP) model • Monitor the functioning of ASTIs and ITIs • Monitor ToT programs • Facilitate MoUs with international training providers and Sector Skill Councils (SSCs)

S. No.	Stakeholder	Influence	Involvement	Roles
				• Setup quality standards for training and support strategy formulation • Development of linkages with various stakeholders in the skill sector including the industry, various assessment and certification agencies. • Management of award of grants / scholarships budgeted under the program
4.	National Council for Vocational Training (NCVT)	High	Low	• Affiliation and Accreditation • Assessment and certification of the trainees
5.	Govt. ITIs	Low	High	• Support from ASTI in terms of capacity building and Training of Trainers • Conducting Skill Training programs in collaboration with ASTIs. • Establishing state-of-art training facility. classrooms, hostels, etc.
6.	Govt. Polytechnics & Engineering colleges	Low	Low	• Pass outs from these institutes will be eligible to become students for ASTIs • Support from ASTI in terms of capacity building and Training of Trainers • Support in terms of supply of candidates to ASTI as finishing schools
7	Regulatory agencies such as MoEFCC, OSPCB, CRZMA, NBWL, Labour commissioner, DFO and Wild Life officer, Water Resource Department	High	High	• Granting permission/licenses/approvals for construction and operation phase.
Private				
9.	Industry	High	Low	• Providing opportunities for recruiting successful candidates • Support to course curriculum realignment as per the demand • Providing apprenticeship and internships to candidates
10.	SSCs	High	Low	• Assessment and certification of the trainees through Assessment Agencies
11.	Private ITIs, Polytechnics & Engineering College	Low	Low	• Enhancing the capacity by getting the trainers trained • Getting audits done and ratings from the ASTI • Creating skilled and talented manpower
Others				
13.	Trainees	Low	High	• Active participation in different trainings conducted within the spoke ITIs and ASTIs • Securing and upgrading market relevant skills Participation in Placement drives
14.	Contractors	Low	Low	• Designing the training program; • Commissioning and operation of training program

9.2. **Stakeholder Consultation:**

146. The details of stakeholders consultations with respect to sub-projects is given in **table 37**.

Table 37: Summary of Stakeholder consultation with Government/Regulatory agencies

Date of meeting	Person consulted	Key points discussed
7th July, 2015	1. Mr. Rajiv Kumar, Member Secretary, OSPCB 2. Mr. Nihar Ranjan Sahoo, Sr. Environment Engineer, L-I, OSPCB	• As per MOEFCC notification dated 22 December 2014, proposed construction activities shall not require any EC. • Adequate STP (with outlet BOD - 10mg/l) and solid waste management plan should be in place. In case any violation, OSPCB shall have authority to act under relevant acts. Above said recommendation is likely to be implemented soon. Till then both consent to establishment and consent to operate are valid • Where facilities are proposed within existing premises then project shall be considered as expansion of existing facility. Pollution management plan shall be formulated and implemented for whole facility. Hence, total built up area shall be built up area of existing premise and proposed building(s) • Other rules pertaining to hazardous waste and e-waste shall be applicable, if qualify otherwise it should be ensured that same shall be disposed of via authorized vendors.
8th July, 2015	Mr. Sudhiranjan Mohanty, Planning Member (I/C), Bhubaneswar Development Authority (BDA)	• BDA has delegated the approval authority on the layout and design to the BMC in case the land is coming under BMC otherwise approval shall be granted by DBA. • Occupancy certificate shall be granted by BMC/BDA (as applicable) before occupying the constructed building. • Fire approval will be required at the time of issuing of occupancy certificate. • There is currently no 'Tree Officer' in the BDA • Approval from National Airport Authority will only be required if the height of the building falls within criteria defined for same. • Permission of water supply and/or withdrawal shall be required as per guidelines.
	Mr. Bikram Keshari Routray, Environment Officer, Bhubaneswar Municipal Corporation (BMC)	• There is currently no 'Tree Officer' in the BMC and any permission for removing tree(s) will have to be taken from the DFO of the City Forest Division, Bhubaneswar as he is the regulatory agency.
	Mr. P.K. Mishra, Divisional Forest Officer (DFO), City Forest Division, Bhubaneswar	• Local DFO is the authority to grant permission for removal of tree(s) from the land other than owned by forest department throughout the state. • The owner of the land will have to seek clearance from the concerned DFO for removal of any tree. Once an application is made to the DFO then he himself or his deputed representative will visit the site and subsequently approval will be granted by the DFO. • As a mandatory requirement, the compensatory plantation shall be done @ 3 times the number of trees to be cut and the same shall be done by Contractor and Implementing agency as applicable. This shall be stipulated as a condition to approval/NOC for removal of tree(s). • If plantation is done by forest department as institutional plantation on the land owned by other than forest department then also permission from local DFO shall be obtained.
17 Feb 2016	Mr. Tusar Nath, Chairman, OJEE (+91-9938945224)	• Discussion about hand over of entire building and shifting of OJEE to other place at Bhubaneshwar.
17 Feb 2016	Mr. Lala Ambika Prasad Ray, Sr. Technical Assistant, DTET Craftsman Training-2, Cuttack	• Facilitated in site visits at proposed extension of ASTI, Bhubaneshwar
17 Feb 2016	Mr. Chitaranjan Das, Asst. Director, Training, DTET, Cuttack	• Facilitated in site visits at proposed extension of ASTI, Bhubaneshwar
17 Feb 2016	Mr. A.K.Panda, Dy. Director, Scheme & Budget, Training, DTET, Cuttack	• Facilitated in site visits and meeting with OSPCB and Wildlife Department • Discussed to save the statue of Sai Baba and Lord Shiva chabutra at proposed location of ASTI, Jharsuguda.
18 Feb 2016	• Mr. K. Choudhary, Principal, Jarsuguda Engineering School (JES)	• Supported in site visits of temporary and permanent sites, ASTI Jharsuguda

Date of meeting	Person consulted	Key points discussed
	• Mr. Debasis Bisi, HOD, Mechnical, JES	
19 Feb 2016	• Mr. D.K. Behra, Sr. Environmental Scientist, OSPCB, Bhubaneshwar and • Mr. Rajiv Kumar, Member Secretary, OSPCB, Bhubaneshwar	• Consent to establish required for the project before construction stage; • Ambient air quality monitoring report for last 5 years of different cities within Odisha-not available • Water Quality report of major rivers of Odisha for last 5 years-not available
19 Feb 2016	Mr. G.D.Patra, DCF, Campa, PCCF, Bhubaneshwar +91-9437107252	• ESZ confirmation with respect to 3 ASTIs (Bhubaneshwar, Jharsuguda, and Rourkela)
19 Feb 2016	Mr. Tusar Nath, Chairman, OJEE (+91-9938945224)	• Discussion about hand over of entire building and shifting of OJEE to other place at Bhubaneshwar.
01 July 2016	• Er. Kanak Prava Swain, Principal, ITI-2 (Gandhamardan ITI), Bolangir • Er. Prakash Ranjan Soren, Principal, ITI-1 (Govt. ITI), Bolangir	• Discussion and verification of new work shop building allotted for temporary site for ASTI, Bolangir; and • Discussion and verification of SDEC building allotted for temporary site for ASTI, Bolangir
01-02 July 2016	• Mr. Binod Prakash Lakra, District Employment Officer (DEO), Bolangir • Mr. Lalit Mohan Sahu, Sarpanch, Jagua village, Titilagarh • Mr. Nityananda Barik, Tahsildar, Tililagarh	• Supported in verifying the identified site for ASTI Bolangir at Titilagah; • Supported in focused group discussion at proposed AST site Bolangir at Jagua village, Titilagah; and • Supported in verifying the land details of identified site for ASTI Bolangir at Titilagah
04-05 July 2016	• Mr. Manmatha Kumar Majhi, Principal , ITI, Ambaguda • Mr. K.V.Bhaskar Rao, Forest Ranger, Jeypore; and • Smt. Madhusmita Sahoo, Sub-Collector cum Excutive Officer, Jeypore	• Supported in site visits of temporary and permanent sites and FGDs at Ambaguda (temporary site) and Jagadhatripur mouza (permanent site) • Provided the list of forest within 5 Km range of proposed ASTI site, Jeypore • Confirmed the availability of operational Solid waste disposal (SWD) site at Jeypore and also confirmed to accumulate the garneted waste from proposed ASTi site, Jeypore at Mokaput SWD.

9.3 Focused Group Discussion

147. Focused Group Discussions (FGDs) have been carried out near proposed ASTI sites at Bhubaneshwar, Cuttack (extension of ASTI Bhubaneshwar), Jharsuguda and Rourkela with local representatives and ITI beneficiaries. The FGDs were carried out in a local language. The FGDs covered the aspects on infrastructural facilities, areas of influence, aspiration, concerns/challenges and environmental impacts. Overall, the beneficiaries were happy with the employment opportunities being generated because of ITIs and the facilities of the ITIs. The cost of studying at ITI is still high for the class of people from below poverty line. They pointed out that strengthening of ITIs will not only increase the employable youth in the local area but also provide small business opportunities to the local people. No major environmental impacts are identified. The questions asked and the verbatim responses received from the FGD group to those questions are provided in **Appendix 11**.

148. The FGD shall also be done during construction stage of the project and documented in semi-annual environmental monitoring reports (EMR) submitted to ADB.

10. GRIEVANCE REDRESSAL MECHANISM

149. ADB's SPS 2009 requires the executing agency/implementing agency to establish a mechanism in order to receive and facilitate resolution of people's concerns, complaints and grievances about the project's environmental performance. The mechanism shall use an understandable and transparent process that addresses the affected people's concerns and complaints promptly.

150. The grievance redressal mechanism at present is not structured and undertaken in an informal manner. In order to establish a documented and structured approach towards understanding community expectations and manage their concerns, Grievance Redressal Mechanism for the community shall be constituted. The Grievance Redressal Mechanism outlines the process and steps to be taken and the time limit within which the issue would need to be resolved to the satisfaction of the complainant. The project will endeavor to get all complaints recorded and addressed in a uniform and consistent manner. The grievance redressal mechanism will be managed by the Environment and Social Management Cell through the social field officer with the site manager being the overall in-charge. This grievance mechanism will respond to the concerns and grievances of local communities, NGOs, Panchayats and any other aggrieved party or stakeholder(s). The purpose of the cell will be to record the grievances of the community and other stakeholders and find mutually acceptable solutions for problems like employment, disputes with project activities, community development needs, socio-economic development of villages etc. The project will share information about these mechanisms to the stakeholders through locally appropriate communication tools.

151. The cell will comprise of a Grievance Redressal Committee which will convene meetings on monthly basis and take steps to redress the grievance. The cell will have two levels of Redressal system functional at Site and Corporate office of executing agency/implementing agency.

10.1. Levels of Grievance Redressal

Level 1: Site Grievance Redressal

- The site level grievance cell shall comprise of the Site Manager of ASTIs and/or Principal of ITI and others including EHS officer of contractor. These persons will be available at the project office at site. A member from the local administration, industrial association and Panchayats might also be included in the Cell.
- Any individual/ group with concerns related to onsite work such as pollution, transportation, traffic, occupational health, etc. may be directly register their concerns either verbally or in writing to the above nominated person at site.
- Concerns related to job opportunities, compensation, small contracts, etc. may also be directly received verbally or in writing.
- The issues registered at this level will be appropriated acted upon within two weeks of the date of receipt of complaint based on the assessment of cell.

Level 2: Corporate Grievance Redressal

- The Level 2 of grievance redressal will be the headed by the Head- executing agency/implementing agency, along with Head of EMC (Environment Management Cell), senior representative of Contractor, a member from the respective Representative of local administration, industrial association and Panchayats will be included in the cell.
- Issues unresolved from the previous levels or issue with greater reputational risks will be undertaken at this level. The complainant has the right to take the legal recourse at any stage.
- The issues registered at this level will be resolved within 4 weeks from the date of registration.

10.2. Grievance Registration Method

152. Any person / group of persons having grievance with the project can register their concerns at Level 1 by suitable means of registering i.e. verbal or written. Drop boxes and registers will be provided at all Panchayat offices for the ease of stakeholders. In case the issue is not resolved at Level 1, a written complaint or verbal communication needs to be made to Level 2.

- Complainant is free to approach any court of law without going through this GRM; etc
- Complainant can also lodge their grievances, directly in the permanent —Grievance Register kept at the site and corporate office or through post or submit by hand.
- Any grievance communicated verbally, will be written in —Grievance Register with allotment of a serial number, by the nominated person who has received the verbal grievance.
- The project authority will issue an acknowledgement of the complaint immediately (in case of hand delivery) or by post to the complainant through registered post within next two days.
- The complaint boxes will be cleared twice a week and gist of the complaints will be noted down along with date and name of the complainant with an allotment of serial number to the complaint in the —Grievance Register.

10.3. Processing of Complaint

153. Different problems will be addressed in different manners depending on the type of grievance; however the generic approach to resolution of all grievances will include the following steps:

- The complaint received will be reviewed and screened for the factual details and will be considered for resolution at local level. The grievance will be assessed to determine if the issues raised in the complaint fall within the mandate of the grievance mechanism and the complainants have standing.
- If the complainant requires intervention then it will be considered for resolution otherwise it will be rejected and the same will be communicated to the concerned complainant.
- The grievance will be evaluated to clarify the issues and concerns raised in the complaint, to gather information on how others see the situation, and to identify whether and how the issues might be resolved.
- All options for solving problems will be explored, with or without the assistance of independent and third parties:
  - o Internal decision-making processes, whereby issues are handled by designated ASTIs officials, using stated standards and criteria, to develop and propose a company response to the grievance and to allow for an appeals process.
  - o Joint problem solving, in which ASTIs officials and the complainant engage in direct dialogue.
  - o Third-party decision making to offer a solution when a voluntary agreement is not possible.
- Grievance tracking, monitoring, and reporting to the community will be undertaken as soon as a mutual consent is arrived at.

10.4. Communication of Mechanism to Stakeholders

154. Formal information of Grievance Redressal Committee or GRM, will be communicated to the respective stakeholders and nominated members of the committee. This communication can be made through personal letters, letter to Gram Panchayat, pamphlets, posters, public announcement at strategic locations such as during respective Gram Sabha Meetings. The stakeholders will be encouraged to approach this committee with their concerns and suggestions. Name of Site Manager of ASTI and Head of executing agency/implementing agency at corporate office with contact details will be mentioned in every notice, correspondence with stake holders and also displayed on notice board at appropriate place at the boundary of allotted site (should be visible).

10.5. Meeting of Grievance Redressal Committee

155. The site committee will meet at least once every fortnight in the first 6 months of implementation, and thereafter once, every month. At every Grievance Redressal Committee meeting the issues raised in the last meeting and report on action taken, will be summarized. Issues that cannot be resolved at the GRC would be referred / directed to next designated levels. The Corporate Committee will convene their meetings as and when required.

10.6. Closing of Grievance

156. The complaints lodged in the GRC Register will be resolved amicably by the above mechanism and closed by informing to the complainant directly with closing signatures on the GRC Register or by sending registered post to the complainant, in case he is not approachable. The resolution shall be informed to respective Gram Panchayat also in writing for display at a common place for information to interested parties. The grievance redress process is shown in **figure 10.1**.

Grievance Redress Process

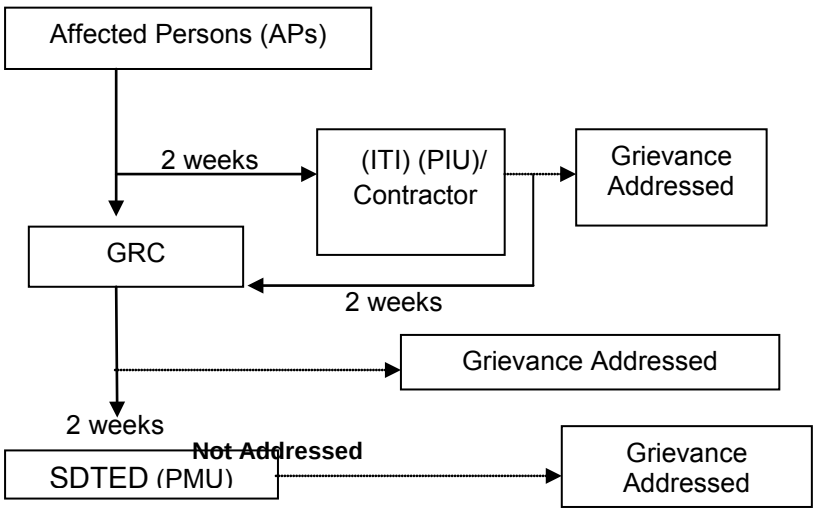

Figure 10.1: Grievance Redress process

10.7. Information disclosure

157. The reviewed and approved draft IEE report of 6 ASTIs (Bhubaneshwar & Cuttack, Jharsuguda Rourkela, Bolangir, Jeypore and Berhampur) will be disclosed on ADB site.

158. The IEE report will also be translated in local language and disclosed at OSDP web site, local municipal offices and project sites.

159. The site specific EMP will be prepared later as and when the detailed design and drawings are finalized by the Contractor and the draft IEE report shall be updated accordingly. Subsequently, the updated IEE report will be submitted to ADB for review and approval before commencement of civil works.

160. The IA will also submit biannual EMR to ADB on the progress of implementation of the EMP. The ADB will review, approve, and disclose the EMR on ADB web site.

11. FINDINGS AND CONCLUSIONS

161. The proposed OSDP will support the GoO in increasing the employment and productivity of its working age population by strengthening the capacity to supply high quality, market-responsive skills training in line with the growth priorities and strategies of the state. The ASTI and the nearby ITIs will operate under the hub and spoke model wherein, each ASTI would act as a 'hub' while the nearby ITIs would be linked as 'spokes'. This shall contribute towards increased access and optimize the usage of existing training infrastructure. The 8 ASTIs would act as hubs to 30 existing Government ITIs one in each district of Odisha. The towns and locations (both for temporary and permanent operations) of 6 ASTIs have been finalized. Based on the site visits and environmental investigations carried out, the proposed ASTIs at Bhubaneshwar, Jharsuguda Rourkela, Bolangir (Titilagarh), Jeypore and Berhampur has been categorized at “category B” and the Initial Environment Examination report including environmental management plan has been prepared.

162. The initial environmental examination process described in the earlier sections of this report assessed the environmental impacts of all components proposed under the OSDP. The potential negative impacts were identified related to design, location, construction and operation of the subproject. The negative impacts due to the design and location are assessed to be minimal, and due to minimal operational and maintenance activities, there are no major negative impacts of operation either. The potential adverse environmental impacts of the proposed OSDP are mainly related to the construction period and which can be minimized by the proposed mitigating measures and environmentally sound engineering and construction practices.

163. The mitigation measures have been developed to reduce all negative impacts to acceptable levels. As stated above, most impacts are due to construction work to be carried out within the premises of the existing educational institutions. The main impacts identified are: generation of dust and noise from construction activities; impacts due to disposal of construction waste; disturbance and inconvenience to local people and the students studying in those educational institutions;; and public safety during construction. These impacts are mostly temporary in nature and can be effectively avoided or mitigated by observing appropriate mitigation measures. It is recommended to ensure preparation of a construction site management plan incorporating the suggested mitigation measures for ensuring site specific safeguard measures. An environmental monitoring plan has been developed to assess the environmental performance of subproject implementation. The mitigation measures proposed in the management plan will be incorporated in project design and implemented as part of the sub-projects.

164. This initial environmental examination has been conducted to identify and assess negative impacts. All components proposed under OSDP involve straightforward construction and simple operation. Not many environmental issues were noticed during this initial environmental examination. In most cases, environmental issues identified are typical for the type of construction components, and a range of proven mitigation strategies exist to address them. This IEE has assessed all potential environmental impacts associated with the OSDP. There are no impacts, which are significant or complex or which needs an in-depth study to assess the impact or to develop the mitigation measures. The environmental impacts identified are manageable, and the EA will implement the mitigation measures as stated in IEE. The OSDP therefore does not warrant environmental impact assessment (EIA).

Appendix 1

Rapid Environmental Assessment (REA) Checklist

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES), for endorsement by Director, SDES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:	INDIA / Odisha Skill Development Project (OSDP)
Sector Division:	SAHS

Screening Questions	Yes	No	Remarks
A. PROJECT SITING ▪ *IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?*			OSDP will set-up 8 new advanced skill training institutes by constructing new buildings to house additional classrooms, laboratories, libraries, hostels, and other associated utilities within premises of the existing government educational or training institutes and upgrade 30 industrial training institutes spread all over the state. The subprojects located within core, buffer and eco-sensitive zones of protected areas and within 100 meters from the boundary of protected archaeological monuments will not be considered for financing.
▪ *CULTURAL HERITAGE SITE*		√	
▪ *LEGALLY PROTECTED AREA (CORE ZONE OR BUFFER ZONE)*		√	
▪ *WETLAND*		√	
▪ *MANGROVE*		√	
▪ *ESTUARINE*		√	
▪ *SPECIAL AREA FOR PROTECTING BIODIVERSITY*		√	
B. POTENTIAL ENVIRONMENTAL IMPACTS *WILL THE PROJECT CAUSE…*			
▪ impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?		√	
▪ disturbance to precious ecology (e.g. sensitive or protected areas)?		√	
▪ alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?		√	

Screening Questions	Yes	No	Remarks
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?	√		The labor quarters at construction sites will establish temporary utilities, and will be provided with proper arrangements for management of sanitary wastes.
▪ increased air pollution due to project construction and operation?	√		The construction activities are expected to generate mainly dust on account of excavation and movement of construction material; and minor emissions of gaseous pollutants such as SO_2, and NOx due to construction machinery. These will be mitigated through appropriate dust suppression methods and pollution control equipment fitted to machinery.
▪ noise and vibration due to project construction or operation?	√		The construction activities and the operation of construction machinery are expected to generate noise. No piling work or heavy equipment is envisaged to be used that could cause vibrations. Adequate mitigation arrangements will be made to control noise levels within regulatory norms.
▪ involuntary resettlement of people? (physical displacement and/or economic displacement)		√	
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?	√		Adequate arrangements will be made for proper disposal of sanitary waste. Awareness camps and medical check-up of labor will be carried out to control possible transmission of communicable diseases.
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?	√		Suitable arrangements will be made to avoid creation of temporary breeding habitats of vectors.
▪ social conflicts if workers from other regions or countries are hired?		√	Preference will be given to local construction labor. The construction activities are limited in nature and within the existing training institutes' premises. In case workers from other regions are hired, requisite awareness programs will be held for such workers to avoid social conflicts.
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?	√		No population influx is envisaged during construction. During operation, about 40,000 students will be trained per annum at these 38 institutes spread all over the state. The hostel facilities and dormitories are proposed to accommodate about 6600 students. Adequate arrangements for water supply and sanitation systems will be made in those 38 institutes.

Screening Questions	Yes	No	Remarks
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?	√		Adequate provisions will be included in the relevant contract and operation procedure related documents to address occupational health and safety hazards during project construction and operation.
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	√		Residential areas and roads exist around some of these institutes. Adequate provisions will be included in the relevant contract and operation procedure related documents to address these community health and safety aspects.
▪ community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	√		Residential areas and roads exist around some of these institutes. Adequate provisions will be included in the relevant contract and operation procedure related documents to address these aspects.
▪ generation of solid waste and/or hazardous waste?	√		The solid and hazardous waste, if any, will be managed as per the regulatory requirements.
▪ use of chemicals?	√		Very limited use of chemicals is envisaged. Suitable mitigation arrangements will be made as per the regulatory requirements.
▪ generation of wastewater during construction or operation?	√		Suitable arrangements will be made to manage the wastewater generated during construction activities and operation of these facilities.

Appendix 2

MoEFCC Notification on requirement of environmental clearance for educational institution

रजिस्ट्री सं० डी० एल० 33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 9 दिसम्बर, 2016

का.आ. 3999(अ).—केन्द्रीय सरकार ने भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय द्वारा पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) के अधीन जारी की गई अधिसूचना संख्यांक का.आ. 1533(अ), तारीख 14 सितंबर, 2006 द्वारा यह निदेश दिया था कि इस अधिसूचना के प्रकाशन की तारीख से ही नवीन परियोजनाओं या क्रियाकलापों के अधीक्षित संनिर्माण या उक्त अधिसूचना की अनुसूची में सूचीबद्ध विद्यमान परियोजनाओं या क्रियाकलापों के विस्तारण या आधुनिकीकरण के कार्य को, जिसमें प्रक्रिया या तकनीक और/या उत्पाद मिश्रण में परिवर्तन सहित क्षमता में वृद्धि किया जाना सम्मिलित है, भारत के किसी भाग में केवल, यथास्थिति, केन्द्रीय सरकार या केन्द्रीय सरकार द्वारा उक्त अधिनियम की धारा 3 की उपधारा (3) के अधीन सम्यक् रूप से गठित राज्य स्तरीय पर्यावरण समाघात निर्धारण प्राधिकरण से, उसमें विनिर्दिष्ट प्रक्रिया के अनुसार, पूर्व पर्यावरणीय अनापत्ति लेने के पश्चात् ही आरंभ किया जाएगा ;

केन्द्रीय सरकार उत्तरदायी कारबार करने की सुगमता सुनिश्चित करने के लिए कार्य कर रही है और भवन तथा संनिर्माण सेक्टर, जो आवास की व्यवस्था करने के लिए महत्वपूर्ण है, के लिए अनुज्ञाओं को सरल बना रही है तथा इस प्रयोजन के लिए शहरी क्षेत्र में कमजोर वर्ग सस्ता आवास उपलब्ध कराने के लक्ष्य के साथ वर्ष 2022 तक सभी के लिए आवास की स्कीम में महत्वाकांक्षी लक्ष्य रखा गया है ;

और उक्त पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (क) में यह उपबंधित है कि जब कभी केन्द्रीय सरकार यह विचार करती है कि किसी उद्योग पर प्रतिषेध या निर्बन्धन अधिरोपित किए जाने चाहिए, तो वह अपने ऐसा करने के आशय की सूचना देगी ;

और पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (च) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए पर्यावरण समाघात निर्धारण अधिसूचना, 2006 में संशोधन करने के लिए एक प्रारूप अधिसूचना का.आ.1595(अ) तारीख 29 अप्रैल, 2016 द्वारा प्रकाशित की गई थी, में संशोधन करने के लिए प्रारूप अधिसूचना पर आक्षेप और सुझाव ऐसे सभी व्यक्तियों से जिनके उससे प्रभावित होने की संभावना है, से उक्त अधिसूचना के भारत के राजपत्र में प्रकाशन की तारीख से साठ दिन में आमंत्रित किए जाते है ;

और केन्द्रीय सरकार द्वारा उपरोक्त निर्दिष्ट प्रारूप अधिसूचना के संबंध में प्राप्त सभी आक्षेपों और सुझावों पर सम्यक् रूप से विचार किया जाएगा ;

अतः, अब, केन्द्रीय सरकार, उक्त पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 (1986 का 29) की धारा 3 की उपधारा (1) और उपधारा (2) में खंड (च) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए पर्यावरण समाघात निर्धारण अधिसूचना, 2006 में निम्नलिखित और संशोधन करती है, अर्थात् :--(I) उक्त अधिसूचना में,--

(1) पैरा 13 के पश्चात्, निम्नलिखित पैरा अंतःस्थापित किया जाएगा, अर्थात् :-

"14. निर्माण उप नियमों में पर्यावरणीय शर्तों का समाकलन :-

(1) स्थानीय प्राधिकारियों द्वारा निर्माण अनुमति सहित समाकलित पर्यावरणीय दशा प्रदान की जाएगी और आकार के अनुसार इमारतों का निर्माण परिशिष्ट XIV में दिए गए लक्ष्य और निगरानी योग्य पर्यावरणीय दशाओं के अनुसार किया जाएगा।

(2) राज्य जो अपनी भवन उपविधियों तथा सुसंगत राज्य विधियों में उप पैरा (1) में निर्दिष्ट इन लक्ष्यों तथा निगरानी योग्य पर्यावरणीय शर्तों को अपना रहे हैं और भवन संनिर्माण के लिए दिए गए अनुमोदनों में उन शर्तों को समाविष्ट कर रहे हैं जिससे इन्हें विधिक रूप से प्रवर्तनीय बनाया जा सके, व्यष्टिक इमारतों के लिए पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय से अनापत्ति की अपेक्षा नहीं होगी।

(3) राज्य पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को अपनी उपविधियों और नियमों में ऐसे प्रस्तावित परिवर्तन भेजेंगे जो प्रारूप की समीक्षा करेगा और सहमति देगा।

(4) जब राज्य सरकारों, वन और जलवायु परिवर्तन मंत्रालय द्वारा सहमति दिए गए उपविधियों और नियमों को अधिसूचित कर देती हैं तो केन्द्रीय सरकार यह आदेश जारी करेगी कि उन राज्य या स्थानीय प्राधिकारी क्षेत्रों में कोई पृथक् पर्यावरणीय अनापत्ति अपेक्षित नहीं है।

(5) स्थानीय प्राधिकारियों जैसे विकास प्राधिकरण, नगरपालिकाएं स्थानीय निकायों में गठित पर्यावरण प्रकोष्ठ की सिफारिशों पर किन्हीं भवनों के लिए नियत अपेक्षाओं के अनुसार तथा लागू किए गए समापन प्रमाणपत्र के जारी किए जाने से पूर्व इन पर्यावरणीय शर्तों का अनुपालन प्रमाणित करेंगे।

(6) राज्य सरकारें जहां उपविधि या नियम विरचित नहीं है, इस अधिसूचना में अधिकथित उपबंधों के अनुसार, व्यष्टिक परियोजनाओं के मूल्यांकन की विद्यमान प्रक्रिया तथा इमारतों और संनिर्माणों के लिए पर्यावरण अनापत्ति की मंजूरी का पालन करते रहेंगे।"

(7) भवनों में पर्यावरण के समावेशन के संबंध में प्रमाणीकरण के प्रयोजन के लिए पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय सक्षम अभिकरण के माध्यम से अर्हित निर्माण पर्यावरणीय संपरीक्षक से इस अधिसूचना की अपेक्षाओं के माध्यम से निर्माण परियोजना का मूल्योकन और प्रमाणित करेगी तथा अर्हित निर्माण पर्यावरणीय संपरीक्षक का प्रत्यायन के लिए प्रक्रिया और इनकी भूमिका परिशिष्ट XV पर दी गई है।

(8) निर्माण उपविधि में पर्यावरण शर्तों के समावेशन के अनुपालन में राज्य सरकार या स्थानीय प्राधिकारी पर्यावरण प्रकोष्ठ (जिसे इसमें इसके पश्चात् प्रकोष्ठ कहा गया है), गठन करेगी तथा अपने क्षेत्राधिकार में पर्यावरण योजना को सुनिश्चित करेगा।

(9) प्रकोष्ठ इमारतों के निर्माण के लिए पर्यावरण शर्तों के समाकलित करने के लिए बनाए गई उपविधि और नियमों के अनुपालन की निगरानी करेगा और प्रकोष्ठ किसी असावधानी, यदि कोई है, के लिए तृतीय पक्षकार संपरीक्षा प्रक्रिया की भी अनुमति देगा।

(10) प्रकोष्ठ स्थानीय प्राधिकरणों के प्रशासनिक नियंत्रण के अधीन कार्य करेगा।

(11) प्रकोष्ठ का गठन और कृत्य परिशिष्ट xvi में दिया हुआ है।

(12) स्थानीय प्राधिकारी निर्माण उपविधि में पर्यावरण के संबंध में समाकलन करते समय परियोजना में उनकी सरकार के अनुसार नीचे दी गई प्रक्रिया का पालन करेगी :-

भवन प्रवर्ग '1' (5000 से < 20,000 वर्ग मीटर)

पर्यावरणीय शर्तों (परिशिष्ट xiv) के अनुपालन के लिए स्व घोषणा प्रारूप और अर्हित भवन पर्यावरण संपरीक्षक द्वारा प्रमाणन प्रारूप 1क के साथ परियोजना प्रस्तावक द्वारा स्थीय प्राधिकारी से निर्माण के लिए अनुमति हेतु आवेदन के अलावा पृथक् खाने में विनिर्दिष्ट फीस सहित आनलाइन प्रस्तुत करेगा। उसके पश्चात् स्थानीय प्राधिकारी इसमें पर्यावरणीय शर्तों के

समावेशन के लिए निर्माण अनुमति जारी करेगा तथा आवेदन के साथ स्व घोषणा और प्रमाणन के आधार पर परियोजना आरंभ करने के लिए अनुमति देगा। भवन के निर्माण के समापन के पश्चात् परियोजना प्रस्तावक अर्हित भवन पर्यावरण संपरीक्षक द्वारा की गई संपरीक्षा के आधार पर आनलाइन आधारित प्ररूप 1क को अद्यतन करेगा तथा पुनरीक्षित अनुपालन परिवचन स्थानीय प्राधिकारी को देगा। 20,000 वर्ग मीटर से कम के भवनों के अननुपालन संबंधी कोई मुद्दा विद्यमान शृंखला के दौरान स्थानीय प्राधिकारी और राज्य स्तर पर विचार किया जाएगा।

अन्य भवन प्रवर्ग (>20,000 वर्ग मीटर)

परियोजना प्रस्तावक पर्यावरण मूल्यांकन के लिए विनिर्दिष्ट फीस सहित प्ररूप 1क में आनलाइन आवेदन तथा निर्माण अनुमति के लिए अतिरिक्त फीस प्रस्तुत करेगा। पर्यावरण मूल्यांकन के लिए फीस पृथक् खाते में जमा की जाएगी। पर्यावरण प्रकोष्ठ आवेदन पर कार्यवाही करेगा और उस स्थानीय प्राधिकारी में निर्माण अनुमति देने के लिए सक्षम प्राधिकारी के नेतृत्व वाली बैठक में प्रस्तुत करेगा। समिति परियोजना का मूल्यांकन करेगी और पर्यावरण शर्तों को निर्माण अनुमति में समावेशन के लिए शर्तें रखेगा। समिति की सिफारिशों के पश्चात निर्माण अनुमति और पर्यावरण अनापत्ति स्थानीय प्राधिकारी द्वारा समेकित आदेश में जारी करेगा।

परियोजना प्रस्तावक अर्हित निर्माण पर्यावरण संपरीक्षक से सनिर्माण के समापन के पश्चात् लागू पर्यावरणीय शर्तें मानकों के लिए परियोजना में सतत् अनुपालन के प्रमाणपत्र और अनुपालन आंकड़ें प्रत्येक पांच वर्ष में पर्यावरण प्रकोष्ठ को निम्नलिखित मानकों पर विशेष केन्द्रित करते हुए प्रस्तुत करेगा :-

(क) ऊर्जा प्रयोग (सभी ऊर्जा स्रोतों सहित)

(ख) साइट पर पुर्नप्रयोग ऊर्जा स्रोतों से साइट पर उत्पन्न की ऊर्जा

(ग) साइट जल प्रयोग और अपशिष्ट जल उत्पन्न, उपचारित और पुर्नप्रयुक्त

(घ) साइट पर पृथकीकृत और उपचारित अपशिष्ट

(ङ) गौधारोपण और रखरखाव।

परियोजना के पूर्ण होने पर, प्रकोष्ठ पांच वर्षीय संपरीक्षा रिपोर्ट सहित परियोजना अनुपालन प्रास्थिति की अचानक जांच करेगा। राज्य सरकार पर्यावरणीय शर्तों और मानकों के अननुपालन के लिए शास्तियां लगाने के लिए समुचित विधि अधिनियमित करेगी। प्रकोष्ठ स्थानीय प्राधिकारी शर्तों या मानकों के अननुपालन के लिए सुसंगत राज्य विधि के अधीन यथा लागू वित्तीय शास्तियों की सिफारिश करेगा। प्रकोष्ठ की सिफारिशों के आधार पर स्थानीय प्राधिकारी सुसंगत राज्य विधि के अधीन शास्तियां अधिरोपित करेगा। असत्य घोषणा या प्रकाशन की दशा में प्रत्यायन निकाय को रिपोर्ट करेगा और स्थानीय निकाय अर्हित भवन पर्यावरण संपरीक्षकों की काली सूची में डाल देगा तथा मालिक और अर्हित निर्माण पर्यावरण संपरीक्षक पर वित्तीय शास्ति लगाएगा।

जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 और वायु (प्रदूषण निवारक तथा नियंत्रण) अधिनियम, 1981 के अधीन स्थापन तथा प्रचालन की सहमति राज्य प्रदूषण नियंत्रण बोर्ड से सहमति 1,50,000 वर्ग मीटर के लिए रिहायशी निर्माण हेतु अपेक्षित नहीं होगी.";

(II) अनुसूची में मद 8 और उससे संबंधित प्रविष्टियों के लिए निम्नलिखित मद और प्रविष्टियां रखी जाएंगी, अर्थात्:–

(1)	(2)	(3)	(4)	(5)
"8.		भवन/योजना सनिर्माण/विकास योजना और नगरीय		
8(क)	भवन निर्माण और सनिर्माण परियोजना		निर्मित क्षेत्र का ≥ 20,000 वर्ग मीटर और ≤ 1,50,000 वर्ग मीटर	इस अधिसूचना के प्रयोजन के लिए "निर्मित क्षेत्र" पद, सभी तलों को एक साथ मिलाकर निर्मित या आच्छादित क्षेत्र जिसके अंतर्गत उसका बेसमेंट भी है, जो भवन निर्माण तथा सनिर्माण परियोजनाओं में प्रस्तावित है। **टिप्पण 1-** परियोजनाओं या क्रियाकलापों के अंतर्गत औद्योगिक शेड, विश्वविद्यालयों,

				महाविद्यालयों, शैक्षणिक संस्थाओं के लिए छात्रावास, किंतु ऐसे भवन योजनीय पर्यावरणीय प्रबंधन, ठोस और तरल तथा परिशिष्ट 14 में दी गई शर्तों को सुनिश्चित करेंगी। **टिप्पण 2:** साधारण शर्तें लागू नहीं होंगी। **टिप्पण 3:** टिप्पण 1 में यथल छूट स्थानीय प्राधिकारी के स्तर पर भवन अनुमति सहित पर्यावरणीय मानकों के समाकलन के पश्चात् औद्योगिक क्षेत्र के लिए ही उपलब्ध होगी।
8(ङ)	नगरी और क्षेत्र विकास योजनाएं	निर्मित क्षेत्र का ≥ 3,00000 वर्ग मीटर या आच्छादित क्षेत्र का ≥ 150 हेक्टेयर	निर्मित क्षेत्र का ≥1,50000 वर्ग मीटर और < 3,00000 वर्ग मीटर या आच्छादित क्षेत्र का ≥ 50 हेक्टेयर और <150 हेक्टेयर	**टिप्पण:** साधारण शर्तें लागू नहीं होंगी

[फा. सं. उ-19-2/2013-आईए-III(भाग)]

मनोज कुमार सिंह, संयुक्त सचिव

टिप्पण: मूल अधिनियम भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (ii) में का.आ. 1533(अ), तारीख 14 सितंबर, 2006 को प्रकाशित किए गए थे और पश्चात्वर्ती संशोधन का.आ. 1737 (अ) तारीख 11 अक्तूबर, 2007, का.आ. 3067 (अ), तारीख 1 दिसंबर, 2009, का.आ. 695 (अ) तारीख 4 अप्रैल, 2011, का.आ. 2896 (अ) तारीख 10 दिसंबर, 2012, का.आ. 574 (अ) तारीख 13 मार्च, 2011, का.आ. 2896 (अ) तारीख 13 दिसंबर, 2012, का.आ. 674 (अ) तारीख 13 मार्च, 2013, का.आ. 2559 (अ) तारीख 22 अगस्त, 2013, का.आ. 2731 (अ) तारीख 9 सितम्बर, 2013, का.आ. 562 (अ) तारीख 26 फरवरी, 2014, का.आ. 637 (अ) तारीख 28 फरवरी, 2014, का.आ. 1599 (अ) तारीख 25 जून, 2014, का.आ. 2600 (अ) तारीख 9 अक्तूबर, 2014, का.आ. 3252 (अ) तारीख 22 दिसंबर, 2014, का.आ. 382 (अ) तारीख 3 फरवरी, 2015 और का.आ. 811 (अ) तारीख 23 मार्च, 2015, का.आ. 996 (अ) तारीख 10 अप्रैल, 2015, का.आ. 1142 (अ) तारीख 17 अप्रैल, 2015, का.आ. 1141 (अ) तारीख 29 अप्रैल, 2015, का.आ. 1834 (अ) तारीख 6 जुलाई, 2015 और का.आ. 2572 (अ) तारीख 14 सितंबर, 2015, का.आ. 141 (अ) तारीख 15 जनवरी, 2016, का.आ. 190 (अ) तारीख 20 जनवरी, 2016, का.आ. 648 (अ) तारीख 3 मार्च, 2016 और का.आ. 2269 (अ) तारीख 1 जुलाई, 2016 द्वारा किए गए।

परिशिष्ट - XIV

भवनों तथा निर्माण के लिए पर्यावरणीय शर्तें

(श्रेणी-'1': 5,000 से लेकर 20,000 वर्ग मीटर से कम)

माध्यम	क्र.सं.	पर्यावरणीय शर्तें
स्थलाकृति तथा प्राकृतिक ड्रेनेज	1	जल के अबाधित प्रवाह को सुनिश्चित करने के लिए प्राकृतिक ड्रेन प्रणाली का रखरखाव किया जाना चाहिए। किसी भी निर्माण कार्य को स्थल से होकर गुजरने वाले प्राकृतिक ड्रेनेज में बाधा डालने की अनुमति नहीं दी जाएगी। नम भूमि तथा जल निकायों पर निर्माण की अनुमति नहीं दी जाएगी ड्रेनेज पद्धति का रखरखाव करने तथा वर्षा जल संचयन के लिए चेक डैम, वायो-स्वेल, रैंडस्केप और अन्य वहनीय शहरी ड्रेनेज प्रणालियों की अनुमति है।
जल संरक्षण, वर्षा जल संचयन और भू-जल स्तर में वृद्धि	2	जल-सक्षम उपस्करों के प्रयोग को बढ़ावा दिया जाएगा। वर्षा जल संचयन संबंधी स्थानीय उपनियम के उपबंधों का अनुपालन किया जाएगा। यदि स्थानीय उपनियम के उपबंध उपलब्ध न हों, तो शहरी विकास मंत्रालय के मॉडल भवन उपनियम, 2016 के अनुसार भण्डारण तथा रिचार्ज के लिए उचित उपबंध का अनुपालन किया जाएगा।

		वर्षा जल संचयन की एक योजना बनाए जाने की आवश्यकता है जिसमें रिचार्ज शॉर (प्रत्येक 5,000 वर्ग मीटर निर्मित क्षेत्र पर न्यूनतम एक रिचार्ज) की सिफारिश की जाती है। संचित वर्षा जल के भण्डारण तथा पुन:प्रयोग को बढ़ावा दिया जाना चाहिए। ऐसे क्षेत्रों में जहां भू-जल स्तर को बढ़ाना व्यवहार्य न हो, वर्षा जल का भण्डारण और पुन:प्रयोग किया जाना चाहिए। सक्षम प्राधिकारी की अनुमति के बिना भू-जल नहीं निकाला जाएगा। सभी रिचार्ज को उथले जलभृत तक सीमित रखा जाना चाहिए।
	2 (क)	स्थानीय भवन उपनियमों में यथा अपेक्षित कम से कम 20% खुला स्थान प्रभावनीय होगा। कम से कम 50% खोपनिस के साथ पेवर, पेवर ब्लॉकों, बैंडस्केप इत्यादि को प्रभावनीय तल समझा जाएगा।
अपशिष्ट प्रबंधन	3	ठोस अपशिष्ट: अपशिष्ट के पृथक्करण को सुविधाजनक बनाने के लिए प्रत्येक इकाई में तथा भू-तल पर अलग-अलग नम और शुष्क बिन की व्यवस्था की जानी चाहिए। सीवेज: ऐसे क्षेत्रों में जहां नगरीय सीवेज नेटवर्क नहीं है, वहां ऑनसाइट शोधन प्रणालियां स्थापित की जानी चाहिए। सैंडस्केप से एकत्रित होने वाली प्राकृतिक शोधन प्रणालियों को बढ़ावा दिया जाएगा। जहां तक संभव हो शोधित बहि:स्राव का पुन:प्रयोग किया जाना चाहिए। अतिरिक्त शोधित बहि:स्राव को सीपीसीबी प्रतिमानों के अनुपालन में निस्तारित किया जाएगा। सेप्टिक टैंकों सहित ऑनसाइट सीवेज शोधन से निकले गाद को लहरी विकास मंत्रालय, केन्द्रीय लोक स्वास्थ्य और पर्यावरण अभियांत्रिकी संगठन (सीपीएचईईओ) के सीवरेज तथा सीवेज शोधन प्रणाली मैनुअल, 2013 के अनुसार एकत्रित, भेजना और निस्तारित किया जाएगा। ठोस अपशिष्ट (प्रबंधन) नियम, 2016 तथा ई-अपशिष्ट (प्रबंधन) नियम, 2016 और प्लास्टिक अपशिष्ट (प्रबंधन) नियम, 2016 का अनुपालन किया जाएगा।
ऊर्जा	4	ऊर्जा दक्षता ब्यूरो के ऊर्जा संरक्षण भवन कोड (ईसीबीसी) का अनुपालन सुनिश्चित किया जाएगा। राज्यों में ऐसे भवन जिनमें उनके अपने ईसीबीसी अधिसूचित हैं, उनमें राज्य ईसीबीसी का अनुपालन किया जाएगा। आउटडोर तथा सामान्य क्षेत्र की एकाश व्यवस्था में लाईट एमिटिंग डायोड (एलईडी) का प्रयोग होगा। डिमांड लोड के 1% समतुल्य अथवा राज्य स्तरीय/स्थानीय भवन उपनियमों की अपेक्षा अनुसार बिजली उत्पादन की पूर्ति करने हेतु सौर, पवन अथवा नवीकरणीय ऊर्जा, जो भी अधिक हो, की संस्थापना की जाएगी। आवासीय तथा संस्थागत भवनों की गर्म जल की मांग को पूरा करने के लिए अथवा स्थानीय भवन उपनियमों की आवश्यकतानुसार, जो भी अधिक हो, सोलर वाटर हीटिंग की व्यवस्था की जाएगी। आवासीय भवनों के लिए भी यथासंभव अपनी गर्म जल मांग की पूर्ति हेतु सोलर वाटर हीटरों की सिफारिश की जाती है। भवन डिजायनों में पैसिव सोलर डिजायन की संकल्पना शामिल की जाएगी जिसमें डिजायन के तत्वों जैसे भवन अभिमुखीकरण, लैंडस्केपिंग, दक्ष भवन एन्वेलप, समुचित खिड़कियों की व्यवस्था, दिन में अधिक प्रकाश करने की व्यवस्था में सुधार और थर्मल मास इत्यादि का प्रयोग करके भवनों में ऊर्जा खपत को न्यूनतम किया जाता है। दीवारें, खिड़कियां और छत के यू-वाल्व ईसीबीसी विशिष्टियों के अनुसार होंगे।
वायु गुणवत्ता तथा शोर	5	भवन और साथ ही स्थल के लिए धूल, धुंआ एवं अन्य वायु प्रदूषण निवारण के उपाय किए जाएंगे। इन उपायों में निर्माणाधीन भवन, स्थल के चारों ओर धूल/धूल रोकने वाली दीवारों का निर्माण (कम से कम 3 मीटर की ऊंचाई तक) के लिए आवरण में शामिल हो सकेंगे। प्लास्टिक/तारपोलिन स्थल से कचरा उड़ाने के साथ-साथ वायु, सीमेंट, मुरैम में चलती हुई गाड़ियां तथा अन्य निर्माण सामग्रियां धूल प्रदूषण का कारण हो सकती है। साइट पर बालू, मुरैम, बिखरी मिट्टी, सीमेंट भंडार को उचित तरीके से ढक कर रखा जाएगा जिससे कि धूल प्रदूषण को रोका जा सके। पिसाई तथा पत्थर कटाई के लिए वेट जेट का प्रयोग किया जाएगा। धूल को दबाने के लिए

		बिना पटरी बिछा हुआ धरातल तथा बिखरी मिट्टी पर उचित तरीके से पानी का छिड़काव किया जाएगा। निर्माण तथा विध्वंस सारे मलबे को उचित तरीके से निपटान से पहले साइट के पास इकट्ठा किया जाएगा (तथा सड़के के किनारे ढेर या बाहर खुली जगह में इकट्ठा नहीं) सभी विध्वंस तथा निर्माण अपशिष्ट को निर्माण तथा विध्वंस अपशिष्ट नियम, 2016 के उपबंधों के अनुसार प्रबंधित होगा। निर्माण स्थल पर कार्य करने वाले सभी कामगारो तथा निर्माण सामग्री की लोडिंग अनलोडिंग में शामिल, निर्माण सामग्री की ढुलाई तथा निर्माण के कचरे या धूल प्रदूषण के किसी भी क्षेत्र में कार्य कर रहे व्यक्ति को डस्ट मास्क उपलब्ध कराया जाएगा। आग्नेयिक वायु गुणवत्ता के लिए भारत के राष्ट्रीय भवन कोड के अनुसार वातायन के प्रावधान तैयार किए जाएंगे।
	5(क)	डीजी सेट का स्थान निर्धारण तथा निकास पाइप की ऊंचाई सीपीसीबी मानदंडों के प्रावधानों के अनुसार होगा।
हरित क्षेत्र	6	प्रति80 वर्ग मीटर की भूमि के लिए कम से कम एक पेड़ लगाकर उसकी देखभाल की जानी चाहिए। इस उद्देश्य के लिए विद्यमान पेड़ों की गिनती की जाएगी। देशीय जाति के पौधों को प्राथमिकता दी जानी चाहिए।
	6(क)	जहां पेड़ों की कटाई आवश्यक हो, 1:3 के अनुपात में प्रतिपूरक वृक्षारोपण अर्थात प्रत्येक एक पेड़ की कटाई के लिए 3 पौधों को लगाना तथा उनका रख-रखाव करना होगा।

(श्रेणी '2' : 20,000 वर्ग मीटर से लेकर 50,000 से कम)

माध्यम	क्रम.सं.	पर्यावरणीय शर्तें
स्थलाकृति तथा प्राकृतिक जल निकास	1	जल की अबाधित धारा सुनिश्चित करने के लिए प्राकृतिक जल निकास प्रणाली का प्रबंध होना चाहिए। साइट के माध्यम से प्राकृतिक जल निकास को अवरोध करने के लिए निर्माण की अनुमति नहीं होगी। नमभूमि और जल निकायों पर निर्माण की अनुमति नहीं होगी। जल निकास पैटर्न तथा वर्षा जल संचयन के लिए चेक डैम, बायो स्वाल्स, लैंडस्केप तथा अन्य धारणीय शहरी जल निकास प्रणालियों (एसयूडीएस) की अनुमति होगी। जहां तक संभव हो सके, भवनों की डिजाइन में प्राकृतिक स्थलाकृति का पालन किया जाएगा। कम से कम कटाई तथा भराई होनी चाहिए।
जल संरक्षण, वर्षा जल सिंचाई तथा भूमि जल को रिचार्ज करना	2	जल संचयन, जल क्षमता और संरक्षण के लिए एक पूर्ण योजना तैयार की जाए। स्पुल फिक्चर या सेंसरों वाले जल क्षमता वाले उपकरणों के उपयोग को बढ़ावा दिया जाना चाहिए। वर्षा संचयन के संबंध में स्थानीय उप नियम, उपबंधों का पालन किया जाएगा। अगर स्थानीय उप नियम उपलब्ध नहीं है तो शहरी विकास मंत्रालय का मॉडल भवन उप नियम, 2016 के अनुसार भंडारण तथा रिचार्ज के लिए पर्याप्त प्रावधानों का पालन किया जाना चाहिए। वर्षा जल संचयन योजना का डिजाइन बनाने की आवश्यकता है जहां 5000 वर्ग मीटर के निर्दिष्ट क्षेत्र में कम से कम एक रिचार्ज बोर हो तथा कम से कम कुल एक दिन के शुद्ध जल के प्रबंधन की भंडारण क्षमता की आवश्यकता होगी। उन क्षेत्रों, जहां भूमिगत जल को रिचार्ज करना संभव नहीं है, में वर्षा जल संचयन चाहिए तथा पुन: उपयोग के लिए भंडारण किया जाएगा। भूमिगत जल को सक्षम प्राधिकारी के अनुमोदन के बिना नहीं निकाला जाएगा। सभी रिचार्ज सीमित उथले जलभृत तक सीमित होनी चाहिए।
	2 (क)	स्थानीय भवन उप-नियमों द्वारा यथाअपेक्षित खुले स्थानों का कम से कम 20% भाग भेद्य होगा। न्यूनतम 50% खाली जगह, भूदृश्य आदि सहित हरित खंडजों, खंडज उद्यान के उपयोग सहित यथा प्रवेश्य धरातल के रूप में विचार किया जाएगा।
अपशिष्ट प्रबंधन	3	ठोस अपशिष्ट: प्रत्येक इकाई में और भू तल पर पृथक-पृथक रीसे और सूखे कचरे के डिब्बे, अपशिष्ट के पृथक्करण को सुविधाजनक बनाने के लिए प्रदान किए जाएंगे। मलजल: अपशिष्ट 100% अपशिष्ट जल के शोधन की स्थल पर मलजल शोधन क्षमता संस्थापित की

		जानी है। शोधित अपशिष्ट जल को स्थल पर भूदृश्य, फ्लशिंग, कूलिंग टावर और अन्य प्रयोजनार्थ पुन:प्रयोग किया जाएगा। अतिरिक्त शोधित जल को सीपीसीबी मानकों के अनुसार छोड़ा जाएगा। प्राकृतिक शोधन प्रणालियों को बढ़ावा दिया जाएगा। सेप्टिक टैंकों सहित स्थल पर (ऑन साईट) शोधन से अवमल का मल-निर्पास और मलजल शोधन प्रणाली, 2013 पर शहरी विकास मंत्रालय, केन्द्रीय लोक स्वास्थ्य और पर्यावरणीय इंजीनियरिंग संगठन (सीपीएचईईओ), के मैनुअल के अनुसार संग्रहण, ढुलाई और निपटान किया जाएगा। ठोस अपशिष्ट (प्रबंधन) नियम, 2016 और ई-अपशिष्ट (प्रबंधन) नियम 2016 और प्लास्टिक अपशिष्ट (प्रबंधन) नियम 2016 के प्रावधानों का अनुपालन किया जाएगा।
	3 (क)	सभी गैर-जैवक्षमणीय अपशिष्ट प्राधिकृत पुनर्चक्रणकर्ताओं को सौंपा जाएगा, जिसके लिए प्राधिकृत पुनर्चक्रणकर्ताओं के साथ लिखित में गठजोड़ किया जाना चाहिए।
	3 (ख)	जैविक अपशिष्ट कम्पोस्ट/0.3 कि./प्रति व्यक्ति/प्रतिदिन की न्यूनतम क्षमता वाला वर्मीकल्चर/पिट संस्थापित किया जाना चाहिए।
ऊर्जा	4	ऊर्जा दक्षता ब्यूरो के ऊर्जा संरक्षण भवन कोड (ईसीबीसी) का अनुपालन सुनिश्चित किया जाएगा। राज्यों में जिन भवनों ने अपने स्वयं ईसीबीसी अधिसूचित किए हैं, वे भवन राज्य ईसीबीसी का अनुपालन करेंगे। बाहरी क्षेत्र और साझा क्षेत्र में प्रकाश व्यवस्था एलईडी की होगी। पैसिव सौर डिजाइन की संकल्पना, जिसमें भवनोन्मुख, भू-दृश्य निर्माण, कौशलपूर्ण भवन आवरण, उचित गवाक्षीकरण, दिन में उन्नत प्रकाश व्यवस्था डिजाइन और ताप विद्युत मास आदि का उपयोग करके भवनों में ऊर्जा उपभोग न्यूनतम किया जाता है, भवन डिजाइन में समावेशित किया जाएगा। दीवार, खिड़की और रूफ-यू-वैल्यूज, ईसीबीसी दिशानिर्देशों अनुसार होनी चाहिए।
	4 (क)	भार की मांग के 1% के बराबर विद्युत उत्पादन अथवा राज्य स्तरीय/स्थानीय भवन उप-नियमों की अपेक्षानुसार जो भी अधिक हो, को पूरा करने के लिए सौर, पवन अथवा अन्य नवीकरणीय ऊर्जा संस्थापित की जाएगी।
	4 (ख)	आवासीय और संस्थागत भवनों की गर्म जल की 20% मांग अथवा स्थानीय भवन उप-नियमों के यथा अपेक्षा अनुसार, जो भी अधिक हो, को पूरा करने के लिए सौर जल तापक प्रदान किए जाएंगे। आवासीय भवनों को भी यथासंभव सौर जल हीटरों से अपनी गर्मपानी की मांग पूरा करने के लिए सुझाव दिया गया है।
	4 (ग)	निर्माण सामग्री की मात्रा के कम से कम 20% मात्रा हेतु ईंटों, ब्लॉकों और अन्य निर्माण सामग्रियों में पर्यावरण अनुकूलन सामग्री का उपयोग करना अपेक्षित होगा। इनके फ्लाई ऐश ईंट, खोखली (हौलो) ईंटें, एएसी, फ्लाई ऐश चूनापत्थर, जिप्सम ब्लॉक, कम्प्रैस्ड मृदा ब्लॉक और अन्य पर्यावरण अनुकूल सामग्रियां शामिल हैं। फ्लाई ऐश को समय-समय पर यथा संशोधित सितम्बर, 1999 की फ्लाई ऐश अधिसूचना के प्रावधानों के अनुसार निर्माण में भवन सामग्री के रूप में प्रयुक्त किया जाना चाहिए।
वायु गुणवत्ता और धूलि	5	भवन के साथ-साथ निर्माण स्थल के लिए धूल कण, धुंआ और अन्य वायु प्रदूषण उपशमन उपाय अपनाएं जाएंगे। इन उपायों में निर्माणाधीन भवनों के लिए स्क्रीन, निर्माण स्थल के चारों ओर सतत धूलकण/पवन को बंद करने के लिए दीवारों (कम से कम 3 मीटर ऊंची) का निर्माण शामिल है। निर्माण स्थल में बालू, सीमेंट, लोहचान और अन्य निर्माण सामग्रियां, जिनके कारण स्थल पर धूल प्रदूषण उत्पन्न होता है, लाने वाले और निर्माण स्थल से डेबरी ले जाने वाले वाहनों के लिए प्लास्टिक/तिरपाल की शीट कवर प्रदान किए जाने चाहिए। स्थल पर भण्डारण किए हुए बालू, लोहचान, खुली मृदा, सीमेंट को पर्याप्त रूप से ढका होना चाहिए ताकि धूलकण से प्रदूषण की रोकथाम की जा सके। निर्माण सामग्री की पिसाई और पत्थरों की कटाई के लिए वेटजेट प्रदान किए जाएं। निर्माण और विध्वंस का समस्त कचरा उचित ढंग से निपटान किए जाने से पूर्व स्थल पर ही रखा जाएगा (सड़क अथवा बाहर खुले स्थान पर ढेर नहीं लगाया जाएगा)। समस्त विध्वंस और निर्माण अपशिष्ट का प्रबंधन निर्माण और विध्वंस अपशिष्ट नियम 2016 के प्रावधानों के अनुसार किया जाएगा।

		निर्माण स्थल पर कार्यरत तथा निर्माण सामग्री और निर्माण कचरे को लादने, उतारने, ढुलाई अथवा धूल प्रदूषण वाले किसी क्षेत्र में कार्यरत सभी मजदूरों को डस्ट मास्क उपलब्ध कराए जाएं। भीतरी वायु गुणवत्ता के संबंध में भारत के राष्ट्रीय भवन कोड के अनुसार वायुसंचार प्रावधान किए जाएं।
	5(क)	डीजी सेट का स्थान और निकास नली की ऊँचाई सीपीसीबी मानदण्डों के प्रावधानों के अनुसार होगी।
हरित आवरण	6	प्रति 80 वर्गकुंड भूमि के लिए कम से कम एक वृक्ष लगाया जाना चाहिए और उसकी देख-रेख की जानी चाहिए। इस उद्देश्य के लिए विद्यमान वृक्षों की गणना की जाएगी। स्थानिक प्रजातियों के रोपण को प्राथमिकता दी जानी चाहिए।
	6(क)	जहां वृक्षों को काटे जाने की आवश्यकता है, 1:3 (अर्थात् काटे गए प्रत्येक 1 वृक्ष के लिए 3 वृक्षों का रोपण) के अनुपात में प्रतिपूरक वनीकरण किया जाए और उसका रख-रखाव किया जाए।
ऊपरी मृदा का परिरक्षण और पुनः उपयोग	7	भवनों, सड़कों, गैर-वहन क्षेत्रों और बाह्य सेवाओं हेतु प्रस्तावित क्षेत्रों से ऊपरी मृदा को 20 सेमी. की गहराई तक खोदा जाए। इसे निर्दिष्ट क्षेत्रों में उपयुक्त तरीके से संचित किया जाए तथा स्थल पर प्रस्तावित पेड़-पौधों के रोपण के दौरान पुनः उपयोग किया जाए।
परिवहन	8	एमओयूडी सर्वोत्तम पद्धतियां दिशा-निर्देश(यूआरडीपीएफआई) के अनुसार, एक व्यापक मोबिलिटी योजना बनाई जाए ताकि मोटर-सज्जित, गैर-मोटर-सज्जित, सार्वजनिक और निजी नेटवर्कों को शामिल किया जा सके। सड़क का डिजाइन पर्यावरण, और उपयोक्ताओं की सुरक्षा को पर्याप्त ध्यान में रखते हुए बनाया जाए। सड़क प्रणाली का डिजाइन इन मूलभूत मापदंडों के अनुसार बनाया जा सकता है। वाहनीय और पैदल यातायात के उचित पृथक्करण से सड़कों का अनुक्रम। यातायात शामक उपाय। प्रवेश और निकासी बिंदुओं का उचित डिजाइन। स्थानीय विनियम के अनुसार पार्किंग मानक।

(श्रेणी '3' : 50000 से 150000 वर्ग मीटर)

माध्यम	क्र.स.	पर्यावरणीय स्थिति
स्थलाकृति और प्राकृतिक निकासी	1	जल का अबाधित बहाव सुनिश्चित करने के लिए प्राकृतिक निकासी प्रणाली का रख-रखाव किया जाना चाहिए। ऐसे किसी निर्माण की अनुमति न दी जाए जिससे कि स्थल के माध्यम से प्राकृतिक निकासी बाधित हो। आर्द्रभूमि और जल निकायों पर किसी निर्माण की अनुमति नहीं दी जानी है। निकासी पैटर्न को बनाए रखने तथा वर्षा जल संचयन के लिए चेक बांध, बाँयो.स्वेलस, भू-दृश्य, और अन्य सतत शहरी निकासी प्रणालियों (एसयूडीएस) अनुमत हैं। भवनों का डिजाइन, जहां तक संभव हो, प्राकृतिक स्थलाकृति के अनुसार बनाया जाना चाहिए। पेड़ों की काटना और गिराना न्यूनतम होना चाहिए।
जल संरक्षण-वर्षा जल संचयन और भू जल रिचार्ज	2	वर्षा जल संचयन, जल के गुणवत्ता तथा संरक्षण के लिए एक पूर्ण योजना बनाई जाए। वर्षा जल संचयन के संबंध में स्थानीय उपविधि का पालन किया जाए। यदि स्थानीय उपविधि उपलब्ध न हों, तो शहरी विकास मंत्रालय के मॉडल भवन उपविधि, 2016 के अनुसार भंडारण और रिचार्ज संबंधी उपयुक्त प्रावधानों का पालन किया जाए। एक वर्षा जल संचयन योजना डिजाइन किए जाने की आवश्यकता है जहां निर्मित क्षेत्र के प्रति 5,000 वर्ग मीटर न्यूनतम एक रिचार्ज बोर और कुल ताजा जल आवश्यकता की न्यूनतम एक दिन की भंडारण क्षमता का रिचार्ज बोर प्रदान किया जाए। ऐसे क्षेत्र जहां भूजल रिचार्ज व्यवहार्य नहीं है, वहां वर्षा जल का संचयन और पुनःउपयोग हेतु भंडारण किया जाना चाहिए। सक्षम प्राधिकारी से अनुमोदन लिए बिना भूजल न निकाला जाए।

		सभी रिचार्ज ऊपरी जलभृत एक सीमित होने चाहिए।
	2 (क)	स्थानीय भवन उप-नियमों द्वारा या यथा अपेक्षित खुले स्थान कम से कम 20% प्रवेश्य होगा। कम से कम 50% खुले स्थान वाले ग्रास पेवर, पेवर ब्लॉक, भू-दृश्य इत्यादि को प्रवेश्य सतह माना जाएगा।
	2 (ख)	जल किफायती उपकरणों के प्रयोग को बढ़ावा दिया जाए। जो-फ्लो फिक्सचरों अथवा सेंसरों का प्रयोग जल संरक्षण को बढ़ावा देने के लिए किया जाए।
	2 (ग)	दोहरी प्लंबिंग प्रणाली के प्रयोग द्वारा भूरे और काले पानी को पृथक किया जाए। सिंगल स्टेक प्रणाली के मामले में दोहरी प्लंबिंग प्रणाली द्वारा फ्लशिंग के लिए अलग पुनर्सैवरण लाइनें बनाई जावेंगी।
ठोस अपशिष्ट प्रबंधन	3	ठोस अपशिष्ट: अपशिष्ट के अलग-अलग करने की आसान बनाने के लिए प्रत्येक इकाई और भूतल पर अलग-अलग सीसे और सूखे कूड़े दान उपलब्ध कराए जाए। ठोस अपशिष्ट (प्रबंधन) नियम, 2016 और ई-अपशिष्ट (प्रबंधन) नियम, 2016, और प्लास्टिक अपशिष्ट (प्रबंधन) नियम, 2016 के उपबंधों का अनुपालन किया जाएगा।
	3 (क)	सभी गैर जैव-अवक्रमणीय अपशिष्ट को प्राधिकृत पुनर्चक्रणकर्ताओं के हवाले कर दिया जाएगा जिसके लिए प्राधिकृत पुनर्चक्रणकर्ताओं के साथ लिखित समझौता किया जाएगा।
	3 (ख)	न्यूनतम 0.3 किग्रा/व्यक्ति/दिन की क्षमता वाले जैविक अपशिष्ट कम्पोस्टर/वर्मीकल्चर गड्ढे बनाए जावेंगे।
मल-जल शोधन संयंत्र	4	स्थल पर 100% अपशिष्ट जल शोधन क्षमता के मल-जल शोधन की अवस्थापना किया जाना। शोधित मल-जल का पुनर्प्रयोग स्थल पर लैंड-स्केप, फ्लशिंग, कूलिंग टावर और अन्य अंतिम प्रयोक्ताओं के लिए किया जाए। अतिरिक्त शोधित जल को केंद्रीय प्रदूषण नियंत्रण बोर्ड के मानकों के अनुसार बहाया जाएगा। प्राकृतिक शोधन प्रणालियों को बढ़ावा दिया जाएगा। सेप्टिक टैंकों सहित साइट पर मल-जल शोधन से उत्पन्न तलछट को एकत्र किया जाएगा और उसे शहरी विकास मंत्रालय, केंद्रीय लोक स्वास्थ्य और मल-जल एवं मल-जल शोधन संयंत्र, 2013 संबंधी पर्यावरणीय अभियांत्रिकी संगठन (सीपीएचईईओ) मैनुअल के अनुसार होकर निपटाल किया जाएगा।
ऊर्जा	5	ऊर्जा दक्षता ब्यूरो के ऊर्जा संरक्षण भवन कोड (ईसीबीसी) का अनुपालन सुनिश्चित किया जाएगा। जिन राज्यों ने अपना स्वयं का ईसीबीसी अधिसूचित किया है, भवन अभिकल्पन में राज्य ईसीबीसी का अनुपालन करेंगे। प्रकाश व्यवस्था बाहरी और कॉमन एरिया में एलईडी की होगी। भवन अभिकल्पन में भवन अनुस्थापन, भू-दृश्यीकरण, प्रभावी भवन खिड़कियों की समुचित व्यवस्था, जिनमें प्रकाश बढ़ाने वाला अभिकल्पन और वर्मल मास इत्यादि जैसे अभिकल्पन तत्वों का प्रयोग करके भवन में न्यूनतम ऊर्जा खपत वाले पैसिव सोलर अभिकल्पन की संकल्पना को शामिल किया जाएगा। दीवार, खिड़की और छत यू-वेल्यूज ईसीबीसी विनिर्देशों के अनुसार होंगे।
	5 (क)	सौर, पवन या अन्य नवीकरणीय ऊर्जा की व्यवस्था ताकि मांग भार का राज्य स्तरीय/स्थानीय भवन उप-नियमों या जो भी अधिक हो, के अनुसार 1% के बराबर विद्युत उत्पादन पूरा किया जा सके।
	5 (ख)	व्यावसायिक और सांस्थानिक भवनों की 20% गर्म पानी की मांग को पूरा करने या स्थानीय भवन उप-नियमों की आवश्यकता, जो भी अधिक हो, के अनुसार सोलर वाटर हीटिंग उपलब्ध कराई जाएगी। आवासीय भवनों को भी, जहां तक संभव हो, अपनी गर्म पानी की मांग को सोलर वाटर से पूरा करने की सिफारिश की जाती है।
	5 (ग)	ईंटों, ब्लॉक्स और अन्य निर्माण सामग्री में कम से कम 20% पर्यावरण अनुकूल सामग्री के प्रयोग की आवश्यकता होगी। इसमें फ्लाई ऐश, ईंटें, हॉलो ईंटों, एएसी, फ्लाई ऐश लाइम जिप्सम ब्लॉक्स,

		कम्प्रेस्ड अर्थ ब्लॉक्स और अन्य पर्यावरण अनुकूल सामग्री शामिल होगी। समय-समय पर यथा संशोधित सितंबर, 1999 की फ्लाई ऐश अधिसूचना के अनुसार निर्माण में भवन सामग्री के रूप में फ्लाई ऐश का प्रयोग किया जाना चाहिए।
जल गुणवत्ता और ध्वनि	6	भवन और स्थान में धूल, धुआं और अन्य वायु प्रदूषण निवारक उपाय किए जाए। इन उपायों में निर्माणाधीन भवन के लिए स्क्रीन, स्थल के चारों और सतत रूप से धूल/हवा रोकने वाली दीवारें कम से कम 3 मीटर ऊंचाई की) शामिल हैं। स्थल पर रेत, सीमेंट, लोहयान और अन्य निर्माण सामग्री, जो कि धूल प्रदूषण का प्रमुख कारण है, के साथ-साथ स्थल से मलबे को बाहर ले जाने वाले वाहनों के लिए प्लास्टिक/तिरपाल के शीट कवर उपलब्ध कराए जाएंगे। प्रयुक्त वाहनों के पहियों की धुलाई की जाएगी। स्थल पर भण्डारित रेत, लोहयान, खुली मृदा, सीमेंट को अच्छी प्रकार से ढका जाएगा ताकि धूल प्रदूषण को रोका जा सके। सिंचाई और पत्थर कटाई के लिए वेट जेट उपलब्ध कराया जाएगा। धूल को दबाने के लिए कच्ची सतहों और खुली मृदा पर पर्याप्त जल छिड़काव किया जाएगा। सभी निर्माण और विध्वंस मलबे के समुचित निपटान (बाहर सड़कों या खुले स्थानों पर ढेर नहीं लगाया जाएगा) से पहले, स्थल पर उनका भण्डारण किया जाएगा। सभी विध्वंस और निर्माण अपशिष्ट का, निर्माण और विध्वंस अपशिष्ट नियम, 2016 के उपबंधों के अनुसार प्रबंधन किया जाएगा। निर्माण स्थल पर कार्यरत और निर्माण सामग्री और निर्माण मलबे की लदाई, उतराई और ढुलाई में शामिल अथवा धूल प्रदूषण से युक्त किसी भी क्षेत्र में कार्य कर रहे सभी कामगारों को धूल रोधी मास्क उपलब्ध कराए जाएंगे। भीतरी वायु गुणवत्ता के लिए राष्ट्रीय भारतीय भवन संहिता के अनुसार वातायान-व्यवस्था के प्रावधान।
	6(क)	डीजी सेट का स्थान और निकास पाइप की ऊंचाई, सीपीसीबी मापदंडों के उपबंधों के अनुसार होगी।
हरित आवरण	7	प्रत्येक 80 वर्ग मीटर भूमि के लिए न्यूनतम 1 पेड़ लगाया जाएगा और उसका रखरखाव किया जाएगा। इस प्रयोजन से मौजूदा पेड़ों की गिनती की जाएगी। स्थानिक प्रजातियों लगाने को प्राथमिकता दी जानी चाहिए।
	7(क)	जहां पर पेड़ों को काटे जाने की आवश्यकता है वहां पर 1:3 के अनुपात (अर्थात काटे गए प्रत्येक 1 पेड़ के लिए 3 पेड़ लगाना) में प्रतिपूरक वनीकरण किया जाएगा और रखरखाव किया जाएगा।
ऊपरी मृदा परिरक्षण और पुनरुपयोग	8	भवनों, सड़कों, पक्के क्षेत्रों और बाहरी सेवाओं के लिए प्रस्तावित क्षेत्रों से 20 सेमी की गहराई तक ऊपरी मृदा को खोदा जाना चाहिए। इसका निर्धारित क्षेत्रों में समुचित ढंग से भण्डारण किया जाना चाहिए और स्थल पर प्रस्तावित वनस्पति के रोपण के दौरान इसका पुनरुपयोग किया जाएगा।
परिवहन	9	शहरी विकास मंत्रालय की उत्तम प्रक्रियाओं संबंधी दिशा-निर्देशों (यूआरडीपीएफआई) के अनुसार मोटरयुक्त, गैर-मोटरयुक्त, सार्वजनिक और निजी तंत्रों को शामिल करने के लिए एक व्यापक गतिशीलता योजना तैयार की जाएगी। सड़कों को पर्यावरण और प्रयोक्ताओं की सुरक्षा पर अपेक्षित विचार करते हुए अभिकल्पित किया जाना चाहिए। सड़क प्रणाली को इन आधारभूत मानदण्डों के साथ अभिकल्पित किया जा सकता है। 1. वाहनीय और पैदल-पथ यातायात के उचित पृथक्करण के साथ सड़कों का वर्गीकरण 2. यातायात को सुचारू रखने के उपाय 3. प्रवेश और निकास बिंदुओं का उचित अभिकल्प 4. स्थानीय विनियमन के अनुसार पार्किंग मापदंड

पर्यावरण प्रबंधन योजना	10	उपरोक्त मद सं. 1 से 9 में विनिर्दिष्ट पर्यावरणीय शर्तों का अनुपालन सुनिश्चित करने के लिए एक पर्यावरणीय प्रबंधन योजना (ईएमपी) तैयार और क्रियान्वित की जाएगी। ईएमपी को क्रियान्वित करने के लिए परिभाषित क्रियाकलापों और उत्तरदायित्व के साथ एक समर्पित पर्यावरण निगरानी प्रकोष्ठ की स्थापना की जाएगी। यह पर्यावरणीय प्रकोष्ठ सुनिश्चित करेगा कि मलजल शोधन संयंत्र, भू-दृश्य निर्माण, वर्षा-जल संचयन, ऊर्जा दक्षता और संरक्षण, जल दक्षता और संरक्षण, ठोस अपशिष्ट प्रबंधन, नवीकरणीय ऊर्जा आदि जैसी पर्यावरण अवसंरचना प्रचालनारत है और अपेक्षित मानकों को पूरा करती है। पर्यावरणीय प्रकोष्ठ, पर्यावरण निगरानी और पर्यावरण अवसंरचना से संबंधित अभिलेखों का रखरखाव भी करेगा।

परिशिष्ट-XV

पर्यावरणीय लेखा परीक्षकों (योग्य भवन लेखा परीक्षक) की मान्यता

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय (एमओईएफसीसी) योग्य अभिकरणों के माध्यम से योग्य भवन पर्यावरण लेखा परीक्षकों (क्यूबीईए) को मान्यता देगा । योग्य भवन पर्यावरण लेखा परीक्षक फर्मे/संगठन अथवा वैयक्तिक विशेषज्ञ हो सकते हैं, जो अपेक्षाओं को पूरा करते हैं। मंत्रालय, भारतीय गुणवत्ता परिषद (क्यूसीआई), राष्ट्रीय उत्पादकता परिषद अथवा सरकार द्वारा मान्यता प्राप्त किसी अन्य संगठन के माध्यम से मान्यता की इस प्रक्रिया को क्रियान्वित करेगा। भारतीय हरित भवन परिषद, ऊर्जा दक्षता ब्यूरो इत्यादि जैसे संगठन भी मान्यता देने, प्रशिक्षण और नवीकरण की प्रक्रिया से जोड़े जा सकते हैं। भवन क्षेत्र के लिए क्यूसीआई द्वारा मान्यता प्राप्त पर्यावरणीय परामर्शी क्यूबीईए के रूप में योग्य होंगे। क्यूबीईए निम्नलिखित मानदंड पूरा करेंगे। मान्यता देने वाला प्राधिकरण इन मानदंडों का सुधार कर सकता है।

लेखा परीक्षक की योग्यताएं :

क. शिक्षा: वास्तुकार (डिग्री अथवा डिप्लोमा), नगर नियोजक (डिग्री), सिविल इंजीनियर/मैकनिकल इंजीनियर (डिग्री अथवा डिप्लोमा), पर्यावरणीय विज्ञान में स्नातकोत्तर अथवा मान्यता की स्कीम के अनुसार कोई अन्य योग्यता

प्रशिक्षण :

ख. प्रत्यायन निकाय अथवा उनके अनुमोदित प्रशिक्षण प्रदाताओं द्वारा अनिवार्य प्रशिक्षण दिया जाएगा। यह मान्यता की स्कीम के अनुसार होगा।

अनुभव :

ग. संबंधित क्षेत्र में 3 वर्ष का कार्य अनुभव अथवा क्यूसीआई द्वारा मान्यता प्राप्त भवन और पर्यावरण प्रभाव आकलन परामर्शदाता अथवा मान्यता की स्कीम के अनुसार किसी अन्य प्रकार का अनुभव मानदंड ।

अवसंरचना एवं उपकरण :

घ. मान्यता की स्कीम के अनुसार

नवीकरण:

ड. प्रत्यायन 5 वर्षों के लिए मान्य होगा और प्रत्यायन स्कीम के अंतर्गत विकसित प्रक्रिया के अनुसार नवीकृत किया जाएगा।

उत्तरदायित्व/शिकायत निवारण कार्यतंत्र: क्यूबीईएएस के कार्य की गुणवत्ता के संबंध में कोई भी शिकायत प्रत्यायन निकाय को की जाएगी। प्रत्यायन निकाय शिकायत पर विचार करेगा और काली सूची में डालने अथवा व्यापक सार्वजनिक सूचना के साथ प्रत्यायन को रद्द करने सहित उपयुक्त कार्यवाही करेगा। यह ध्यान देने और काली सूची में डालने के लिए स्थानीय प्राधिकरण के स्तर पर की जाने वाली कार्यवाही के अलावा होगा। विशिष्ट शिकायत अथवा फीडबैक के मामले में मंत्रालय भी इस प्रकार की कार्यवाही कर सकता है।

परिशिष्ट-XVI

स्थानीय प्राधिकरण के स्तर पर पर्यावरणीय प्रकोष्ठ:

भवनों में पर्यावरणीय शर्तों के अनुपालन और मानीटरी को सहायता देने के लिए स्थानीय प्राधिकरण के स्तर पर पर्यावरणीय प्रकोष्ठ की स्थापना की जाएगी। यह प्रकोष्ठ अपने क्षेत्राधिकार के तहत पर्यावरणीय आयोजना और क्षमता निर्माण में सहायता भी प्रदान करेगा। इस प्रकोष्ठ के उत्तरदायित्व, इस अधिसूचना के कार्यान्वयन की मानीटरी करना और तीसरे-पक्षकार की लेखा-परीक्षा प्रक्रिया का अनुरक्षण करना है। यह प्रकोष्ठ स्थानीय प्राधिकरण के तहत संचालित होगा।

प्रकोष्ठ का संघटन :

इस प्रकोष्ठ में निम्नलिखित क्षेत्रों में कम से कम 3 समर्पित व्यक्ति शामिल होंगे:

क. अपशिष्ट प्रबंधन (ठोस और द्रव्य)

ख. जल संरक्षण और प्रबंधन

ग. निर्माण सामग्रियों सहित संसाधन की कार्यकुशलता

घ. ऊर्जा दक्षता और नवीकरणीय ऊर्जा

ङ. वायु गुणवत्ता प्रबंधन सहित पर्यावरणीय आयोजना

च. परिवहन आयोजना और प्रबंधन

यह प्रकोष्ठ समर्पित विशेषज्ञों की आवश्यकता और पृष्ठभूमि के अनुसार कम से कम दो बाहरी विशेषज्ञों को शामिल करेगा। स्थानीय प्राधिकरण के स्तर पर सौहार्दा पर्यावरणीय प्रकोष्ठों को सह-योजित और इस प्रकोष्ठ के लिए प्रशिक्षित किया जा सकता है।

वित्तीय सहायता:

पर्यावरणीय शर्तों के समाकलन और इसकी मॉनीटरिंग के लिए निर्माण अनुमति हेतु कार्यवाही शुल्क के साथ अतिरिक्त शुल्क लिया जाएगा। स्थानीय प्राधिकरण समय-समय पर इस अतिरिक्त शुल्क को निर्धारित और संशोधित कर सकता है। इस शुल्क की धनराशि, एक पृथक बैंक खाते में जमा किया जाएगा और विशेषज्ञों के वेतन/पारिश्रमिक की आवश्यकता को पूरा करने और ऑनलाईन प्रार्थना पत्र की प्रणाली को जारी रखने, सत्यापन और पर्यावरणीय प्रकोष्ठ के लिये उपयोग में लाया जाएगा।

प्रकोष्ठ के कार्य

1. यह प्रकोष्ठ अपने क्षेत्राधिकार में उस क्षेत्र के पर्यावरण सरोकारों का मूल्यांकन और आकलन करने के लिए उत्तरदायी होगा जहां निर्माण कार्यकलाप करना प्रस्तावित है। यह प्रकोष्ठ अपेक्षाओं के अनुसार अतिरिक्त पर्यावरणीय शर्तें विकसित कर सकता है और शर्तों का प्रस्ताव रख सकता है। ये शर्तें क्षेत्र विशिष्ट हो सकती हैं तथा समय-समय पर पहले से अधिसूचित की जाएंगी। ये अतिरिक्त शर्तें परामर्श की यथा प्रक्रिया का अनुसरण करते हुए अनुमोदित की जाएंगी। ये पर्यावरणीय शर्तें अनुमोदन प्राधिकारी द्वारा निर्माण अनुमति में समेकित की जाएंगी।

2. आवेदन और शुल्क के भुगतान के लिए एक ऑन लाइन प्रणाली बनाना तथा उसकी देख-रेख करना। यह प्रकोष्ठ प्राप्त सभी आवेदनों, अनुमोदित परियोजनाओं, अनुपालन लेखापरीक्षण रिपोर्ट, किए गए औचक निरीक्षणों का एक आनलाइन डाटाबेस बनाएगा। यह प्रकोष्ठ परियोजना द्वारा पर्यावरणीय शर्तों के अनुपालन की लोगों द्वारा समीक्षा के लिए अर्हता-प्राप्त निर्माण पर्यावरण लेखा-परीक्षकों द्वारा दर्ज लेखा-परीक्षा रिपोर्टों के स्व-प्रमाणीकरण और अनुपालन सहित परियोजना ब्यौरों का सार्वजनिक प्रकटन के लिए एक पोर्टल बनाएगा।

3. अर्हता-प्राप्त निर्माण लेखा-परीक्षकों द्वारा कराई गई पर्यावरणीय लेखा-परीक्षा प्रक्रिया के कार्य की निगरानी करेगा।

4. यह प्रकोष्ठ आवेदनों की समीक्षा करेगा; स्थानीय प्राधिकरणों को आवेदन प्रस्तुत करने के 30 दिन के अंदर अतिरिक्त पर्यावरणीय शर्तों, यदि अपेक्षित हो तो, को अंतिम रूप देगा।

5. यह प्रकोष्ठ कंसेंट के प्रमाणीकरण, पर्यावरणीय शर्तों के अनुपालन और पंच वर्षीय लेखा रिपोर्ट के लिए स्थल पर जांच करने के लिए परियोजनाओं का जोखिम आधारित औचक चयन अनुमोदित करेगा।

6. यह प्रकोष्ठ परियोजना प्रस्तावक द्वारा पर्यावरणीय शर्तों के गैर-अनुपालन के लिए वित्तीय अर्थदंड के लिए स्थानीय प्राधिकरण को सिफारिश करेगा।

7. यह प्रकोष्ठ किसी भी अर्हता-प्राप्त निर्माण पर्यावरण लेखा-परीक्षकों के विरुद्ध, यदि उनके कार्य में कोई त्रुटि पाई जाती है तो, प्रत्यायोजन निकाय और स्थानीय प्राधिकरण को सिफारिश करेगा।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 9th December, 2016

S.O. 3999(E).—Whereas, by notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O.1533 (E), dated the 14th September, 2006 issued under sub-section (1) read with clause (v) of sub-section (2) of section (3) of the Environment (Protection) Act, 1986 and clause (d) of the sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government directed that on and from the date of its publication, the required construction of new projects or activities or the expansion or modernisation of existing projects or activities listed in the Schedule to the said notification entailing the capacity addition with change in process or technology and or product mix shall be undertaken in any part of India only after prior environmental clearance from the Central Government or as the case may be, by the State Level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified therein;

And whereas, the said Ministry has received suggestions for ensuring Ease of Doing Responsible Business; and streamlining the permissions for buildings and construction sector which is important for providing houses and for this purpose the scheme of Housing for all by 2022 with an objective of making available affordable housing to weaker sections in urban area has ambitious target;

And whereas clause (a) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 provides that, Whenever the Central Government considers that prohibition or restrictions of any industry or carrying on any processes or operation in any area should be imposed, it shall give notice of its intention to do so;

And whereas, a draft notification for making amendments in the Environment Impact Assessment Notification, 2006 issued in exercise of the powers conferred under sub-section (1) and clause (v) of sub-section (2) of section (3) of the Environment (Protection) Act, 1986 read with clause (d) of the sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 was published, vide number S.O.1595 (E) dated the 29th April 2016, inviting objections and suggestions from all the persons likely to be affected thereby, within a period of sixty days from the date of publication of said notification in the Gazette of India;

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

Now, therefore, in exercise of powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments in the Environment Impact Assessment Notification, 2006 namely:-

In the said Notification,-

(I) after paragraph 13, the following paragraph shall be inserted, namely:-

"14. Integration of environmental condition in building bye-laws.-

(1) The integrated environmental conditions with the building permission being granted by the local authorities and the construction of buildings as per the size shall adhere to the objectives and monitorable environmental conditions as given at Appendix-XIV.

(2) The States adopting the objectives and monitorable environmental conditions referred to in sub-paragraph (1), in the building bye-laws and relevant State laws and incorporating these conditions in the approvals given for building construction making it legally enforceable shall not require a separate environmental clearance from the Ministry of Environment, Forest and Climate Change for individual buildings.

(3) The States may forward the proposed changes in their bye-laws and rules to the Ministry of Environment, Forest and Climate Change, who in turn will examine the said draft bye-laws and rules and convey the concurrence to the State Governments.

(4) When the State Governments notifies the bye-laws and rules concurred by the Ministry of Environment, Forest and Climate Change, the Central Government may issue an order stating that no separate environmental clearance is required for buildings to be constructed in the States or local authority areas.

(5) The local authorities like Development Authorities, Municipal Corporations, may certify the compliance of the environmental conditions prior to issuance of Completion Certificate, as applicable as per the requirements stipulated for such buildings based on the recommendation of the Environmental Cell constituted in the local authority.

(6) The State Governments where bye-laws or rules are not framed may continue to follow the existing procedure of appraisal for individual projects and grant of Environmental Clearance for buildings and constructions as per the provisions laid down in this notification.

(7) For the purpose of certification regarding incorporation of environmental conditions in buildings, the Ministry of Environment, Forest and Climate Change may empanel through competent agencies, the Qualified Building Environment Auditors (QBEAs) to assess and certify the building projects, as per the requirements of this notification and the procedure for accreditation of Qualified Building Auditors and their role as given at Appendix-XV.

(8) In order to implement the integration of environmental condition in building bye-laws, the State Governments or Local Authorities may constitute the Environment Cell (herein after called as Cell), for compliance and monitoring and to ensure environmental planning within their jurisdiction.

(9) The Cell shall monitor the implementation of the bye-laws and rules framed for Integration of environmental conditions for construction of building and the Cell may also allow the third part auditing process for oversight, if any.

(10) The Cell shall function under the administrative control of the Local Authorities.

(11) The composition and functions of the Cell are given at Appendix-XVI.

(12) The Local Authorities while integrating the environmental concerns in the building bye-laws, as per their size of the project, shall follow the procedure, as given below:

BUILDINGS CATEGORY 'I' (5,000 to < 20,000 Square meters)

A Self declaration Form to comply with the environmental conditions (Appendix XIV) along with Form 1A and certification by the Qualified Building Environment Auditor to be submitted online by the project proponent besides application for building permission to the local authority along with the specified fee in separate accounts. Thereafter, the local authority may issue the building permission incorporating the environmental conditions in it and allow the project to start based on the self declaration and certification along with the application. After completion of the construction of the building, the project proponent may update Form 1A online based on audit done by the Qualified Building Environment Auditor and shall furnish the revised compliance undertaking to the local authority. Any non-compliance issues in buildings less than 20,000 square meters shall be dealt at the level of local body and the State through existing mechanism.

OTHER BUILDINGS CATEGORIES (≥ 20,000 Square meters)

The project proponent may submit online application in Form 1 A alongwith specified fee for environmental appraisal and additional fee for building permission. The fee for environmental appraisal will be deposited in a separate account. The Environment Cell will process the application and present it in the meeting of the Committee headed by the authority competent to give building permission in that local authority. The Committee will appraise the project and stipulate the environmental conditions to be integrated in the building permission. After recommendations of the Committee, the building permission and environmental clearance will be issued in an integrated format by the local authority.

The project proponent shall submit Performance Data and Certificate of Continued Compliance of the project for the environmental conditions parameters applicable after completion of construction from Qualified Building Environment Auditors every five years to the Environment Cell with special focus on the following parameters:-

(a) Energy Use (including all energy sources).

(b) Energy generated on site from onsite Renewable energy sources.

(c) Water use and waste water generated, treated and reused on site.

(d) Waste Segregated and Treated on site.

(e) Tree plantation and maintenance.

After completion of the project, the Cell shall randomly check the projects compliance status including the five years audit report. The State Governments may enact the suitable law for imposing penalties for non-compliances of the

environmental conditions and parameters. The Cell shall recommend financial penalty, as applicable under relevant State laws for non-compliance of conditions or parameters to the local authority. On the basis of the recommendation of the Cell, the local authority may impose the penalty under relevant State laws. The cases of false declaration or certification shall be reported to the accreditation body and to the local body for blacklisting of Qualified Building Environment Auditors and financial penalty on the owner and Qualified Building Environment Auditors.

No Consent to Establish and Operate under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 198) will be required from the State Pollution Control Boards for residential buildings up to 1,50,000 square meters.".

(II) In the Schedule, for item 8 and the entries relating thereto, the following item and entries shall be substituted, namely:-

(1)	(2)	(3)	(4)	(5)
"8		Building / Construction projects / Area Development projects and Townships		
8 (a)	Building and Construction projects		≥ 20,000 sq. mtrs and < 1,50,000 sq. mtrs of built up area	The term "built up area" for the purpose of this notification is the built up or covered area on all floors put together including its basement and other service areas, which are proposed in the buildings and construction projects. Note 1. The projects or activities shall not include industrial shed, universities, college, hostel for educational institutions, but such buildings shall ensure sustainable environmental management, solid and liquid and implement environmental conditions given at Appendix-XIV. Note 2.-General Condition shall not apply. Note 3.-The exemptions granted at Note 1 will be available only for industrial shed after integration of environmental norms with building permissions at the level of local authority.
8 (b)	Townships and Area Development projects	≥ 3,00,000 sq. mtrs of built up area or Covering an area ≥ 150 ha	≥1,50,000 sq. mtrs and < 3,00,000 sq. mtrs built up area or covering an area ≥ 50 ha and < 150 ha	Note.- General Condition shall not apply"

[F. No. 19-2/2013-IA-III (Pt.)]

MANOJ KUMAR SINGH, Jt. Secy.

Note: The principal notification was published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section(ii) vide number S.O. 1533(E), dated the 14th September, 2006 and subsequently amended vide numbers S.O.1737(E) dated the 11th October, 2007, S.O. 3067(E) dated the 1st December, 2009, S.O.695(E), dated the 1st April, 2011, S.O.2896(E), dated the 13th December, 2012 , S.O.674(E), dated the 13th March, 2013, S.O.2559(E), dated the 22nd August, 2013, S.O. 2731(E), dated the 9th September, 2013, S.O. 562(E), dated the 26th February, 2014, S.O.637(E), dated the 28th February, 2014, S.O.1599(E), dated the 25th June, 2014, S.O. 2601 (E), dated 7th October, 2014, S.O. 2600(E) dated 9th October, 2014, S.O. 3252(E) dated 22nd December, 2014, S.O. 382 (E), dated 3rd February, 2015, and S.O. 811(E), dated 23rd March, 2015, S.O. 996 (E) dated 10th April, 2015, S.O. 1142 (E) dated 17th April, 2015, S.O. 1141 (E) dated 29th April, 2015, S.O. 1834(E) dated 6th July, 2015 and S.O. 2572(E) dated 14th September, 2015, S.O. 141(E) dated 15th January, 2016, S.O. 190(E) dated 20th January, 2016, S.O. 648(E) dated 3rd March, 2016 and S.O. 2269(E) dated 1st July, 2016.

APPENDIX –XIV

ENVIRONMENTAL CONDITIONS FOR BUILDINGS AND CONSTRUCTIONS

(CATEGORY '1': 5,000 to less than 20,000 Square meters)

MEDIUM	S.N.	ENVIRONMENTAL CONDITIONS
Topography and Natural Drainage	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. No construction is allowed 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.
Water Conservation, Rain Water Harvesting, and Ground Water Recharge	2	Use of water efficient appliances shall be promoted. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Bye-Laws, 2016. A rain water harvesting plan needs to be designed where the recharge bores (minimum one recharge bore per 5,000 square meters of built up area) is recommended. Storage and reuse of the rain water harvested should be promoted. 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. All recharge should be limited to shallow aquifer.
	2(a)	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.
Waste Management	3	Solid waste. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Sewage. In areas where there is no municipal sewage network, onsite treatment systems should be installed. Natural treatment systems which integrate with the landscape shall be promoted. As far as possible treated effluent should be reused. The excess treated effluent shall be discharged following the CPCB norms. 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 Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed.
Energy	4	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. Outdoor and common area lighting shall be Light Emitting Diode (LED). 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. 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. 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.

Air Quality and Noise	5	Dust, smoke & other air pollution prevention measures shall be provided for the building as well as 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. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. 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. 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. For indoor air quality the ventilation provisions as per National Building Code of India shall be made.
	5 (a)	The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms
Green Cover	6	A minimum of 1 tree for every 80 square meters of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species.
	6 (a)	Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.

(Category '2': 20,000 to less than 50,000 Square meters)

MEDIUM	S.N.	ENVIRONMENTAL CONDITIONS
Topography and Natural Drainage	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. No construction is allowed 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. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
Water Conservation, Rain Water Harvesting, and Ground Water Recharge	2	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. Use of water efficient appliances should be promoted with low flow fixtures or sensors. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Bye-laws, 2016. 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. All recharge should be limited to shallow aquifer.
	2(a)	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.

Waste Management	3	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Sewage: Onsite sewage treatment of capacity of treating 100% waste water to be installed. 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 CPCB norms. Natural treatment systems shall be promoted. 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 Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013 The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed.
	3 (a)	All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
	3(b)	Organic waste compost/ Vermiculture pit with a minimum capacity of 0.3 kg /person/day must be installed.
Energy	4	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. Outdoor and common area lighting shall be LED. 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.
	4 (a)	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.
	4 (b)	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.
	4 (c)	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 flyash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September, 1999 as amended from time to time.
Air Quality and Noise	5	Dust, smoke & other air pollution prevention measures shall be provided for the building as well as 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. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. 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. 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. For indoor air quality the ventilation provisions as per National Building Code of India.
	5 (a)	The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
Green Cover	6	A minimum of 1 tree for every 80 sq mt. of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species.
	6 (a)	Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.
Top Soil preservation and reuse	7	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.
Transport	8	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. 1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic. 2. Traffic calming measures. 3. Proper design of entry and exit points. 4. Parking norms as per local regulation.

(Category '3': 50000 to 150000 m^2)

MEDIUM	S.N.	ENVIRONMENTAL CONDITIONS
Topography and Natural Drainage	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. No construction is allowed 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. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
Water conservation - Rain Water Harvesting, and Ground Water Recharge	2	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provisions are not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Bye-laws, 2016 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. All recharge should be limited to shallow aquifer.
	2(a)	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.
	2 (b)	Use of water efficient appliances should be promoted. Low flow fixtures or sensors be used to promote water conservation.

	2 (c)	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.
Solid Waste Management	3	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed.
	3 (a)	All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.
	3(b)	Organic waste composter/Vermiculture pit with a minimum capacity of 0.3 kg /person/day must be installed.
Sewage Treatment Plant	4	Onsite sewage treatment of capacity of treating 100% waste water to be installed. 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 CPCB norms. Natural treatment systems shall be promoted. 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 Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
Energy	5	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. Outdoor and common area lighting shall be LED. 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.
	5 (a)	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.
	5 (b)	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.
	5 (c)	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 flyash bricks, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September, 1999 as amended from time to time.
Air Quality and Noise	6	Dust, smoke & other air pollution prevention measures shall be provided for the building as well as 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. Wheel washing for the vehicles used be done. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust. 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. 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. For indoor air quality the ventilation provisions as per National Building Code of India.
	6.(a)	The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.
Green Cover	7	A minimum of 1 tree for every 80 sq.mt. of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species.
	7 (a)	Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained.
Top Soil Preservation and Reuse	8	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.
Transport	9	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. 1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic. 2. Traffic calming measures. 3. Proper design of entry and exit points. 4. Parking norms as per local regulation.
Environment Management Plan	10	An environmental management plan (EMP) shall be prepared and implemented to ensure compliance with the environmental conditions specified in item number 1 to 9 above. A dedicated Environment Monitoring Cell with defined functions and responsibility shall be put in place to implement the EMP. The environmental cell shall ensure that the environment infrastructure like Sewage Treatment Plant, Landscaping, Rain Water Harvesting, Energy efficiency and conservation, water efficiency and conservation, solid waste management, renewable energy etc. are kept operational and meet the required standards. The environmental cell shall also keep the record of environment monitoring and those related to the environment infrastructure.

APPENDIX-XV

Accreditation of Environmental Auditors (Qualified Building Auditors)

The Ministry of Environment, Forest and Climate Change (MoEFCC), through qualified agencies shall accredit the Qualified Building Environment Auditors (QBEAs). The Qualified Building Environment Auditors could be a firm / organization or an individual expert, who fulfils the requirements. The Ministry will implement this process of accreditation through Quality Council of India (QCI), National Productivity Council or any other organization identified by the Government. The organizations like Indian Green Building Council, Bureau of Energy Efficiency etc. can also be associated in the process of accreditation, training, and renewal. The environmental consultants accredited by the QCI for building sector will be qualified as QBEAs. The QBEAs will meet the following criteria. The accrediting agency can improvise on these criteria.

Qualifications of the Auditor:

a. Education: Architect (Degree or Diploma), Town Planners (Degree), Civil Engineer / Mechanical Engineer (Degree or Diploma), PG in Environmental Science or any other qualification as per the scheme of the accreditation.

Training:

b. Mandatory training to be given by the accreditation body or their approved training providers. This will be as per the scheme of the accreditation.

Experience:

c. At least 3 years of work experience in the related field or building sector Environment Impact Assessment consultants accredited by QCI or any other experience criteria as per the scheme of the accreditation.

Infrastructure and equipment:

d. As per the scheme of the accreditation.

Renewal:

e. The accreditation will be valid for 5 years and will be renewed as per the process developed under the accreditation scheme.

Accountability/Complaint redressal mechanism: Any complaints regarding the quality of the work of QBEAs shall be made to the accreditation body. The accreditation body shall evaluate the complaint and take appropriate action including black listing or cancellation of the accreditation with wide public notice. This will be in addition to the action at the level of local authority for penalty and blacklisting. The Ministry can also take such action in case of specific complaint or feedback.

APPENDIX-XVI

Environmental Cell at the level of Local Authority:

An Environmental Cell shall be setup at the local authority level to support compliance and monitoring of environmental conditions in buildings. The Cell shall also provide assistance in environmental planning and capacity building within their jurisdiction. The responsibility of this cell would be monitoring the implementation of this notification and providing an oversight to the Third-Party Auditing process. The cell will operate under the local authority.

Constitution of the cell:

The cell will comprise of at least 3 dedicated experts in following fields:

a. Waste management (solid and liquid)

b. Water conservation and management

c. Resource efficiency including Building materials

d. Energy Efficiency and renewable energy

e. Environmental planning including air quality management

f. Transport planning and management.

The Cell shall induct at least two outside experts as per the requirements and background of dedicated experts. Existing environmental cells at the level of local authority can be co-opted and trained for this Cell.

Financial Support:

An additional fee may be charged along with processing fee for building permission for integrating environmental conditions and it's monitoring. The local authority can fix and revise this additional fee from time to time. The amount of this fee shall be deposited in a separate bank account, and used for meeting the requirement of salary / emoluments of experts and running the system of online application, verifications and the Environmental Cell.

Functions of the Cell:

1. The cell shall be responsible for assessing and appraising the environmental concerns of the area under their jurisdiction where building activities are proposed. The Cell can evolve and propose additional environmental conditions as per requirements. These conditions may be area specific and shall be notified in advance from time to time. These additional conditions shall be approved following a due consultation process. These environmental conditions will be integrated in building permissions by the sanctioning authority.

2. Develop and maintain an online system for application and payment of fees. The Cell shall maintain an online database of all applications received, projects approved, the compliance audit report, random inspections made. The Cell shall maintain a portal for public disclosure of project details including self certification and compliance audit reports filed by the Qualified Building Environment Auditors for public scrutiny of compliance of environmental conditions by the project.

3. Monitoring the work of Environmental Audit process carried by the Qualified Building Auditors.

4. The Cell shall review the applications, finalize the additional environmental conditions if required within 30 days of the submission of the application to the local authority.

5. The Cell shall adopt risk based random selection of projects for verifying on site for certification of QBA, compliance of environmental conditions and five yearly audit report.

6. The Cell shall recommend to the local authority for financial penalty for non-compliance of environmental conditions by the project proponent.

7. The Cell shall recommend to the accrediting body and the local authority against any Qualified Building Environment Auditor, if any lapse is found in their work.

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Appendix 3

Wastewater discharge standards

[1][SCHEDULE – VI]

(See rule 3A)

GENERAL STANDARDS FOR DISCHARGE OF ENVIRONMENTAL POLLUTANTS PART-A : EFFLUENTS

S. No.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2			3	
		(a)	(b)	(c)	(d)
1.	Colour and odour	See 6 of Annexure-I	--	See 6 of Annexure -I	See 6 of Annexure-I
2.	Suspended solids mg/l, Max.	100	600	200	(a) For process waste water- 100 (b) For cooling water effluent 10 percent above total suspended matter of influent.
3.	Particulate size of suspended solids	Shall pass 850 micron IS Sieve	--	--	(a) Floatable solids, max. 3 mm. (b) Settleable solids, max. 850 microns.
[2]4.	***	*	--	***	--
5.	pH Value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6.	Temperature	shall not exceed 5°C above the receiving water temperature	--	--	shall not exceed 5°C above the receiving water temperature

S. No.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
7.	Oil and grease mg/l Max.	10	20	10	20
8.	Total residual chlorin mg/l Max.	1.0	--	--	1.0
9.	Ammonical nitrogen (as N), mg/l Max.	50	50	--	50
10.	Total Kjeldahl Nitrogen (as NH_3) mg/l, Max.	100	--	--	100
11.	Free ammonia (as NH_3) mg/l, Max.	5.0	--	--	5.0
12.	Biochemical Oxygen demand [1][3 days at 27°C] mg/l max.	30	350	100	100
13.	Chemical Oxygen Demand, mg/l, max.	250	--	--	250
14.	Arsenic (as As), mg/l, max.	0.2	0.2	0.2	0.2
15.	Mercury (as Hg), mg/l, Max.	0.01	0.01	--	0.01
16.	Lead (as Pb) mg/l, Max.	0.1	1.0	--	2.0
17.	Cadmium (as Cd) mg/l, Max.	2.0	1.0	--	2.0
18.	Hexavalent Chromium (as Cr+6), mg/l max.	0.1	2.0	--	1.0

S. No.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
19.	Total chromium (as Cr.) mg/l, Max.	2.0	2.0	--	2.0
20.	Copper (as Cu) mg/l, Max.	3.0	3.0	--	3.0
21.	Zinc (As Zn.) mg/l, Max.	5.0	15	--	15
22.	Selenium (as Se.) mg/l, Max.	0.05	0.05	--	0.05
23.	Nickel (as Ni) mg/l, Max.	3.0	3.0	--	5.0
[1]24.	* * *	*	*	*	*
[1]25.	* * *	*	*	*	*
[1]26.	* * *	*	*	*	*
27.	Cyanide (as CN) mg/l Max.	0.2	2.0	0.2	0.2
[1]28.	* * *	*	*	*	*
29.	Fluoride (as F) mg/l Max.	2.0	15	--	15
30.	Dissolved Phosphates (as P), mg/l Max.	5.0	--	--	--
[2]31.	* * *	*	*	*	*
32.	Sulphide (as S) mg/l Max.	2.0	--	--	5.0
33.	Phenoile compounds (as C_6H_5OH) mg/l, Max.	1.0	5.0	--	5.0

S. No.	Parameter	Standards			
		Inland surface water	Public Sewers	Land for irrigation	Marine coastal areas
1	2	3			
		(a)	(b)	(c)	(d)
34.	Radioactive materials :				
	(a) Alpha emitter micro curie/ml.	10^{-7}	10^{-7}	10^{-8}	10^{-7}
	(b) Beta emitter micro curie/ml.	10^{-6}	10^{-6}	10^{-7}	10^{-6}
35.	Bio-assay test	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent	90% survival of fish after 96 hours in 100% effluent
36.	Manganese (as Mn)	2 mg/l	2 mg/l	--	2 mg/l
37.	Iron (as Fe)	3 mg/l	3 mg/l	--	3 mg/l
38.	Vanadium (as V)	0.2 mg/l	0.2 mg/l	--	0.2 mg/l
39.	Nitrate Nitrogen	10 mg/l	--	--	20 mg/l
[1]40.	* * *	*	*	*	*

Appendix 4

National Ambient Air Quality Standards

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual*	50	20	- Improved West and Gaeke
		24 hours**	80	80	-Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2), $\mu g/m^3$	Annual*	40	30	- Modified Jacob & Hochheiser (Na-Arsenite)
		24 hours**	80	80	- Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM_{10} $\mu g/m^3$	Annual*	60	60	- Gravimetric - TOEM
		24 hours**	100	100	- Beta attenuation
4	Particulate Matter (size less than 2.5µm) or $PM_{2.5}$ $\mu g/m^3$	Annual*	40	40	- Gravimetric - TOEM
		24 hours**	60	60	- Beta attenuation
5	Ozone (O_3) $\mu g/m^3$	8 hours**	100	100	- UV photometric - Chemilminescence
		1 hour**	180	180	- Chemical Method
6	Lead (Pb) $\mu g/m^3$	Annual*	0.50	0.50	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
		24 hours**	1.0	1.0	
7	Carbon Monoxide (CO) mg/m^3	8 hours**	02	02	- Non Dispersive Infra Red (NDIR) spectroscopy
		1 hour**	04	04	
8	Ammonia (NH_3) $\mu g/m^3$	Annual*	100	100	-Chemiluminescence
		24 hours**	400	400	-Indophenol blue method
9	Benzene (C_6H_6) $\mu g/m^3$	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only, ng/m^3	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m^3	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m^3	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

Appendix 5

Ambient Noise Standards

SCHEDULE

see rule 3(1) and 4(1)

Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note:- 1. Day time shall mean from 6.00 a.m. to 10.00 p.m.

2. Night time shall mean from 10.00 p.m. to 6.00 a.m.

[1][3. Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority].

4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A "decibel" is a unit in which noise is measured.

"A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is an energy mean of the noise level over a specific period.

Note: The principal rules were published in the Gazette of India vide number, S.O.123(E), dated 14th February, 2000 and subsequently amended vide S.O.1046(E), dated 22nd November, 2000, S.O. 1088(E), dated 11th October, 2002, S.O. 1569(E), dated the 19th September, 2006 and S.O.50(E), dated 11th January, 2010.

Appendix 6

Height restrictions with respect to approach Funnels and Transitional area of Airport

Height restrictions with respect to approach funnels

Distance from nearest runway end (in meters)	**Maximum Permissible height above the elevation of the nearest runway end (in meters)**
Up to 360	0
361 to 510	6
511 to 660	9
661 to 810	12
811 to 960	15
961 to 1110	18
1111 to 1260	21
1261 to 1410	24
1411 to 1560	27
More than 1560	30

Height restrictions with respect to transitional area

Distance of the inner boundary of the Transitional Area (outer boundary of the airport)(in meters)	**Maximum Permissible height above the elevation of the airport reference point (in meters)**
Up to 21	0
22 to 42	3
43 to 63	6
64 to 84	9
85 to 105	12
106 to 126	15
127 to 147	18
148 to 168	21
169 to 189	24
190 to 210	27
More than 210 m	30

Appendix 7

10 AUG 2016

GOVERNMENT OF ODISHA
SKILL DEVELOPMENT & TECHNICAL EDUCATION DEPARTMENT
*****
NOTIFICATION

No. SD-12/16 4437 /SDTE. Bhubaneswar, dated 8/8/16

Sub:- **Establishment of temporary campus of six Advanced Skills Training Institutes (ASTIs) under the Odisha Skill Development Project (OSDP)**

In supersession of this Department Notification No II-TTI-71/2014 1341/SDTE dtd. 01.03.16 Government have been pleased to establish temporary campuses for six nos. of Advanced Skills Training Institutes (ASTIs) at the following locations.

Sl. No.	Name of the ASTI	Location of the temporary campus
1	ASTI, Bhubaneswar	ITI, Bhubaneswar at Gandamunda campus, Bhubaneswar and Centre for Finishing Skill and Entrepreneurship, Cuttack as Extension Centre
2	ASTI, Jharsugada	SDEC building and ground floor of ITI workshop building of ITI, Jharsugada at Jharsugada Engg. School campus, Jharsugada.
3	ASTI, Rourkela	SDEC building and ground floor of ITI workshop building of ITI, Rourkela.
4	ASTI, Bolangir/ Titlagarh	SDEC building and ground floor of ITI workshop building at Gandhamardan ITI, Bolangir.
5	ASTI, Jeypore	SDEC building and ground floor of ITI workshop building at Gopabandhu ITI, Ambaguda.
6	ASTI, Berhampur	Ground floor of ITI workshop building at ITI, Berhampur.

Director of Employment-cum-Chief Executive Officer (CEO), Odisha Skill Development Project (OSDP),Odisha, Bhubaneswar will take necessary steps for establishment of temporary campuses of the above ASTIs in consultation with DTE&T, Odisha, Cuttack.

Order: Ordered that, the Notification be published in the next extraordinary issue of the Odisha Gazette and copies of the same be supplied to all Departments of Government/ Assembly Secretariat/ Accountant General, Odisha, Bhubaneswar.

By Order of Governor

8/8/16
(L. N. Gupta)
Principal Secretary to Government

Memo No. 4438 /SDTE., Bhubaneswar, Dated 8/8/16

Copy forwarded to the Director, Printing Stationery and publication, Odisha, Cuttack with a request to publish the Notification in the next extraordinary issue of the Odisha Gazette and supply 50 copies of the same to this Department.

8/8/2016.
Additional Secretary to Government

P.T.O

Memo No. 4439 / SDTE. Bhubaneswar, Dated 8/8/16

Copy forwarded to the Director of Employment-cum-Chief Executive Officer(CEO), Odisha Skill Development Project(OSDP), Odisha, Bhubaneswar/ Director, Technical Education & Training, Odisha, Cuttack/ Accountant General(A&E), Odisha, Bhubaneswar/ Deputy Accountant General, Puri/ Principals of all Govt. ITIs for information and necessary action.

Additional Secretary to Government

Memo No. 4440 / SDTE. Bhubaneswar, Dated 8/8/16

Copy forwarded to All Departments of Government/ Secretary, Odisha Legislative Assembly, BBSR/ Governor's Secretariat/ IMU Section/ P&B Section for information.

Additional Secretary to Government

Memo No. 4441 / SDTE. Bhubaneswar, Dated 8/8/16

Copy forwarded to the RDCs (Southern, Western & Central) / Collectors and District Magistrates of Khordha, Jharsuguda, Sundergarh, Ganjam, Koraput, Cuttack & Bolangir/ State Portal Head, IT Centre Secretariat for information and necessary action.

Additional Secretary to Government

Memo No. 4442 / SDTE. Bhubaneswar, Dated 8/8/16

Copy forwarded to the Joint Secretary, Govt. of India, Director General of Training, Ministry of Skill Development & Entrepreneurship (MSDE), Shram Shakti Bhawan, Rafi Marg, New Delhi/ Sri B. Panth, Lead Education Specialist, Human & Social Development Division, South Asia Department, Asian Development Bank, Taj Palace, Sardar Patel Marg, New Delhi for information and necessary action.

Additional Secretary to Government

Memo No. 4443 / SDTE. Bhubaneswar, Dated 8/8/16

Copy forwarded the Guard file (5 spare copies) for information.

Additional Secretary to Government

Appendix 8

Proposed ASTI site shown on google map

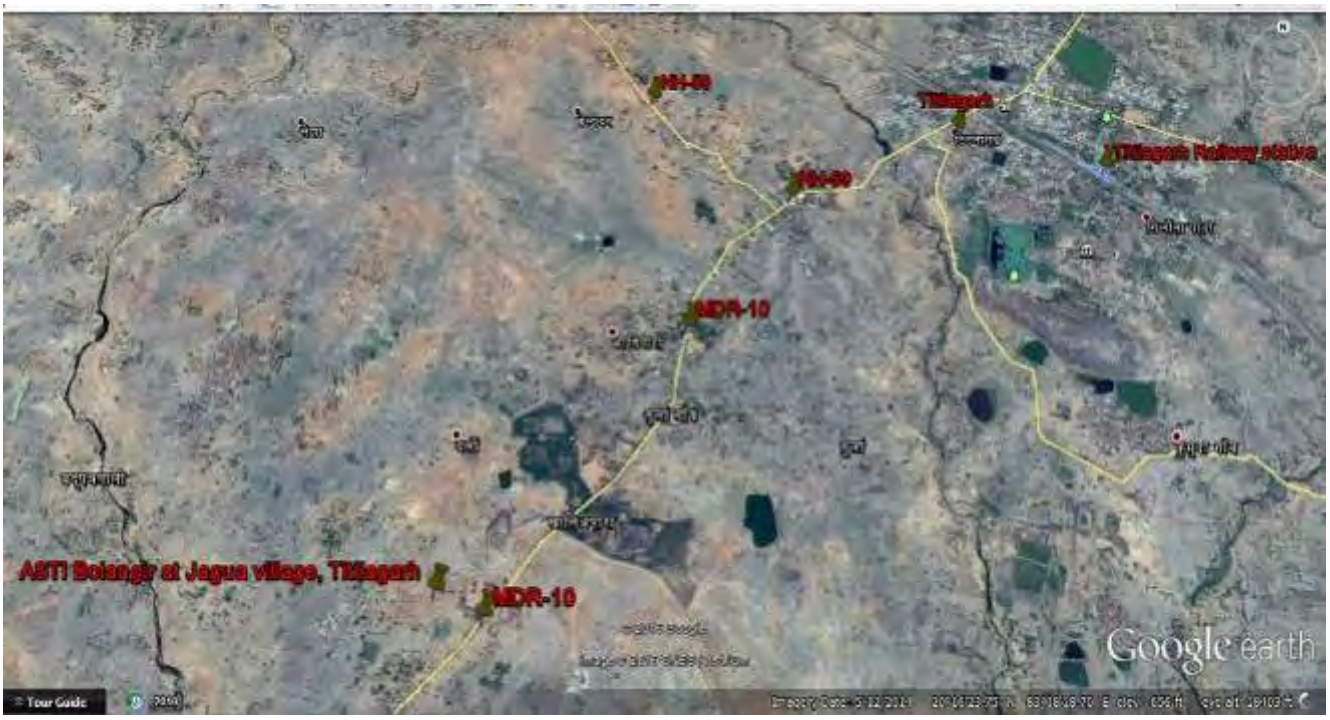
ASTI - Jharsuguda

ASTI – RourKela

ASTI-Bhubaneshwar

Extenssion of ASTI, Bhubaneshwar at Cuttack:

Proposed parmanent site of Bolangir ASTI (at Titilagarh):



Proposed parmanent site of Jeypore ASTI:

Appendix 9

STP Details

As per the office memorandum by MoEFCC dated 9 June, 2015, following provisions are to be made to qualify for sustainable Environment Management:

- Capacity of STP shall be able to treat 100% waste water;
- Tertiary treatment such as dual media filter, activated carbon filter and chlorination shall be provided so that the treated water characteristics shall be as per CPCB norms;
- Treated waste water shall be recycled for flushing and gardening;
- If STP and pump room shall be installed in basement, adequate ventilation as per NBC air change norms shall be provided;
- In case excess treated water (if any), then same shall be used for gardening of existing polytechnic institute otherwise drained to existing drainage system.

Capacity of Sewage Treatment Plants (STP) for treatment of waste water generated is envisaged as 100 m^3/day which includes domestic waste water and pre treated waste water from laboratories. Waste water from laboratories shall be treated separately to the level of inlet to STP before sending to STP.

The details of STP described hereunder are tentative, based on similar type of operation and shall be modified at the time of detailed engineering. The details of STP including hydraulic and chemical (organic and inorganic loading), treatment scheme..

The scheme of treatment comprises of primary, secondary and tertiary treatment and the anticipated quality of effluent at inlet and outlet considered for design of STP is as per given below:

S. N	**Parameter**	**Quality of Waste Water**			
		At Inlet	At outlet *		
			Existing*		Proposed**
			for discharge on land for irrigation	for discharge on land for irrigation	
1	pH	6.5-9.0	5.5 - 9.0	5.5 - 9.0	
2	TSS (mg/l)	400	<200	<100	
3	BOD_3 at 20 ^{0}C (mg/l)	250-350	<100	<30	<10
4	COD	500-700	-	<250*	<50
5	Oil & Grease (mg/l)	50	<10	<10	
** OSPCB has right to prescribe stringent outlet concentration on case to case basis as a part of CTE & CTO. *Proposed outlet standard are under active consideration of OSPCB and shall be in notified in near future.					

The wastewater from different sources shall be fed to equalization tank of 100m3 after passing through the screen and oil & grease separators. In the equalization tank, air shall be passed through blower for wastewater mix-up and then wastewater shall be sent to biological tank.

In the biological tank, air shall be passed through fine diffused aeration system (diffusers) for aerobic treatment. The treated wastewater shall be sent to clarifier for settlement of suspended flocs. Clear water from clarifier shall be sent to break tank and then to Bi-media filter & activated carbon filter. At last, after chlorination, wastewater shall be used for greenbelt/plantation. The sludge so generated shall be used as manure for plantation within project premises on getting confirmation on its nature as non-hazardous.

Appendix 10

Environmental, Health and Safety checklist for Reporting

	Yes/No/NA	Details enclosed (Yes/No)	Comments
ENVIRONMENT			
Is water or other means used to prevent dust generation?			
Are roadways defined and used by site personnel?			
Is there adequate watering equipment when cutting and chasing?			
Is ambient air quality monitoring performed to ensure compliance as per monitoring plan? Provide details.			
Are noisy work tasks defined, controls used to reduce noise levels and signage utilized?			
Is noise level monitoring performed to ensure compliance as per monitoring plan? Provide details.			
Are signs posted to alert personnel?			
Is hearing protection provided and used where required?			
Is waste water disposed of as per regulatory requirement?			
Is monitoring and testing performed as per monitoring plan? Provide details.			
Is solid (hazardous and non-hazardous) waste is being collected, handled and disposed of as per regulatory requirement?			
Provide status of compliance to stipulated conditions by ADB and regulatory agencies			
Is any violation to stipulated compliance observed? If yes then details with action taken report?			
Provide details, if any action is envisaged to be implemented			
SAFETY			
Electrical			
Does a licensed electrician test portable electrical equipment on regular basis (on quarterly basis or agree upon)?			
Are all electrical leads supported above the ground with insulated hooks or stands?			
Are extension leads correctly connected to temporary power boards?			
Are temporary power boards weatherproof?			
Is the electrical testing register maintained on site?			
Is all electrical equipment in good condition?			
Action taken report, if any based on findings/violation.			
Provide details, if any action is envisaged to be implemented			
Hazardous material storage and handling			
Are Material Safety Data Sheets available for all hazardous substances?			
Is a chemical register kept on site?			
Do site personnel understand MSDS's ?			
Are appropriate signs posted at storage areas on site?			
Are containers appropriately labeled?			
Are chemical storage facilities provided with appropriate containment area? i.e. bunds and containment medium			
Is appropriate PPE supplied when using hazardous materials?			
Provide action taken report, if any violation or spillage?			

	Yes/No/NA	Details enclosed (Yes/No)	Comments
Provide details, if any action is envisaged to be implemented			
Civil Works			
Are excavation permits developed and implemented on site?			
Is a site plan available for existing and new services?			
Are new and existing services identified on site and controls implemented to prevent accidental contact?			
Are procedures in place to avoid isolated personnel working in excavations?			
Is signage and barricading used to reduce erosion or collapse?			
Are excavations regularly inspected for erosion or collapse?			
Are excavations battered or benched to prevent collapse?			
Has safe access/egress been provided for deep excavations?			
Has spoil material and equipment been stored away from excavation edges?			
Action taken report, if any based on findings/violation.			
Provide details, if any action is envisaged to be implemented			
Mechanical Works			
Are hot work permits developed for site?			
Are permits completed and signed by supervisors and kept on site?			
Are gas cylinders stored upright in a lockable trolley?			
Fire fighting equipment is located at work area?			
Is welding equipment in good working order?			
Are screens and ventilation provided for welding works?			
Is there any risk of dust exploding?			
Action taken report, if any based on findings/violation.			
Provide details, if any action is envisaged to be implemented			
Cranes and Rigging			
Crane certificates of inspection provided and kept on record at site.			
Crane driver's certificate of competency and licenses..			
Is the manufacturer's instruction book and cranes log book in crane and completed daily?			
Riggers and dog men certified and recorded and used for crane operations?			
Is there a safe working zone established for crane operation?			
Is all rigging equipment in good condition with inspection records kept on site?			
Provide details of any incident/accident and action take report.			
Provide details, if any action is envisaged to be implemented			
Scaffolding			
Scaffold types in use			
Are standards on solid foundations with adequate soul boards?			
Is there adequate bracing in all directions?			
Are the ties correctly positioned and fixed?			
Are there working platforms at required locations?			

	Yes/No/NA	Details enclosed (Yes/No)	Comments
Are handrails and kickboards installed on scaffolds over 2mts?			
Are mesh guards installed where a risk of material falling may occur? i.e. bricks.			
Is there access to and from all working platforms?			
Are working platforms the correct distance from the working face?			
Are ladders of an industrial grade?			
Are ladders secured top and bottom and exceeding platform 1 meter at a 4:1 pitch?			
Are scaffold boards secured to prevent uplift from winds?			
When completed, are scaffolds tagged with scaftag system or similar?			
Are signs or barriers erected for incomplete scaffolds?			
Are scaffolds regularly inspected and records kept of details?			
Action taken report, if any based on findings/violation.			
Provide details, if any action is envisaged to be implemented			
Confined Space			
Are permits developed for confined space works?			
Are emergency procedures developed for confined space works?			
Is emergency rescue equipment available?			
Are personnel trained for confined space works including sentries?			
Provide details of any incident/accident and action take report.			
Provide details, if any action is envisaged to be implemented			
Work at Height			
Are procedures developed for working at heights?			
Are permits developed for working at height?			
Are emergency procedures developed for retrieval of a fallen or injured person?			
Are personnel trained for working at heights?			
Is safe access and egress provided for personnel?			
Are harnesses inspected and inspection records kept on site?			
Are barriers, barricades and signs erected to delineate restricted areas?			
Provide details of any incident/accident and action take report.			
Provide details, if any action is envisaged to be implemented			
Personal Protective Equipment (PPE)			
Are signs displayed to identify the required PPE?			
Is PPE readily available and complying with the relevant standards?			
Are personnel trained in the use of the specific PPE?			
Provide details, if any action is envisaged to be implemented			
Traffic Management			
Has traffic management plan been shared with police and others?			
Are all roadwork signs and devices installed according to the plan?			
Have safety barriers been installed correctly?			
Have the needs of other road users, pedestrians and pedestrian support vehicles been provided for?			

	Yes/No/NA	Details enclosed (Yes/No)	Comments
Provide action taken report in case any violation and findings			
Provide details, if any action is envisaged to be implemented			
Emergency Response /First Aid			
Are site personnel aware of the first aid location and is it clearly identified?			
Is the first aid box adequately stocked?			
Are there adequate first aid personnel clearly identified for contact.			
Are first aid treatment records kept on site?			
Are emergency response personnel trained in site emergency procedures? Last test date of emergency procedure			
Provide action taken report in case any violation and findings			
Provide details, if any action is envisaged to be implemented			
Training and Consultation			
Is there a site induction for new starters to project?			
Are induction records maintained on site?			
Is emergency response and evacuation training conducted?			
Are personnel trained in fire precautions and use of fire extinguishers?			
Is training for identified hazardous work processes conducted? i.e. confined spaces.			
Are visitors inducted as to site hazards and procedures?			
Have managers and supervisors attended a health and safety course?			
Are hazards, incidents, and accidents reported to site personnel at toolbox meetings?			
Do supervisors conduct regular toolbox meetings?			
Do supervisors carry out risk assessments, and incident reports?			
Are health and safety committees established on site?			
Are health and safety committee meetings held regularly?			
Are health and safety committee meeting minutes discussed at toolbox meetings and displayed in the crib hut?			
Provide action taken report in case any violation and findings			
Provide details, if any action is envisaged to be implemented			
HEALTH			
Is there health related issues of workers, if yes provide details with action taken report?			
Provide status of medical facilities provided/available			
Provide details, if any action is envisaged to be implemented			
AMMENITIES			
Is covered shelter provided for resting on site for workers?			
Cool clean drinking water available at appropriate locations on site?			
Are there toilets for women on site?			
Are adequate sanitation , water supply etc provided in temporary township for workers, if any			
Provide details, if any action is envisaged to be implemented			

Appendix 11

Focused Group Discussion

ASTI - Rourkela

Sector	Question	Response
A ITI Facility	A1. How is the facility relevant in terms of contributing to the educational status of the person as compared to other educational qualifications?	ITI develops technical skills that help get placed in nearby industries.
	A2. What is the general awareness about the courses offered at the ITI? What are the preferences in terms of courses that you would like to undertake?	To be inferred from the below response s.
	A3. What is the general perception about the quality of training programs offered at government ITI (probe regularity of classes, workshops being held, functional workshop equipment, classroom furniture, drinking water, toilet, separate girls' toilet, common room, playground, library, internet, hostel facilities, and canteen). How does this compare to private ITI	There is regularity of classes; workshop with functional equipment is available. There is availability classroom furniture. Separate toilets are there for girls. There is a common room available for girls only but not for boys. Internet facility is there only for students having computer as subject.
	A4. What is your opinion about accessibility of the ITIs from eligible boys and girls and social groups' point of view. (To probe inclusion from gender and social group point of view)	Both boys and girls have equal facilities.
	A5. What is your preference with respect to allowing girl child to study in ITI	Electrical and mechanical trades are the common preferences among girls.
	A6. What in your opinion is the affordability of the ITIs from cost point of view.	Yes students are able to afford the fees of the ITI.
	A7. Are there any social groups that are unable to afford studying at ITI? If yes, what are the potential reasons for this?	Refer above response.
B. Wider areas of influence	B1. What is the current profile of economic activities in the area where ITI pass outs are getting placed (probe mechanized trades, manufacturing units, traditional artisans, industries, services).	ITI pass outs are getting placed in industries and services.
	B2. What is the contribution of the ITIs in terms of employment generation in the local area	In local area ITI students are getting jobs in both small and big industries.
	B3. What are the different types of skills/trades that are being offered by the ITI and what in your opinion is required in the local area	The students should be facilitated with spoken English classes. The lab machineries should be upgraded and more number of labs should be there with facilities like Fitter, Holder, Electrical, and Electronics.
	B4. How will the strengthening of the ITIs influence the migration (in and out) of the area	The ITI is influencing the in-migration of students as Rourkela is the Steel City. There is no impact on migration outside.
	B5. How will the ITIs influence the availability of skilled employment opportunities	ITI is the place where students get a platform to understand the industrial skills as well as the technical trades that they can use in their jobs.
	B6. How will the strengthening of the ITIs influence the quality of life (probe life expectancy, educational attainment, income/employment) in the area	The strengthening of ITI will lead to better educational scopes and more students will get facilitated as skilled professionals.

Sector	Question	Response
	B7. What is the condition of the Infrastructural availability in the area with respect to the ITI (probe Road, Rail Network, Bus services, Telephone network, Power, Water Sources, Health Facilities, Educational Facilities, bank(s), post office, police station, fire brigade)	Fire station – 3 Km, ATM- 700 m, Post office- 0.5 Km, Health facilities- 100 m A few students highlighted the issue of shortage of water. But some students contradicted on the issue of water shortage about water shortage.
	B8. What is the level of satisfaction of the ITI pass outs (post training placement opportunities, compensation, growth opportunities)	The students are satisfied with the growth opportunities in ITI .
C. Aspiration	C1. What is the aspiration of the pass out candidates in terms of getting to government job or private job?	Government jobs.
	C2. Are there any changes expected in the community due to ITI strengthening? If yes, what are the expected changes that you foresee in community over the next five years.	No definite response received. To be inferred from other responses.
	C3. What are the short term changes that you foresee in the community over the next two years	No definite response received. To be inferred from other responses.
	C4. What is your aspiration with respect to duration of courses offered at ITI (short term or long term)	The current programme of 2 years is okay.
D. Concerns/ Challenges	D1. What are potential limiting factors that you feel may be a challenge for the ITIs	Apprentice should be provided to the girls.
	D2. How will the ITIs influence the traditional trades	No Impact on traditional trades.
	D3. How will the ITIs influence the traditional cultural values and way of life in the area	No definite response received.
	D4. Are there any other unintended consequences related to ITI strengthening that you would like to share	No.
	D5. Is there any challenge with respect to local crime or threat perception with respect to access to ITI and adjoining areas? Are there any examples of ITI students getting influenced or embroiled in crime under influence of local surroundings?	No there no impact of any of the criminal activities on ITI students.
E. ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	This area has extreme climatic conditions.
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	There is no impact of ITI on climatic conditions.
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	No there is no agricultural land in nearby areas. So there is no influence on water facilities or sources.
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	No there is no impact of ITI on soil quality or usage.

Sector	Question	Response
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	No impact on agriculture.
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Earthquakes are experienced, but the intensity is not enough to destroy any property.
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Hydro & thermal power is used for commercial purposes facilitated by WESCO. But ITI has its own generator so it has no impact on availability of power.
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Industries are the only sources of hazardous pollution.
	E9. What is the current impact of ITIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	No, ITI has no impact on pollution.
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	Municipality sewage and draining system is there. Current waste management is good.
	E11. What systems are in place for disposal of solid municipal waste	Municipality vans come every day to pick wastes directly.
	E12. What systems are in place for disposal of waste water	Drainage systems are there that has inter-linkage with large public drains.
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	There are more than 38 industries in Rourkela. Major industries are Rourkela Steel Plant, Adhunik Metalics
	E14. Is there any threat to local wild life / fauna	No there is no threat to local wildlife/ fauna.
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	No there is no case of diseases.
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	No definite response received.
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	No definite response received.
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	No definite response received.
	E19. What are the type and status of livestock and are there any usages for commercial activity	No definite response received.

ASTI – Jharsuguda:

ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Extreme climate. In summer it's very hot and winter it's very cold
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	Should be AC classroom for students
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	No influence on domestic consumption
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	No Influence
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	No Influence
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Sometime drought occurs in this area
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Wood and Gas but ITI wouldn't influence them in neared future
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Vehicular movement, Industrial operation
	E9. What is the current impact of ITIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	No impact of ITI on pollution
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	Soak pit available. But need to tie up with municipality for solid waste
	E11. What systems are in place for disposal of solid municipal waste	Open area
	E12. What systems are in place for disposal of waste water	Soak pit
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	100+
	E14. Is there any threat to local wild life / fauna	No
	E15. Is there any known cases of diseases in the local area (for e.g. arsenic poisoning)	No
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc. at local level during operation phase	Available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Skilled and Semi-Skilled
	E19. What are the type and status of livestock and are there any usages for commercial activity	Goat, Poultry firm

ASTI-Bhubaneshwar and Cuttack (Extension of ASTI, Bhubaneshwar):

E. ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Extremely hot and high humidity climate
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	The institute will have no influence on climatic condition
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	Will have no influnce on ground or surface water
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	No influence
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	No influence on agriculture
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Cyclone
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Mainly people use Gas for their domestic consumption so it will have no influence on them.
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Vehicular movement and condition of road are the main source of pollution in this area.
	E9. What is the current impact of ITIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	No Impact on pollution
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	To manage waste most of the industries are depend on Municipality
	E11. What systems are in place for disposal of solid municipal waste	Municipality waste collection point is available near the ASTI campus
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	Around 20-30 industries are available and industries like Coca cola bottling, Gupta cable etc.
	E14. Is there any threat to local wild life / fauna	No
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	No
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Plenty
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	Available plenty
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Skilled as well as semi-skilled labours are available
	E19. What are the type and status of livestock and are there any usages for commercial activity	No

Cuttack (Extension of ASTI, Bhubaneshwar):

E. **ENVIRONMENTAL ASPECTS**	E1. What is the general profile of the area with respect to climate (Seasonality)	High Humidity and hot
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	No Influence
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	Will have no Impact as it's near to river

	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	No Influence
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	No Influence
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Floods, and Cyclone
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Gas as fuel used as domestic purpose and will have no impact on it
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Vehicular movement, Condition of road.
	E9. What is the current impact of ITIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	Will have no impact on air,water but if they use heavy machine then it might have impact on noise pollution
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	Depends on Municipalty
	E11. What systems are in place for disposal of solid municipal waste	Waste collection point available
	E12. What systems are in place for disposal of waste water	Soak pit available
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	Jagatpur industrial area is near 25 Km away
	E14. Is there any threat to local wild life / fauna	No Influence
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	Malaria may be one of the disease
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	It's available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	very much available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Semi-skilled and skilled labour are available here for construction work
	E19. What are the type and status of livestock and are there any usages for commercial activity	No

Bolangir ITI (Tempoary ASTI location):

FGD Response, Bolangir on 05/07/2015		
Sector	**Questions**	**Response**
ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Warm Area
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	No impact on climatic condition
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	ITI has it's own bore well system and in future, there will not be any impact on ground water table
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	No Influence
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	No Influence
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Drought

	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Wood for domestic purpose but ITI should create awareness among local community to use alternate recourses.
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Vehicular Movement
	E9. What is the current impact of ITI on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	Not any
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	Seperate Septick tank has been provided
	E11. What systems are in place for disposal of solid municipal waste	Open Land
	E12. What systems are in place for disposal of waste water	Sock pit
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	2- Solar Plants, 1- Sugar cane factory,6 small scale industries
	E14. Is there any threat to local wild life / fauna	No
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	No, But fluoride available in drinking water
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	Available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Shortage of unskilled labour
	E19. What are the type and status of livestock and are there any usages for commercial activity	Cow, Goat, Sheep and Buffalo etc.

Bolangir ASTI (Parmanent location at Titilagarh): *FGD Response*

Sector	Questions	Response
ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Extreme Weather(Hot and Cold)
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	There will be no impact on climatic condition
	E3. What is the type of influence (domestic consumption, agriculture usage) of ASTIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	The borewell water at Titilagarh is available around 300-350 ft.
	E4. What is the type of influence of ASTIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	ASTI will have no influence on land and it is also not going to influence in future.
	E5. What is the type of influence of ASTIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	ASITI will have positive influence on agriculture and in long term the local people can get technical support for their agricultural machinary and equipments.
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Drought area
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ASTIs influence them in the future (probe short term and long term)	Gas and Electricity

	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Type of fuel used for cooking-no, vehicular movement-yes, condition of roads-yes, agricultural activities-yes, construction activities-yes, operation of DG sets-no, industrial operation-yes, availability of in-house toilets-yes
	E9. What is the current impact of ASTIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	NA
	E10. What are the current waste management practices followed by ASTIs and adjoining industries (if any) and how are they likely to change in the future	NA
	E11. What systems are in place for disposal of solid municipal waste	NA
	E12. What systems are in place for disposal of waste water	NA
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	There are 2 industries, One is Graphite India and other is a Spinning mils
	E14. Is there any threat to local wild life / fauna	NO
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	NO
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	Available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Most of the people here are semi-skilled
	E19. What are the type and status of livestock and are there any usages for commercial activity	Gottery & Poultry

ITI, Ambaguda (Tempoary Jeypore ASTI location): *FGD Response, Ambaguda, Koraput*

Sector	Questions	Response
ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Average climate (neither very hot nor very cold)
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	ITI will have no impact on climatic condition
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	It will have no impact on ground water or surface water.
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	ITI will have no influence on land and it is also not going to influence in future.
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	ITI will have positive influence on agriculture and in long term the local people can get technical support for their agricultural machinary and equipments.
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	None
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	Gas, and Wood coal and in future the ITI is not going to influence on them.
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Type of fuel used for cooking-no, vehicular movement-yes, condition of roads-yes, agricultural activities-yes, construction activities-yes, operation of DG sets-no, industrial operation-No, availability of in-house toilets-less

	E9. What is the current impact of ITI on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	There is no pollution impact due to ITI
	E10. What are the current waste management practices followed by ITI and adjoining industries (if any) and how are they likely to change in the future	Don't have any waste management system and dependent on municipality for waste disposal.
	E11. What systems are in place for disposal of solid municipal waste	dependent on municipality for waste disposal
	E12. What systems are in place for disposal of waste water	Soak-pit available inside the ITI campus
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	Only small industries like cashwe factory is available
	E14. Is there any threat to local wild life / fauna	NO
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	NO
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	Available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Most of the people here are semi-skilled
	E19. What are the type and status of livestock and are there any usages for commercial activity	Cow & Poultry

Jeypore ASTI (Permanent ASTI location at Jagadhatripur): *FGD Response, Jeypore*

Sector	**Questions**	**Response**
ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	Average climate (neither very hot nor very cold)
	E2. What is the type of influence (probe positive and negative) of AITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	There will be no impact on climatic condition
	E3. What is the type of influence (domestic consumption, agriculture usage) ofA ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	It will have no impact on ground water as well as surface water
	E4. What is the type of influence of AITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	ASTI will have no influence on land and it is also not going to influence in future.
	E5. What is the type of influence of AITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	ASITI will have positive influence on agriculture and in long term as the local people can get technical support for their agricultural machinary and equipments.
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	None
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the AITIs influence them in the future (probe short term and long term)	ASTI is not going to influence on gas, wood and coal.
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Type of fuel used for cooking-no, vehicular movement-yes, condition of roads-yes, agricultural activities-yes, construction activities-yes, operation of DG sets-no, industrial operation-No, availability of in-house toilets-Few
	E9. What is the current impact of ASTIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	NA
	E10. What are the current waste management practices followed by ASTIs and adjoining industries (if any) and how are they likely to change in the future	NA

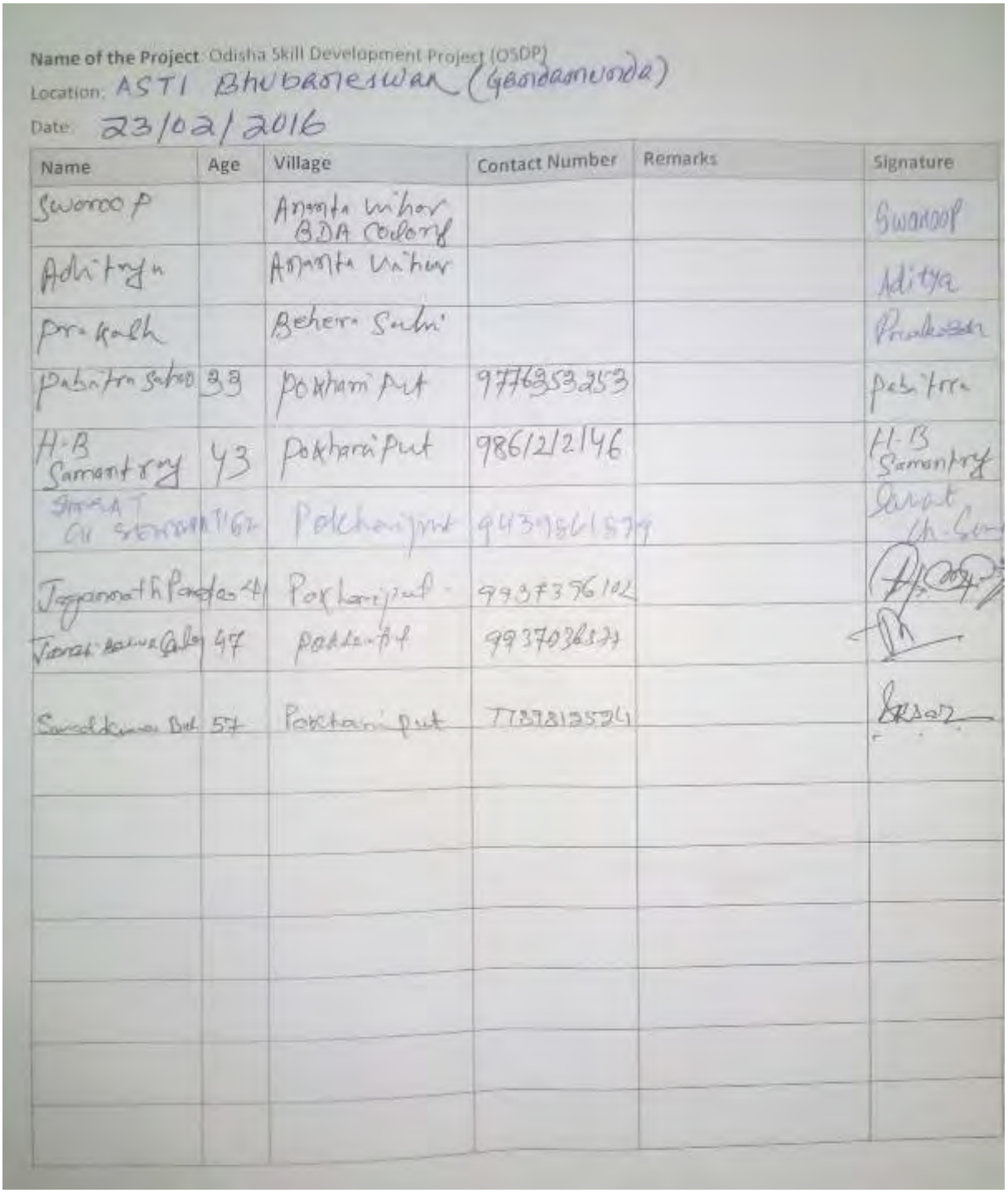
	E11. What systems are in place for disposal of solid municipal waste	NA
	E12. What systems are in place for disposal of waste water	NA
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	Only small industries like cashwe factory is available
	E14. Is there any threat to local wild life / fauna	NO
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	NO
	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	Available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	Available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	Most of the people here are semi-skilled
	E19. What are the type and status of livestock and are there any usages for commercial activity	Dairy & Poultry

Berhampur (Temporary site): ***FGD Response***

Sector	Question	Response
E. ENVIRONMENTAL ASPECTS	E1. What is the general profile of the area with respect to climate (Seasonality)	average
	E2. What is the type of influence (probe positive and negative) of ITIs on the climatic condition and what changes to you foresee in the future (probe short term and long term)	Positive
	E3. What is the type of influence (domestic consumption, agriculture usage) of ITIs on water (probe Ground Water, Surface Water) and how is it likely to change in the future (probe short term and long term)	Gas and wood
	E4. What is the type of influence of ITIs on land (Usage, Soil Quality) and how is it likely to change in the future (probe short term and long term)	Not any
	E5. What is the type of influence of ITIs on Agriculture (Cropping Intensity, Cropping Pattern, Water Usage) and how is it likely to change in the future (probe short term and long term)	Plantation and ITI is currently stepping forward at the local areas.
	E6. What are the prevalent natural hazards in the area that were experienced in the last five years (probe Floods, Cyclone, Drought, Animal and Human Epidemics, Earthquakes)	Floods, Cyclone, and Earthquake
	E7. What are the available sources of energy that is typically used for household and commercial purposes and how will the ITIs influence them in the future (probe short term and long term)	
	E8. What are the prevalent sources of pollution in the district (probe type of fuel used for cooking, vehicular movement, condition of roads, agricultural activities, construction activities, operation of DG sets, industrial operation, availability of in-house toilets)	Vehicular movement, Road condition, and operation of DG sets
	E9. What is the current impact of ITIs on Pollution (Air, Land, Water, Noise) and how it may change in the future (probe short term and long term)	Not any
	E10. What are the current waste management practices followed by ITIs and adjoining industries (if any) and how are they likely to change in the future	Not any
	E11. What systems are in place for disposal of solid municipal waste	Muncipality
	E12. What systems are in place for disposal of waste water	Muncipality
	E13. What are the number of industries and/or industrial area and name of few large and medium scale industries	no
	E14. Is there any threat to local wild life / fauna	no
	E15. Is there any known cases of diseases in the local area (for e.g arsenic poisoning)	no

	E16. What is the scenario with respect to availability of resources such as construction material(s), vendors, contractors at local level	available
	E17. What is the scenario with respect to availability of resources such as vegetables, milk, food grains etc at local level during operation phase	available
	E18. What is the scenario with respect to availability of resources such as skilled, semi-skilled and unskilled labour during construction and operation phase at local level	skilled and semi skilled
	E19. What are the type and status of livestock and are there any usages for commercial activity	Cow, Goat etc

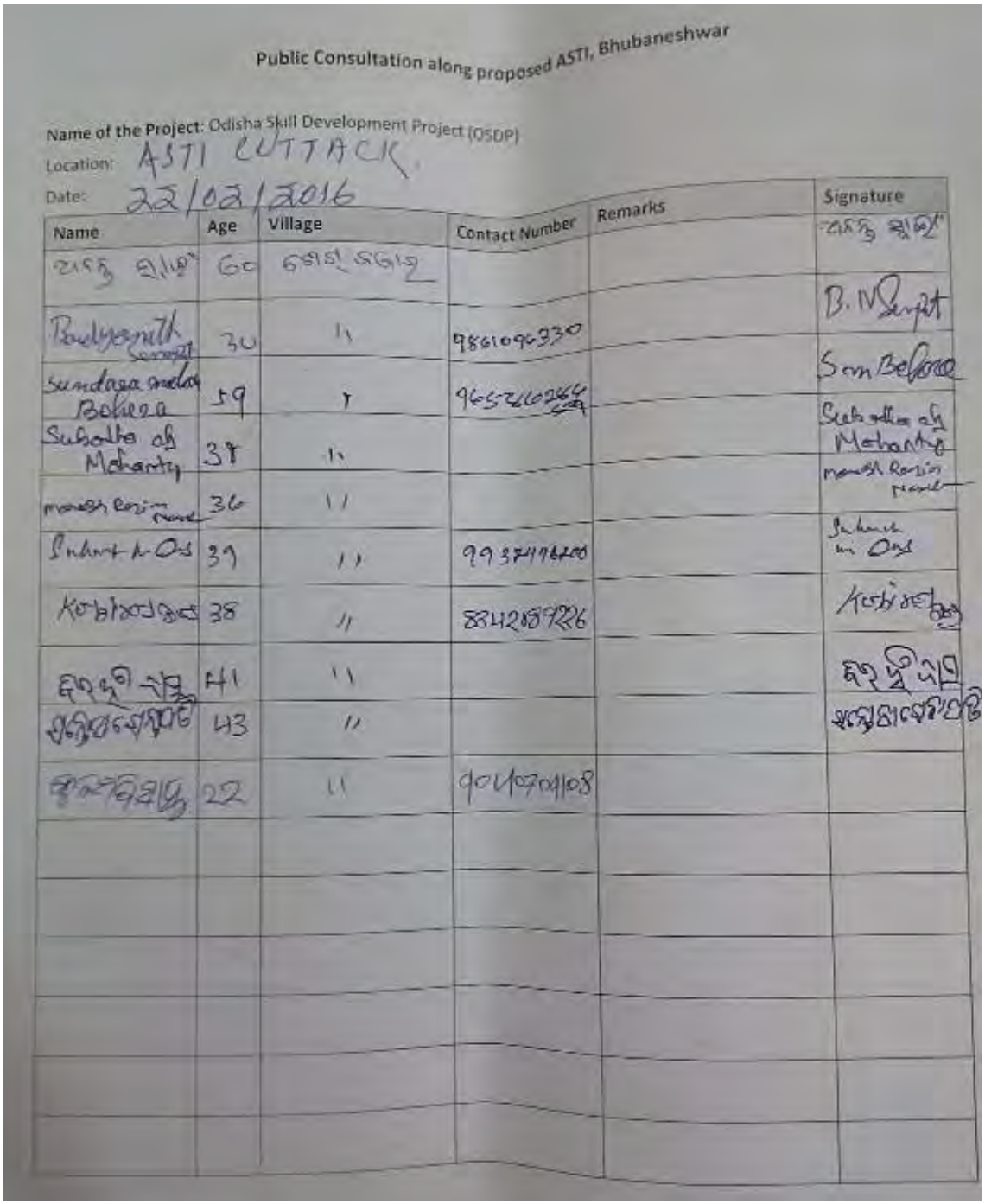
Attendance sheets of FGDs-Bhubaneshwar



Name of the Project: Odisha Skill Development Project (OSDP)
Location: ASTI Bhubaneswar (Ganjamunda)
Date: 23/02/2016

Name	Age	Village	Contact Number	Remarks	Signature
Swaroop P		Ananta vihar BDA Colony			Swaroop
Adityan		Ananta Vihar			Aditya
prakash		Behera Sahi			Prakash
Pabitra Sahoo	39	Pokhariput	9776353253		Pabitra
H-B Samantray	43	Pokhariput	9861212146		H-B Samantray
SHIBA [illegible]	46	Pokhariput	9439561579		Shiba
Jagannath Pradhan	41	Pokhariput	9937376102		
[illegible]	47	Pokhariput	9937036373		
Sanatkumar Bal	57	Pokhariput	7381813526		

Attendance sheets of FGDs-Cuttack



Public Consultation along proposed ASTI, Bhubaneshwar

Name of the Project: Odisha Skill Development Project (OSDP)

Location: ASTI CUTTACK.

Date: 22/02/2016

Name	Age	Village	Contact Number	Remarks	Signature
[illegible]	60	[illegible]			[illegible]
Baidyanath Sahoo	30	11	9861096330		B. N Sahoo
Sundara Mala Behera	59	1	9658660266		Sundara Mala Behera
Subalta ch Mohanty	37	11			Subalta ch Mohanty
manash ranjan nayak	36	11			manash ranjan nayak
Subrat N Das	39	11	9937196200		Subrat N Das
[illegible]	38	11	8842857226		[illegible]
[illegible]	41	11			[illegible]
[illegible]	43	11			[illegible]
[illegible]	22	11	9040704108		

ASTI - Rourkela

Name of the Project: Odisha Skill Development Project

Date:

Location: Rourkela

Name	Age	Village	Contact Number	Remarks	Signature
Sasmita Nayak	22+	at- Dalposh Po- Jabaghat via- Jhirpani	9853853996	Required to canteen	S.Nayak
Biswanath Naik	20+	at- Panposh PO - Panposh	9583419176	Drinking water facilities more required.	B.Naik
Jyoti Ekka	21+	at- Karamtikhel Po- Karamtikhel Dist- Sundargarh	7707418225 9853350436		J. Ekka.
Anita Dalai	19+	at- Sirsi, po- Dalmoni, Dist- [illegible]	9853994125		A. Dalai
Laxmi Priya Barik	18+	at- Panposh	9938982613		L. Barik
Sudharani Gochhi	21+	at- [illegible] p/o- [illegible] Dist- Nayagarh	8093410027	Better workshop and teachers.	S-Gochhi
Tankaj kumar Jena	19+	at- Barsuan Po- Barsuan Dist- Sundargarh	7539869351	Boys common Room	P.K.Jena
Sandeep Shekhar Deo	19+	at- Budelkani Po- Marghapara Dist- Sundargarh	9124127292	Fan and light in workshop	Sdeo
Ranjan Kumar Mohanta	34	Uditnagar [illegible]	7788974254		[illegible]
Saroj Das	20	ITI Colony	9658832220		Saroj Das

Public Consultation along proposed ASTI, Rourkela

Name of the Project: Odisha Skill Development Project (OSDP)

Location: ASTI & IIT Rourkela

Date: 18/02/2016

Name	Age	Village	Contact Number	Remarks	Signature
Manoj Tatra	01.07.1978 (38)	Rastamy	9853756883		
Kashikanta Sahu	30	Shantinagar	9438361415	Gonul	
Suraj Ku. Malik	25	Chandi Nagar	8908909185		
Prankar Seth	27	Shantinagar	9439717242		
Ajit Singh Dungdung	21	Shantinagar	8908170969		
Prakash Bagla	25	Nehagi nagar	8457986486		
Krishna Nayak	32	"	9853420473		
Rabindra Kumar Mallick	52	I.T.I. RKL	9337409263		
Kailash Ch Sahu	47	I.T.I, RKL	9861385341		
Neelanchal Padhee	50	I.T.I, RKL	9437302845		

ASTI - JHARSUGADA

Name	Age	Address	Contact Number	Remarks	Signature
Bijili podh	40	Badheimunda	8658734945		
Rajkumari Pattnaik	52	Raj Kumari Pattnaik Councillor, Ward No: 14 Jharsuguda Municipality	9777593505		
Sujata mishra			9778739029		
Padmani mishra					
ଜାନକି ପ୍ରଧାନ					
ସୁରେଖା ପ୍ରଧାନ					
[illegible]					
ଗୋଲାପି ପ୍ରଧାନ					
ସୁକାନ୍ତି ନାଏକ [illegible]					
[illegible]					
Rina Sing					
ପାର୍ବତି ପ୍ରଧାନ					
[illegible]					
ନମିତା ପ୍ରଧାନ					
[illegible]					
[illegible]					

ASTI, JHARSUGADA.

Name	Age	Address Badhei munda.	Contact Number	Remarks	Signature
Tularam kharsel		Bachua munda			
[illegible]		Dist - Jharsuguda			
Surendra Bagh					
[illegible]					
[illegible]					
Hari mo Barik					
[illegible]					
[illegible]					
[illegible]					
Pravat Kr. Pradhan					
Shakti Naik			9090689681		
Badrinath Podh			9090259609		
Jay Kisan Pradhan					
Jadaba Kuhan					
Sankar podh			9556685994		[signature]
Mahadev Kisan					

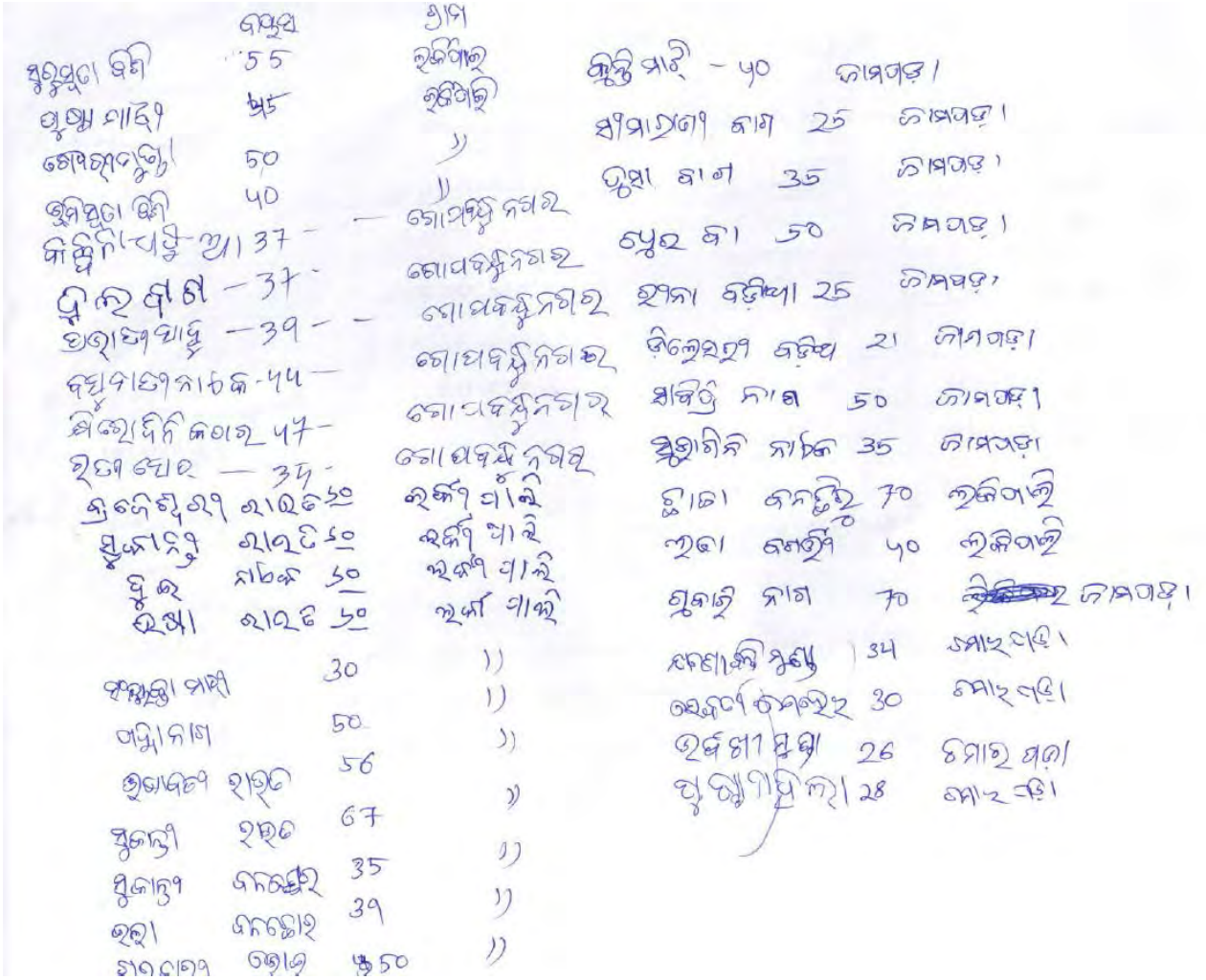
Attendance sheets of FGDs-Bolangir (Temporary and Parmanent site):

Bolangir-61

Name	Age	Address	Contact Number	Remarks	Signature
Dhubeicharan Raut	41	At-Larki Pali-Po-R.college	9777521851		Dhubeicharan Raut
Umesh ch. Raut	42	At. Larki Pali, po-R. College	9439424566		Umesh Raut
Ratilal Bishi	47	-do-	9777545010		Ratilal Bishi
Basudev Naik	29	-do-	9178286846		Basudev Naik
Sarat chandra Panda	42	Larki Pali	7873043293		Sarat chandra Panda
[illegible]	40	[illegible]	8895248931		[illegible]
[illegible]	60	[illegible]			[illegible]
Abhimanyu Munda	65	Larkipali			Abhimanyu Munda
Jayanti Bagarty	55	At-Gopabandhu Nagar Laltikra			
Jayanti Raut	31	Laraki Pali			Jayanti Raut
[illegible]	44	Laraki Pali			[illegible]
[illegible]	40	))			[illegible]
[illegible]	38	))			[illegible]
[illegible]	53	))			[illegible]

Bolangir

Name	Age	Address	Contact Number	Remarks	Signature
Sumiti Debta	29	Gandharmardan ITI, Bgr.	8093817767		[illegible]
K.P. Swain	51	-do-	8895587476		[illegible]
Prakash Das	27	-do-	7377703225		P. Das
Paramberee Ghanzi	25	-do-	9439979785		[illegible]
Dasha Bhoi	63	Laskepali 1 No ward BGR	9438286083		[illegible]
Rajesh kumar Sahu	45	Govt ITI, Bolangir	9777008816		[illegible]
Manamohan Raut	42	Larki Pali wd-1 BGR	9437331028		MRaut
[illegible]	[illegible]	[illegible] BGR	9861033024		[illegible]
P.R. Sorun	36	Govt. ITI. Bolangir	9437310672		[illegible]
Ramesh Kumpa	21	Govt. ITI, Bolangir	7894220480		Ramesh Kumpa
Minaketan Nag	24	Govt ITI, Bolangir	9861217968		[illegible]



Public Consultation along proposed ASTI

Name of the Project: Odisha Skill Development Project (OSDP)
Location: ITI, Bolangir (Titilagarh)
Date: 02/07/2016

Name	Age	Village	Contact Number	Remarks	Signature
Lalit mohan Sahu	45	JAGUA	9938048094	SARPANCH	
Sameer Bag.	50	JAGUA			
Damodar chhotar	35	JAGUA			
Bibhadhar	40	JAGUA			
Nimai Kharsa	41	JAGUA			
YUBRAJ NAIK	31	JAGUA			
[illegible]	50	JAGUA			
JAGA ADJUAS	28	JAGUA			
TULSI ADJUAS	50	JAGUA			
DHARAM RAT BA	51	JAGUA			
DHANAT NAIK	175	JAGUA			
KUSAM Kumbar	45	JAGUA			
BHUBA NAIK	35	JAGUA			
Bhoden	32	JAGUA			
		JAGUA			
BIJAYA BIJ	52	JAGUA			

Attendance sheets of FGDs-Jeypore (Temporary and permanent site):

Public Consultation along proposed ASTI

Name of the Project: Odisha Skill Development Project (OSDP)

Location: ITI, AMBAGUDA

Date: 04/07/2016

Name	Age	Village	Contact Number	Remarks	Signature
Trinath Acharjya	65	Ambaguda	9668021156		[signature]
B. Balamkari Rao	70	Kumlipul	9437197122		[signature]
Panchanan Bhotta	60	Ambaguda	9438445490		[signature]
Byomakesh Behera	44	Ambaguda	9937668167		[signature]
Pradeep Deo	45	Ambaguda	9178484051		[signature]
Narayan Dan	52	Ambaguda	889510482		[signature]
Mholari	51	Ambaguda	9938369246		Mholari
D. Senapati	59	Ambaguda	9937385931		[signature] 4/7/16
Sardar Azad Singh	50	Ambaguda	9437938791		[signature] 4/7/16
Rajendra Sariya Rao	50	Ambaguda	9668100830		[signature]
Jugal Kishor Behera	64	Ambaguda	9938213428		J. Behera
Jagadish Jagdeli	54	Ambaguda	9437080625 9777182209		Jagadish Jagdeli
M.K Methi	48	Ambaguda	9861268864		[signature]
Ramesh Sahu	43	Ambaguda	9437340288		[signature]

Public Consultation along proposed ASTI

Name of the Project: Odisha Skill Development Project (OSDP)

Location: ~~ITI~~ ASTI, JEYPORE

Date: 05/07/2016

Name	Age	Village	Contact Number	Remarks	Signature
DEBENDRA PATTNAIK	39	L. Nagar Ind. colony JEY.	9437693155		[signature]
Benudhar Pradhani	45	Lingaraj Nagar Jeypore	9438389653		[signature]
Tapan Nayak	54	Main Street 5th lane	9777182304		[signature]
Pinku Nayak	22	New street 5th line	9777683821		Pinku Nayak
Bidyadhar Rout	45	Kenduguda	7205406231		[signature]
Subha Prasad Padhi Councillor-W-23	44	Lingaraj Nagar	9437215343		[signature]
Hari Shankar Sahu	37	Lingraj nagar	9437011430		[signature]
Tapan Ku. Nayak	49	Lingraj Nagar	9437202240		[signature]
Sarat Chandra Panda	33	Lingraj nagar	9438171718		[signature]

Attendance sheets of FGDs-Berhampur

SITE = ITI Berhampur, FGD.

Name	Age	Address	Contact Number	Remarks	Signature
[illegible]	42	[illegible]	7873880350		Prasantakumar Mohanty
[illegible]	32	[illegible]	7381659880		Gouri Sankar
[illegible]	50	[illegible]	9437065921		Malaya Kumar [illegible]
[illegible]	65	[illegible]			[illegible]
[illegible]	63	[illegible]	737787 1485		[illegible]
[illegible]	44	[illegible]	9556388548		[illegible]
[illegible]	60	[illegible]			
[illegible]	28	[illegible]			Champa Nayak
[illegible]	45	[illegible]			
[illegible]	42	[illegible]	78943137 41		Govinda Ch. Sethi
[illegible]	44	[illegible]	9437724390		[illegible]
[illegible]	40	[illegible]	7873645662		Kanika [illegible]
Binod Patra	43	[illegible]	9327448800		Binod Patra
Ranka Padhi	52	[illegible]	9853868520		Ranka Padhi
Gopal bandhu Das	42	[illegible]	9275869520		Gopal bandhu das
Sukant maharana	51	[illegible]	9573839300		Sukant maharana

FGD-Photographs:

ASTI-Bhubaneshwar and Cuttack (Extension of ASTI, Bhubaneshwar):

FGD at Bhubaneshwar

FGD at Cuttack

ASTI-Rourkela:

ASTI-Jharsuguda


ASTI-Bolangir (Temporary and Parmanent site):




ASTI-Jeypore (Temporary and Parmanent site):

Appendix A

Copy of CCF (Wildlife) letter

OFFICE OF THE PRINCIPAL CCF (WILDLIFE) & CHIEF WILDLIFE WARDEN, ODISHA
5TH FLOOR, BDA APARTMENT, PRAKRUTI BHAWAN, NILAKANTHA NAGAR,
NAYAPALLI, BHUBANESWAR- 751012
Ph. No.0674-2564587, FAX No.0674-2565062

No: 747 /WL(C) FS2/244/12 Dated, Bhubaneswar, the **29th** January,2014.

To

The Special Secretary to Government,
Forest and Environment Department,
Odisha, Bhubaneswar.

Sub: Proposal for declaration of Eco-Sensitive Zones around Nandankanan Wildlife Sanctuary.

Sir,

This is with reference to the F&E department letter no. 1137 F&E dated 20/01/2014 on the subject mentioned above and I am directed to inform you that requisite information has already been sent to Government vide this office memo no. 640 dt 22nd Jan, 2014. However a copy of the same is sent herewith for necessary action with a request that a suitable date may be fixed for presentation before Honorable Chief Minister, Odisha.

Yours faithfully,

29/1/14
Chief Conservator of Forests (Wildlife)

Memo No. 748 / dt. **29th** January 2014

Copy forwarded to the Director, Nandankanan Zoological Park, Odisha Bhubaneswar for information.

29/1/14
Chief Conservator of Forests (Wildlife)

1/25/2014

ECO-SENSITIVE ZONE AROUND NANDANKANAN WILDLIFE SANCTUARY

NANDANKANAN

Nandankanan Biological Park

Nandankanan Sanctuary

- Nandankanan Sanctuary encompasses an area of 4.37 sq.km. It includes Nandankanan Zoological Park, Kanjia Lake and State Botanical Garden.
- Nandankanan sanctuary was notified under section 18 of the Wildlife (Protection) Act, 1972 vide Notification No. 20682-8F (W) 160/78 dated. 3rd August, 1979 of erstwhile Forest, Fisheries & Animal Husbandry Department and published in the official Gazette of Government of Orissa vide S.R.O. No. 935/79 dtd. 3rd August, 1979.
- Final notification under section 26(a) of Wildlife (Protection) Act, 1972 amended has not been done.

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Natural forest inside Nandankanan

Biodiversity values

- The sanctuary supports
- Mammals: 13
- Birds: 71
- Reptiles: 14
- Amphibians:
- Butterflies : 85 species

- 548 individuals belonging to 25 species of waterfowl recorded during waterfowl census of January, 2012.

- This is the second largest nesting site of Openbill stork in the State.

Wild Tiger inside Nandankanan

Floral diversity

- According to Champion & Seth's classification the following forest types are found in Nandankanan sanctuary
  - $2E_1$- Moist bamboo brakes
  - 2E4- Semi evergreen forests
  - 3C(251)- Northern moist mixed deciduous forests
  - $7C_1$- Tropical Dry evergreen forests
- Major species are Hinjal, Kochila, Haldu, Ankula, Sahada, Kantei koli, Kanta Boula, Kalicha, Giringa, Canes, Kanta Baunsa, Danteri, Atundi, Jamun.
- Recent publication 'Flora of Nandankanan' has recorded 704 species of wild and naturalised plant species inside the sanctuary.

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Free living Spotted Deer inside Nandankanan

Uniqueness of Kanjia lake

- Encompasses an area of 66.1 ha.
- Declared as a Wetland of National Importance in the year 2006 by MoEF, Govt. of India.
- Extremely rich in aquatic vegetation: 10 sub-merged macrophytes, 14 floating macrophytes, 24 emergent macrophytes.
- Wild rice and Wild moong species were also recorded.
- 41 species of fish & 3 species of prawns
- 39 species of free-ranging birds

1/25/2014

Purple Moorhen in Kanjia lake

Conservation of Kanjia lake

- The lake faces problems like siltation, eutrophication, weed infestation, proliferation of invasive species and shoreline shrinkage.
- Shrinkage of outlets by changing landuse.
- Main outlet channel needs to be desilted over a length of 2 kms.
- A Management Action Plan for Integrated Development of Kanjia Lake (2013-14 to 22-23) with a budget outlay of Rs 1144.60 lakhs has been prepared in which various initiatives such as catchment treatment, water management, biodiversity conservation, scientific monitoring and education & awareness have been suggested.

1/25/2014

Purpose for establishment of Eco-sensitive Zone

- To create some kind of "Shock absorber" for the Protected Areas.
- They would act as a transition zone from areas of high protection to areas involving lesser protection.
- The activities in the Eco-sensitive zone would be of a regulatory nature rather than prohibitive, unless and otherwise so required.

Background

- A committee constituted by F & E Department vide Notification No. 9614/F&E dated 26.05.2012 consisting of representative of Collectors, Khordha, representative of BMC, one ecologist, BDO, Bhubaneswar.
- The Committee submitted its report on 23.07.2012 to Pr.CCF (WL) for ESZ area.
- The extent of ESZ as recommended by the Committee was upto a radial distance of one km. from the sanctuary boundary.
- The Hon'ble Odisha High Court in OJC No. 5038 of 2002 passed order No. 3 dated 16.05.2002 restraining construction activities within a radius of one kilometer from the boundary of Nandankanan. Subsequently, the Hon'ble Court vide their judgment dated 30.09.2011 passed the final order that the concerned authorities are free to take necessary action against the person as per the provisions of Water (Prevention and Control) Act, 1974, Air (Prevention and Control) Act, 1981 and the Environment (Protection) Act, 1986.

1/25/2014

- It was decided in the meeting dated 01.02.2013 chaired by the Principal Secretary, F & E Department that the extent of ESZ should be reduced to 100m on Barang side and can be beyond one kilometer to cover the natural water bodies on the other side.
- A High level Committee was constituted through a Notification (No. 6368 dated 22.03.2013) by the F & E Department headed by CWLW, Odisha with the representatives from H&UD, Industry & F&E Departments, IDCO, Collector, BDA,CDA,BMC etc.
- It was decided to have ESZ area of 500m width in Khordha district and 100m in Cuttack district especially on Barang side.
- The matter was discussed at the Government level on 10.05.2013 and it was decided that the extent of the ESZ will be 100m on all sides except the swampy area on southern side where it extends upto 560m.
- **Central Empowered Committee suggested that the protected areas having an area upto 100sq.km should have minimum 100m safety zone.**

Committee for Declaration of Eco- sensitive Zone

- A Committee constituted as per the notification No.9614 Dated 26.05.2012 of F&E Department, Govt. of Odisha for Nandankanan Wildlife Sanctuary

01	Director, Nandankanan Biological Park	Chairman
02	Dr. D.P. Rath, Local Ecologist	Member
03	Sub-Collector, Bhubaneswar, Representative of Collector, Khordha	Member
04	Environment Officer, BMC, Bhubaneswar	Member
05	BDO, Bhubaneswar	Member

Meetings of the Committee

- 1st meeting- 7th July 2012
- 2nd meeting- 21st July 2012

Procedure adopted

An inventory of different land use patterns and different types and number of industries operating around the PA (within 10 Kms) was made.

The committee comprising the concerned Wildlife Warden, an Ecologist, and official from local self Govt. and an official from the Revenue Dept discussed the local issues in two sittings and suggested the followings :

The committee suggested the :

✓The Extent of eco-sensitive zones for the Protected Area (Nandankanan)

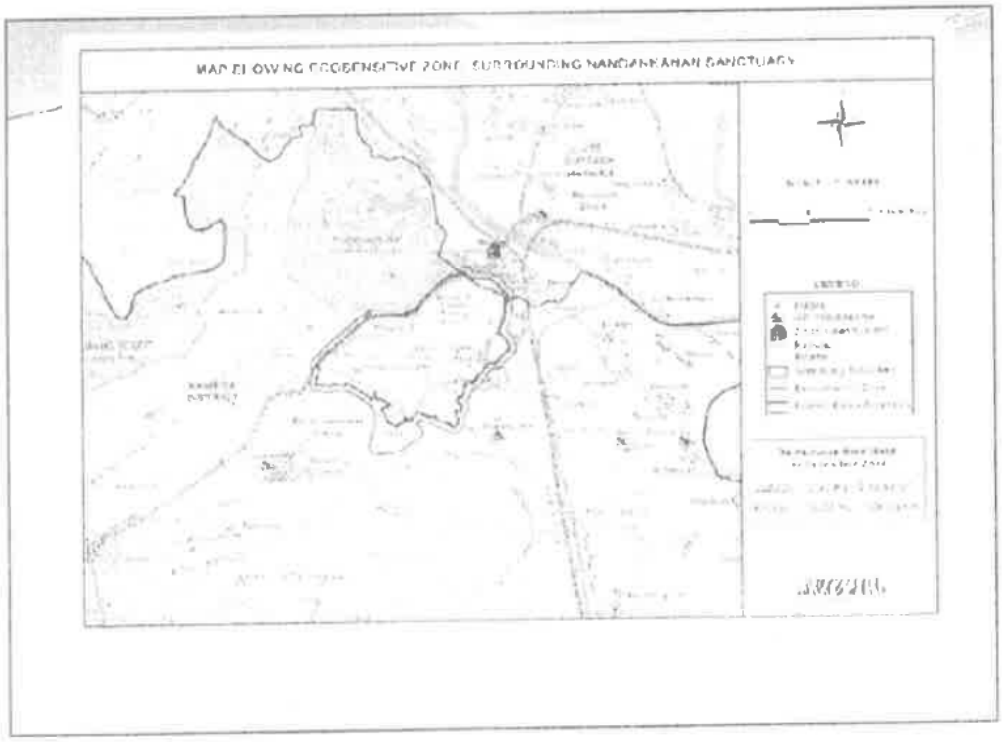
✓The requirement of such a zone to act as a shock absorber.

✓The best methods for management of the eco-sensitive zone so suggested,

✓Broad based thematic activities to be included in the Master Plan for the region.

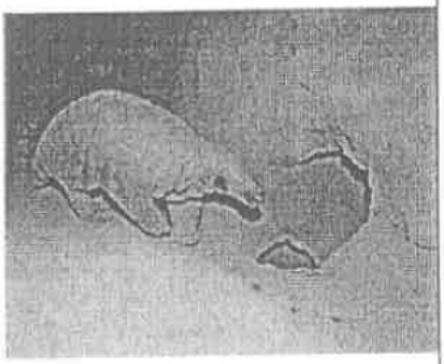
Extent of eco-sensitive zone

- The eco-sensitive zone in respect of Nandankanan Wildlife Sanctuary is the area up to one hundred meters from the boundary of the protected area except from the boundary Pillar No. 88 to pillar no.100 covering the swampy areas where the ESZ area extends up to 560 metres (maximum) on the southern side of the sanctuary.
- The boundary of Chandaka-Dampara Sanctuary (Churang R.F.) being located in the western boundary of the sanctuary i.e, adjacent to the pillar No.131 to 137, the area beyond the sanctuary boundary is covered under the ESZ of Chandka-Dampara Sanctuary for which, the ESZ boundary of Nandankanan sanctuary is co-terminus with the sanctuary boundary at this area.
- The total area covered under the eco-sensitive zone is 1.16 sq.km. out of which 0.10 sq.km comes under Cuttack district and 1.06sq.km area in Khordha district.



Inventory of activities to be regulated

The Committee for identification of eco-sensitive zone in respect of Nandankanan Wildlife Sanctuary constituted by Forest & Environment Department, Government of Odisha had detail discussions about the activities to be regulated and the report of the Committee about the activities is as follows:



List of activities prohibited in ESZ

Sl. No.	Name of the activity	Remarks
1	Commercial mining	Regulation will not prohibit the digging of earth for construction or repair of houses and manufacture of country tiles for personal consumption.
2	Blockage of inlets and outlets of natural water bodies/natural drainage system	
3	Commercial harvesting of ground water.	
4	Use of polythene bags by shop keepers and vendors.	
5	Discharge of effluent and solid wastes in natural water bodies or terrestrial area.	
6	Establishment of polluting industries.	
7	Commercial use of fire wood.	
8	Establishment of Saw Mills	
9	Establishment of major hydro-electricity projects	
10	Introduction of exotic species and release in the nature.	
11	Use or production of hazardous substances.	
12	Activities relating to tourism like overflying the sanctuary and ESZ area by any aircraft or hot air balloons.	

List of activities regulated in ESZ

Sl. No.	Name of the activity	Remarks
1	Felling of trees	With permission from competent authorities.
2	Establishment of hotels and resorts.	Should not disturb the habitats and restrict the movement of wild animals.
3	Change in present land use pattern.	It should be infirmity with the forest and revenue acts and rules. Conversion of swampy land, water bodies, inlets and outlets of natural water sources and natural drainage should be prohibited.
4	Drastic change in agriculture system.	Use of pesticides, insecticides and herbicides should be restricted.
5	Commercial use of natural surface water resources.	As per approved Master Plan and it should take care of habitats allowing no restriction on movement of wild animals.
6	Erection of electrical cables/transmission lines.	Underground cabling can be allowed.
7	Widening of roads.	Should be done with proper EIA.
8	Construction of buildings.	Prohibited within 100 metre radial distance from the sanctuary boundary except for constructions for bonafide purposes. The maximum height of the building within the ESZ area should not exceed 10 metre.
9	Movement of vehicular traffic at night.	Commercial vehicles from 9.00PM to 6.00AM should be regulated with a speed of maximum 40 kms/hour without blowing loud horns.
10	Protection of hill slopes and river banks.	Appropriate soil conservation measures supplemented with plantation should be carried out.
11	Air and sound pollution.	Using of crackers and loud sound beyond 50 decibels during night time from 9.00PM to 6.00AM should be restricted.
12	Fixing of sign boards and hoardings.	As per the Master Plan of the Region. Glow sign boards should be restricted.

List of permissible activities in ESZ

Sl.No.	Name of the activity	Remarks
1	Existing agriculture and horticulture practices by local communities.	Expansion may be regulated as per the Master Plan.
2	Use of renewable energy resources and adoption of green technology.	May be actively promoted.
3	Rain water harvesting.	Should be promoted.
4	Organic farming.	To be promoted.
5	Immunization of cattle in the surrounding villages.	Should be promoted.
6	Protection of hill slopes and banks of natural water bodies.	Should be promoted.

- The revised proposal for Declaration of ESZ around Nandankanan Wildlife Sanctuary submitted to the PCCF (WL) and CWLW Odisha on 12th July, 2013.

- The PCCF (WL) and CWLW Odisha forwarded the revised proposal to F&E Department vide his letter No. 6968 dated 29.08.2013 for onward transmission to MoEF, Govt. of India.


Thank You