

Final Report on Occupational Mapping in the Field of Industrial Wastewater Management

Submitted to

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List of Abbreviations

KEI	Knowledge Economy Index
AICTE	All India Council for Technical Education (within the MHRD portfolio)
AITT	All India Trade Test (administered under DGET)
ATI	Advanced Training Institute (within the DGET portfolio)
AVI	Accredited Vocational Institutes(s) (administered under NIOS)
BAT	Board(s) of Apprenticeship Training (administered under MHRD)
BCM	Billion cubic Meter
BTC	Basic Training Center(s) (administered under DGET)
CABE	Central Advisory Board for Education (within the MHRD portfolio)
CAC	Central Apprenticeship Council (within the DGET portfolio)
CAPART	Council for Advancement of People’s Action and Rural Technology (within the portfolio of the Ministry for Rural Development)
CBSE	Central Board for Secondary Education (within the MHRD portfolio)
CETP	Common Effluent Treatment Plant
CII	Confederation of Indian Industry
COBSE	Council of Boards of School Education (in India)
COEs	Centers of Excellence (under establishment in ITIs with funding from the central and state governments)
CP	Community Polytechnic(s) (within the MHRD portfolio)
CPCB	Central Pollution Control Board
CSS	Centrally Supported Scheme(s)
CSSVSE	Centrally Supported Scheme of Vocationalisation of Secondary Education
CSTRI	Central Staff Training and Research Institute (within the DGET portfolio)
CTS	Craftsman Training Scheme (administered under DGET)
DGET	Directorate General of Employment and Training

DGET	Directorate General of Employment and Training (within MoLE)
DGT	Directorate General of Training
DPCC	Delhi Pollution Control Committee
DSIIDC	Delhi State Industrial And Infrastructure Development Corporation Limited
DWCRA	GOI program for Development of Women and Children in Rural Area
EACs	Employment Assistance Centers (related to National Renewal Fund)
EdCIL	Education Consultants India Ltd
EMS	Environment Management System
ETP	Effluent Treatment Plant
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce and Industry
GDP	Gross Domestic Product
GER	Gross Enrollment Ratio
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOI	Government of India
GVA	Gross value added per worker
HRDF	Human Resources Development Fund
IABD	Inter American Development Bank
IAMR	Institute of Applied Manpower Research
ICS	Investment Climate Survey
ICT	Information Communication Technology
IIT	Indian Institute of Technology (within the MHRD portfolio)
IRDP	Integrated Rural Development Programme of GOI
ISCED	International Standard Classification of Education

ITC	Industry Training Center(s) (private institutions affiliated with NCVT)
ITI	Industry Training Institute(s) (public institutions affiliated with NCVT)
JCVE	Joint Council for Vocational Education (within the MHRD portfolio)
JRY	Jawahar Rozgar Yojana (a GOI scheme)
JSS	Jan Shikshan Sansthan (Community Education Organisations)
KAM	Knowledge Assessment Methodology
Km³	Kilo Meter Cube
KVIC	Khadi and Village Industries Commission
MHRD	Ministry of Human Resource Development
MNRE	Ministry of New and Renewable Energy
MOEFCC	Ministry of Environment, Forest and Climate Change
MoLE	Ministry of Labor and Employment
MoWR	Ministry of Water Resources
MSDE	Ministry of Skill Development & Entrepreneurship
MTS	Multi Tasking Staff
NAC	National Apprenticeship Certificate (administered under DGET)
NBA	National Board of Accreditation (within AICTE)
NCERT	National Council for Educational Research and Training (within the MHRD portfolio)
NCIWRD	National Council for Integrated Water Resource and Development
NCR	National Capital Region
NCTA	National Competency Testing Agency (proposed agency within the MHRD portfolio)
NCTE	National Council for Teacher Education
NCVE	National Council for Vocational Education (within the MHRD portfolio)
NCVT	The National Council on Vocation Training

NCVT	National Council for Vocational Training (within the DGET portfolio)
NEERI	National Environmental Engineering Research Institute
NER	Net Enrollment Ratio
NGO	Non Government Organization
NIEPA	National Institute of Educational Planning and Administration
NIIT	National Institute of Information Technology (within the MHRD portfolio)
NIOS	National Institute of Open Schooling (within the MHRD portfolio)
NITTTR	National Institute for Technical Teacher Training and Research (within the MHRD portfolio)
NOS	National Occupational Standard
NPC	National Productivity Council
NRF	National Renewal Fund (established by the GOI)
NSDA	National Skill Development Agency
NSDC	The National Skill Development Corporation
NSDF	National Skill Development Fund
NSQF	National Skills Qualifications Framework
NSSO	national sample survey office
NTC	National Trade Certificate (administered under DGET)
O & M	Operation and Maintenance
OBE	Open Basic Education (offered through NIOS)
PMRY	Prime Minister’s Rozgar Yojana (a GOI scheme)
PPE	Personal Protective Equipment
PPP	Public-Private- Partnership
PSSCIVE	Pandit Sunderlal Sharma Central Institute of Vocational Education (administered under NCERT)
PUC	Pre-University Certificate

QP	Qualifications Pack
RIC	Related Instruction Center(s) (administered under DGET)
RPL	Recognition of Prior Learning
SAP	Structural Adjustment Program
SATS	Statutory Apprenticeship Training Scheme (administered in separate parts by DGET and MHRD)
SCGJ	Skill Council for Green Jobs
SCVE	State Council(s) for Vocational Education (administered by respective state governments)
SCVT	State Council for Vocational Training
SDF	Skills Development Fund (established in Singapore)
SOP	Standard Operating Procedure
SSLC	Secondary School Leaving Certificate
STEP	Support to Training and Employment Program (under the portfolio of MHRD of GOI)
STP	Sewage Treatment Plant
TAFE	Technical and Further Education (Australia)
TFP	Total Factor Productivity
TRYSEM	GOI program for Training of Youth for Self-employment
UCEP	Underprivileged Children’s Education Program (in Bangladesh)
UGC	University Grants Commission
UGC	University Grants Commission (within the MHRD portfolio)
UT	Union Territory
VET	Vocational Education and Training
WWTP	Wastewater Treatment Plant

Executive Summary

1.0 BACKGROUND OF THE PROJECT

India has over 170 combined wastewater treatment plants (CETPs) and several thousands of effluent treatments plants (ETPs) in industries to deal with industrial wastewater. The operators of the CETPs and ETPs play an important role in ensuring proper operation of these treatment plants so as to treat the wastewaters to the required standards and to minimize risks to the receiving water bodies and environment.

2.0 OBJECTIVES OF THE STUDY:

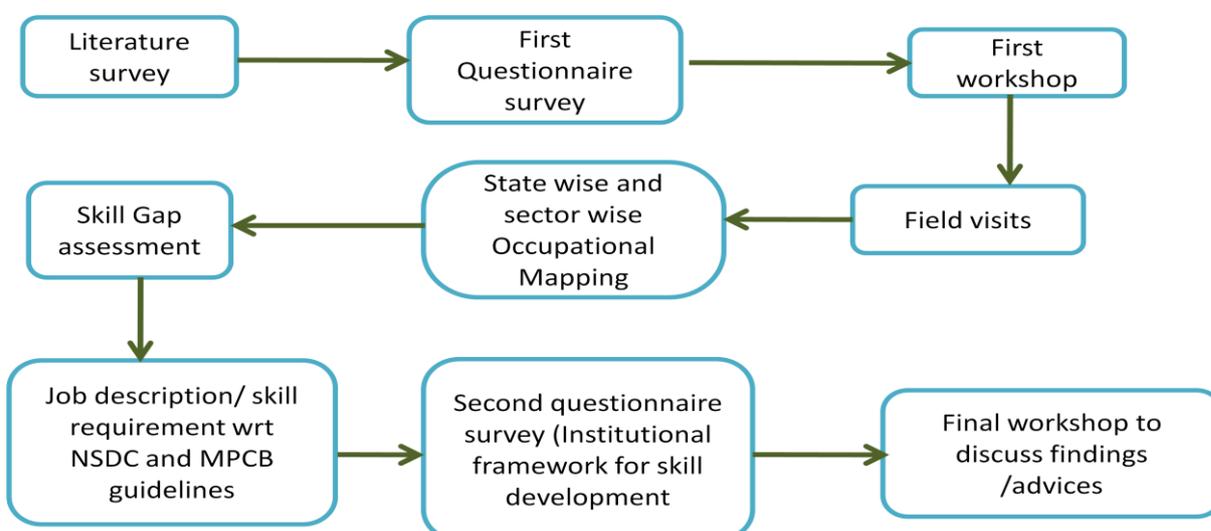
To undertake occupational mapping of industrial wastewater treatment in India to detail out the types of jobs for operation and maintenance, their functions and required qualifications, competencies and skills.

3.0 SCOPE OF WORK, APPROACH AND METHODOLOGY

The scope of work as defined by GIZ includes:

- a) **Coverage:** Industrial waste water treatment plants (Effluent treatment plants) at individual industries, operations and processes, covering, Micro and Small enterprises, Medium enterprises, Large scale industries, Common Effluent treatment plants,
- b) **Surveys:** Besides using past experience of the consultant, sample surveys (questionnaire surveys) are proposed to be conducted representing different wastewater treatment plants (at least 50 ETPs of different sectors and at least 10 CETPs from different parts of the country.
- c) **Consultations:** Key stakeholders such as the industries, industrial associations, state and central pollution control boards etc. should be consulted. At least one consultative meeting/workshop should be conducted.

NPC’s approach and methodology is summarized in following diagram



4.0 FIRST COMPACT WORKSHOP

NPC organized the first workshop with all the stake holders on 6th June, 2016 at NPC’s Lodi road office to finalize and fine tune its methodology and approach. Following points were discussed in the workshop

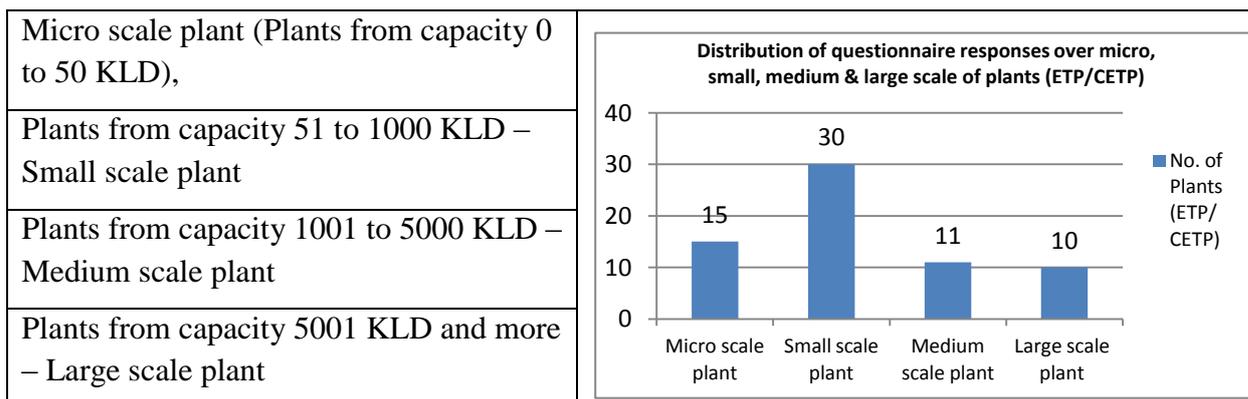
1. It was pointed out that many CETPs/ETPs outsource their operation and maintenance to contractors and contractors then depute necessary manpower. With the change of contractor, staff changes. Therefore, there is no long term commitment from contractors to train/skill their staff
2. It was suggested that even in case of outsourcing, key positions such as the waste water plant manager and laboratory in charge could be made permanent on CETP's pay role.
3. It was observed that there is no correlation or specific trend with regard to plant's installed/operational capacity and employed manpower. Even for the waste water treatment plants of similar size and similar process (primary+ secondary+ tertiary), number of manpower vary from 1.5 times to even double.
4. From the initial responses received to the questionnaires, the classification of manpower based on their functions was emphasized. For example, it was mentioned that title "Helper" has become redundant and it should be replaced by "Multi-tasking Staff" (MTS) because functions are same.
5. It was also pointed out that many SMEs in India do not even have qualified workers (lower level) who look after/are engaged in production. How shall we encourage them to hire qualified staff for their ETP?
6. For large and well organized industries automatically ETP staff was found to be more qualified and competent.
7. It was strongly emphasized that the current project, being implemented by NPC, should have had provision for organizing 4 to 5 regional awareness workshops across the country (4-5 workshops in different regions-North/South/East/West/Central) to increase the awareness among industries and get better and qualified response to questionnaires leading to impactful output of the project.
8. Skilling of waste water treatment plant's staff at helper/worker level seems to be new concept for the ETPs and CETPs and therefore awareness generation is important through workshops.
9. With regard to the future employment requirements for the manpower, based on initial feedback, most of the ETPs/CETPs are indicating requirement for middle to higher level staff. Once again this proves that lower level staff such as helper/worker etc is not considered or its availability is taken for granted.
10. Observing that in some cases, the helpers/worker did not even attend primary school, it was pointed out that our (national) approach for skill development should not cause fear of losing job among them. Though, skill development is meant for the benefit of workers, existing workers should not feel threatened.
11. Regarding assessment of social competency of the staff there were inputs for assessing the inter personal / communication /soft skills, behavioral attitude towards peers/ female employees etc.
12. For very small ETPs managed by one or two people only, it is challenging to apply skill levels.

13. It was also highlighted that the SOPs are mandatory to be maintained in any industry or ETPs/ CETPs for all the operations. Absence of SOPs may hinder effective functions of even skilled staff.

5.0 QUESTIONNAIRE SURVEY

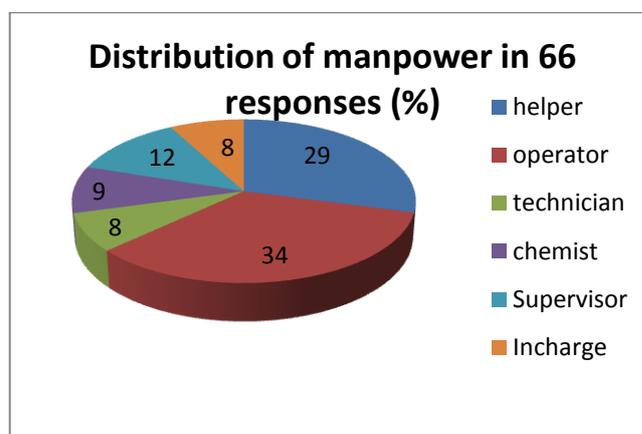
NPC carried out questionnaire survey in response to which 66 wastewater treatment plants (ETPs/ CETPs) provided their feedback.

Sector wise manpower mapping across various scale of plants (ETP/ CETP)

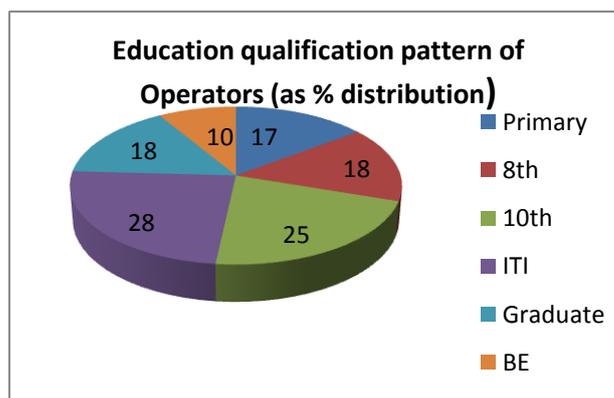
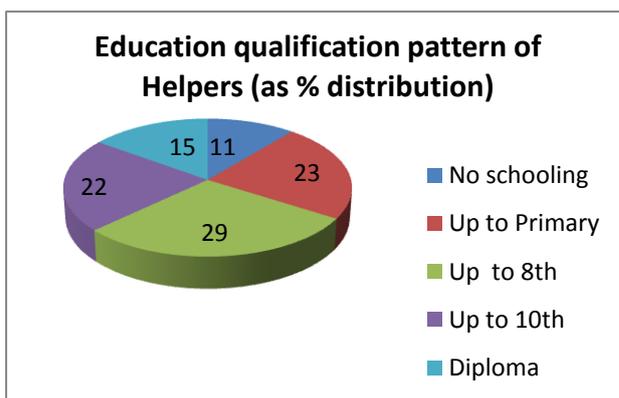


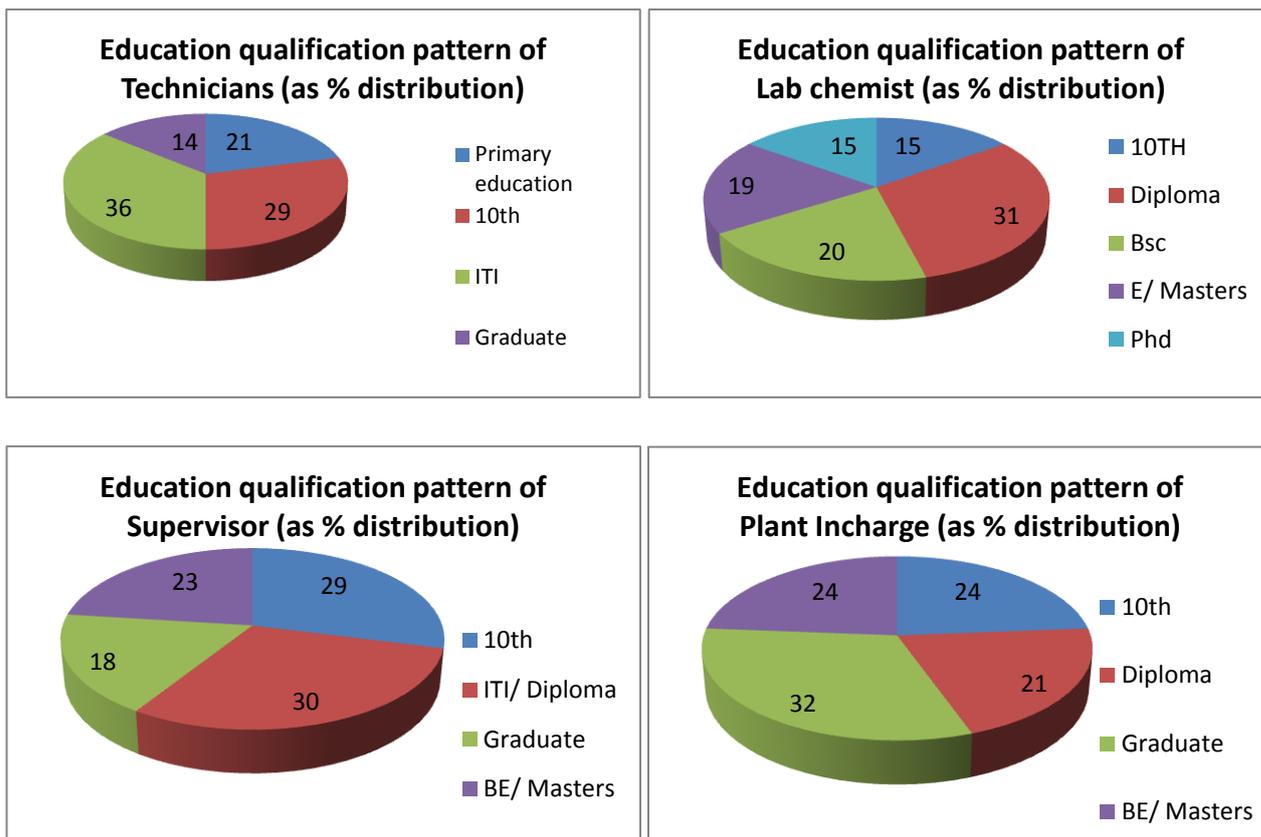
Sector wise Average employment of manpower at various plant scales

The total cumulative treatment capacity of ETP and CETP based on 66 responses is approx 274 MLD and the total manpower employed in its treatment is 711 at various levels. Based on this sample, it may be observed that helpers and operators constitute to more than 60% of the manpower deployed in wastewater treatment plant



6.0 EDUCATION/QUALIFICATION PATTERN





Note: There are hardly any female employees at ETPs/CETPs. Only 1.4% people working at CETPs and ETPs are female.

7.0 FINDINGS FROM FIELD VISITS

- i. Unlike Delhi, in case of Gujarat, industries were concerned with regard to field visits and requested NPC to consult GPCB first in order to get an advisory from GPCB to industries with regard to collection of information in industrial wastewater treatment plant. In their view activities pertaining to ETPs/ CETPs should be carried out in agreement with pollution control board as the consent to operate ETPs/ CETPs is assigned by the concerned PCB.
- ii. It was found that the information filled in the questionnaires is largely correct, though the ETP/ CETPs were not fully aware about the necessity of having skilled staff for operation and maintenance.
- iii. There is no formal arrangement with regard to having interactive meeting among the staff for knowledge sharing; however, there is informal interaction among the staff taking place.
- iv. The Helpers age varies from 18 years to 50 years.
- v. The operators and Technician’s age varies from 18 years to 68 years.
- vi. All the CETPs in Delhi have outsourced the operation and maintenance of plant.
- vii. CETPs in Gujarat have their own manpower for O&M of the plant, except for helpers
- viii. In more than 80% cases (including ETP & CETPs), the helpers are sourced from outside agency.

- ix. The employment of the staff for plant operation is up to the contractor’s decision which typically involves hiring locally available unskilled/ semi-skilled workers.
- x. The O&M is renewed on annual basis and there is no assurance that the same contractor will run the plant for the next year. Hence least focus is given to the skill development of workforce by the ETP/CETP management. With the change of contractor/ outsourced agency, the workforce changes.
- xi. On interviewing the operators and technicians, it was found there were very few self motivated staff who voluntarily felt the need of skill up gradation. In general, based on their understanding and awareness level, operators and technicians seem to be satisfied with their level of competency, though they need specific trainings as per NPC’s assessment.
- xii. The operators and technicians though well versed with the functional aspects of machineries, equipment such as filters, motors, pumps etc; lack the technical knowhow of process, accurate dosage of chemicals and plant’s control parameters.
- xiii. It was found that roles and responsibilities of staff at various levels in ETPs/ CETPs are not well defined and documented. In view of this, the staff is expected to carry out multi-tasking jobs and sometimes even beyond their functional understanding and area.
- xiv. When a common contractor is looking after multiple ETPs/ CETPs in an area/region, it was found to be a common practice that there is no dedicated supervisor for each ETP/ CETP. A common supervisor visits ETP/CETP under him periodically. This becomes a cost effective option for ETP/CETP management.
- xv. For SMEs, it was found that there is no dedicated operator for operating its ETP. Anyone from the process side is employed to look after the ETP.
- xvi. In 90% cases, the operators and technicians have not undergone any professional/vocational training. Based on interviews, it was learnt that they have acquired the knowledge through their experience of the job over the years.
- xvii. Based on the assessment the need of future manpower requirement by various ETPs/ CETPs is more focused on higher level officials such as plant engineer / manager rather than the technicians, operators and helpers. This is mainly because of the understanding that anyone with basic qualification such as ITI/ graduate can do the job and also he/she is expected to learn while doing the job.
- xviii. Safety aspects (wearing of safety shoes/ gloves while chemical dosing etc.) were found neglected in most of the ETPs/CETPs visited as part of the study.
- xix. In general ETP/CETP staff lack the sensitivity of the responsibility they are handling.
- xx. There is no national standard defined for manpower requirement, qualification levels, experience, age limits etc., for the wastewater sector
- xxi. Training aspect of the manpower involved in ETP/ CETP operation:
 - In 2 ETPs /CETPs, helpers have received training on General & basic safety; and Control of Effluent Treatment Plant
 - In 5 ETPs/CETPs, operators have received training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; Reverse osmosis plant, centrifuge and dryer operation, Operation of centrifuge, multi effect

evaporator, dryer, reverse osmosis, laboratory analysis; and O&M of ETP, STP, CETP, Lab Testing and O&M of ETP,STP,CETP

- In 1 ETP/CETP, technicians have received training on operation of all plant activities
- In 5 ETPs/CETPs, laboratory chemists have received training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; and Training on ETP Operation from Coca Global+ EMS Training
- In 5 ETPs/CETPs, supervisors/plant engineers have training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; and all equipment operation, data compilation and analysis.
- In 7 ETPs/CETPs, managers have received training on operation of all plant activities; Detailed safety, Waste mgt. operation & Env. law & Act; Post Diploma in Environment Technology; Control of Effluent Treatment Plant; ETP Management; Training on ETP Operation from Coca Global; and chemical dosing in wastewater.

It can be noted that proactive training is being provided in a very few and limited number of ETPs/ CETPs and here also focus is on providing training to small selection of operators and technicians and other senior officials. However it can be seen that the domains in which the training is desirable are across all unit operations of ETPs/CETPs. It can be seen that there is immense need of focused and specialized training for all levels of manpower in ETPs/ CETPs.

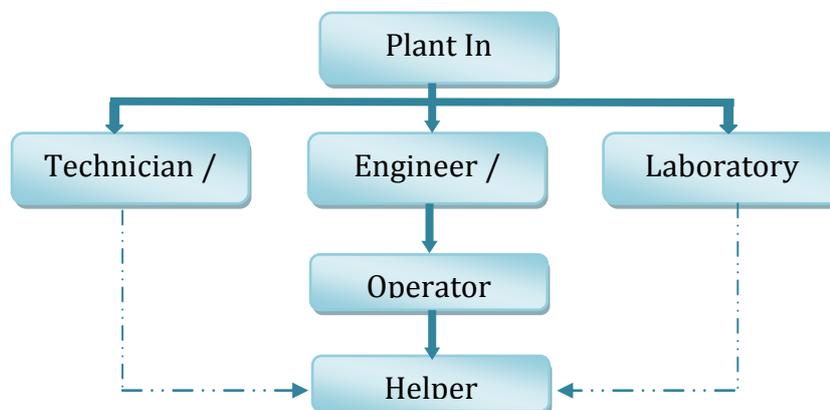
8.0 COMPETENCY MAPPING OF OCCUPATIONS AT THE ETPs / CETPs

Existing personnel, job proficiency and skills involved in wastewater treatment

Existing personnel	<ul style="list-style-type: none"> • Least focus is given on upgrading their skills and proficiency. • These people often lack professional qualification and training required for their job role. • They learn their job by virtue of their hands on experience over the years.
Job proficiency	<ul style="list-style-type: none"> • The proficiency level of the personnel in wastewater segment in India varies from plant to plant. • Though proficient in their routine actions and profile, there is a vast scope of improvement. • The operation of such treatment plants should be carried out by skilled operators only.
Skills Involved	<p>There are broadly three category of skill sets identified for operation of a wastewater treatment plant in India:</p> <ol style="list-style-type: none"> 1. Miscellaneous / Technical Function : Helper, operator, Technician, supervisor 2. Laboratory Function: Laboratory boy/assistant, chemist/ Analysts 3. Administration Function: Supervisors, Plant manager/ Incharge, coordinator

9.0 JOB LEVELS AND TYPES IN WASTEWATER TREATMENT

The Job levels observed is similar in all the ETPs/ CETPs visited. Broadly it can be summarized as below:



10. SKILL GAP ASSESSMENT

Description	Professional knowledge	Professional skill	Core skill	Responsibility
1. Skill gap assessment as per National Skills Qualifications Framework (NSQF) Level descriptors for Wastewater treatment plant Helper; NSQF Level (3) as per SCGJ's QP)				
GAP	In general helpers have to be trained on Basic facts, process and principle applied listed above under desired professional knowledge.	Implementation of SOP and ensure that it is being followed is the gap which needs to filled.	Helpers who know to read & write need to be trained on reading and recording meter readings, basic derivations from readings etc.	Helpers lack in taking any kind of responsibility on their own while executing their job.
<i>Note:</i> Atleast 34% of helpers were not found to be adequately qualified or not even gone to school				
2. Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant Operator / Technician (NSQF Level 4)				
GAP	Operators need to be educated on functional aspect of various unit operations and working principles of equipments	SOPs should be made for safe operation of the plant. Operators need to be trained on technical competency	Operators require to be trained on basic arithmetic and algebraic principles	Operators cannot make own decision or take responsibility while handling troubleshooting problems.
<i>Note:</i> Atleast 44% of operators were not found to be adequately qualified				
3. Skill gap assessment as per NSQF Level (5) descriptors as suggested by NPC for Wastewater treatment plant Senior Technician (Electrician/ Fitter/ Welder etc)				

Description	Professional knowledge	Professional skill	Core skill	Responsibility
GAP	Technicians also should have basic knowledge about the ETP processes, adequate knowledge about machinery and equipment, plus the ability to perform wide variety of maintenance and repair tasks which is presently lacking in many cases.	Safety standards should be ensured to be complied. Complying with safety standards fall under both Technical and Methodical competency and training is required in this aspect	The job roles of technicians should comprise of service report preparation etc	Technicians need to be trained on both electrical and mechanical repair. And they need to be motivated to become proactive and deliver quality job at shorter span.
4. Skill gap assessment as per NSQF Level (5) descriptors as suggested by NPC for Wastewater treatment plant Laboratory Chemist/ Analyst:				
GAP	Chemists can be upgraded in their skills so that they perform their job more efficiently and undertake required R & D work to improve the ETP process.	Implementation of SOP and insuring its compliance. Following SOP comes under methodical competency and this was found lacking in more than 50% cases.	Skills of chemists can be improved by training so that their proficiency is enhanced by speed and accuracy	The roles of a chemist can be extended up to plant supervisor level as they possess the understanding of ETP process and can recommend changes in plant’s treatment pattern, if required.
5. Skill gap assessment as per NSQF Level (6) descriptors as suggested by NPC for Wastewater treatment plant Engineer/ Supervisor				
GAP	Supervisors need to have broad knowledge of all three aspects: process, maintenance and analytics to be able to supervise efficiently. Trainig in diverse field is required to be given	The professional skills need to be upgraded to have better command on plant operations.	Job proficiency needs to be improved so as to bring down the mean time between breakdowns	Procedures for emergency preparedness and corrective measures to be taken were found lacking in many cases. Supervisors should be responsible for implementation of procedures

Description	Professional knowledge	Professional skill	Core skill	Responsibility
6. Skill gap assessment as per NSQF Level (7) descriptors as suggested by NPC for Wastewater treatment plant In charge/ Manager:				
GAP	Plant managers should attend training on new technological developments from time to time.	In house training routine should be framed and maintained. Plant Incharge should possess Methodical, technical and social competency for effective plant’s operation	Managerial skills should be upgraded in plant in charge possessing technical skills and vice-versa	Plant in charge lacks managerial and administrative skill and is unable to delegate jobs to his juniors.

11.0 RECOMMENDATION

Based on NPC’s analysis of the NSQF approach and QPs, and MPCB based skill requirements for Wastewater Treatment Plant (WWTP) personnel, following NSQF levels along with their desirable qualification criteria are being recommended for various job levels in wastewater treatment sector:

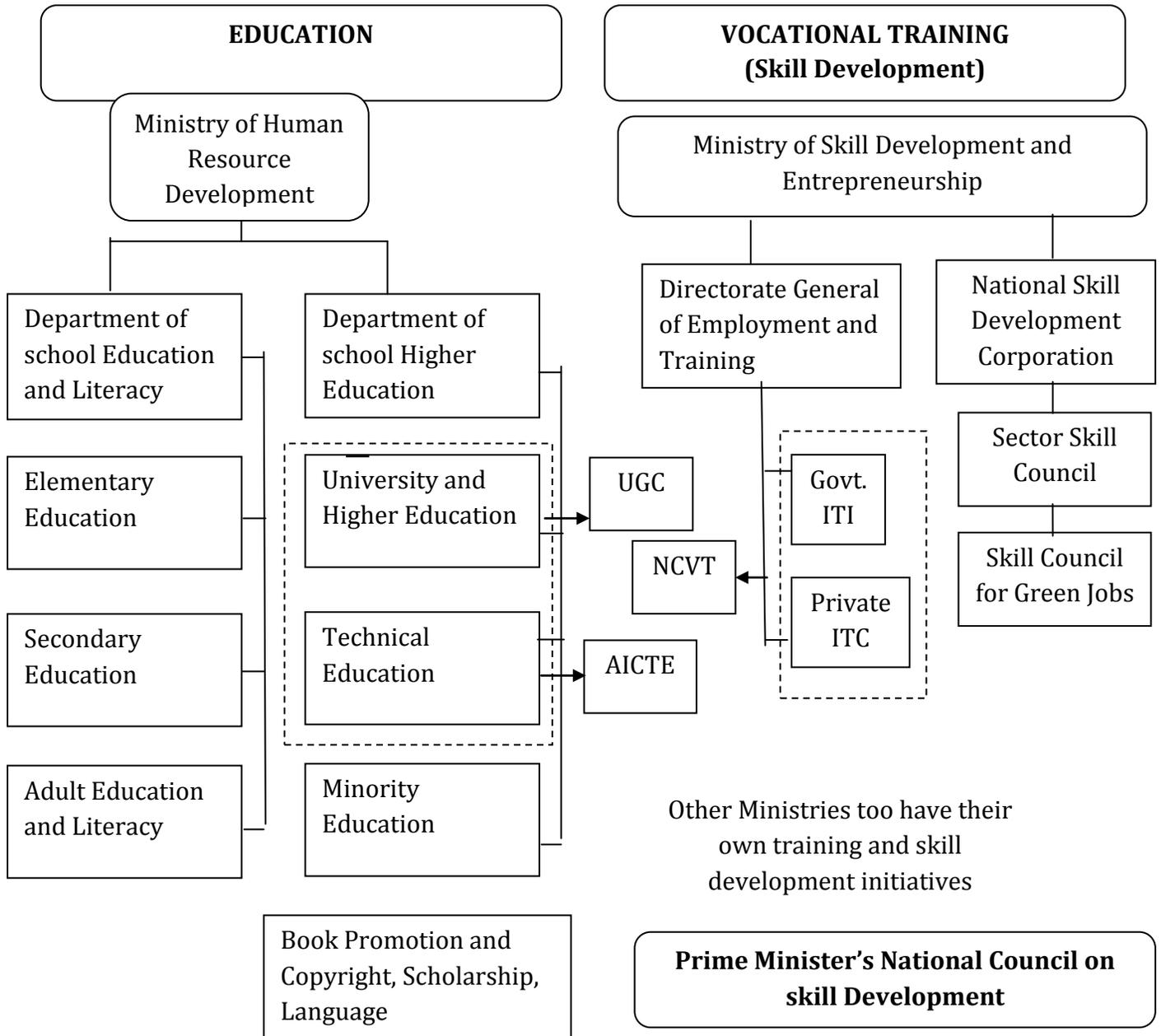
S.N	Particulars	Recommended NSQF Level	Recommended Desirable Qualification	Remarks
1	Helper (Grade 1)	2	Atleast 5th pass, plus	All helpers cannot be placed at single NSQF level. At level 1 and 2, the personnel have no responsibility of their own and they work under instruction and supervision. Helpers perform a wide range of task in WWTP and not all tasks involve responsibility. Depending upon their level of responsibility held, helpers can be classified at both NSQF levels 2 and 3.
			Physically fit	
			Minimum 18 years of age	
	Helper (Grade 2)	3	Atleast 8th pass, plus	All helpers cannot be placed at single NSQF level. At level 1 and 2, the personnel have no responsibility of their own and they work under instruction and supervision. Helpers perform a wide range of task in WWTP and not all tasks involve responsibility. Depending upon their level of responsibility held, helpers can be classified at both NSQF levels 2 and 3.
			physically fit	
			Minimum 18 years of age	
2	Operators / Technician	4	Diploma Engg / ITI, plus	Operators perform routine procedures for controlled plant operation and require process understanding and application
			Trained on ETP operations, or	
			8th pass + 4 year work experience as helper	
			Minimum 18 years of age	
3	Senior Technician (electrician/fitter / welder)	5	12th pass + ITI mechanical/fitter/electrical, plus	Technicians require specific trade skills for diagnosing and performing their task. They hold slightly more
			trained on ETP maintenance, or	

S.N	Particulars	Recommended NSQF Level	Recommended Desirable Qualification	Remarks
			5 yr exp as plant operator & helped electrical/maintenance team for 3 yrs minimum 20 years of age	responsibility than operators to take preventive measures to refrain from breakdowns
4	Lab Analyst/ chemist	5	BSc chemistry + 2 yr a analytical experience, or M.Sc. chemistry , plus Trained as Laboratory analyst for working on ETP laboratory Minimum 20 years of age	Like technicians, Lab analysts also require specific trade skills to perform their task and hence hold higher responsibility than operators and monitor plant's compliance
5	Supervisor/ Plant engineer	6	Diploma engg /BE or eqv + trained in plant operation, or 3-5 year experience as an operator/ technician or analyst minimum 23 years of age	Supervisors manages the entire team below in terms of operations and acts as a bridge among various levels and ensures that functions are smoothly being performed at various levels
6	Plant manager/ In charge	7	PG in Env / science/ chemistry/ microbiology + 2 years of experience in plant's administration and operation, or BE or eqv + 3 years of experience in plant administration and operation, or 5 year experience as plant supervisor or plant engineer minimum 25 years of age	Plant managers hold the maximum responsibility in any wastewater treatment plant. The performance of entire plant is ensured by him. They should possess strong technical, managerial and inter personal skills

12.0 STRUCTURAL FRAMEWORK OF THE EDUCATION AND SKILL DEVELOPMENT SECTOR IN INDIA

12.1 Current structure

The current structure of education and skill development sector in India is given below:



Note: The above structure is centralized. Apart from this, each of the state is having their respective skill development missions.

Reference: <http://www.nsda.gov.in/NSQF/nsqfIndexPage.html?name=ssdm>

13.0 FUTURE PROJECTION OF MANPOWER REQUIREMENT

The future requirement of manpower in the sector of industrial wastewater treatment has been projected as below.

Sector	Projected manpower requirement in wastewater treatment plants [#]					
	Standing Sub Committee of MoWR (Ministry of water Resources)			NCIWRD (National Council for Integrated Water Resource and Development)		
Year	2010	2025	2050	2010	2025	2050
Expected Manpower	65339.76	125234.5	343033.8	201464.3	364813.7	441043.4

[#] Note: The projected manpower estimates as per above table, are derived from industrial wastewater generation projections made in following reports/references

(Reference: 1. *Status of water supply, wastewater generation and treatment in class-i cities & class-ii towns of India, control of urban pollution series: cups/ 70 / 2009 – 10*, CPCB. See:

http://cpcb.nic.in/upload/NewItems/NewItem_153_Foreword.pdf

2. CSE (2004), Note: For methodology see www.downtoearth.org.in, Source: Estimated by CSE based on the wastewater discharged data published by CPCB in "*Water quality in India (Status and trends) 1990 - 2001*".)

The probable requirement at different job levels based on the existing ratio can be projected as:

Helper	Operator / Technician	Senior Technician (Electrician/ fitter/welder etc.)	Lab Chemist	Supervisor	Manager
127890	149940	35280	39690	52920	35280

1. INTRODUCTION:

1.1 Background of the Project

India has over 170 combined wastewater treatment plants (CETPs) and several thousands of effluent treatments plants (ETPs) in industries to deal with industrial wastewater. The operators of the CETPs and ETPs play an important role in ensuring proper operation of these treatment plants so as to treat the wastewaters to the required standards and to minimize risks to the receiving water bodies and environment.

MAJOR CONTRIBUTORS OF WASTEWATER (almost 63%)¹

- ❖ **Maharashtra**
- ❖ **Delhi**
- ❖ **Uttar Pradesh**
- ❖ **West Bengal**
- ❖ **Gujarat**

In today’s scenario of water scarcity, ETPs / CETPs are not just wastewater treatment plants but a source of water provider to various secondary applications like landscaping, washing, cooling tower make up etc. To achieve the reusable quality of treated water, the plant’s systematic operation and health is solely responsible. In most of the cases, the manpower deployed for CETP’s operation is not adequately competent to satisfactorily operate the plant. The operators are a much neglected workforce in terms of skill development and seldom get trainings to help them perform their functions effectively. Considering this, skill development has become one of the priority areas of the government of India.

Besides, skill development responsiveness and commitment is also required in the waste water management sector. In case of ETPs at industry level, sometimes there is no dedicated manpower for ETP at all. Apparently, at small industry level, an ETP either doesn’t exist or is defunct. This is because of the lack of seriousness for ETP operation in industries and lack of awareness to the consequences it has.

To address these concerns, Government is focusing on activities focused to training and skill development of people involved in industrial wastewater treatment. For the industrial wastewater

¹ *Evaluation Of Operation And Maintenance Of Sewage Treatment Plants In India-2007*, by CPCB

treatment in India, GIZ and SCGJ propose to bring up a system of skills development for which, in a first step there is a need to undertake occupational mapping to understand the types of jobs, their functions and competencies required.

The study was planned keeping following main objectives in mind:

1. Questionnaire survey to identify major problems faced by the workers in the treatment plants in the country.
2. Visit selected effluent treatment plants in the country to get first hand information.
3. Discuss with the operating and management staff to understand the problems being faced.
4. To identify the major deficiencies in the treatment plant due to the inability of the workers.
5. Identify the remedial measures.

1.2 Objectives of the Study:

- ❖ To undertake occupational mapping of industrial wastewater treatment in India to detail out the types of jobs for operation and maintenance, their functions and required qualifications, competencies and skills.

1.3 Scope of Work:

The scope of work as defined by GIZ includes:

a) Coverage:

- Industrial waste water treatment plants (Effluent treatment plants) at individual industries, operations and processes, covering,
 - a. Micro and Small enterprises
 - b. Medium enterprises
 - c. Large scale industries
- Common Effluent treatment plants

b) Surveys:

Besides using past experience of the consultant, sample surveys (questionnaire surveys) are proposed to be conducted representing different wastewater treatment plants (at least 50 ETPs of different sectors and at least 10 CETPs from different parts of the country).

c) Consultations:

Key stakeholders such as the industries, industrial associations, state and central pollution control boards etc. should be consulted. At least one consultative meeting/workshop should be conducted.

1.4 Exclusions and Limitations of Study

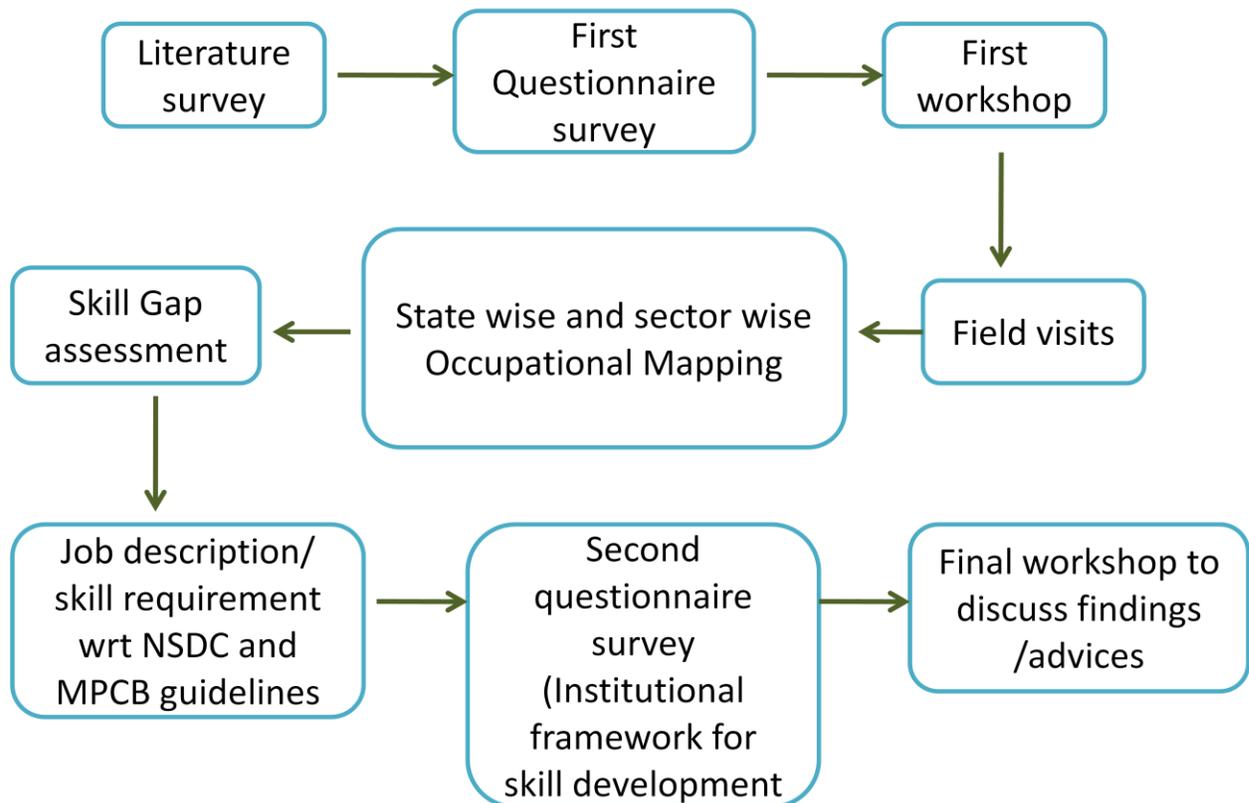
The limitations of the study are:

- Some of the questionnaires weren't adequately filled despite of giving proper guidance
- The field survey covered only the selected locations in the country. Hence, the limitations of a sample study is applicable to the findings
- Competency mapping cannot be properly done in a limited time frame interaction with ETP/CETP staffs. It requires studying/monitoring the tasks/procedures of helper/operator/ technician etc. For this study we have relied on the verbal response received from the plant's operators during our field visits.
- Skilling of waste water treatment plant's staff at helper and operator level seems to be new concept for the ETPS and CETPs and therefore lack of awareness created hindrance in getting adequate and timely response from ETPs/ CETPs.
- Awareness could have been created through national level workshops at various regions for ETP/CETP operating staffs and other stake holders. However, it was not part of our scope in this study within the limited time frame.

2. NPC’s APPROACH METHODOLOGY

Any study for assessing training needs is a process of taking an overview of the organizational performance vis-à-vis the competence of the individuals to work towards achieving this performance level. This requires collection, interpretation and analysis of information from across the organization. The sources for the information, ranges from access to existing records to those that can be obtained only by personal interaction with personnel throughout the organization. Further, the views and opinions of those familiar with the various activities need to be sought, compared, interpreted and used. Eventually, training needs require to be dealt with at an individual level. A training gap can be said to exist if the performance deficiency of an individual is due to lack of knowledge and skill. The training needs determined through this study were therefore based on the deficiency in the fundamental understanding on aspects related to the satisfactory performance of the intended activities.

The overall methodology adopted for the study is indicated below:



2.1 Literature survey

The NPC team that was formed for the project started out with a broad based search for information on the domain of skill mapping and occupational mapping. The literature was sourced in various formats such as reports, presentations, articles etc., and these were analyzed in the context of the core concepts and to gain insights from experiences on such work and activities performed by other organizations. The issues ranged from understanding the elements of Human Resource Management, TVET features (vocational training practices and certification issues), HR metrics, methods for competency mapping, exploration of instructor guides, features in developing career pathways maps, usage of applications in wastewater treatment / management area, process mapping tools, aspects of job analysis and job description elements etc. Also an EPA document titled ‘Estimating Costs and Manpower requirements for Conventional wastewater treatment facilities’ was read / browsed wherein perspectives on job descriptions to operate different unit operations, job profiles and related qualifications required (formal education and general requirements, general educational development, specific vocational preparation, aptitudes – relative to general working population, interests / temperament and many other aspects including manpower distribution needs were highlighted. The range of literature that was brought to attention helped in taking next steps on the project.

NPC has collected all necessary information pertaining to the subject area of the study from both published and unpublished sources of data and literature.

2.2 First questionnaire survey

NPC has developed a comprehensive pre designed & tested questionnaire based on its expertise working in this field (waste water) since 1984 and circulated the questionnaires to more than 3000 industries including large, medium and small industries with ETPs and to CETPs all over the country to collect information on existing personnel, their job description and required skills in operating and maintaining effluent treatment plant and CETPs.

NPC managed to receive 66 responses to the questionnaire in order to meet the target of 60 (50 ETP +10 CETP) as defined by GIZ.

NPC had mobilized its 12 Regional Offices across the country to persuade the industries and CETPs to respond to NPC’s questionnaire in a time bound manner.

2.2.1 Development of questionnaire:

The questionnaire was finalized after a series of reviews, interactions and discussions with various stake holders. The various different stages of questionnaire development were:

- Internal brain storming
- Validation by visiting few ETPs at DMS, Namaste India food pvt ltd @ Kanpur, Batra car care centre (service station) , CETPs at Lawrence road, Bawana and Narela
- Meeting with industry experts from Gujarat and various places
- Inputs / feedback from various stakeholders like SCGJ / GIZ / Industry
- Inputs from industrial engineering experts for manpower mapping

NPC also implemented this questionnaire online for reaching the mass audience. The link for accessing online questionnaire portal is:

<http://www.survey.npcindia.org.in/>

The team engaged in brainstorming and questioning the theories and approaches in the existing methods of occupational mapping / skill mapping, and especially on the approaches to develop and administer suitable questionnaires (for long distance responses via email / post arrangements, online systems (google forms / NPC website etc.) and for across the table interviews) and in configuring the content elements. The process led to development of varying versions of questionnaires for administering through different mediums and in constructing the respondent frameworks for enabling different kinds of respondents to provide inputs such as helpers, operators, technicians, laboratory analysts, ETP managers besides constructing the data structure for inputs to be obtained from different personnel in the domain.

In this context the initial structuring of parameters for Deliberations on Job Profile / Description and Competencies mapping pertaining to Wastewater Treatment Plants (ETP / CETP) operators and Technicians were undertaken and some of those aspects are indicated below:

1. Organisation structure for operating and managing ETPs / CETPs in Small / Medium and Large organizations and treatment plants
2. Scope of Work for each position(s) in the Organisation structure
3. Responsibilities framework
4. Knowledge, skills and abilities

The team members visited Delhi Milk Scheme (DMS) at this stage to understand the industry perspectives on ETP management and operations and CETP operations at Bawana at Delhi. The insights from the ETP manager / lab and Quality incharge at DMS and from the operators / helpers / technicians engaged in the ETP were very valuable as the semi-structured interview yielded insights also regarding career progression that was occurring in the organization besides the methods of acquisition of skills by personnel inducted in ETP operations, the team also learnt about work related salaries and compensation /benefits. At Bawana CETP the organized framework of CETP management was understood and the formal features of skills application better understood besides indicative gaps being learnt.

2.3 First workshop

The first workshop was organized with an objective to share the methodology adopted by NPC for this study and get feedback from various state holders to strengthen our approach towards our survey and field visits. The workshop was successful and the summary of topics discussed is mentioned in the report ahead.

2.4 Field visits

1. NPC has made field visits to industrial ETPs and CETPs in the state of Gujarat. NPC has chosen state of Gujarat for this study because NPC has strong linkages with the Industry Associations in Gujarat keeping in mind a large number of projects implemented by NPC in the industrial areas of Jhagadia, Baroda, Bharuch, Ankleshwar Umraya and Nandesari for development of hazardous waste management system and facilities and also with regard to industrial waste water treatment.
2. In the recent one day workshop organized by NPC on CETPs on 18/2/2016, an industrial waste water treatment/CETP expert from Gujarat was invited for providing inputs. NPC has used all such linkages in facilitating its visit to the industries in Gujarat and gathering necessary information.
3. The second State that NPC has targeted is the State of Delhi. NPC has already been involved in the CETPs related study for GIZ in Delhi which was completed in March 2016. NPC has visited all 13 CETPs several times and also interacted with all CETPs societies and their management and contractors/operators working at these CETPs.

4. NPC has already developed a very good understanding with regard to the existing manpower working at Delhi CETPs and this experience has certainly helped in the study. Owing to its presence in Delhi, NPC has been working with various industries and industrial associations in and around Delhi in NCR region. This has helped facilitate NPC visits to industrial ETPs in large, medium and small scale industries to relevant collect data/information pertaining to existing personnel, job proficiency and skills involved presently in industrial wastewater treatment

2.5 Competency mapping & skill gap assessment

- 1 Based on the analysis of questionnaires and the interviews /meetings held during field visits made to industrial ETPs and CETPs, NPC has assessed the job levels and types, job descriptions, qualifications and skill sets of ETP / CETP staff.
- 2 NPC has taken into account trainings received by the ETP/CETP staff in past 2-3 years.
- 3 NPC has also considered level of automation at different ETPs/ CETPS as it is directly related to manpower and skills required.
- 4 For each level, most important is minimum qualification and skill level.
5. NPC has assessed the gaps with regard to:
 - Existing and required job levels/type
 - Existing and required minimum qualification
 - Existing and required manpower at different levels

2.6 Second questionnaire survey and workshop

NPC has been affiliated with the Skill Council of Green Jobs for the Waste Water and Solar Domain. Based on its expertise, experience, knowledge, and linkage, NPC has carried out assessment of existing system for skill development.

NPC has carried out another questionnaire survey during the project to find all relevant institutions in India which are available to provide training to the ETP and CETPs operators and managers for this skill development and to fill the gaps

The questionnaire survey also includes various consulting firms and environmental institutes across the country who may be interested in providing training to ETPs/CETPs operators.

3. FIRST COMPACT WORKSHOP

NPC organized the first workshop with all the stake holders on 6th June, 2016 at NPC’s Lodi Road office to finalize and fine tune its methodology and approach. The following stake holders were part of the compact workshop:

Date	6th June, 2016
Timing	11:00 to 13:00 hrs
Venue	Conference Hall, NPC Lodi Road, New Delhi
Name	Name of the organization
Mr. Manoranjan Hota	MOEF&CC
Mr. Raghu Babu	GIZ
Ms. Supriya	GIZ
Mr. Tanmay Bishnoi	SCGJ
Ms. Praveen Dhameja	SCGJ
Mr. Sharat Kumar	DSIIDC
Mr. R L Garg	DSIIDC
Mr. BMS Reddy	DPCC
Mr. Ankush Tewari	CPCB
Mr. M J Pervez	NPC
Mr. Sunil Kumar	NPC
Mr. K D Bhardwaj	NPC
Mr. S K Jain	NPC
Ms. Nikita	NPC

The concerns discussed in the workshop were very useful and have been summarized below:

1. It was pointed out that many CETPs/ETPs outsource their operation and maintenance to contractors and contractors then depute necessary manpower. With the change of contractor, staff changes. Therefore, there is no long term commitment from contractors to train/skill their staff.
2. It was suggested that even in case of outsourcing, key positions such as the waste water plant manager and laboratory in charge could be made permanent on CETP's pay role.
3. It was observed that there is no correlation or specific trend with regard to plant's installed/operational capacity and employed manpower. Even for the waste water treatment

- plants of similar size and similar process (primary+ secondary+ tertiary), number of manpower vary from 1.5 times to even double.
4. From the initial responses received to the questionnaires, the classification of manpower based on their functions was emphasized. For example, it was mentioned that title "Helper" has become redundant and it should be replaced by "Multi-tasking Staff" (MTS) because functions are same.
 5. It was also pointed out that many SMEs in India do not even have qualified workers (lower level) who look after/are engaged in production. How shall we encourage them to hire qualified staff for their ETP?
 6. For large and well organized industries automatically ETP staff was found to be more qualified and competent.
 7. It was strongly emphasized that the current project, being implemented by NPC, should have had provision for organizing 4 to5 regional awareness workshops across the country (4-5 workshops in different regions-North/South/East/West/Central) to increase the awareness among industries and get better and qualified response to questionnaires leading to impactful output of the project.
 8. Skilling of waste water treatment plant's staff at helper/worker level seems to be new concept for the ETPS and CETPs and therefore awareness generation is important through workshops.
 9. With regard to the future employment requirements for the manpower, based on initial feedback, most of the ETPs/CETPs are indicating requirement for middle to higher level staff. Once again this proves that lower level staff such as helper/worker etc is not considered or its availability is taken for granted.
 10. Observing that in some cases, the helpers/worker did not even attend primary school, it was pointed out that our (national) approach for skill development should not cause fear of losing job among them. Though, skill development is meant for the benefit of workers, existing workers should not feel threatened.
 11. Regarding assessment of social competency of the staff there were inputs for assessing the inter personnel / communication /soft skills, behavioral attitude towards peers/ female employees etc.
 12. For very small ETPs managed by one or two people only, it is challenging to apply skill levels.

13. It was also highlighted that the SOPs are mandatory to be maintained in any industry or ETPs/ CETPs for all the operations. Absence of SOPs may hinder effective functions of even skilled staff.



Images of First compact workshop organized by NPC

4. STUDY IN WASTEWATER TREATMENT SECTOR

4.1 Sectors/Industries covered under survey

NPC’s team has circulated the questionnaire to various industrial sectors across India and has conducted visit to a few categories of industries for interacting with the ETP/CETP operating staff. Till 31st July we have received **66 responses** from the following industrial sectors:

Sl. No.	Sector	No. of units	ETP/CETP
1	Brewery/ Distillery	3	ETP

Sl. No.	Sector	No. of units	ETP/CETP
2	Automobile	8	ETP
3	Chemical	1	ETP
4	Dairy	4	ETP
5	Drug & Pharmaceuticals	10	ETP
6	Dye & Dye Intermediates	1	ETP
7	Fertilizer	2	ETP
8	Food Processing	6	ETP
9	Hotel	1	ETP
10	Iron & Steel	1	ETP
11	Engineering	1	ETP
12	Domestic	1	STP
13	Textile	4	ETP
14	Metal Finishing	3	ETP
15	Oil & Gas	1	ETP
16	Pesticide	3	ETP
17	Petrochemicals	1	ETP
18	Power	1	ETP
19	Pulp & Paper	2	ETP
20	Service Stations	2	ETP
21	Mixed	10	CETP
	Total units (ETP +CETP)	66	

The responses received for the questionnaire circulated by NPC, are enclosed as **Annexure**

The responses from ETPs/CETPs cover 21 different industrial sectors from various states across the country. NPC has made use of statistical software (SPSS 14.0) for state wise occupational and competency mapping. The software used is worldwide used software by market researchers, survey companies, government, education researchers, data miners for data analysis and management. The analysis from the software is summarized below:

4.2 Sector wise manpower mapping across various scale of ETP/ CETP

For analysis purpose the following assumptions have been made:

- Plants from capacity 0 to 50 KLD – Micro scale plant
- Plants from capacity 51 to 1000 KLD – Small scale plant

- Plants from capacity 1001 to 5000 KLD – Medium scale plant
- Plants from capacity 5001 KLD and more – Large scale plant

The number of responses from micro, small, medium and large scale plants is:

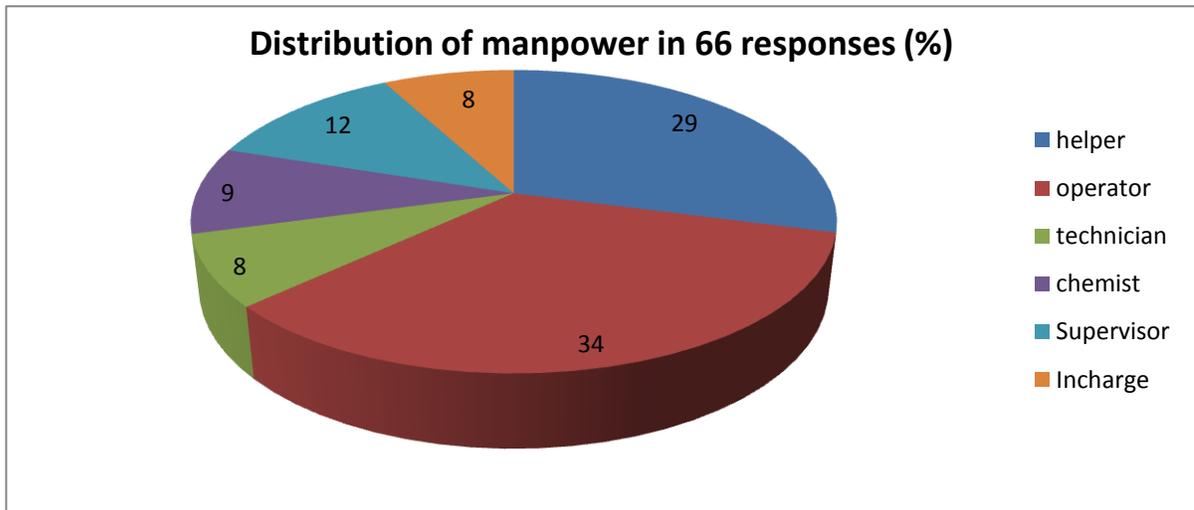
Sl. No.	Particulars	No. of responses
1	Micro Scale Plant	15
2	Small Scale Plant	30
3	Medium Scale Plant	11
4	Large Scale Plant	10
	Total	66

A) Sector wise Average employment of manpower at various plant scales

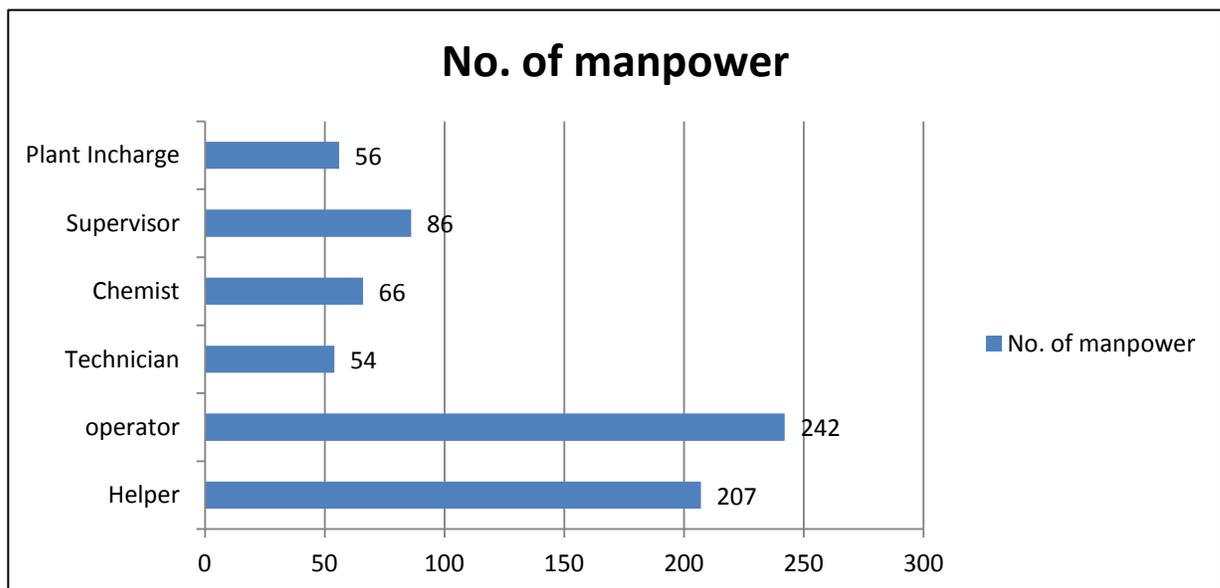
Sector	Scale of ETP/CETP	Avg. no. of manpower	No. of sample units
Automobiles	Micro	3	3
	Small	5	5
	Total	4	8
Brewery/Distillery	Micro	13	2
	Small	14	1
	Total	13	3
Chemical	Small	22	1
	Total	22	1
Dairy	Small	4	1
	Medium	7	3
	Total	6	4
Drug & Pharma	Micro	4	3
	Small	15	7
	Total	11	10
Dye & Intermediates	Small	13	1
	Total	13	1
Fertilizer	Micro	9	1
	Small	14	1
	Total	12	2
Food Processing	Micro	7	2
	Small	7	3
	Medium	9	1
	Total	7	6

Sector	Scale of ETP/CETP	Avg. no. of manpower	No. of sample units
Hotel	Small	8	1
	Total	8	1
Iron & Steel	Large	21	1
	Total	21	1
Engineering	Small	6	1
	Total	6	1
Domestic	Small	5	1
	Total	5	1
Textile	Small	3	1
	Medium	32	2
	Large	5	1
	Total	18	4
Metal Finishing	Micro	4	3
	Total	4	3
Oil & Gas	Medium	14	1
	Total	14	1
Pesticides	Small	10	2
	Medium	20	1
	Total	13	3
Power	Small	3	1
	Total	3	1
Pulp & Paper	Small	3	1
	Large	6	1
	Total	5	2
Service Station	Micro	4	2
	Total	4	2
Mixed	Micro	11	1
	Medium	13	2
	Large	22	7
	Total	19	10
Total	Micro	5	15
	Small	9	29
	Medium	15	11
	Large	19	10
	Total	11	65

The average scenario of total manpower employed at micro, small, medium and large scale ETPs/ CETPs has been derived in the above table. The total cumulative treatment capacity of ETP and CETP based on **66 responses is approx 274 MLD and the total manpower employed in its treatment is 711 at various levels.** The future manpower requirement can be anticipated from this finding. The various levels identified from the survey can be depicted as:



It can be concluded that helpers and operators contribute to more than 60% of the manpower deployed in wastewater treatment plants in India. The graph below depicts the no. of helpers and operators out of the total number of manpower deployed in wastewater treatment plant operation:



The manpower index (**no. of manpower for treating per KLD**) is based on the questionnaire response has come to be:

WWTP	Treatment capacity (KLD)	Total Manpower	Manpower Index
ETP	92552.5	520	0.006
CETP	182200	191	0.001
TOTAL	274752.5	711	0.003

The index is used to project the manpower requirement for future in this report.

Helper index:

WWTP	Treatment capacity (KLD)	No. of Helpers	Helper Index
ETP	92552.5	164	0.002
CETP	182200	43	0.0002
TOTAL	274752.5	207	0.001

The index is used to project the helper requirement for future in this report.

Operator index:

WWTP	Treatment capacity (KLD)	No. of Operators	Operator Index
ETP	92552.5	187	0.002
CETP	182200	55	0.0003
TOTAL	274752.5	242	0.001

The index is used to project the operator requirement for future in this report.

B) Sector wise Average employment of Helpers at various plant scales

Sector	Scale of ETP/CETP	Avg. No. of Helper	No. of Sample Units
Automobile	Small	2	4
	Total	2	4
Brewery/Distillery	Small	2	2

Sector	Scale of ETP/CETP	Avg. No. of Helper	No. of Sample Units
	Medium	5	1
	Total	3	3
Chemical	Small	7	1
	Total	7	1
Dairy	Medium	2	2
	Total	2	2
Drug & Pharma	Micro	2	2
	Small	10	5
	Total	7	7
Dye & Intermediates	Small	4	1
	Total	4	1
Fertilizer	Micro	2	1
	Small	1	1
	Total	2	2
Food Processing	Micro	4	1
	Small	3	3
	Medium	4	1
	Total	3	5
Hotel	Small	1	1
	Total	1	1
Iron & Steel	Large	10	1
	Total	10	1
Engineering	Small	3	1
	Total	3	1
Domestic	Small	1	1
	Total	1	1
Textile	Small	1	1
	Medium	13	2
	Large	1	1

Sector	Scale of ETP/CETP	Avg. No. of Helper	No. of Sample Units
	Total	7	4
Metal Finishing	Micro	2	2
	Total	2	2
Oil & Gas	Medium	1	1
	Total	1	1
Pesticides	Small	2	2
	Medium	7	1
	Total	3	3
Power	Small	1	1
	Total	1	1
Pulp & Paper	Large	1	1
	Total	1	1
Service Station	Micro	1	1
	Total	1	1
Mixed	Micro	4	1
	Medium	2	2
	Large	5	7
	Total	4	10
Total	Micro	2	8
	Small	4	24
	Medium	5	10
	Large	5	10
	Total	4	52

Across 20 sectors, average employment of helpers is 4 for each WWTP and is ranging from minimum level of 2 at micro scale to maximum level of 5 at large & medium scale of WWTPs.

C) Sector wise Average employment of Operators at various plant scales

Sector	Scale of ETP/CETP	Avg. no. of Operators	No. of Sample Units
Automobiles	Micro	3	3

Sector	Scale of ETP/CETP	Avg. no. of Operators	No. of Sample Units
	Small	3	5
	Total	3	8
Brewery/Distillery	Small	8	2
	Medium	6	1
	Total	7	3
Chemical	Small	6	1
	Total	6	1
Dairy	Small	4	1
	Medium	2	3
	Total	3	4
Drug & Pharma	Micro	1	2
	Small	4	7
	Total	3	9
Dye & Intermediates	Small	4	1
	Total	4	1
Fertilizer	Micro	3	1
	Small	4	1
	Total	4	2
Food Processing	Micro	2	2
	Small	2	3
	Medium	3	1
	Total	2	6
Hotel	Small	4	1
	Total	4	1
Iron & Steel	Large	5	1
	Total	5	1
Engineering	Small	2	1
	Total	2	1
Domestic	Small	2	1
	Total	2	1
Textile	Small	1	1
	Medium	10	2
	Large	1	1
	Total	6	4

Sector	Scale of ETP/CETP	Avg. no. of Operators	No. of Sample Units
Metal Finishing	Micro	2	3
	Total	2	3
Oil & Gas	Medium	5	1
	Total	5	1
Pesticides	Small	4	2
	Medium	4	1
	Total	4	3
Power	Small	1	1
	Total	1	1
Pulp & Paper	Small	3	1
	Large	2	1
	Total	3	2
Service Station	Micro	2	2
	Total	2	2
Mixed	Micro	2	1
	Medium	2	2
	Large	7	7
	Total	6	10
Total	Micro	2	14
	Small	4	29
	Medium	4	11
	Large	6	10
	Total	4	64

Across 20 sectors, average employment of operators is 4 for each WWTP and is ranging from minimum level of 2 at micro scale to maximum level of 6 at large scale of WWTPs.

D) Sector wise Average employment of Technicians at various plant scales

Sector	Scale of ETP/CETP	Avg. no. of Technicians	No. of Sample Units
Chemical	Small	1	1
	Total	1	1
Dairy	Medium	1	1
	Total	1	1

Sector	Scale of ETP/CETP	Avg. no. of Technicians	No. of Sample Units
	Small	1	1
Drug & Pharma	Total	1	1
	Small	3	1
	Total	3	1
	Small	1	1
Dye & Intermediates	Total	1	1
	Small	1	1
Iron & Steel	Large	3	1
	Total	3	1
Textile	Medium	10	1
	Large	1	1
	Total	6	2
Oil & Gas	Medium	3	1
	Total	3	1
Pesticide	Small		1
	Total		1
Power	Large	1	1
	Total	1	1
Mixed	Micro	2	1
	Medium	2	1
	Large	4	7
	Total	3	9
Total	Micro	2	1
	Small	1	5
	Medium	4	4
	Large	3	10
	Total	3	20

Across 10 sectors, average employment of Technicians is 3 for each WWTP and is ranging from minimum level of 1 at small scale to maximum level of 4 at medium scale of WWTPs.

E) Sector wise Average employment of Chemists at various plant scales

Sector	Scale of ETP/CETP	Avg. no. of Chemists	No. of Sample Units
Automobile	Small	1	1
	Total	1	1
Brewery/Distillery	Small	1	1
	Medium	1	1
	Total	1	2
Dairy	Medium	2	3
	Total	2	3
Drug & Pharma	Micro	1	1
	Small	1	3
	Total	1	4
Fertilizer	Micro	2	1
	Small	4	1
	Total	3	2
Food Processing	Micro	1	2
	Small	2	2
	Medium	1	1
	Total	1	5
Textile	Small	1	1
	Medium	1	1
	Large	1	1
	Total	1	3
Oil & Gas	Medium	2	1
	Total	2	1
Pesticide	Small	2	2
	Medium	1	1
	Total	2	3
Power	Small	1	1
	Total	1	1
Pulp & Paper	Large	1	1
	Total	1	1
Mixed	Micro	2	1
	Medium	3	2
	Large	3	7
	Total	3	10

Sector	Scale of ETP/CETP	Avg. no. of Chemists	No. of Sample Units
Total	Micro	1	5
	Small	2	12
	Medium	2	10
	Large	2	9
	Total	2	36

Across 12 sectors, average employment of Chemists is 2 for each WWTP and is ranging from minimum level of 1 at micro scale to maximum level of 2 at small, medium & large scale of WWTPs.

F) Sector wise Average employment of Supervisors at various plant scales

Sector	Scale of ETP/CETP	Avg. no. of Supervisor	No. of Sample Units
Automobile	Small	1	1
	Total	1	1
Brewery/Distillery	Small	2	2
	Medium	1	1
	Total	2	3
Chemical	Small	6	1
	Total	6	1
Dairy	Medium	1	3
	Total	1	3
Drug & Pharma	Micro	2	1
	Small	2	5
	Total	2	6
Dye & Intermediates	Small	1	1
	Total	1	1
Fertilizer	Micro	1	1
	Small	4	1
	Total	3	2
Food Processing	Micro	3	1
	Medium	1	1
	Total	2	2
Hotel	Small	1	1
	Total	1	1
Iron & Steel	Large	2	1
	Total	2	1

Sector	Scale of ETP/CETP	Avg. no. of Supervisor	No. of Sample Units
Engineering	Small	1	1
	Total	1	1
Domestic	Small	2	1
	Total	2	1
Textile	Medium	5	1
	Large	1	1
	Total	3	2
Metal Finishing	Micro	1	1
	Total	1	1
Oil & Gas	Medium	1	1
	Total	1	1
Pesticide	Small	2	2
	Medium	4	1
	Total	3	3
Service Station	Micro	2	2
	Total	2	2
Mixed	Medium	4	2
	Large	3	5
	Total	3	7
Total	Micro	2	6
	Small	2	16
	Medium	2	10
	Large	3	7
	Total	2	39

Across 18 sectors, average employment of Supervisors is 2 for each WWTP and is ranging from minimum level of 2 at micro, small & medium scale to maximum level of 3 at large scale of WWTP.

G) Sector wise Average employment of Plant managers/ Incharge at various plant scales

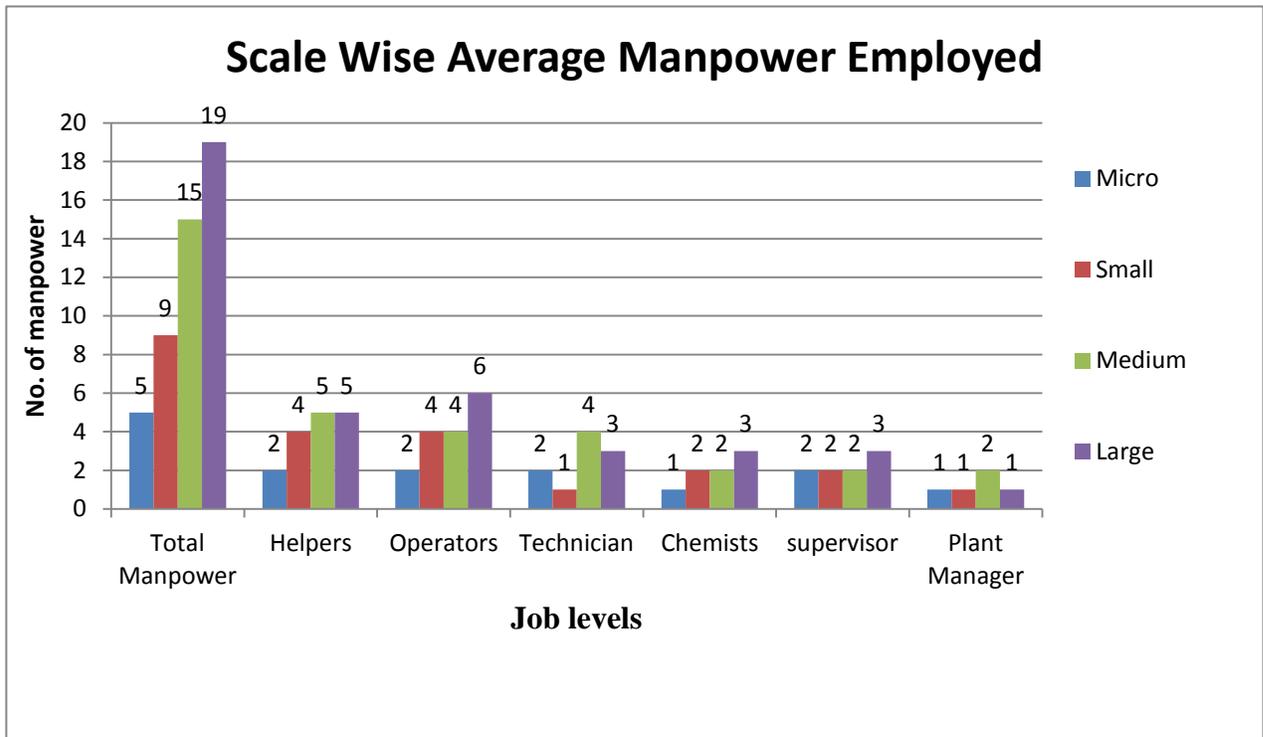
Sector	Scale of ETP/CETP	Avg. no. of Plant Incharge	No. of sample units
Brewery/Distillery	Small	1	2
	Medium	1	1
	Total	1	3
Chemical	Small	3	1
	Total	3	1

Sector	Scale of ETP/CETP	Avg. no. of Plant Incharge	No. of sample units
Dairy	Medium	1	3
	Total	1	3
Drug & Pharma	Micro	1	3
	Small	2	5
	Total	2	8
Dye & Intermediates	Small	1	1
	Total	1	1
Fertilizer	Micro	1	1
	Small	1	1
	Total	1	2
Food Processing	Micro	1	1
	Small	1	3
	Total	1	4
Hotel	Small	1	1
	Total	1	1
Iron & Steel	Large	1	1
	Total	1	1
Textile	Medium	1	2
	Total	1	2
Metal Finishing	Micro	1	2
	Total	1	2
Oil & Gas	Medium	2	1
	Total	2	1
Pesticide	Small	1	1
	Medium	4	1
	Total	3	2
Pulp & Paper	Large	1	1
	Total	1	1
Serive Station	Micro	1	1
	Total	1	1
Mixed	Micro	1	1
	Medium	2	2

Sector	Scale of ETP/CETP	Avg. no. of Plant Incharge	No. of sample units
	Large	2	5
	Total	2	8
Total	Micro	1	9
	Small	1	15
	Medium	2	10
	Large	1	7
	Total	1	41

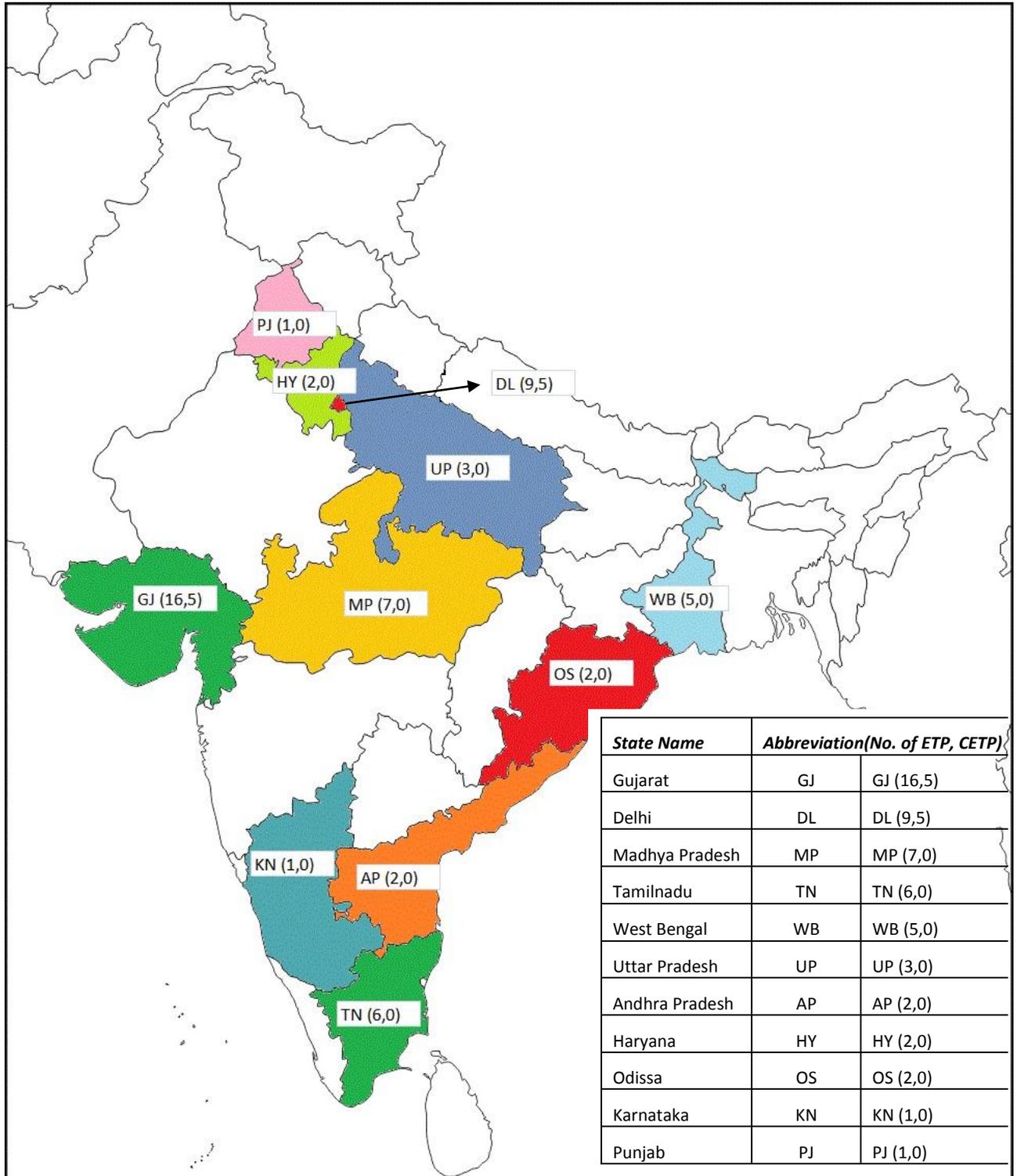
Across 16 sectors, average employment of Plant managers/ Incharge is 1 for each WWTP and is ranging from minimum level of 1 at micro, small & large scale to maximum level of 2 at medium scale of WWTP.

The above tables for manpower distribution at various levels and scales of ETP/CETP are summarized below:



4.3 State wise manpower mapping across different scales of ETP/ CETP

Based on the statistical software, state wise occupational mapping has been derived. For analysis purpose the following assumptions have been made:



- Plants from capacity 0 to 50 KLD – Micro scale plant
- Plants from capacity 51 to 1000 KLD – Small scale plant
- Plants from capacity 1001 to 5000 KLD – Medium scale plant
- Plants from capacity 5001 KLD and more – Large scale plant

A) State wise Average employment of manpower at various plant scales

States	Scale of ETP/ CETP	Avg. no. of manpower	No. of Sample Units
Delhi	Micro	5	5
	Small	5	4
	Medium	8	1
	Large	18	5
	Total	10	15
Gujarat	Micro	5	5
	Small	14	11
	Medium	21	4
	Large	33	2
	Total	15	22
West Bengal	Micro	10	1
	Small	9	3
	Large	5	1
	Total	8	5
Uttar Pradesh	Small	3	1
	Medium	7	2
	Total	6	3
Haryana	Small	12	2
	Total	12	2
Karnataka	Small	10	1
	Total	10	1
Madhya pradesh	Micro	3	3
	Small	4	4
	Total	4	7
Andhra Pradesh	Medium	14	2
	Total	14	2
Odisha	Large	14	2
	Total	14	2

States	Scale of ETP/ CETP	Avg. no. of manpower	No. of Sample Units
Tamil Nadu	Micro	6	1
	Small	7	2
	Medium	17	2
	Total	10	5
Punjab	Small	3	1
	Total	3	1
Total	Micro	5	15
	Small	9	29
	Medium	15	11
	Large	19	10
	Total	11	65

Across 11 states, average employment of helpers is 11 for each WWTP and is ranging from minimum level of 5 at micro scale to maximum level of 19 at large scale of WWTP. The average manpower requirement in any micro, small, large and medium scale plant can be concluded from the above table.

B) State wise Average employment of helpers, technicians, operators and lab chemists at various plant scales

1. Helpers

States	Scale of ETP/ CETP	Avg. no. of Helpers	No. of Sample Units
Delhi	Micro	3	2
	Small	1	4
	Large	6	5
	Total	3	11
Gujarat	Micro	2	4
	Small	7	10
	Medium	5	4
	Large	4	2
	Total	5	20
West Bengal	Micro	4	1
	Small	3	2
	Large	1	1

States	Scale of ETP/ CETP	Avg. no. of Helpers	No. of Sample Units
	Total	3	4
Uttar Pradesh	Medium	3	2
	Total	3	2
Haryana	Small	3	2
	Total	3	2
Karnataka	Small	1	1
	Total	1	1
Madhya pradesh	Small	1	3
	Total	1	3
Andhra Pradesh	Medium	3	2
	Total	3	2
Odisha	Large	6	2
	Total	6	2
Tamil Nadu	Micro	2	1
	Small	3	1
	Medium	10	2
	Total	6	4
Punjab	Small	1	1
	Total	1	1
Total	Micro	2	8
	Small	4	24
	Medium	5	10
	Large	5	10
	Total	4	52

Across 11 states, average employment of helpers is 4 for each WWTP and is ranging from minimum level of 2 at micro scale to maximum level of 5 at large scale of WWTP.

2. Operators

States	Scale of ETP/ CETP	Avg. no. of Operators	No. of Sample Units
Delhi	Micro	2	5
	Small	2	4
	Medium	4	1

States	Scale of ETP/ CETP	Avg. no. of Operators	No. of Sample Units
	Large	7	5
	Total	4	15
Gujarat	Micro	2	4
	Small	4	11
	Medium	6	4
	Large	9	2
	Total	4	21
West Bengal	Micro	1	1
	Small	6	3
	Large	1	1
	Total	4	5
Uttar Pradesh	Small	3	1
	Medium	2	2
	Total	2	3
Haryana	Small	3	2
	Total	3	2
Karnataka	Small	5	1
	Total	5	1
Madhya pradesh	Micro	3	3
	Small	3	4
	Total	3	7
Andhra Pradesh	Medium	6	2
	Total	6	2
Odisha	Large	4	2
	Total	4	2
Tamil Nadu	Micro	4	1
	Small	5	2
	Medium	3	2
	Total	4	5
Punjab	Small	1	1
	Total	1	1
Total	Micro	2	14
	Small	4	29
	Medium	4	11

States	Scale of ETP/ CETP	Avg. no. of Operators	No. of Sample Units
	Large	6	10
	Total	4	64

Across 11 states, average employment of operators is 4 for each WWTP and is ranging from minimum level of 2 at micro scale to maximum level of 6 at large scale of WWTP.

3. Technicians

States	Scale of ETP/ CETP	Avg. no. of Technicians	No. of Sample Units
Delhi	Micro	2	1
	Small	1	1
	Medium	1	1
	Large	3	5
	Total	2	8
Gujarat	Small	1	4
	Medium	6	2
	Large	7	2
	Total	4	8
West Bengal	Large	1	1
	Total	1	1
Andhra pradesh	Medium	3	1
	Total	3	1
Odisha	Large	2	2
	Total	2	2
Total	Micro	2	1
	Small	1	5
	Medium	4	4
	Large	3	10
	Total	3	20

Across 5 states, average employment of technicians is 3 for each WWTP and is ranging from minimum level of 1 at small scale to maximum level of 4 at medium scale of WWTP.

4. Chemists

States	Scale of ETP/ CETP	Avg. no. of Chemists	No. of Sample Units
Delhi	Micro	2	2
	Small	1	2
	Medium	1	1
	Large	1	5
	Total	1	10
Gujarat	Micro	2	2
	Small	2	5
	Medium	2	3
	Large	7	2
	Total	3	12
West Bengal	Micro	1	1
	Large	1	1
	Total	1	2
Uttar Pradesh	Medium	1	2
	Total	1	2
Haryana	Small	3	2
	Total	3	2
Karnataka	Small	1	1
	Total	1	1
Madhya pradesh	Small	1	1
	Total	1	1
Andhra Pradesh	Medium	2	2
	Total	2	2
Odisha	Large	1	1
	Total	1	1
Tamil Nadu	Medium	2	2
	Total	2	2
Punjab	Small	1	1
	Total	1	1
Total	Micro	1	5
	Small	2	12
	Medium	2	10
	Large	2	9

States	Scale of ETP/ CETP	Avg. no. of Chemists	No. of Sample Units
	Total	2	36

Across 11 states, average employment of chemists is 2 for each WWTP and is ranging from minimum level of 1 at micro scale to maximum level of 2 at small, medium & large scale of WWTP.

5. Plant Engineers

States	Scale of ETP/ CETP	Avg. no. of Supervisor	No. of Sample Units
Delhi	Micro	2	2
	Small	2	2
	Medium	1	1
	Large	2	3
	Total	2	8
Gujarat	Micro	1	3
	Small	2	10
	Medium	4	4
	Large	6	2
	Total	3	19
West Bengal	Micro	3	1
	Small	2	1
	Large	1	1
	Total	2	3
Uttar Pradesh	Medium	1	2
	Total	1	2
Haryana	Small	4	1
	Total	4	1
Karnataka	Small	2	1
	Total	2	1
Andhra Pradesh	Medium	1	2
	Total	1	2
Odisha	Large	2	1
	Total	2	1
Tamil Nadu	Small	1	1

States	Scale of ETP/ CETP	Avg. no. of Supervisor	No. of Sample Units
	Medium	1	1
	Total	1	2
Total	Micro	2	6
	Small	2	16
	Medium	2	10
	Large	3	7
	Total	2	39

Across 9 states, average employment of plant engineers is 2 for each WWTP and is ranging from minimum level of 2 at micro, small & medium scale to maximum level of 3 at large scale of WWTP.

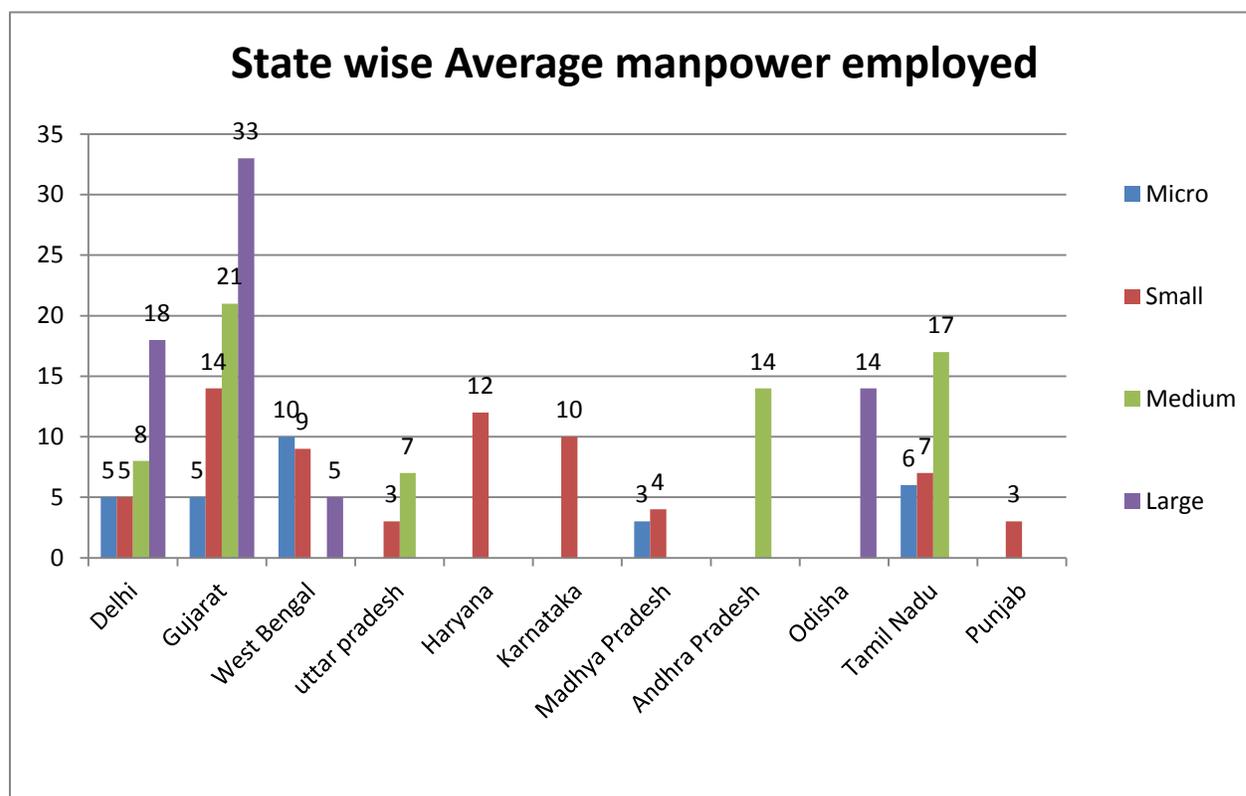
6. Plant Incharge / Managers

States	Scale of ETP/ CETP	Avg. no. of Plant Incharge	No. of Sample Units
Delhi	Micro	1	3
	Small	1	2
	Medium	1	1
	Large	1	4
	Total	1	10
Gujarat	Micro	1	5
	Small	2	8
	Medium	2	4
	Large	3	1
	Total	2	18
West Bengal	Micro	1	1
	Small	1	2
	Total	1	3
Uttar Pradesh	Medium	1	1
	Total	1	1
Haryana	Small	1	2
	Total	1	2
Karnataka	Small	1	1
	Total	1	1
Andhra Pradesh	Medium	2	2

States	Scale of ETP/ CETP	Avg. no. of Plant Incharge	No. of Sample Units
	Total	2	2
Odisha	Large	1	2
	Total	1	2
Tamil Nadu	Medium	1	2
	Total	1	2
Total	Micro	1	9
	Small	1	15
	Medium	2	10
	Large	1	7
	Total	1	41

Across 9 states, average employment of plant Inchrge/ managers is 1 for each WWTP and is ranging from minimum level of 1 at micro scale to maximum level of 2 at medium scale of WWTP.

The state wise manpower distribution in different scales of ETP/CETPs is summarized below:



4.4 State wise Skill mapping across different scales of ETP/ CETP

Using the statistical software, the qualification level pattern of staff operating the ETP/CETP has been derived and summarized in the tables below:

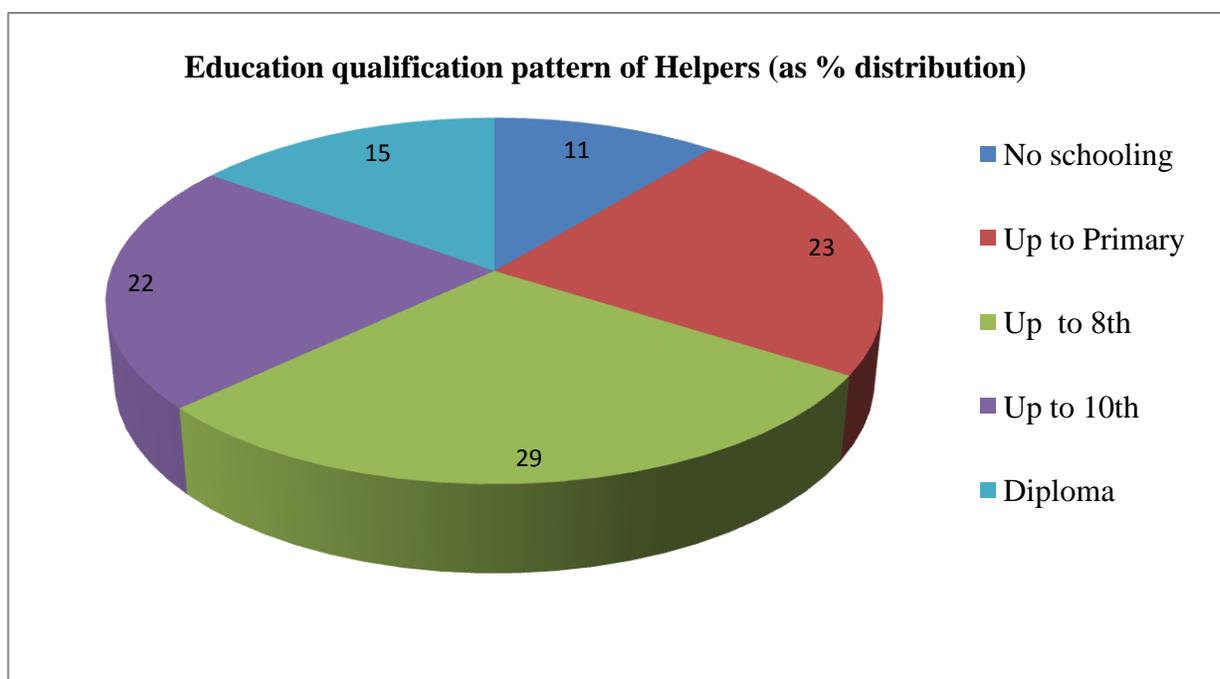
A) State wise qualification of Helpers

States		No Schooling	Up to Primary	Up to 8th	Up to 10th	Diploma / Graduate	Total
Delhi	Mean	-	2	3	2	-	7
	% of Total N	-	24	47	29	-	100
Gujarat	Mean	1	10	5	4	2	22
	% of Total N	5	45	22	18	10	100
West Bengal	Mean	1	-	3	3	-	7
	% of Total N	15	-	49	37	-	100
Uttar Pradesh	Mean	-	-	2	1	-	3
	% of Total N	-	-	67	33	-	100
Haryana	Mean	1	-	3	1	-	5
	% of Total N	20	-	60	20	-	100
Karnata ka	Mean	1	-	-	-	-	1
	% of Total N	100	-	-	-	-	100
Madhya Pradesh	Mean	-	-	1	1	-	2
	% of Total N	-	-	50	50	-	100

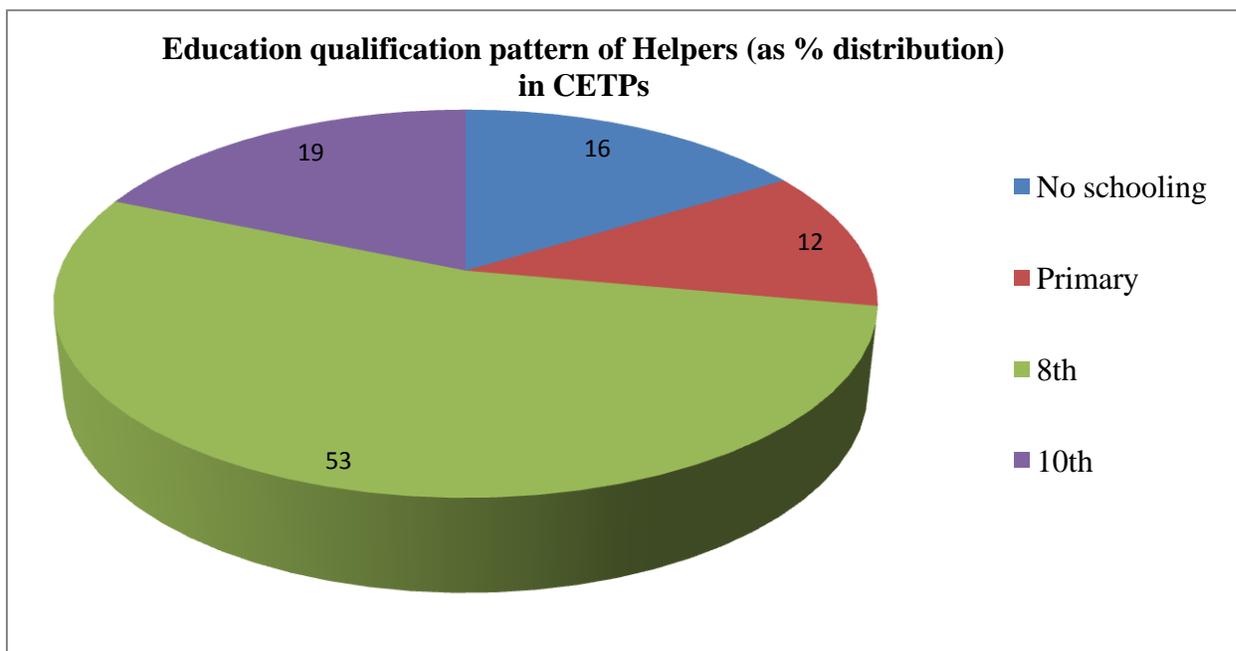
States		No Schooling	Up to Primary	Up to 8th	Up to 10th	Diploma / Graduate	Total
Andhra Pradesh	Mean	5	-	-		-	5
	% of Total N	100	-	-	-	--	100
Odisha	Mean	-	3	3	3	-	9
	% of Total N	-	29	35	35	-	100
Tamil Nadu	Mean	-	1	6	-	1	8
	% of Total N		13	74		13	100
Total average percentage	Mean	1	3	4	3	2	13
	% of Total N	11	23	29	22	15	100

Inference:

The average qualification of wastewater treatment Helper can be summarized as:



However, in case of **CETPs** the qualification pattern for helpers can be summarized as:



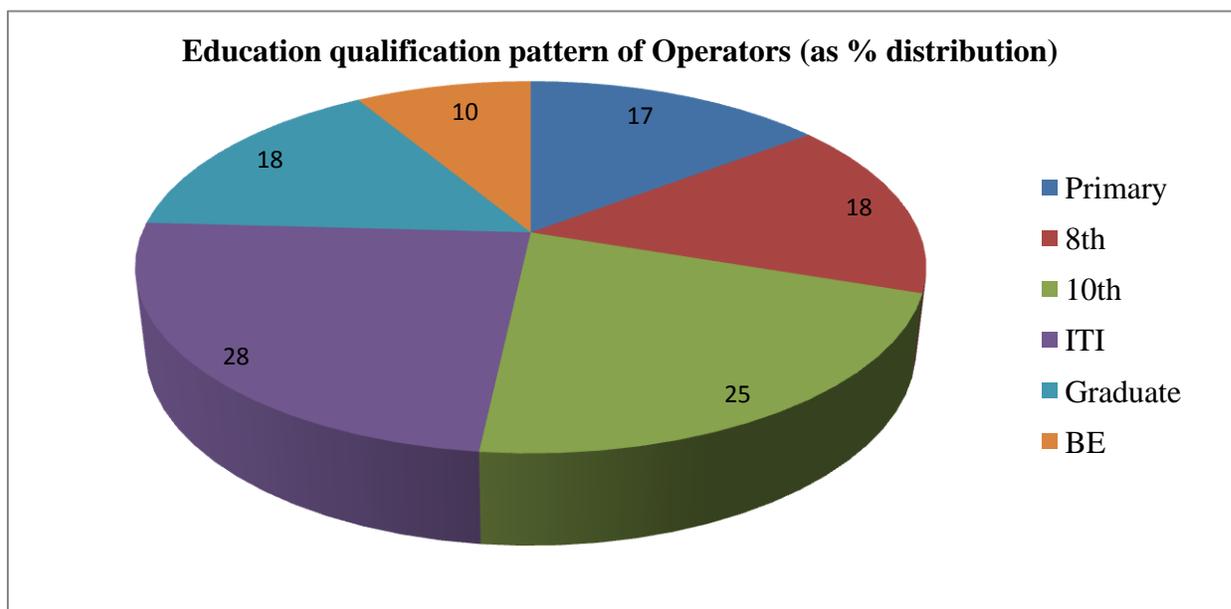
B) State wise qualification of Operators

State		Primary	8 th	10 th	ITI	Graduate	BE	Total
Delhi	Mean	1	2	2	2	1	-	8
	% of Total N	16	26	28	31	16	-	100
Gujarat	Mean	-	2	3	3	3	-	11
	% of Total N	-	18	25	27	30	-	100
West Bengal	Mean	-	-	2	4	2	1	9
	% of Total N	-	-	22	44	22	11	100
Uttar Pradesh	Mean	-	-	1	1	2	-	4
	% of Total N	-	-	27	27	45	-	100
Haryana	Mean	-	-	2	4	-	-	6
	% of Total N	-	-	33	67	-	-	100
Karnatak	Mean	1	-	4	1	-	-	5

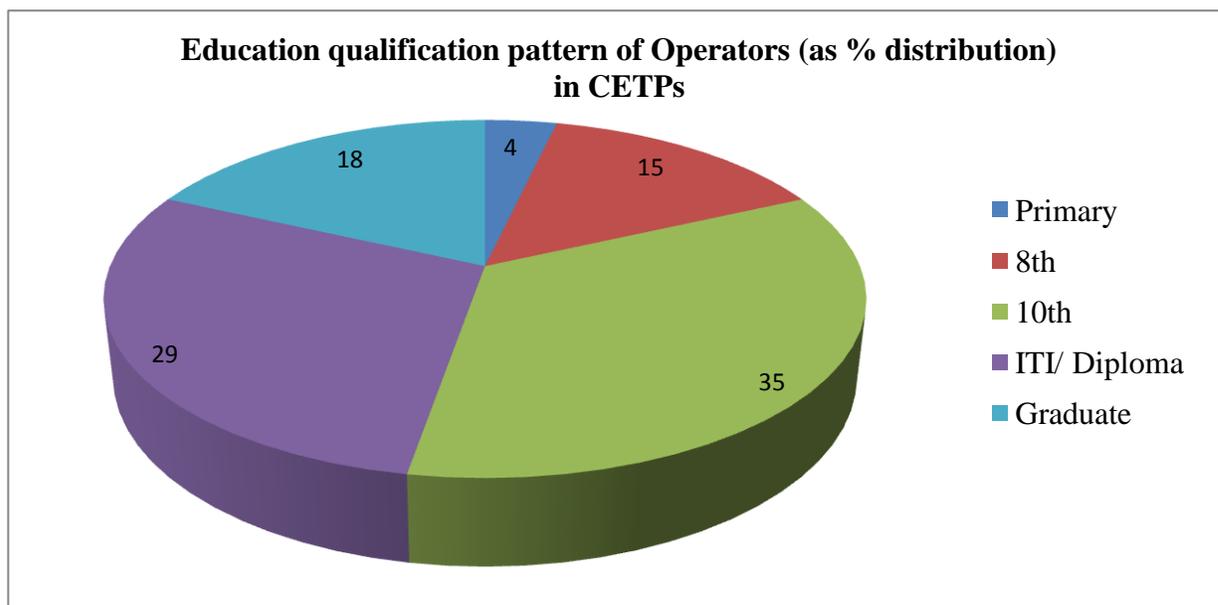
State		Primary	8 th	10 th	ITI	Graduate	BE	Total
a	% of Total N	20	-	80	20	-	-	100
Madhya Pradesh	Mean	-	-	3	-	-	-	3
	% of Total N	-	-	100	-	-	-	100
Andhra Pradesh	Mean	5	1		5	-	-	6
	% of Total N	83	17		83	-	-	100
Odisha	Mean	-	-	-	3	-	1	4
	% of Total N	-	-	-	75	-	25	100
Tamil Nadu	Mean	-	1	2	2	1	-	6
	% of Total N	-	17	33	33	17	-	100
Punjab	Mean	1	-	-	-	-	-	1
	% of Total N	100	-	-	-	-	-	100
Total average percentage	Mean	2	2	2	3	2	1	10
	% of Total N	17	18	25	28	18	10	100

Inference:

The average qualification of wastewater treatment operator can be summarized as:



However, in case of **CETPs**, the qualification pattern for operators is summarized as:

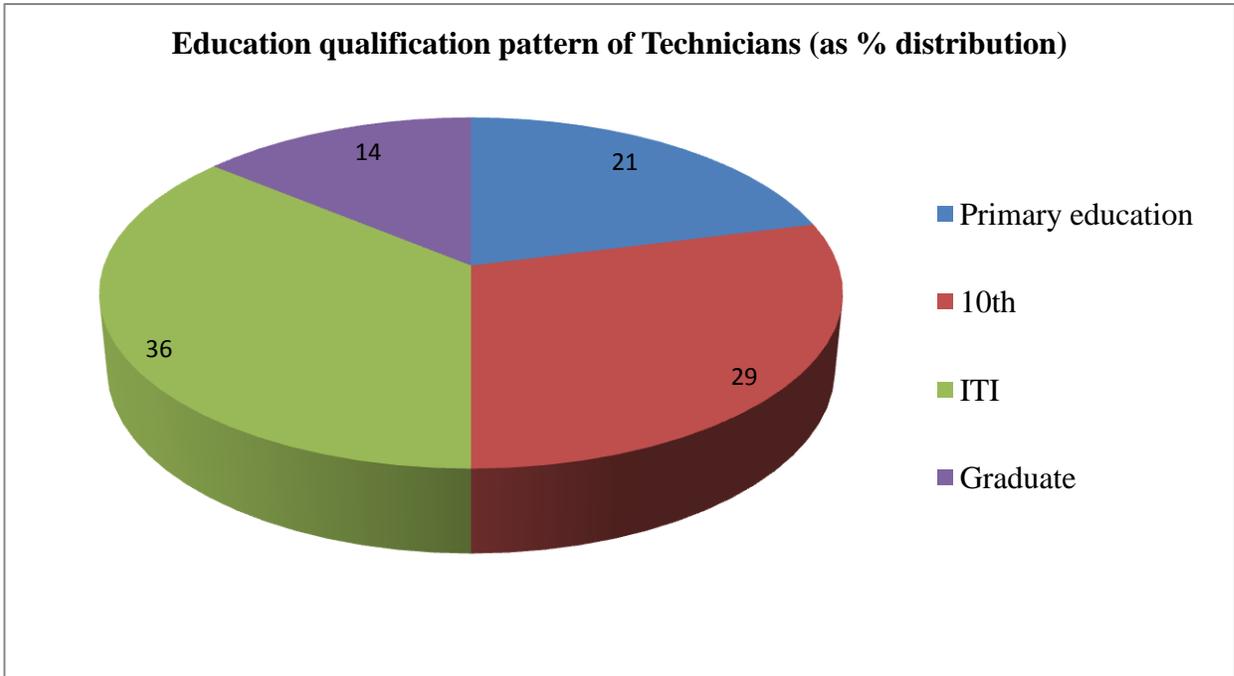


C) State wise qualification of Technicians

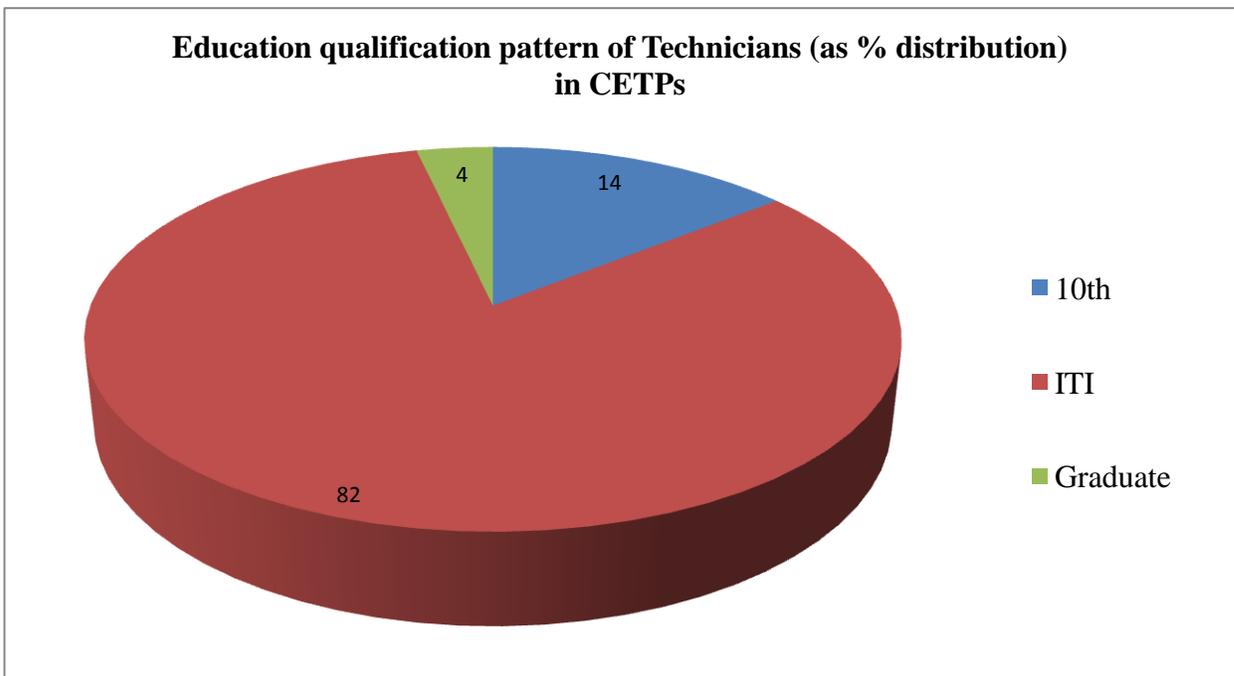
States		Primary Education	10 th	ITI	Graduate	Total
Delhi	Mean	2	2	2	-	5
	% of Total N	29	39	32	-	100
Gujarat	Mean	-	-	5	1	6
	% of Total N	-	-	82	18	100
West Bengal	Mean	-	-	1	-	1
	% of Total N	-	-	100	-	100
Andhra Pradesh	Mean	-	-	2	1	3
	% of Total N	-	-	67	33	100
Odisha	Mean	-	-	2	-	2
	% of Total N	-	-	100	-	100
Total average percentage	Mean	2	2	3	1	7
	% of Total N	21	29	36	14	100

Inference:

The average qualification of wastewater treatment Technician can be summarized as:



However, in case of **CETPs**, the qualification pattern of technicians is summarized as:

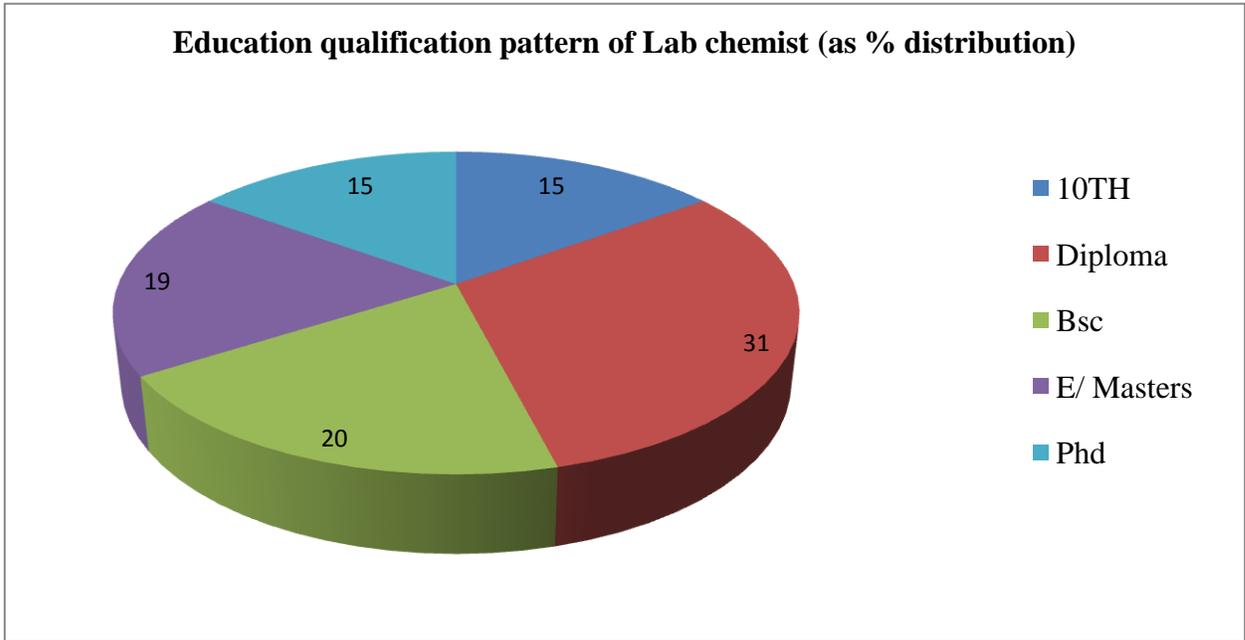


D) State wise qualification of Chemists /Lab Analysts

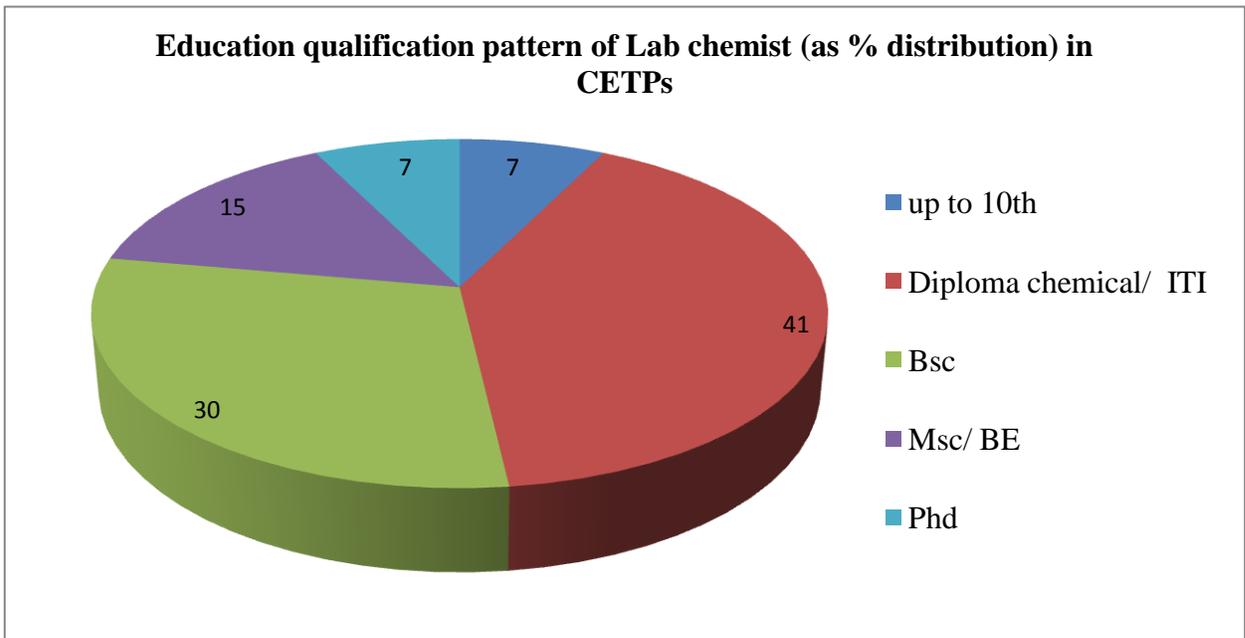
State		10 th	Diploma	B Sc	BE / Masters	Phd	Total
Delhi	Mean	1	1	1	1	-	4
	% of Total N	25	25	25	25	-	100
Gujarat	Mean	1	3	1	2	1	8
	% of Total N	12	40	17	18	12	100
West Bengal	Mean	-	1	-	1	-	2
	% of Total N	-	50	-	50	-	100
Uttar Pradesh	Mean	-	1	1	-	-	2
	% of Total N	-	50	50	-	-	100
Haryana	Mean	-	3	1	-	-	4
	% of Total N	-	71	29	-	-	100
Karnataka	Mean	-	-	1	-	-	1
	% of Total N	-	-	100	-	-	100
Madhya Pradesh	Mean	-	-	1	-	-	1
	% of Total N	-	-	100	-	-	100
Andhra Pradesh	Mean	-	-	2	-	-	2
	% of Total N	-	-	100	-	-	100
Odisha	Mean	-	-	-	1	-	1
	% of Total N	-	-	-	100	-	100
Tamil Nadu	Mean	-	1	2	1	-	4
	% of Total N	-	29	43	29	-	100
Punjab	Mean	-	1	-	-	-	1
	% of Total N	-	100	-	-	-	100
Total average percentage	Mean	1	2	1	1	1	6
	% of Total N	15	31	19	19	15	100

Inference:

The average qualification of wastewater treatment Lab chemist can be summarized as:



However, in case of CETPs, the qualification pattern of chemists is summarized as:



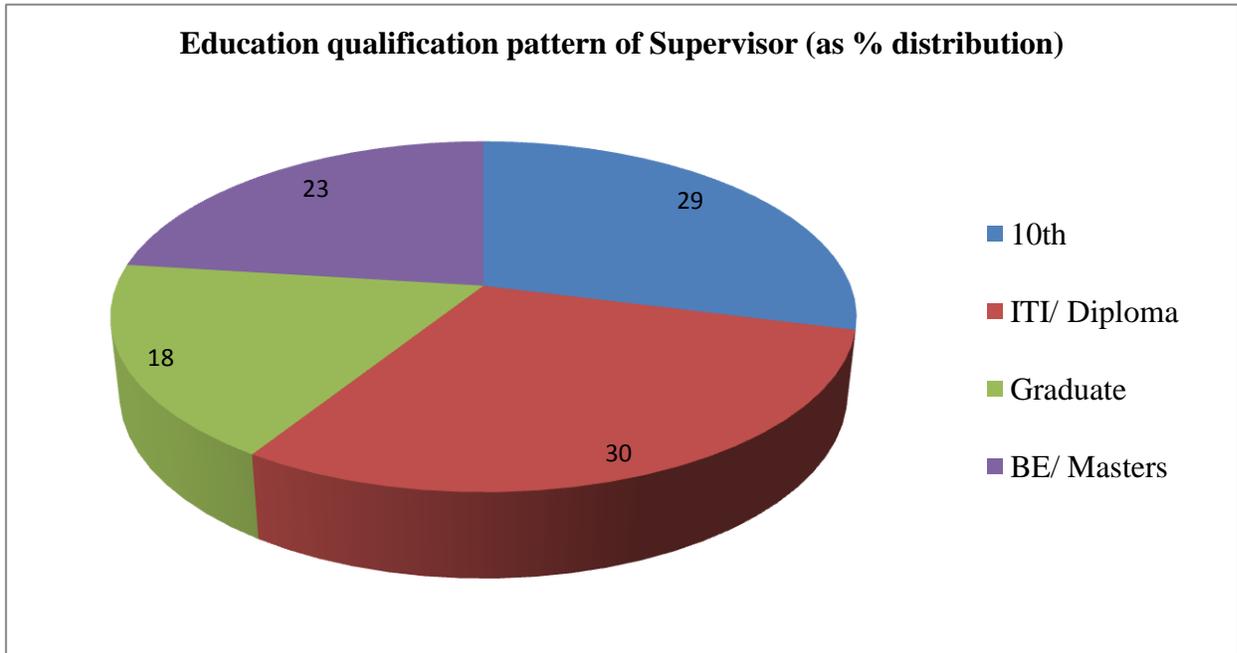
It can be concluded that chemists in the sector of wastewater treatment sector are adequately qualified in most of the cases.

E) State wise qualification of Supervisor/ Plant Engineer

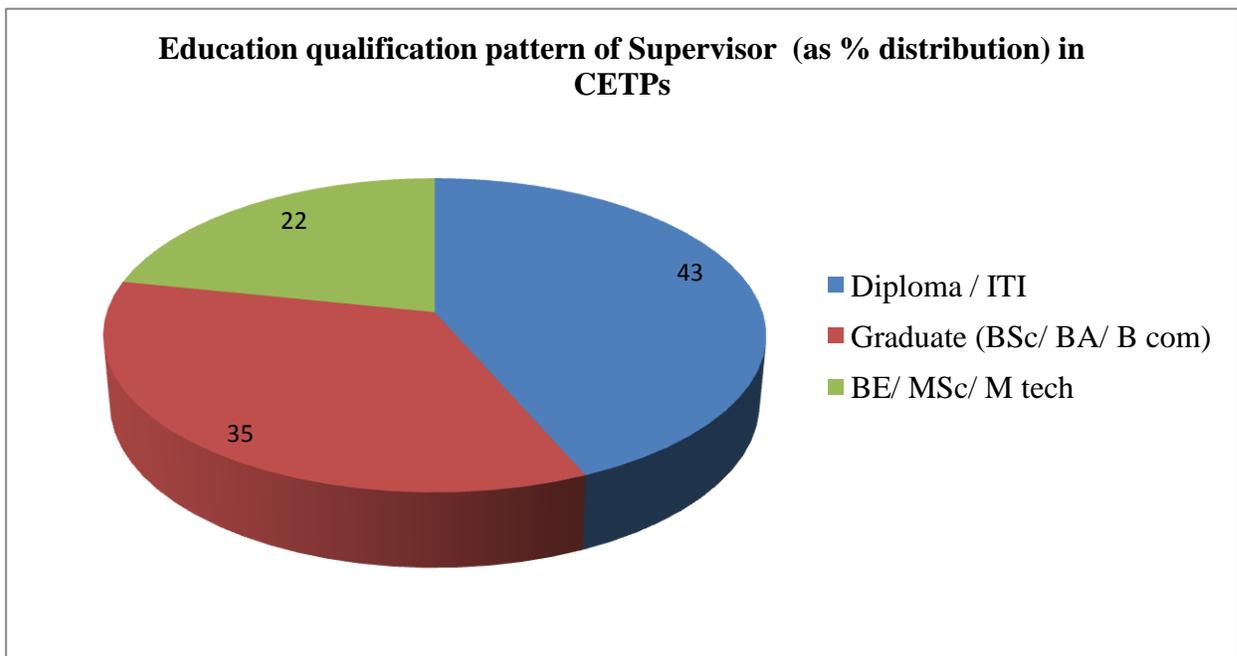
States		10 th	ITI / Diploma	Graduate	BE/ Masters	Total
Delhi	Mean	1	1	1	1	4
	% of Total N	25	25	25	25	100
Gujarat	Mean		3	1	2	6
	% of Total N		47	21	32	100
West Bengal	Mean	3	-	2	-	5
	% of Total N	67	-	33	-	100
Uttar Pradesh	Mean	-	-	1	-	1
	% of Total N	-	-	100	-	100
Haryana	Mean	-	1	1	2	4
	% of Total N	-	25	25	50	100
Karnataka	Mean	2	-	-	-	2
	% of Total N	100	-	-	-	100
Andhra Pradesh	Mean	-	-	-	1	1
	% of Total N	-	-	-	100	100
Odisha	Mean	-	-	1	1	2
	% of Total N	-		50	50	100
Tamil Nadu	Mean	-	1	1	-	2
	% of Total N	-	50	50	-	100
Total average percentage	Mean	2	2	1	2	7
	% of Total N	29	30	18	23	100

Inference:

The average qualification of wastewater treatment Supervisor/ Plant Engineer can be summarized as:



However, in case of CETPs, the qualification pattern of supervisor/ plant engineer is summarized as:



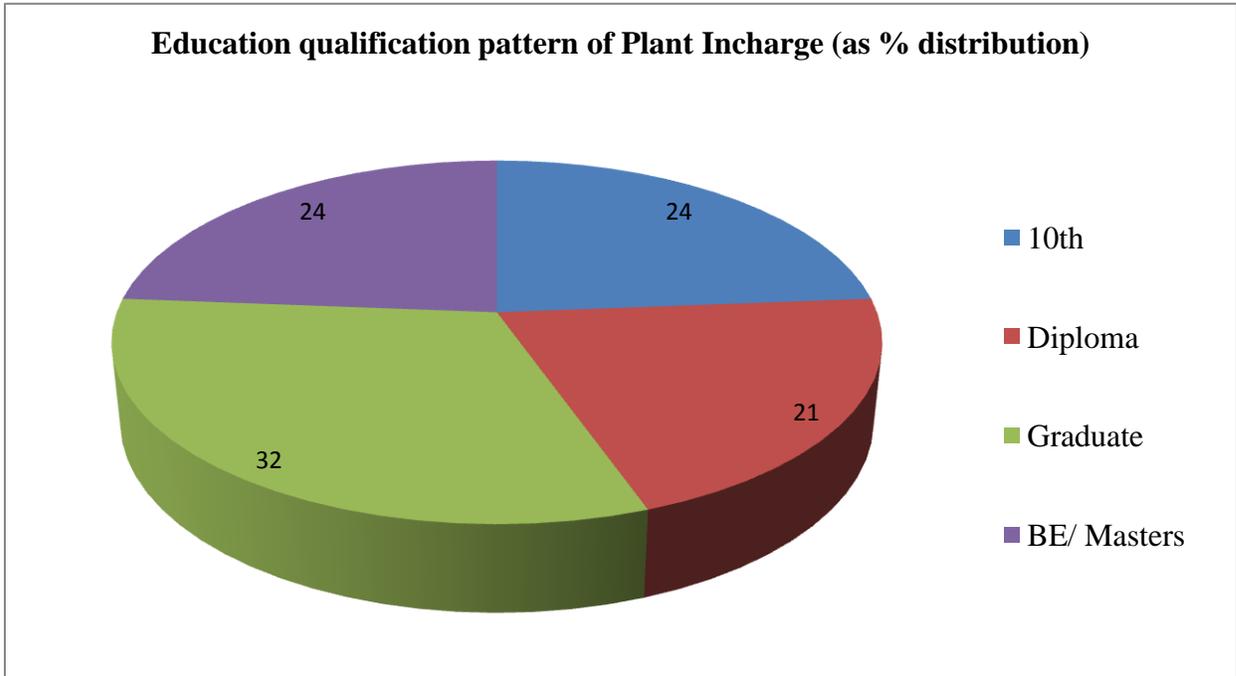
In case of CETPs, supervisors are adequately qualified.

F) State wise qualification of Plant Incharge / Manager

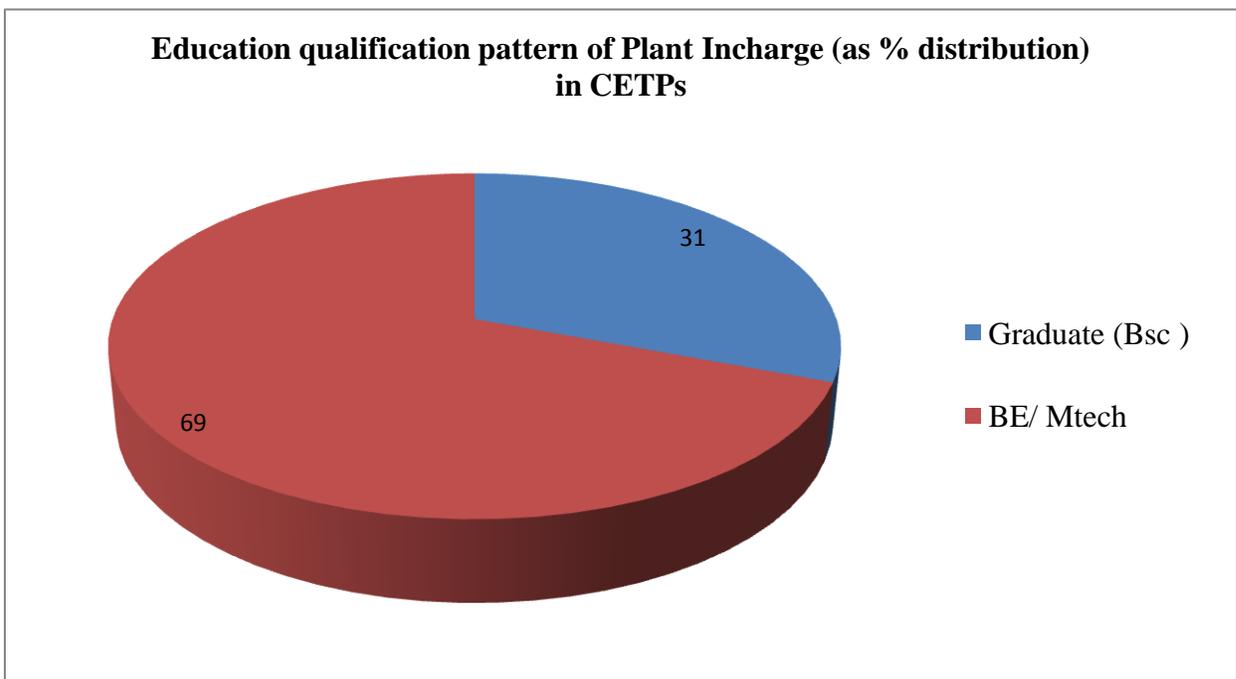
States		10 th	Diploma	Graduate	BE / Masters	Total
Delhi	Mean	1	1	1	1	4
	% of Total N	24	24	24	29	100
Gujarat	Mean	-	1	1	1	4
	% of Total N		28	40	33	100
West Bengal	Mean	1	-	-	1	2
	% of Total N	50	-	-	50	100
Uttar Pradesh	Mean	-	-	1	-	1
	% of Total N	-	-	100	-	100
Haryana	Mean	-	1	-	1	2
	% of Total N	-	50	-	50	100
Karnataka	Mean	2	-	-	1	3
	% of Total N	67	-	-	33	100
Andhra Pradesh	Mean	-	-	2	-	2
	% of Total N	-	-	100	-	100
Odisha	Mean	-	-	-	1	1
	% of Total N	-	-	-	100	100
Tamil Nadu	Mean	-	1	-	1	2
	% of Total N	-	50	-	50	100
Total average percentage	Mean	1	1	1	1	5
		22	21	32	24	100

Inference:

The average qualification of wastewater treatment Plant Manager/ Incharge can be summarized as:



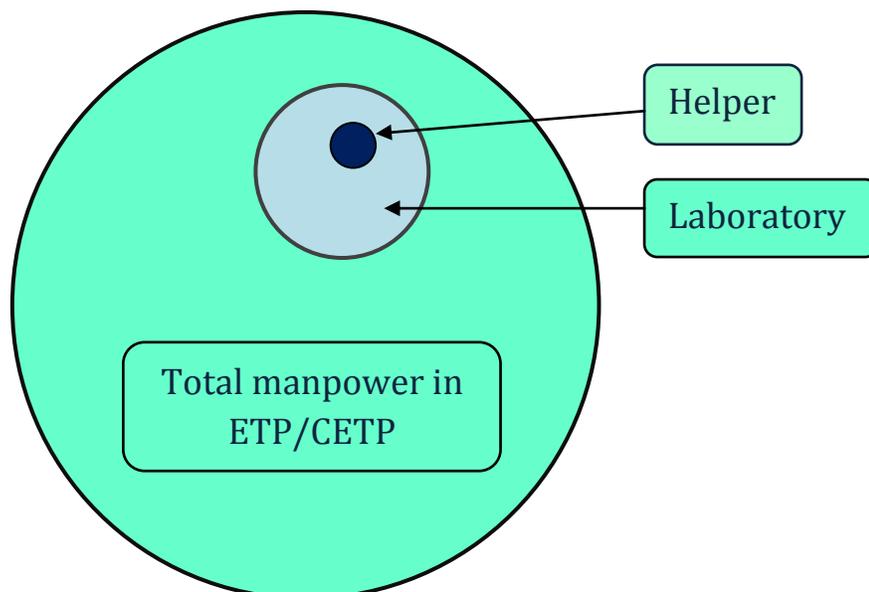
However, in case of **CETPs**, Plant Mangers/ In-charge are well qualified:

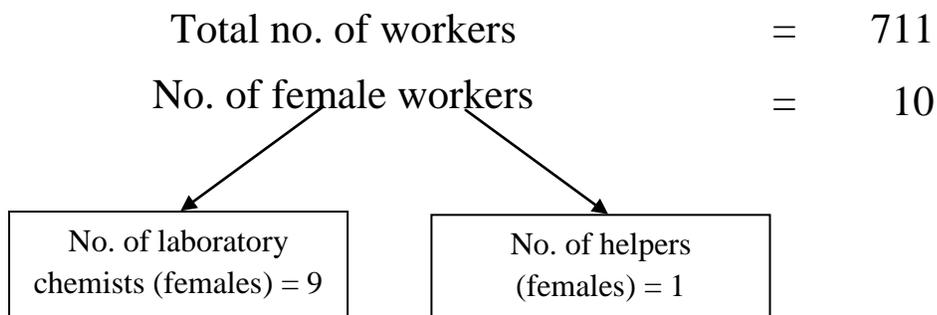


**G. Qualification pattern of Job levels combined for wastewater treatment plants
(Values in %)**

Job Levels	No schooling	Up to Primary	Primary	Up to 8th	8th	Up to 10th	10th	ITI	Diploma	ITI/Diploma	Graduate	Diploma/ Graduate	B.Sc.	B.E.	BE/Masters	Ph.D.
Helpers	11	23		29		22						15				
Operators			17		18		25	28			18			10		
Technicians			21				29	36			14					
Chemists/Lab Analysts							15		31				19		19	15
Supervisor / Plant Engineer							29			30	18				23	
Plant Incharge/ Manager							22		21		32				24	

4.5 Male to female employment ratio in ETP/ CETP





- There are hardly any female employees employed in ETPs/CETPs operation.
- 1.4% people working in CETPs and ETPs are females
- Out of the total female workers employed, all are laboratory chemists except 1.

4.6 Field visits to ETP/ CETPs

Apart from getting response to the framed questionnaire, NPC’s Team made field visits in 6 states from 15th June 2016 to 25th July 2016. Field visits have been made to the following locations:

Delhi	Gujarat	West Bengal	Uttar Pradesh	Haryana	Tamil Nadu
<ul style="list-style-type: none"> • Bawana • Narela • Lawrence Road • Khan Market • Sarita Vihar 	<ul style="list-style-type: none"> • Ankleshwar • Jhagadia • Nandesari • Umaraya 	<ul style="list-style-type: none"> • Hooghly • Kolkata • Durgapur 	<ul style="list-style-type: none"> • Gajraula • Kanpur 	<ul style="list-style-type: none"> • Ambala • Panipat 	<ul style="list-style-type: none"> • Chennai • Padi • Tambram
14 Units	16 Units	3 Units	2 Units	2 Units	3 Units

Besides the validation of questionnaire during our visit, the ETP/CETP personnel were interviewed on various aspects with regard to their experience, plant function, their role in operation, training received by them and required by them etc.

The list of industrial ETPs and CETPs visited by NPC are:

Sr. No.	Name of Units	Type of Facility	Sector	State
1	Enviro Infrastructure Company Limited (Eicl-Cetp)	CETP	Mixed	Gujarat
2	Amoli Organics Pvt. Ltd	ETP	Drug & Pharmaceuticals	Gujarat
3	Cadila	ETP	Drug & Pharmaceuticals	Gujarat
4	Kumar Organic Products Limited	ETP	Drug & Pharmaceuticals	Gujarat
5	Padra Coating Works	ETP	Metal Finishing (electroplating, Pickling, Anodising, etc)	Gujarat
6	Nandesari Industries Association	CETP	Mixed	Gujarat
7	Farmson Pharmaceuticals Gujrat Pvt. Ltd.	ETP	Drug & Pharmaceuticals	Gujarat
8	Canberra Chemicals	ETP	Drug & Pharmaceuticals	Gujarat
9	Gsp Crop Science Pvt. Ltd.	ETP	Pesticide & Plasticoser	Gujarat
10	Lupin	ETP	Drug & Pharmaceuticals	Gujarat
11	Deccan Fine Chemicals (India) Pvt. Ltd	ETP	Chemicals	Gujarat
12	Birla Century	ETP	Textile	Gujarat
13	Eskay Iodine Pvt. Ltd.	ETP	Drug & Pharmaceuticals	Gujarat
14	United Phosphorus Ltd.	ETP	Pesticide	Gujarat
15	Enviro Technology Limited	CETP	Mix	Gujarat
16	Bharuch Enviro Infrastructure Ltd.	ETP	Leachate	Gujarat
17	Delhi Milk Scheme	ETP	Dairy	Delhi

Sr. No.	Name of Units	Type of Facility	Sector	State
18	Dayal Metal Industry	ETP	Electroplating	Delhi
19	Delhi Metro Service Station	ETP	Service station	Delhi
20	Delhi Metro Service Station	STP	Service station	Delhi
21	Hotel Hyatt Regency	ETP	Hotel	Delhi
22	Anjaneya Cold Storage	ETP	Food processing	Delhi
23	Britania Bread	ETP	Food processing	Delhi
24	Batra Car Care Centre	ETP	Service station	Delhi
25	Lawrence Road CETP	CETP	Mix	Delhi
26	Narela CETP	CETP	Mix	Delhi
27	Bawana CETP	CETP	Mix	Delhi
28	Mayapuri CETP	CETP	Mix	Delhi
29	Naraina CETP	CETP	Mix	Delhi
30	GTK Road CETP	CETP	Mix	Delhi
31	Kesoram Rayon	ETP	Textile	West Bengal
32	Mother Dairy	ETP	Dairy	West Bengal
33	Diamond Beverages (P) Limited	ETP	Food processing	West Bengal
34	Namaste Food India Ltd	ETP	Food processing	Uttar Pradesh
35	J K Dairy	ETP	Dairy	Uttar Pradesh
36	National Fertilizer Ltd	ETP	Fertilizer	Haryana

Sr. No.	Name of Units	Type of Facility	Sector	State
37	Kandharai Beverages	ETP	Food processing	Haryana
38	Pioneer Processing	ETP	Textile	Tamil Nadu
39	Wheels India Ltd	ETP	Automobile	Tamil Nadu
40	Aavin Dairy	ETP	Dairy	Tamil Nadu

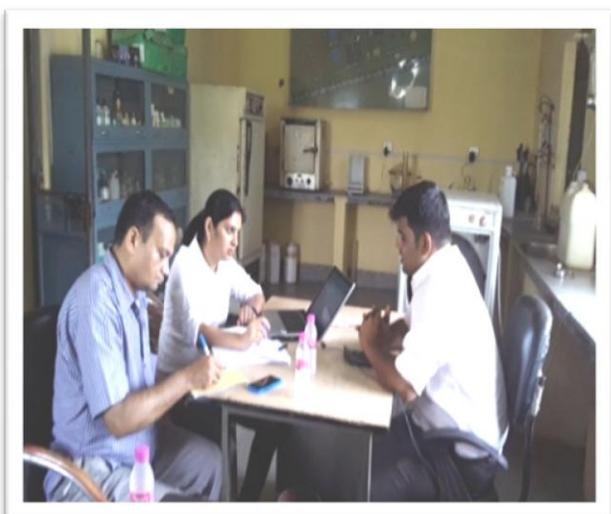
4.6.1 Pictures of field visits



BEIL Plant



ETL CETP Visit



Narela CETP



CETP at Narmada Clean Tech



Nandesari CETP

Interaction with operators @ Narela CETP



Beverage Industry at Ambala



Kumar Organics ETP



Umraya CETP



Helper at a large scale plant without PPE



ETP at Hyatt Regency



Operator with basic PPE in a small scale plant



Operator with no PPE followed in a medium scale plant



Birla Century ETP



Eskay ETP

4.6.2 Findings from field visits

40 out of 66 responses received were validated during our field visits and **the findings from field visits are given below:**

- i. Unlike Delhi, in case of Gujarat, industries were concerned with regard to field visits and requested NPC to consult GPCB first in order to get an advisory from GPCB to industries with regard to collection of information in industrial wastewater treatment plant. In their view activities pertaining to ETPs/ CETPs should be carried out in agreement with pollution control board as the consent to operate ETPs/ CETPs is assigned by the concerned PCB.
- ii. It was found that the information filled in the questionnaires is largely correct, though the ETP/ CETPs were not fully aware about the necessity of having skilled staff for operation and maintenance.
- iii. There is no formal arrangement with regard to having interactive meeting among the staff for knowledge sharing; however, there is informal interaction among the staff taking place.
- iv. The Helpers age varies from 18 years to 50 years.
- v. The operators and Technician’s age varies from 18 years to 68 years.
- vi. All the CETPs in Delhi have outsourced the operation and maintenance of plant.
- vii. CETPs in Gujarat have their own manpower for O&M of the plant, except for helpers

- viii. In more than 80% cases (including ETP & CETPs), the helpers are sourced from outside agency.
- ix. The employment of the staff for plant operation is up to the contractor’s decision which typically involves hiring locally available unskilled/ semi skilled workers.
- x. The O&M is renewed on annual basis and there is no assurance that the same contractor will run the plant for the next year. Hence least focus is given to the skill development of workforce by the ETP/CETP management. With the change of contractor/ outsourced agency, the workforce changes.
- xi. On interviewing the operators and technicians, it was found there were very few self motivated staff who voluntarily felt the need of skill up gradation. In general, based on their understanding and awareness level, operators and technicians seem to be satisfied with their level of competency, though they need specific trainings as per NPC’s assessment.
- xii. The operators and technicians though well versed with the functional aspects of machineries, equipments such as filters, motors, pumps etc; lack the technical knowhow of process , accurate dosage of chemicals and plant’s control parameters.
- xiii. It was found that roles and responsibilities of staff at various levels in ETPs/ CETPs are not well defined and documented. In view of this, the staff is expected to carry out multi tasking jobs and sometimes even beyond their functional understanding and area.
- xiv. When a common contractor is looking after multiple ETPs/ CETPs in an area/region, it was found to be a common practice that there is no dedicated supervisor for each ETP/ CETP. A common supervisor visits ETP/CETP under him periodically. This becomes a cost effective option for ETP/CETP management.
- xv. For SMEs, it was found that there is no dedicated operator for operating it’s ETP. Anyone from the process side is employed to look after the ETP.
- xvi. In 90% cases, the operators and technicians have not undergone any professional/vocational training. Based on interviews, it was learnt that they have acquired the knowledge through their experience of the job over the years.
- xvii. Based on the assessment the need of future manpower requirement by various ETPs/ CETPs is more focused on higher level officials such as plant engineer / manager rather than the technicians, operators and helpers. This is mainly because of the understanding

that anyone with basic qualification such as ITI/ graduate can do the job and also he/she is expected to learn while doing the job.

- xviii. Safety aspects (wearing of safety shoes/ gloves while chemical dosing etc.) were found neglected in most of the ETPs/CETPs visited as part of the study.
- xix. In general ETP/CETP staff lack the sensitivity of the responsibility they are handling.
- xx. There is no national standard defined for manpower requirement, qualification levels, experience, age limits etc. for the wastewater sector
- xxi. Training aspect of the manpower involved in ETP/ CETP operation:
- In 2 ETPs /CETPs, helpers have received training on General & basic safety; and Control of Effluent Treatment Plant
 - In 5 ETPs/CETPs, operators have received training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; Reverse osmosis plant, centrifuge and dryer operation, Operation of centrifuge, multi effect evaporator, dryer, reverse osmosis, laboratory analysis; and O&M of ETP, STP, CETP, Lab Testing and O&M of ETP,STP,CETP
 - In 1 ETP/CETP, technicians have received training on operation of all plant activities
 - In 5 ETPs/CETPs, laboratory chemists have received training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; and Training on ETP Operation from Coca Global+ EMS Training
 - In 5 ETPs/CETPs, supervisors/plant engineers have training on operation of all plant activities; Operational & Gen. safety; Control of Effluent Treatment Plant; and all equipment operation, data compilation and analysis.
 - In 7 ETPs/CETPs, managers have received training on operation of all plant activities; Detailed safety, Waste mgt. operation & Env. law & Act; Post Diploma in Environment Technology; Control of Effluent Treatment Plant; ETP Management; Training on ETP Operation from Coca Global; and chemical dosing in wastewater.

5.0 COMPETENCY MAPPING OF OCCUPATIONS AT THE ETPs / CETPs

5.1 Existing personnel, job proficiency and skills involved in wastewater treatment

Existing personnel:

Based on the survey and field visits conducted by NPC, it was observed that in most of the cases the operation and maintenance of the wastewater treatment plant is being outsourced to a third party on contract basis. The personnel involved in the plant’s operation are mostly locally available people hired at minimum wages. Since these people are not on the direct pay role of the unit and the contractor and operating team may change with the renewal of the contract, least focus is given on upgrading their skills and proficiency. These people often lack professional qualification and training required for their job role. They learn their job by virtue of their hands on experience over the years. There are many challenges faced by the operators due to their educational background, poor working conditions as well as lack of avenues for their career growth. Taking up a profession in wastewater segment is often considered as the last alternative available. In particular with waste water and waste disposal, these branches have to deal with image problems. These occupations, in Indian society, receive minimal appreciation.

The water industry over the years has experienced re structuring involving the introduction of sustainable practices, energy, resource efficiency, new green technologies, recycling of treated water etc. which are all changes that require upgrading significant skills.

Job proficiency:

Job proficiency involves specific behavior or skill demonstrated by consistently superior performance, measured against established or popular standards. The proficiency level of the personnel in wastewater segment in India varies from plant to plant. Though proficient in their routine actions and profile, there is a vast scope of improvement. The waste water treatment plants are responsible for discharging treated water which will have minimum impact to receiving environment. The operation of such treatment plants should be carried out by skilled operators only. Sometimes even after investment of huge money, a properly designed plant fails to meet required results due to unskilled operators running the highly technology assisted treatment plant, which finally results in total loss of investment.

People involved in the operation and maintenance of wastewater treatment are critical to public health. Together with engineers, administrators and scientists, they work toward the management, protection and conservation of treated and untreated wastewater, recognizing that it is a critical part of the ecosystem.

Skills Involved

There are broadly three category of skill sets identified for operation of a wastewater treatment plant in India:

1. **Miscellaneous / Technical Function** : Helper, operator, Technician, supervisor
2. **Laboratory Function**: Laboratory boy/assistant, chemist/ Analysts
3. **Administration Function**: Supervisors, Plant manager/ Incharge, coordinator

The **Technical skill** involved in Wastewater treatment plant vary from organization to organization, but most will have the following tasks as part of their scope:

- Strong mathematical, mechanical and science skills
- Ability to engage in logical processes for troubleshooting
- Excellent interpersonal, verbal and written communication skills
- Maintain treatment systems (piping, pumps, valves and tanks).
- Operate instrumentation for treatment systems and meters
- Create records and observations; engage in reporting of issues and lapse of best practices
- Operate and maintain pumps, which includes repair and troubleshooting
- Maintain vehicles, work area and equipment.
- Encourage the effective use of technology to improve facility operations
- Engage in continuous quality improvement activities, performance measurement and benchmarking
- Articulate issues, problems and processes clearly
- Demonstrate a strong commitment to plant safety activities, practices and standards

The skills required in **Laboratory functions** are:

- Collect field and facility samples
- Analytical skills with speed and accuracy

- Chemical reactions involved
- Calibrate, repair, and troubleshoot treatment systems and meters
- Prepare chemical treatments for plant and effluent systems.
- Safe storage and handling of chemicals

Senior wastewater treatment operators or **Plant engineer / Supervisors** have a depth of experience and management skill that illustrate a ‘leader’ mentality and skill set. In addition to the standard technical role, wastewater treatment managers may be required to perform the following as part of the scope of senior duties:

- Evaluate and troubleshoot operations at various water and wastewater sites
- Identify risks and opportunities for efficiencies and improvement
- Support existing contract operations sites, including evaluations and troubleshooting
- Implement new technical solutions or best operating practices
- Periodic auditing of overseer and/or supervisor roles at contract operations sites
- Develop and implement processes to meet customer needs.
- Implement best operating practices
- Train operations staff on new and innovative operational approaches
- Support business development activities
- Conduct due diligence checks amongst human resource and mechanical processes
- Prepare operational plans and strategies
- Develop operational budgets
- Writing operational and/or technical sections for proposals and manuals
- Managing transitions for new contract operations sites

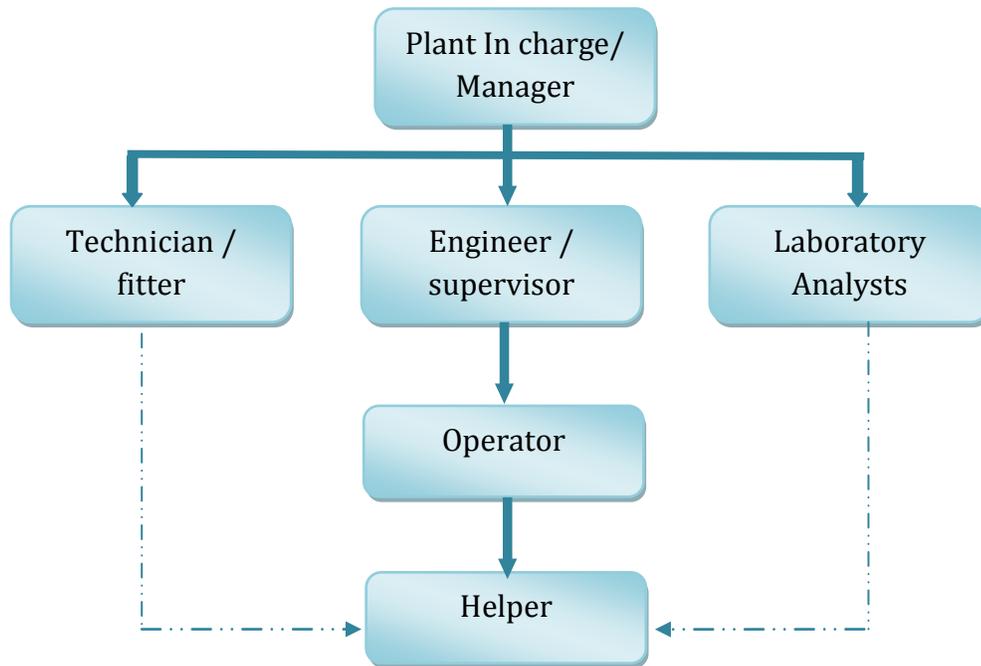
5.2 Job levels and types, job descriptions, qualification and skill sets in wastewater treatment in India and gap assessment

5.2.1 Job levels and types in wastewater sector

Based on our survey and field visits, we have concluded that there are 4 to 5 levels of job levels prevailing in wastewater treatment sector in India, though micro and small scale plants have one or two people handling jobs of every level.

The Job levels observed is similar in all the cases. Broadly it can be summarized as below:

Job levels observed is similar in all the cases



There were cases, when personnel at Lab In-charge level were found to perform the function and job role of supervisor as well as plant in-charge.

As per the Gazette notification, the National Skill Qualification Framework (NSQF) has defined 10 levels based on the process required, professional knowledge , skill, core skill and responsibility handled by the plant operating staff.

The above roles and responsibilities have been referred to while obtaining response for questionnaire circulated by us to Various ETPs/ CETPs across India. NPC has framed the job role and description for various levels with respect to the NSQF (National Skill Qualification Framework). The National Skills Qualification Framework (NSQF) organizes qualifications according to a series of levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes which the learner must possess regardless of whether they were acquired through formal, non-formal or informal learning.

The roles and responsibilities performed by ETP/ CETP operating staff at various levels is listed below:

Table: Roles and Responsibilities

Code Number	Roles and Responsibilities
Helpers	
1.1.	Collection of samples
1.2	Cleans equipment such as bar screens and weirs.
1.3	Lubricates machinery.
1.4	Drives, loads and unloads trucks; spreads sand, gravel, and dirt.
1.5	Paints (rough) and performs other minor maintenance.
1.6	Digs and refills ditches. Cleans drains, ditches, and culverts.
1.7	Collects and disposes of trash
1.8	Washes and cleans vehicles, tools, and equipment.
1.9	Assist operators and technicians in their role
Junior Operator/Operator/ Technician	
2.1	Start the wastewater treatment plant by switching on the pumps, mixers, controllers and other equipment
2.2	Performs any combination of tasks pertinent to controlling operation of plant as well as identifying trouble shooting.
2.3	Taking preventive steps in Pre-Treatment, Primary- Treatment, Secondary-Treatment, tertiary treatment and sludge processing
2.4	Complete the documentation as required
2.5	Check all equipment’s and fill out daily activities log sheet.
2.6	Ensure Proper working of Wastewater Collection system.
2.7	Monitor and repair the working of Wastewater Pumping station and record any anomalies
Electrician/Fitter/Senior Electrician/Senior Fitter	
3.1	Inspects, repairs, and maintains electrical and/or electronic operating and control

Code Number	Roles and Responsibilities
	systems, equipment, and fixtures
3.2	Inspects, maintains and repairs wiring and lighting systems, electrical control equipment, meters, outlets, and panels.
3.3	Supervises Electrician Helper, Maintenance Helper, and/or Laborer. Establishes and operates scheduled maintenance program for plant equipment.
3.4	Electrical maintenance
3.5	Mechanical maintenance
Laboratory Assistant/ Laboratory chemist/Senior Laboratory Chemist	
4.1.	Regular analysis of effluent inlet and outlet quality
4.2	Assembles instruments and equipment for analytical or research work. Prepares chemical and bacteriological media, stains, reagents, and test solutions routinely used in laboratory.
4.3	Operates equipment and conducts tests as directed. performs specialized and complex chemical, bacteriological and physical tests and analyses of raw, partially treated, and treated wastewater and byproducts to determine efficiency of plant processes and insure that plant effluent meets regulatory requirements.
4.4	Conducts or supervises less complex routine tests. Supervises collection of laboratory samples.
4.5	Maintains test result records, prepares data sheets. Prepares or assists in preparation of reports.
4.6	Assembles data, maintains records, and prepares periodic reports.
	Provides direct or indirect instructions to operating personnel regarding chemical requirements and adjustments, changes, or additions to various treatment
4.7	Cleans, maintains, and stores instruments and equipment. Maintains inventory and orders supplies.
4.8	Performs custodial duties in laboratory.
Supervisor/Plant Engineer	
5.1	Supervises and coordinates activities of plant operators, labourers, custodians, and other plant personnel.

Code Number	Roles and Responsibilities
5.2	Prepares work schedules, subject to approval of superintendent or assistant superintendent.
5.3	Analyzes recording instrument readings and laboratory test results; adjusts various plant processes accordingly.
5.4	Prepares reports and maintains records. Inspects plant to determine efficiency of operation, cleanliness and maintenance requirements.
5.5	Determines remedial action in emergencies.
5.6	Conducts training program.
5.7	Requisitions chemicals and supplies.
Plant Manager/In charge/Coordinator	
6.1	Administration,
6.2	Operation and maintenance of entire plant
6.3	Exercises direct authority over all plant functions and personnel
6.4	Inspects plant regularly.
6.5	Analyzes and evaluates operation and maintenance functions
6.6	Initiates or recommends new or improved practices.
6.7	Develops plans and procedures to insure efficient plant operation.
6.8	Recommends plant improvements and additions.
6.9	Coordinates data and prepares or reviews and approves operation reports and budget requests.
6.1	Controls expenditure of budgeted funds and requests approval for major expenditures, if required.
6.11	Recommends specifications for major equipment and material purchases.
6.12	Organizes and directs activities of plant personnel, including training programs.
6.13	Maintains effective communications and working relationships with employees, government officials, and general public.
6.14	Liasoning

5.3 Job description, skill set in wastewater treatment and gap assessment there in:

Based on our assessment during the survey and field visits, the job roles, knowledge and responsibilities required at various levels have been narrowed down specifically for ETP/CETP operating staff. The process required, professional knowledge, professional skill, core skill and responsibility for operating staff at different levels have been compiled based on our experience and feedback from industries/ ETP/ CETP and remarks on its current status have been provided below.

1. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant HELPER;

Qualification criteria:

Preferable qualification criteria (as per SCGJ’s QP)	Atleast 8th class pass
Plus	Physically fit
Minimum Age	18 years
Minimum experience	Not required
Actual Status	Atleast 34% of helpers were not found to be adequately qualified or not even gone to school

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 1	Prepares person to/carry out process that are repetitive on regular basis require no previous practice	Familiar with common trade terminology, instructional words meaning and understanding	Routine and repetitive, takes safety and security measures.	Reading and writing, addition subtraction personal financing, familiarity with social and religious diversity, hygiene and environment	No responsibility always works under continuous instruction and close supervision

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
	Processes which are repetitive and performed on a routine basis, even without guidance	<ul style="list-style-type: none"> • Types of unit processes in wastewater treatment plant and their objective • Basic principles / method / process in cleaning operation • Basics of painting process 	<ul style="list-style-type: none"> • Sampling procedures • Appropriate handling of electro mechanical equipments 	<ul style="list-style-type: none"> • Track of quantity of chemical dosage • Understand safety instructions, signage, colour codes 	<ul style="list-style-type: none"> • Collect sample, dose chemicals under supervision • Regular cleaning of tanks, equipments, lubrication
Level 2	Prepares person to/carry out process that are repetitive on regular basis with little application of understanding, more of practice	Material tools and application in a limited context, understands context of work and quality	Limited service skill used in limited context, select and apply tools, assist in professional works with no variables differentiates good and bad quality	Receive and transmit written and oral messages, basic arithmetic personal financing understanding of social political and religious diversity, hygiene and environment	No responsibility works under instruction and close supervision

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
	Routine jobs requiring basic understanding and procedures	<ul style="list-style-type: none"> Basics of the equipments he cleans such as bar screens, weirs, filters, valves, tanks and how they are cleaned or replaced. Basic principles/purpose and method of Lubrication 	<ul style="list-style-type: none"> Know how on safe storage and handling of corrosive, hazardous chemicals/ gases Safety and precautions while performing tasks 	<ul style="list-style-type: none"> Measure and record meter / gauge readings, operating hours of equipments Escalate the matters which require seniors involvement 	<ul style="list-style-type: none"> Cleans and washes vehicles used in the wastewater treatment plant Lubrication of all tools and equipments Assist operators and technicians in plants O&M
Level 3	person may carry put a job which may require limited range of activities routine and predictable	Basic facts, process and principle applied in trade of employment	recall and demonstrate practical skill, routine and repetitive in narrow range of application	Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment	Under close supervision Some Responsibility for own work within defined limit.

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
	Routine processes that effect the plant’s operation and function	<ul style="list-style-type: none"> • Basics of some minor maintenance/repair processes • Safety compliances while handling chemicals and organic matter • Maintenance schedule of different parts of a wastewater treatment plant • Importance of scheduled maintenance • Fundamentals on solid waste management, awareness about the rules and regulation • Basics of housekeeping operations • Safety aspects 	<ul style="list-style-type: none"> • Safety and precautions while performing tasks, know how on how to detect gas leakages • Instant remedial measures incase of accident/ emergency • Sampling at correct location and depth • Diverting the flow whenever required 	<ul style="list-style-type: none"> • Interpret the flow variation and treatment requirement • Assess the necessity of increasing or decreasing the dosage • Derive flow volume from meter readings • Instant remedial measures incase of accident/ emergency 	<ul style="list-style-type: none"> • Prepare chemical solution and its dosing as per instruction • Paints (rough) and attend minor maintenance jobs • Collects and disposes solid waste generated from the wastewater treatment plant scientifically • Observe personal safety and hygiene

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Current scenario		Helpers in general are untrained manpower and work under close supervision of Plant supervisor/operator. Basic facts, process and principle applied in trade of employment is completely lacking.	There were no standard procedures being followed by helpers. Personal safety aspect was found neglected in more than 50% of the cases. Helpers were in general found to be socially competent but lacked in methodical and technical competency in maximum cases.	In atleast 15% of the cases, helpers didn't know not read or write. Any record keeping was generally maintained by operator or higher level, except for plants manned by one or two people.	In many cases, Helpers are illiterate and do not have basic knowledge about unit processes, safety aspects. They therefore are not reliable enough to hold responsibilities. They depend heavily on instructions provided by their superior. However, it was observed that in micro scale plants where, Helpers undertake multi- tasking own some responsibility of their own.
GAP		In general helpers have to be trained on Basic facts, process and principle applied listed above under desired professional knowledge.	Implementation of SOP and ensure that it is being followed is the gap which needs to filled.	Helpers who know to read & write need to be trained on reading and recording meter readings, basic derivations from readings etc.	Helpers lack in taking any kind of responsibility on their own while executing their job.

For ETP/ CETP		Helper			
NSQF Level (as per SCGJ's QP)		3			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
<p>Note: As per NPC study, helpers under level- 1 & 2, is prevailing condition. However the desirable level to be designated for helper is level- 3 which is being recommended appropriate level for the future. In order to upgrade the present level- 1 and level- 2 of helpers as mentioned in the report, there is need to facilitate this by providing appropriate training to upgrade their knowledge and skills to the recommended level- 3, designated for helpers.</p>					

2. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant OPERATOR / TECHNICIAN;

Note: As per NPC’s observations during the field visit study, workshops and literature survey under the project, the term “Operator has been found acceptable. However in view of meeting with SCGJ and mention of tasks to be performed as per **QP for Technician**, hereafter the term “Operator” is proposed to be interchangeably used as term “Operator/Technician” for NSQF LEVEL “4”.

Qualification criteria:

Preferable qualification criteria (as per SCGJ’s QP)	12 th Pass, 10 th Pass + ITI/Diploma, 8 th pass + 4 years experience as Wastewater treatment Helper
Minimum Age	18 years
Minimum experience	Not required
Actual Status	Atleast 44% of operators were not found to be adequately qualified

For ETP/CETP		Operator/ Technician			
NSQF Level (as per SCGJ's QP)		4			
LEVEL	(a)Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice	Factual knowledge of field of knowledge or study	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment	Responsibility for own work and learning
	Routine procedures for Controlled operation of waste water treatment plant	<ul style="list-style-type: none"> Understand functional aspects of various units in the treatment plant Clarity about primary, secondary and tertiary treatment Application and dosage of chemical required for treatment Working principle of different machineries. Classification of different types of filters/ equipments and	<ul style="list-style-type: none"> Operate and adjust plant machinery, equipment, piping systems and valves Possess teamwork, communication skills and discipline Following safe work procedures Participate in emergency preparedness drills. Operates valves 	<ul style="list-style-type: none"> Read & write in vernacular language. Understand manuals, health and safety instructions, memos etc Maintain logbooks with required data and records as directed by authorities from time to time Recognize faults/ trouble in the plant operation and reporting it to 	<ul style="list-style-type: none"> Start the wastewater treatment plant by switching on the pumps, mixers, controllers and other required equipments of wastewater treatment plant Perform the operation and cleaning of different screens Operate different valves in a wastewater treatment plant Charge the slurry tank wherever required

		<p>how they are cleaned and replaced</p> <ul style="list-style-type: none"> • Knowledge of all processes and equipment involved in wastewater treatment and safety aspects associated with them • Frequency of backwash of filters, aeration, chemical dosage 	<p>and gats either manually or by remote control</p> <ul style="list-style-type: none"> • Monitor and record all meter and gauge readings 	<p>supervisor</p> <ul style="list-style-type: none"> • Maintaining & evaluating records, shift change procedures etc • Observe variation in operating conditions and interpret meter and gage readings and test results to determine process requirement • Take chemical inventory and record chemical and water usage 	<ul style="list-style-type: none"> • Operate oil skimmer and fill drums wherever required • Perform the addition of chemicals, and microbes to treat water as required • Facilitate the calibration of process control equipment as needed • Ensure scientific management of solid waste generated • Complete the documentation as required. • Fixing basic problems in the plant • Ensure smooth operation for compliance of ETP plant • Practice appropriate cleaning of equipment and general housekeeping of the ETP • Monitor gauges, meters, and control panels • Establish and
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					maintain communication with superior and co – workers
Current scenario	Hardly 30% of the operator’s posses the above skills based on our survey and assessment. In general the operators possess only superficial subject knowledge. However, in case of ZLD etps/cetps, operators on job role o t taking of MEE, UF, NF or RO process are adequately qualified and have sound technical knowledge. Further, in etps using advance treatment technologies are having moderate qualification and knowledge.	It was observed that operators had adequate skill for plant's operation but lacked in safe working procedures. In many cases, they are not aware of all the troubleshooting problems and have to depend on supervisor’s instruction.	The operators posses basic reading and writing skills to understand safety instructions, meter reading and maintain log books. However lack in good arithmetic and algebraic principles	Operators own the responsibility of plant's operation but they have to be guided by supervisor /incharge from time to time	
GAP	Operators need to be educated on functional aspect of various unit operations and working principles of equipments	Sops should be made for safe operation of the plant. Operators need to be trained on technical competency	Operators require to be trained on basic arithmetic and algebraic principles	Operators cannot make own decision or take responsibility while handling troubleshooting problems.	

3. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant TECHNICIAN:

SCGJ’S QP for qualification: Yet to be defined

Note: The Technician (Electrical/ Fitter/ Welder etc.) used in the following table, is different from Technician at level 4 as per QP. The Technician at level 4 as per QP is already covered in above table at level 4 under Operator/Technician. The QP for this Technician (Electrician/ Fitter/ Welder etc), are yet not defined. However in order to maintain the clarity between words Technician at level 4 as per QP and Technician (Electrician/ Fitter/ Welder etc) for NSQF 5, the word Senior Technician ((Electrician/ Fitter/ Welder etc) is proposed to be used in the report for NSQF 5 level here and after.

For ETP/CETP		Senior Technician ((Electrician/ Fitter/ Welder etc)			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 5	Job that requires well developed skill, with clear choice of procedures in familiar context	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Desired mathematical skill, understanding of social, political and some skill of collecting and organizing information, communication.	Responsibility for own work and learning and some responsibility for other's works and learning

For ETP/CETP		Senior Technician ((Electrician/ Fitter/ Welder etc)			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
	Specific procedures for all mechanical, electrical and general maintenance of wastewater treatment plant	<ul style="list-style-type: none"> • Sound knowledge of electrical systems, equipment, and fixtures • Thorough knowledge of approved methods, practices and code requirements, and safety standards in attending electrical failures • Knowledge about basic equipments (Pumps, motors, transformer, aerator, valves, compressor), capacity(current, voltage, flow rate) make and life span, electrical circuit installed for each equipment, basic electrical elements (resister, capacitor, inductor, windings etc) • Mechanical design aspects of equipments 	<ul style="list-style-type: none"> • Rectify the problem on time with minimal interruption or hindrance in plant’s operation • Prospective malfunction of equipments, its after effects, preventive and corrective measures • Possess teamwork, communication skills and discipline • Following safe work procedures, emergency preparedness drills 	<ul style="list-style-type: none"> • Read & write in vernacular language. Understand manuals, health and safety instructions, memos etc • Maintain service records of electro mechanical equipments • Diagnose faults/ trouble in the equipment’s operation and take immediate actions • Prepare estimates for repairs, maintenance and construction activities in the plant • Ability to interpret technical manuals, drawings and specifications, including layouts, blueprints and schematics 	<ul style="list-style-type: none"> • Participates in installation, maintenance, and repair of electrical systems, equipment and fixtures. • Inspects, maintains, and repair wiring and lighting systems, electrical control equipment, meters, outlets, and panels. • Routine job includes Lubricating motors and equipment and checking for malfunction • Replacing bearings in motors, pumps, and other equipment • Install new equipment. • Perform maintenance on valves, filters, pumps, tanks and aerators and other equipments of wastewater treatment plant • Perform general

For ETP/CETP		Senior Technician ((Electrician/ Fitter/ Welder etc)			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
		used in wastewater treatment plant <ul style="list-style-type: none"> Working principle of different machineries. Classification of different types of filters/ equipments and how they are serviced General knowledge about ETP process Maintenance schedule of different parts of a wastewater treatment plant Importance of scheduled maintenance 			maintenance <ul style="list-style-type: none"> Ensure the cleanliness work area and equipment Assist in developing the estimates for repair, maintenance and construction activities in wastewater treatment plant Ensure smooth operation for compliance of ETP plant Adhere to the safety standards while performing tasks Establishes and operates scheduled maintenance program for plant equipment.
Current scenario		Technicians currently lack know how of ETP process. They have knowledge about their job but lack	In more than 50% of the cases technicians possessed teamwork attribute and ability to	Maintenance of service records and preparation of estimates for repairs, construction activities etc.	In general technicians are held for the responsibility of rectifying any electrical/mechanical

For ETP/CETP		Senior Technician ((Electrician/ Fitter/ Welder etc)			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
		proficiency in it. Electrical and mechanical aspects/repair are separately attended by different technicians	timely perform tasks. However safety aspects were found to be violated in many cases.	Was not observed in most of the scenario	failure in the plant.
GAP		Technicians also should have basic knowledge about the ETP processes, adequate knowledge about machinery and equipment, plus the ability to perform wide variety of maintenance and repair tasks which is presently lacking in many cases.	Safety standards should be ensured to be complied. Complying with safety standards fall under both Technical and Methodical competency and training is required in this aspect	The job roles of technicians should comprise of service report preparation etc.	Technicians need to be trained on both electrical and mechanical repair. And they need to be motivated to become proactive and deliver quality job at shorter span.

4. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant

CHEMIST:

SCGJ’S QP for qualification: Yet to be defined

For ETP/CETP		Laboratory chemists/ Analysts			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 5	Job that requires well developed skill, with clear choice of procedures in familiar context	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Desired mathematical skill, understanding of social, political and some skill of collecting and organizing information, communication.	Responsibility for own work and learning and some responsibility for other's works and learning
	Specific procedures involving analysis to assay effluent quality for efficient operation of ETP to ensure	<ul style="list-style-type: none"> • Knowledge of wastewater treatment processes and chemical, biological, or bacteriological action involved in each process • Apply principles of chemistry, biology 	<ul style="list-style-type: none"> • Prospective malfunction of instruments, it’s safe handling and preventive measures • Possess teamwork, communication skills and discipline • Following safe work procedures, emergency 	<ul style="list-style-type: none"> • Read & write in vernacular language. Understand manuals, health and safety instructions, memos etc • Maintain analysis 	<ul style="list-style-type: none"> • Supervise and perform specialised and complex chemical, bacteriological and physical tests and analyses of raw, partially treated, and treated wastewater and by products to determine efficiency of plant processes and ensure that plant effluents meets environmental

For ETP/CETP		Laboratory chemists/ Analysts			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
	environmental compliance	and bacteriology to solve problems related to wastewater treatment <ul style="list-style-type: none"> • Knowledge about all quality parameters measured or relevant to the samples and chemical formula for all chemicals used in the lab • Steps involved in analysis and chemical reaction involved in test • Inlet and outlet effluent quality standards 	preparedness drills, safety precaution required for usage of chemicals <ul style="list-style-type: none"> • SOP should be known and properly understood with clarity on actions in all conditions (Including emergency) 	reports, instrument servicing / calibrating record/ schedule <ul style="list-style-type: none"> • Diagnose faults/ trouble in the equipment's operation and take immediate actions • Suggest change in chemical dosage pattern in the plant with change in effluent quality 	compliance. <ul style="list-style-type: none"> • Supervise collection of laboratory samples • Evaluate and interprets test results, establishes test priorities, and prepare periodic reports. • Assemble data, maintain records, and prepares periodic reports. • Set up pilot processes when conducting research on improved procedures/technologies • Conducting jar tests on regular basis to conclude the chemical dosage required for treatment • Provide direct or indirect instructions to operating personnel regarding chemical requirements and adjustments, changes, or additions to various treatment processes • Ensure smooth operation of laboratory • Adhere to the safety standards while performing tasks

For ETP/CETP		Laboratory chemists/ Analysts			
NSQF Level (as suggested by NPC)		5			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Current scenario		Chemists were found to be aware about effluent standards, if not about the ETP processes. However, in many cases chemists were not aware of latest advanced technologies and did not have the capability to set up pilot studies for new technology/improved process	SOP for performing analysis was not found in many cases.	Chemists held the responsibility for proper operation and maintenance of laboratory equipments.	In atleast 30% of the cases, chemists were found to be performing role of the site supervisor and in charge
GAP		Chemists can be upgraded in their skills so that they perform their job more efficiently and undertake required R & D work to improve the ETP process.	Implementation of SOP and insuring its compliance. Following SOP comes under methodical competency and this was found lacking in more than 50% cases.	Skills of chemists can be improved by training so that their proficiency is enhanced by speed and accuracy	The roles of a chemist can be extended up to plant supervisor level as they possess the understanding of ETP process and can recommend changes in plant’s treatment pattern, if required.

5. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant Engineer/ Supervisor

SCGJ’S QP for qualification: Yet to be defined

For ETP		Plant Engineer / Supervisor			
NSQF Level (as suggested by NPC)		6			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 6	Demands wide range of specialised technical skill, clarity of knowledge and practice in broad range of activity involving standard non standard practices	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Reasonably good in mathematical calculation, understanding of social, political and, reasonably good in data collecting organising information, and logical communication	Responsibility for own work and learning and full responsibility for other's works and learning

For ETP		Plant Engineer / Supervisor			
NSQF Level (as suggested by NPC)		6			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
L	Supervision of entire plants operation and management of team for hassle free plants operation	<ul style="list-style-type: none"> • Apt knowledge of processes and equipment involved in wastewater treatment, including basic chemical, bacteriological, and biological processes. • Understanding of all the unit operations of the plant, status and performance of various components • Familiar with all applications and working principles involved in plant’s operation 	<ul style="list-style-type: none"> • Supervise all the function of the plant, assess abnormalities and report timely to plant manager • Analyzes recording instrument readings and laboratory test results; adjusts various plant processes accordingly. • Ability to establish and maintain effective communication and working relationship • Evaluate and trouble shoot operations at various unit operations • Identify risk and opportunities for efficiencies and improvements 	<ul style="list-style-type: none"> • Coordinate plant activities of operators, laborers, custodians and other plant personnel • Prepare operational plans, strategies and develop budgets • Monitor and analyze the activity and log books for verifying the plant's performance and required changes • Determines remedial action in emergencies. • Prepares reports and maintains records. Inspects plant to determine efficiency of operation, cleanliness and maintenance requirements. 	<ul style="list-style-type: none"> • Responsible for operation, and maintenance of entire plant. • Analyses and evaluates operation and maintenance functions • Prepares work schedules, subject to approval of Plant manager/ Incharge. • Organizes training programs for employees • Interact and liason with the regulatory bodies in absence of plant manager • Ensure that all the problems/ failures in the plant are timely addressed and rectified • Ensure that safety standards are being followed • Monitor all stocks of consumables/ spares and optimum usage. • Requisitions chemicals and supplies

For ETP		Plant Engineer / Supervisor			
NSQF Level (as suggested by NPC)		6			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Current scenario		Supervisors in general were adequately qualified and had knowledge of ETP process aspect	Supervisors had knowledge of process control parameters and take necessary actions as and when required	Supervisors possess diagnostic and trouble-shooting skill	Supervisors were found responsible for smooth running of the plant
GAP		Supervisors need to have broad knowledge of all three aspects: process, maintenance and analytics to be able to supervise efficiently. Training in diverse field is required to be given	The professional skills need to be upgraded to have better command on plant operations.	Job proficiency needs to be improved so as to bring down the mean time between breakdowns	Procedures for emergency preparedness and corrective measures to be taken were found lacking in many cases. Supervisors should be responsible for implementation of procedures

6. Job description, qualification, Skill gap assessment as per NSQF Level descriptors for Wastewater treatment plant In charge/ Manager:

SCGJ'S QP for qualification: Yet to be defined

For ETP		Plant In charge/ Manager			
NSQF Level (as suggested by NPC)		7			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility

For ETP		Plant In charge/ Manager			
NSQF Level (as suggested by NPC)		7			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Level 7	Requires a command of wide ranging specialized theoretical and practical skill, involving variable routine and non-routine context.	Wide ranging , factual and theoretical knowledge in broad contexts within a field of work or study	Wide range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Good logical and mathematical skill understanding of social political and natural environment good in collecting and organising information, communication and presentation skill	Full responsibility for output of group and development
	Comprehensive and systematic procedures for Smooth continuous operation of wastewater treatment plant to meet environmental standards	<ul style="list-style-type: none"> • Sound knowledge of processes and equipment involved in wastewater treatment, including basic chemical, bacteriological, and biological processes. • Thorough with entire dynamics of the plant, treatment scheme, variation in quality and quantity of flow • Well versed with all the unit operations of the plant, status and performance of various 	<ul style="list-style-type: none"> • Ability to prepare or supervise preparation of clear, concise reports and budget recommendations. • Ability to plan, direct, and evaluate plant operation and maintenance functions • Evaluate and trouble shoot operations at various unit operations • Recommend 	<ul style="list-style-type: none"> • Maintain effective communication and working relationships with employees, govt. Officials etc • Coordinate plant activities of operators, laborers, custodians and other plant personnel • Prepare operational plans, strategies and develop budgets • Monitor and 	<ul style="list-style-type: none"> • Responsible for administration, operation, and maintenance of entire plant. • Exercises direct authority over all plant functions and personnel, in accordance with approved policies and procedures • Inspects plant regularly • Analyses and evaluates operation and maintenance functions • Initiates or recommends new or improved technologies/processes • Develop plans and

For ETP		Plant In charge/ Manager			
NSQF Level (as suggested by NPC)		7			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
		<p>components</p> <ul style="list-style-type: none"> • Well acquainted with plant's hydraulics, retention time, aeration requirements • Assess the need of modification in treatment process with change in inflow • Keep exploring ways and means to continuously improve the performance and efficiency of the plant • Understanding of managerial, administrative, and accounting practices and procedures involved in successful plant operation. • Knowledge of industrial wastes and their effects on treatment processes and equipment. 	<p>specification of major equipment and material purchase</p> <ul style="list-style-type: none"> • Identify risk and opportunities for efficiencies and improvements • Implement new technical solutions and improvements in plants • Train staff on new and innovative operational approaches 	<p>analyze the activity and log books for verifying the plant's performance and required changes</p> <ul style="list-style-type: none"> • Implement best operating practices 	<p>procedures to ensure efficient plant operation.</p> <ul style="list-style-type: none"> • Recommends plant expansion. • Co ordinates data and prepare/ review and approve operation reports and budget requests. • Control expenditure of budgeted funds • Recommend specification for major equipment and material purchase • Organizes training programs for employees • Interact and liason with the regulatory bodies • Conduct diligence checks amongst human resource and mechanical processes • Ensure that all the problems/ failures in the plant are timely addressed and rectified • Ensure that safety standards are not neglected

For ETP		Plant In charge/ Manager			
NSQF Level (as suggested by NPC)		7			
LEVEL	(a) Process required	(b) Professional knowledge	(c) Professional skill	(d) Core skill	(e) Responsibility
Current scenario		Plant managers were found to aptly handle the plant but paid least attention to continuous improvement /upgradation in processes.	In few cases, it was observed that plant managers are conducting in-house training for its operating staff	ETP/ CETP Plant managers should possess both technical as well as managerial skills for effective operations. In most of the cases, managers were found to possess either of the skill and not both	In many cases, it is observed that Plant- in –charge is entangled with only administrative work and is unable to give due attention to the technical aspect of ETP operation
GAP		Plant managers should attend training on new technological developments from time to time.	In house training routine should be framed and maintained. Plant Incharge should possess Methodical, technical and social competency for effective plant’s operation	Managerial skills should be upgraded in plant in charge possessing technical skills and vice-versa	Plant in charge lacks managerial and administrative skill and is unable to delegate jobs to his juniors.

5.4 Skill & competency gap assessment as per MPCB guidelines

Skill gap assessment with respect to Maharashtra pollution control board guidelines for O&M of ETP has also been compiled for various job roles:

1. Helpers:

Role defined by MPCB guidelines: labour / helpers are required to assist the all individuals involved in plant operation and upkeep and maintenance of the various units, structures, areas, floors, rooms, equipment, tanks, vessels, beds etc. and removal, loading, haulage/carriage of wastes, screenings, stores and chemicals and other such material as the need be. They should also be aware of all the operational techniques so that they can look into the plants when operators not available.

GAP: Besides performing the above mentioned task, helpers are involved in meter readings, chemical preparation, dosing etc. For these tasks they lack know how of operational and safety techniques.

SI N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
	<ul style="list-style-type: none"> 7th class pass, plus 	<ul style="list-style-type: none"> 66% of the helpers are 8th pass or more 	<ul style="list-style-type: none"> Only 34% of helpers are below the standard
Plus	<ul style="list-style-type: none"> Physically fit 	<ul style="list-style-type: none"> There are no defined norms for age limit prevailing in ETPs/ CETPs 	<ul style="list-style-type: none"> In atleast 25% of the cases helpers were above the age of 55 years and at times not fit for their job

2. Operators:

Role defined by MPCB guideline: Plant Operator(s) comprise a team of qualified / trained operators who work in shifts in operating and maintaining screens, grit removal devices, pumps, aerators, valves, etc. in directing the effluent and settled sludge to various units for / after treatment. Acting as **ears and eyes of the Plant manager**, it is their responsibility to sense and foresee troubles. They should be able to assist the electrical / mechanical maintenance technician(s) in carrying out the preventive and breakdown maintenance tasks.

GAP: The roles of an operator requires him to be adequately qualified/ trained and possess communication skills to maintain records, understand all instructions and raise issues to seniors whenever required. There were many cases where operators did not meet these basic requirements.

SI N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
1	<ul style="list-style-type: none"> High school with sciences + ITI trade 	<ul style="list-style-type: none"> More than 50% of the operators are ITI holders or more 	<ul style="list-style-type: none"> Almost 50% of the operators were not adequately qualified
Plus	<ul style="list-style-type: none"> Trained in ETP operations 	<ul style="list-style-type: none"> They had acquired on the job training 	<ul style="list-style-type: none"> There were operators aged 18 – 20 years who did not even have any experience training/background of job they were performing
Plus	<ul style="list-style-type: none"> 1 yr operation in operating pump and valve at a pumping installation 	<ul style="list-style-type: none"> None of the operators had undergone any professional/vocational training on ETP operations 	
Or	<ul style="list-style-type: none"> 5 yr exp as helper & helped electrician/ mechanical maintenance for 3 		

3. Technicians:

Role defined by MPCB guideline: Electrical / Mechanical Technician(s) form a team of qualified maintenance technicians with the ability and experience of diagnosing health of equipment and motors with the aim of taking these on for preventive maintenance, assigning causes and reasons for faults and ultimate failure, quickly carrying out minor repairs / replacements by reaching, removing, stripping / opening, repairing, assembling of routine electrical and mechanical machines / equipment including piping and valves.

GAP: Technicians were in general found to possess the above mentioned skills. They need to be trained on safety aspects. In few cases, technicians were not adequately qualified.

Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
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Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
	<ul style="list-style-type: none"> SSC pass with sciences + ITI in electrical or mechanical fitter 	<ul style="list-style-type: none"> 50% of the technicians are ITI holders or graduates 	<ul style="list-style-type: none"> 50% of technicians are educated up to 10th class or less
Plus	<ul style="list-style-type: none"> Trained for personal working in ETP 	Technician job required specific trade skill.	50% of the technicians were not competent for the same.
Plus	<ul style="list-style-type: none"> 1 yr exp in o&m of pumps, motors, switch gears, valves and pipes 		
or	<ul style="list-style-type: none"> 5 yrs exp as plant operator & helped electrical/maintenance team for 3 yrs 		

4. Laboratory Chemist/Analyst:

Role defined by MPCB guideline: Laboratory Analyst is a qualified individual who has knowledge of water and waste water chemistry and is trained in preparation of laboratory chemicals, use of laboratory instruments, collection and preservation of water / waste water samples and analysis for various environmental parameters such as pH, SS, BOD, COD, TDS etc

GAP: The chemists were found to be trained in above mentioned jobs. However, in more than 50% of the cases, there were no SOPs found to be in place or followed.

Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
1	<ul style="list-style-type: none"> BSc chemistry + 3 yr analytical experience 	<ul style="list-style-type: none"> 51% of chemists were science graduates or diploma 	<ul style="list-style-type: none"> Chemists in most of the cases are qualified adequately, though lacked experience in many cases
or	<ul style="list-style-type: none"> Msc chemistry + 1 yr analytical exp 	<ul style="list-style-type: none"> 34% were found to be post graduates or Phd holders 	<ul style="list-style-type: none"> In 25% cases chemists at entry level were found to lack analytical

Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
			skills
Plus	<ul style="list-style-type: none"> Trained as Laboratory analyst for working on ETP laboratory 		<ul style="list-style-type: none"> All the chemists at entry level were getting trained by virtue of their experience

5. Plant Manager/ Incharge:

Role defined by MPCB guidelines: Plant Manager (Backbone of ETP operation) is an individual of science background with minimum experience of at least three years on similar plant(s) or an environmental engineer. He must have thorough understanding of unit operations and application of microbiology and environmental chemistry in the effluent/ sewage treatment. He should be able to take decisions to divert / bypass/ distribute the flow in the event of disruptions / breakdown of mechanical or electrical equipment until resumption is in place and repairs / replacements are successfully carried out. He should understand and be able to plan a forecast and use of chemicals / nutrients for the plant operations and the laboratory. He should be well versed in working out dosages of chemicals and nutrients based on the raw effluent quality and change it as the treatment progresses and results start forthcoming. AS ETP Manager, he should on a weekly basis assign duties for each individual and broadly lay down (in writing) the duties and responsibilities of each category of staff. He should ensure that the staff on plant should get rotated in various shifts during each month.

GAP: Plant managers in many cases lacked managerial skills. They are not being upgraded on new technologies and solutions. They are not focused in implementing best operating practices in the plant.

Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
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Sl. N	Competency level (as defined by MPCB guidelines)	Avg. skill level based on questionnaire response	GAP
1	<ul style="list-style-type: none"> PG Env science or Env/ chemical engg + 1 year exp 	<ul style="list-style-type: none"> 24% of the plant managers were post graduates or engineers 	<ul style="list-style-type: none"> In small scale plants, the plant managers were not adequately qualified, though skilled.
or	<ul style="list-style-type: none"> Diploma in Env/ chemical engg + 3 yrs exp 	<ul style="list-style-type: none"> 21% of managers were diploma holders with experience 	<ul style="list-style-type: none"> In many cases, plant managers need to be trained on managerial and administrative skills
or	<ul style="list-style-type: none"> Graduate in Env science / micro biology + 3 yrs exp 	<ul style="list-style-type: none"> 32% of managers were graduates (both science and arts graduates) 	
Plus	<ul style="list-style-type: none"> Trained in ETP design / operation 	<ul style="list-style-type: none"> 50% of the managers were trained in design aspects 	<ul style="list-style-type: none"> Continuous training is required in the area of design and technologies.

5.5 RPL (Recognition of Prior Learning) Frame work

Recognition of Prior Learning (RPL) is *“the process of recognizing previous learning, often experiential, towards gaining a qualification.”*

These RPL Guidelines seek to provide formal recognition to individuals who have gained learning informally, such as through training in the workplace, community and/or voluntary activities. It creates opportunities for personal or career development or to gain credit towards other qualifications or learning programs to learners who have the skills but no certificate to prove it. The strength of this approach will be the outcomes-based quality-assured certification.

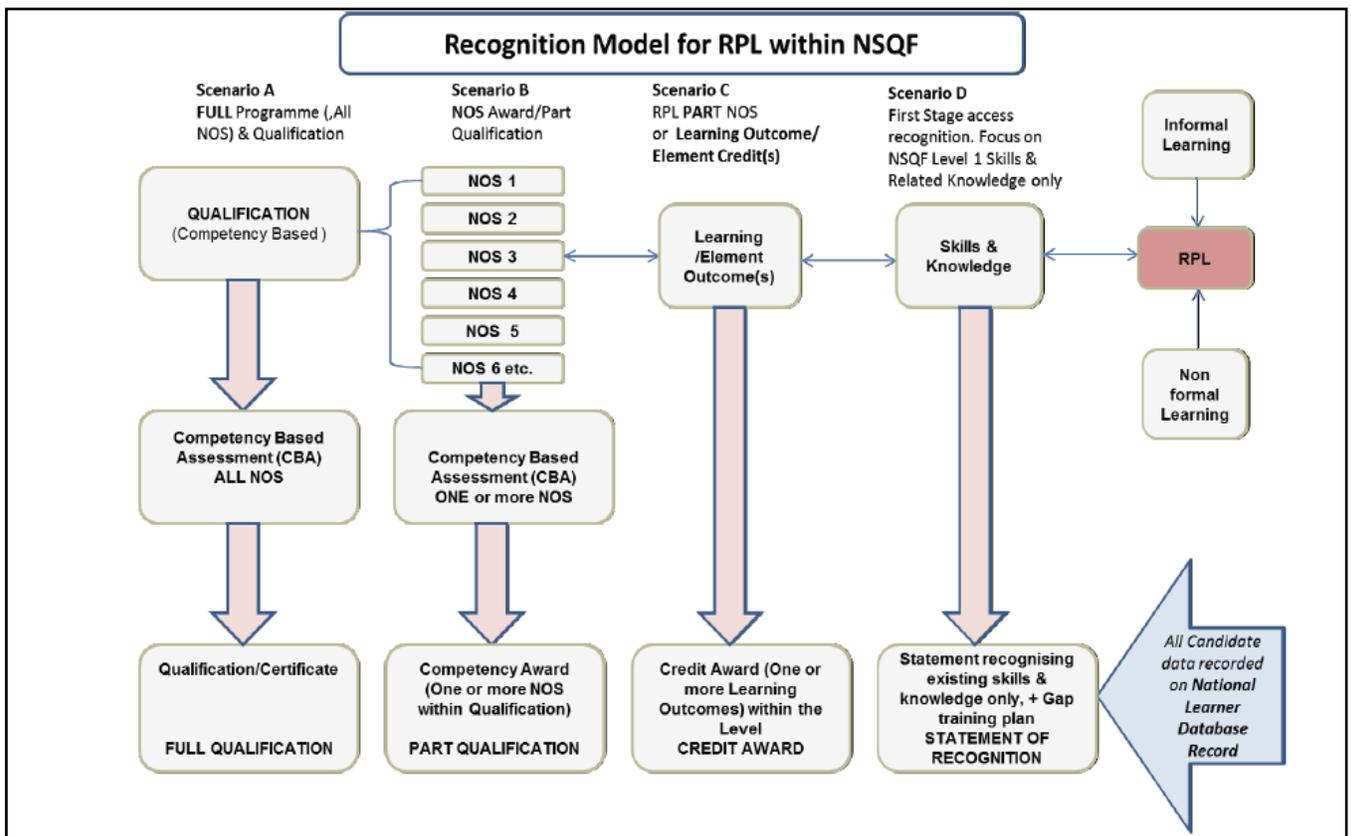
The primary objectives of the RPL framework for India are as follows:

- i) Facilitate formal recognition of skills/competences acquired through non-formal and informal channels, opening up education and career advancement and growth opportunities for the individuals concerned. “Competence” refers to the proven ability to use acquired knowledge, skills and other abilities in discharge of responsibilities in a job role.
- ii) Provide a basis for structuring procedures and criteria for RPL implementation,

- monitoring and evaluation, including resourcing & quality assurance.
- iii) Assist in raising awareness about RPL.
 - iv) Define the processes and systems for Indian businesses wishing to establish RPL systems & structures in their workplaces, both to facilitate the national movement on skill development, as well as to create avenues of growth for their non-certified workforce.
 - v) Establish a basis for the National coordination of RPL in India including all RPL data capturing & management issues.
 - vi) Support social inclusion efforts, by providing access to those currently excluded from the formal sector due to lack of learning/skills recognition and certification.

5.5.1 Recognition model for RPL within NSQF

As per the RPL draft policy submitted by NSDA to Ministry of skill development and entrepreneurship, the following diagram presents the various scenarios that could apply to anyone seeking RPL:



Source: <http://www.nsda.gov.in/resources/Draft%20RPL%20Policy%20submitted%20to%20MoSDE.pdf>

Scenario A—Full Qualification: In accordance with the RPL process, where an individual is able to establish that s/he has all the competences necessary for the particular job role at the NSQF level at which s/he is being assessed, such person shall be awarded a certificate for the Full Qualification. The assessment shall be competency-based, in accordance with the NSQF and National Occupational Standards (NOSs).

Scenario B—Part Qualification: Where the competency-based RPL assessment shows that a person has the competences for one or more NOSs, for the particular job role at the NSQF level at which s/he is being assessed, but not all of them, such person will be awarded with a Part Qualification, which recognizes the competences that the person has attained.

Scenario C—Credit Award: An individual will be awarded a Credit Award when s/he does not qualify for either a Full or Part Qualification, but has acquired some of the competences within one or more of the relevant NOSs.

Scenario D—Statement of Recognition: The Statement of Recognition will be awarded to the RPL candidate who is able to fulfill the Qualification requirements to the lowest extent. Such person will possess some of the requisite skills and knowledge, but not the complete competence for that job role. This is likely to be most relevant for RPL assesses for NSQF level 1 for any job role.

Since an RPL candidate has acquired skills and competences outside formal channels, each of these scenarios is possible and shall be recognized with an appropriate award to enable further education or employment. However, considering the Indian context and current circumstances, most RPL candidates are likely to meet Scenario A or B.

5.6 . Recommendation

Based on NPC’s analysis the following NSQF levels along with their desirable qualification criteria are being recommended for various job levels in wastewater treatment sector:

S.N	Particulars	Recommended NSQF level	Recommended desirable qualification	Remarks
1	Helper (Grade 1)	2	Atleast 5th pass, plus physically fit	All helpers cannot be placed at single NSQF level. At level 1 and 2, the personnel have no responsibility of

S.N	Particulars	Recommended NSQF level	Recommended desirable qualification	Remarks
			minimum 18 years of age	their own and they work under instruction and supervision. Helpers perform a wide range of task in wwtp and not all tasks involve responsibility. Depending upon their level of responsibility held, helpers can be classified at both NSQF levels 2 and 3.
	Helper (Grade 2)	3	Atleast 8th pass, plus	
			physically fit	
			minimum 18 years of age	
2	Operators/Technician	4	Diploma Engg / ITI, plus	operators perform routine procedures for controlled plant operation and require process understanding and application
			Trained on ETP operations, or	
			8th pass + 4 years work experience as helper	
			minimum 18 years of age	
3	Senior Technician (Electrician/ Fitter/ Welder etc)	5	12th pass + ITI mechanical/fitter/electrical, plus	Technicians require specific trade skills for diagnosing and performing their task. They hold slightly more responsibility than operators to take preventive measures to refrain from breakdowns
			trained on ETP maintenance, or	
			5 yrs exp as plant operator & helped electrical/maintenance team for 3 yrs	
			minimum 20 years of age	
4	Lab Analyst/ chemist	5	BSc chemistry + 2 yr a analytical experience, or	Like technicians, Lab analysts also require specific trade skills to perform their task and hence hold higher
			Msc chemistry , plus	
			Trained as Laboratory analyst for working on ETP laboratory	

S.N	Particulars	Recommended NSQF level	Recommended desirable qualification	Remarks
			minimum 20 years of age	responsibility than operators and monitor plant's compliance
5	Supervisor/ Plant engineer	6	Diploma engg /BE or eqv + trained in plant operation, or	Supervisors manages the entire team below in terms of operations and acts as a bridge among various levels and ensures that functions are smoothly being performed at various levels
			3-5 years experience as an operator/ technician or analyst	
			minimum 23 years of age	
6	Plant manager/ In charge	7	PG in Env / science/ chemistry/ microbiology + 2 years of experience in plant's administration and operation, or	Plant managers hold the maximum responsibility in any wastewater treatment plant. The performance of entire plant is ensured by him. They should possess strong technical, managerial and inter personal skills
			BE or eqv + 3 years of experience in plant administration and operation, or	
			5 years experience as plant supervisor or plant engineer	
			minimum 25 years of age	

6.0 SPECIFIC TRAINING REQUIREMENTS

Training needs are different for manpower operating at different levels in wastewater treatment plants. Based on the questionnaire responses and interaction with officials during field visits the areas of trainings for different levels have been listed below:

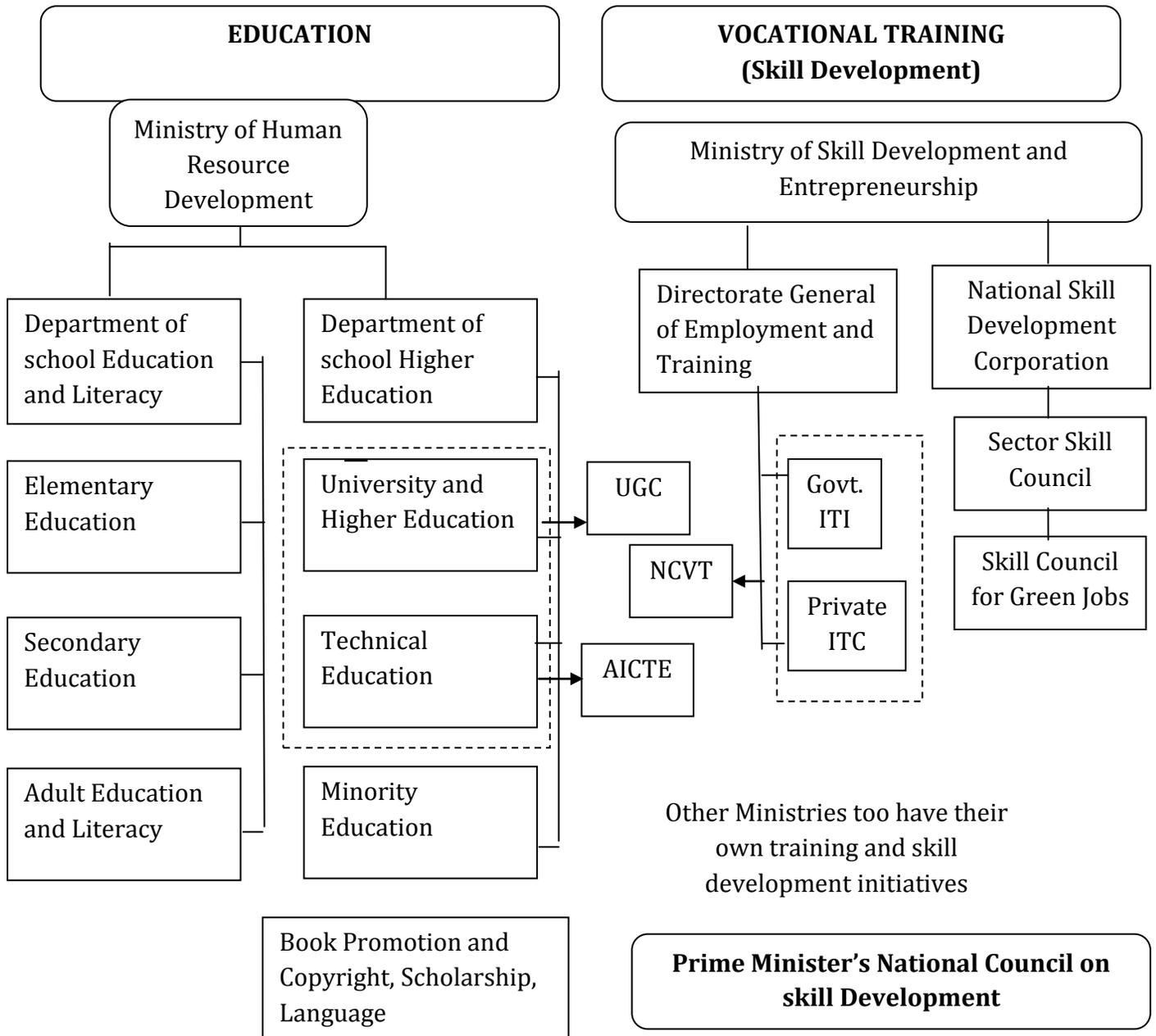
Helper	
1	Wastewater characteristics
2	Best practices in operation and maintenance
3	Occupational health and safety aspects of the plant & use of PPEs
4	Dewatering of sludge
5	Team work training
6	Housekeeping
7	Chemical occupation health and safety
8	Spillage and impact on soil
Operator/Technician	
1	Plants operational parameters (eg. Retention time in unit operation, sludge wasting, f/m ratio, ph control etc)
2	Application of chemicals and their dosage
3	Best practices in operation and maintenance
4	Team work training
5	Soft skill training
6	New type of instruments for analysis
7	Preventive measures
8	Operational & general safety
Senior Technician (Electrician/ Fitter/ Welder etc)	
1	Pumps Operation & Maintenance And Trouble Shooting
2	Air Blower Operation & Maintenance And Trouble Shooting
3	Trouble Shooting & Routine & Preventive Maintenance Measures
4	Preventive Measures
5	Operational & Gen. safety

Chemist/ Lab Analyst	
1	Advance analysis techniques: GC, AAS, Colorimetry/ spectrometry
2	Safety use pp in lab
3	Chemical occupation health and safety
4	Application of chemicals and their dosage
5	Wastewater characteristics
6	Standard lab analysis techniques
7	New type of instruments for analysis
Supervisor	
1	Team development
2	Quick assessment methods of control parameters
3	Trouble shooting & routine & preventive maintenance measures
4	Awareness with new development
5	Operational & Gen. safety
Plant Manager	
1	Team management
2	New development, upgradation and updates
3	Team development
4	Advance technology
5	Exposure to different ETPs and CETPs having advance treatment
6	Reuse/recycle/reduce in wastewater management
7	Process modification leading to reduction in water consumption
8	Reduce/reuse/recycle
9	Waste management
10	Resource conservation
11	Energy conservation

7.0 STRUCTURAL FRAMEWORK OF THE EDUCATION AND SKILL DEVELOPMENT SECTOR IN INDIA

7.1 Current structure

The current structure of education and skill development sector in India is given below:



Note: The above structure is centralized. Apart from this, each of the state is having their respective skill development missions.

Reference: <http://www.nsda.gov.in/NSQF/nsqfIndexPage.html?name=ssdm>

Education, including all aspects higher education and college education falls under the Ministry of Human Resource Development. The University and Higher Education arm is responsible for all college education (Arts, Science, Commerce, etc.), while engineering education, polytechnics, etc., fall under the category of Technical Education. The University Grants Commission (UGC) provides funds in the form of grants and also coordinates as well as sets standards for teaching, examination and research in universities. The All India Council for Technical Education (AICTE) is the regulatory body for Technical Education in India. Its objectives are: promotion of quality in technical education, planning and coordinated development of technical education system, regulation and maintenance of norms and standards.

A large part of the current vocational training infrastructure, the Government ITIs and Private ITCs, falls under the Ministry of Labour and Employment’s Directorate General of Employment and Training (DGET). The National Council on Vocation Training (NCVT) plays a key role in the formation of training curriculum, policies, standards, as well as in certification by means of the ‘trade test’.

The National Skill Development Corporation (NSDC) has been set up under Public-Private-Partnership (PPP) mode as a Section-25 Company under the Ministry of Finance to provide viability gap funding and coordinate private sector initiatives. The Prime Minister’s National Council on Skill Development has been formulated to coordinate action on skill development.

National Skill Development Mission

On 1st July 2015, prime minister approved Institutional Framework for the National Skill Development Mission. The National Skill Development Mission will provide a strong institutional framework at the Centre and States for implementation of skilling activities in the country.

The Mission has a three-tiered, high powered decision making structure. At its apex, the Mission’s Governing Council, chaired by the Prime Minister, provide overall guidance and policy direction. The Steering Committee, chaired by Minister in Charge of Skill Development, reviews the Mission’s activities in line with the direction set by the Governing Council. The Mission Directorate, with Secretary, Skill Development as Mission Director, ensures

implementation, coordination and convergence of skilling activities across Central Ministries/Departments and State Governments. The Mission also runs select sub-missions in high priority areas. Further, the National Skill Development Agency (NSDA), the National Skill Development Corporation (NSDC) and the Directorate of Training function under the overall guidance of the Mission. All these three agencies fall under The Ministry of Skill Development and Entrepreneurship (MSDE), which is linking all these three decisions making levels and facilitating linkages to all Central Ministries/Departments and State Governments.

The Training and Apprenticeship verticals, comprising of the entire network of Industrial Training Institutes (ITIs) and Apprenticeship Training schemes, were transferred from the Ministry of Labour and Employment to Ministry of Skill Development and Entrepreneurship (MSDE). These changes have paved the way for a new skilling ecosystem, with closer coordination across the public and private sectors. (Ref: http://www.pmindia.gov.in/en/news_updates/national-skill-development-mission/)

National Skill development policy 2015

The Policy acknowledges the need for an effective roadmap for promotion of entrepreneurship as the key to a successful skills strategy. The previous National Policy on Skill Development was formulated by the Ministry of Labour and Employment in 2009 and provided for a review after five years to align the policy framework with emerging national and international trends.

The Vision of the Policy is “to create an ecosystem of empowerment by Skilling on a large Scale at Speed with high Standards and to promote a culture of innovation based entrepreneurship which can generate wealth and employment so as to ensure Sustainable livelihoods for all citizens in the country”.

To achieve this Vision, the Policy has four thrust areas. It addresses key obstacles to skilling, including low aspirational value, lack of integration with formal education, lack of focus on outcomes, low quality of training infrastructure and trainers, etc. Further, the Policy seeks to align supply and demand for skills by bridging existing skill gaps, promoting industry engagement, operationalising a quality assurance framework, leverage technology and promoting greater opportunities for apprenticeship training. Equity is also a focus of the Policy,

which targets skilling opportunities for socially/geographically marginalised and disadvantaged groups. Skill development and entrepreneurship programmes for women are a specific focus of the Policy. In the entrepreneurship domain, the Policy seeks to educate and equip potential entrepreneurs, both within and outside the formal education system. It also seeks to connect entrepreneurs to mentors, incubators and credit markets, foster innovation and entrepreneurial culture, improve ease of doing business and promote a focus on social entrepreneurship. (Ref: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=122927>).

Ministry of Skill Development and Entrepreneurship (MSDE)

The Ministry is responsible for co-ordination of all skill development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills, and innovative thinking not only for existing jobs but also jobs that are to be created.

The Ministry aims to Skill on a large Scale with Speed and high Standards in order to achieve its vision of a 'Skilled India'.

It is aided in these initiatives by its functional arms – National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), National Skill Development Fund (NSDF) and 33 Sector Skill Councils (SSCs) as well as 187 training partners registered with NSDC. The Ministry also intends to work with the existing network of skill development centres, universities and other alliances in the field. Further, collaborations with relevant Central Ministries, State governments, international organizations, industry and NGOs have been initiated for multi-level engagement and more impactful implementation of skill development efforts.

National Skill Development Corporation (NSDC)

NSDC was set up in 2009 as part of a national skill development mission to fulfil the growing need in India for skilled manpower across sectors and narrow the existing gap between the demand and supply of skills under Union Finance Ministry.

Mission

Upgrade skills to international standards through significant industry involvement and develop necessary frameworks for standards, curriculum and quality assurance

Enhance, support and coordinate private sector initiatives for skill development through appropriate Public-Private Partnership (PPP) models; strive for significant operational and financial involvement from the private sector

Play the role of a "market-maker" by bringing financing, particularly in sectors where market mechanisms are ineffective or missing

Prioritize initiatives that can have a multiplier or catalytic effect as opposed to one-off impact.

Objective

To contribute significantly (40 per cent) to the overall target of skilling / up-skilling 400 million people in India by 2022, mainly by fostering private sector initiatives in skill development programmes and to provide funding.

The NSDC facilitates or catalyses initiatives that can potentially have a multiplier effect as opposed to being an actual operator in this space. In doing so, it strives to involve the industry in all aspects of skill development.

The 267 training partners, which include for-profit and not-for-profit entities, represent the core philosophy of NSDC. Through its PPP constitution, the delivery of skilled population been placed solely at the doors of private sector companies,

Over the past 4 years, our partners have delivered over 2 million skilled people in more than 25 sectors, at 2500+ fixed and mobile centre, in over 350 districts across the country.

The two types of courses affiliated under NSDC are:

- conducted by NSDC approved training partners which should be certified by Sector Skill Councils (SSCs) as well as courses that may not be certified by SSCs as no SSC exists in that area.
- Courses certified by SSCs which are not provided by NSDC funded training partners.

NSDC is a not-for-profit company set up by the Ministry of Finance, under Section 25 of the Companies Act. It has an equity base of Rs. 10 crore, of which the Government of India holds for 49%, while the private sector has the balance 51%.

The overall objective of NSDC is to create training capacity in the country, fund scalability and sustainability of private enterprise, create a market ecosystem for skill development and meet the targets set out by the Government. NSDC mandate is to train 150 million people by 2022.

NSDC at regular intervals submits data to the PM’s National Council for Skill Development and subsequently to the National Skill Development Agency (NSDA) under MSDE, as well as to the Ministry of Finance.

Since the formation of MSDE, NSDC has been sharing regular updates/information with the Ministries mutually agreed. The annual disbursements to NSDC are only made after the work plan and projected disbursement is shared with National Skill Development Agency under MSDE. Apart from this, NSDC has promptly provided responses to all the queries received from MSDE, NSDF and NSDA from time to time. NSDC also cooperated and provided all the information requested by the CAG auditors.

NSDC has been funding as ‘Project Finance’ for creation of institutional training capacity in the country. This training capacity is also being used by other skill development programs under Central Ministries and State Governments. Therefore, NSDC makes a greater contribution to India’s skill ecosystem than the training numbers. The capacity created by NSDC partners is also benefiting government schemes such as NULM, Aajeevika (DDU-GKY), MANAS, MES etc. Numbers from these trainings are not being reported to NSDC, but benefit the larger ecosystem.

NSDC is a one of its kind, Public Private Partnership in India, under the Ministry of Skill Development & Entrepreneurship. It aims to promote skill development by catalyzing creation of large, quality, for-profit vocational institutions.

NSDC provides funding to build scalable, for-profit vocational training initiatives. Its mandate is also to enable support systems such as quality assurance, information systems and train the

trainer academies either directly or through partnerships. NSDC acts as a catalyst in skill development by providing funding to enterprises, companies and organisations that provide skill training. It will also develop appropriate models to enhance, support and coordinate private sector initiatives.

National skill development policy 2009 (Ref: <http://www.nsdcindia.org/>)

There are 40 sector skill councils affiliated with NSDC. Since its inception, one of the pillar on which NSDC was built are the Sector Skill Councils (SSCs), which play a vital role in bridging the gap between what the industry wants and what the skilling curriculum ought to be.

SSCs & SCGJ

As per National Skill Development Policy 2015, National Skill Development Corporation (NSDC) would constitute SSCs with following functions:

- *Identification of skill development needs including preparing a catalogue of types of skills, range and depth of skills.*
- *Development of a sector skill development plan and maintain skill inventory.*
- *Determining skills/competency standards and qualifications and getting them notified as per the NSQF.*
- *Standardization of affiliation, accreditation, examination and certification process in accordance with the NSQF*
- *Participation in the setting up of Affiliation, accreditation, examination and certification norms for their respective sectors.*
- *Plan and facilitate the execution of Training of Trainers along with NSDC and States.*
- *Promotion of academies of excellence.*
- *Will lay special emphasis on the needs of the ST/SC, differently abled and minority populations in the fields of employment and employability.*
- *SSCs shall ensure that the persons trained are assured of finding employment at decent wages.*
- *Conduct skill based assessment and certification which is based on QP and NOS developed for respective sectors.*

The National Occupational Standard is one of the most significant contribution of NSDC to India's skilling ecosystem - something that was made possible by the SSCs, which are national partnership organizations that bring together all the stakeholders - industry, labour and the academia. (Ref: <http://www.nsdcindia.org/>)

The SSCs operate as autonomous body. It can be a registered as Sec 25 Co, or Public Limited Co.. Funding is initially done by the government. As they grow, the SSCs become self-funded, for-profit organizations.

Since its inception, one of the pillar on which NSDC was built are the Sector Skill Councils (SSCs), which play a vital role in bridging the gap between what the industry wants and what the skilling curriculum ought to be.

There are 40 sector skill councils affiliated with NSDC.

Skill Council for Green Jobs is one of the most recently launched initiatives of the Government of India aligned to the National Skill Development Mission. It is promoted by the Ministry of New and Renewable Energy (MNRE) and Confederation of Indian Industry (CII). The creation of the SCGJ was approved in the 10th meeting of National Skill Qualifications Committee held on 28th September 2015. Established as a not-for-profit, autonomous, industry-led society, the SCGJ was incorporated under the Societies Registration Act XXI, 1860 on 1st October, 2015.

National Skills Qualifications Framework (NSQF)

The National Skills Qualifications Framework (NSQF) is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills and aptitude. These levels, graded from one to ten, are defined in terms of learning outcomes which the learner must possess regardless of whether they are obtained through formal, non-formal or informal learning. NSQF in India was notified on 27th December 2013. All other frameworks, including the NVEQF (National Vocational Educational Qualification Framework) released by the Ministry of HRD, stand superceded by the NSQF.

Under NSQF, the learner can acquire the certification for competency needed at any level through formal, non-formal or informal learning. In that sense, the NSQF is a quality assurance

framework. Presently, more than 100 countries have, or are in the process of developing national qualification frameworks.

The NSQF is anchored at the National Skill Development Agency (NSDA) and is being implemented through the National Skills Qualifications Committee (NSQC) which comprises of all key stakeholders. The NSQC's functions amongst others include approving NOSs/QPs, approving accreditation norms, prescribing guidelines to address the needs of disadvantaged sections, reviewing inter-agency disputes and alignment of NSQF with international qualification frameworks.

Specific outcomes expected from implementation of NSQF are:

- Mobility between vocational and general education by alignment of degrees with NSQF
- Recognition of Prior Learning (RPL), allowing transition from non-formal to organised job market
- Standardised, consistent, nationally acceptable outcomes of training across the country through a national quality assurance framework
- Global mobility of skilled workforce from India, through international equivalence of NSQF
- Mapping of progression pathways within sectors and cross-sectorally
- Approval of NOS/QPs as national standards for skill training

7.2 Current Supply

The current education and skill development capacity in India is as revealed by the following table:

Table 1: Current Education and Skill Development Capacity in India

Category	Sub-Category	No. of such institutions
School Education	Pre-Primary Schools	67,157
	Primary Schools	7,72,568
	Middle Schools	2,88,493
	High and Higher Secondary	1,59,708
Vocational Training	Government ITI	2,076

Category	Sub-Category	No. of such institutions
	Private ITC	5,529
College Education	Central University	20
	State University	216
	Deemed University	101
	Institutions of National Importance	13
	Research Institutions	140
	Arts, Science & Commerce Colleges	11,698
Technical and Professional Education	Engg., Tech., & Arch., Colleges	1,562
Education	Medical Colleges (Allo/ Ayur/ Homeo/ Unani/ Nurs./ Pharm., etc.)	2,053
	Teacher Training Colleges	1,669
	Polytechnics	1,274
	Others (Includes Law, Management, MCA/IT, Agriculture etc.)	2,513

Source: Select Educational Statistics 2005-06, Annual Report 2009-10 of Ministry of Labour and Employment

The capacity of the education and skill development systems is as shown below:

Table: Enrolment in the Education and Skill Development Systems

Category	Sub-Category	Enrolment
School Education	Pre-Primary Students	5,264,053
	Primary (Class I - V)	132,048,727
	Secondary (Class VI - VIII)	52,195,171
	High School (Class IX - X)	24,971,520
	Higher Secondary (Class XI - XII)	13,414,499
	Sub-Total	227,893,970
Vocational Training	Vocational Training - ITI/ITC	1,062,524
Higher Education	Ph. D / D. Sc/ D. Phil	36,019

Category	Sub-Category	Enrolment
	MA	481,521
	MSc	230,247
	MCom	156,714
	BA/BA (Hons).	3,727,727
	B.Sc.	1,579,355
	B.Com	1,455,457
	BE/ B Arch	1,668,228
	Medicine, Dentistry, Nursing, etc.	305,629
	B.Ed	244,825
	Enrolment in Open Universities	773,917
	Polytechnic Institutes	690,410
	Others	2,973,517
	Sub-Total	14,323,566

Source: Select Educational Statistics 2005-06, Annual Report 2009-10 of Ministry of Labour and Employment

While the school education sector is about 227 million in enrolment, the combined enrolment in higher education and vocational training is about 15.3 million.

By limiting to this to the technically and vocationally qualified and skilled workforce, primarily comprising of ITI/ITC (1 million), BE (1.7 million), Polytechnics (0.7 million), we can observe that the current pool of skilled talent is around 3.4 million.

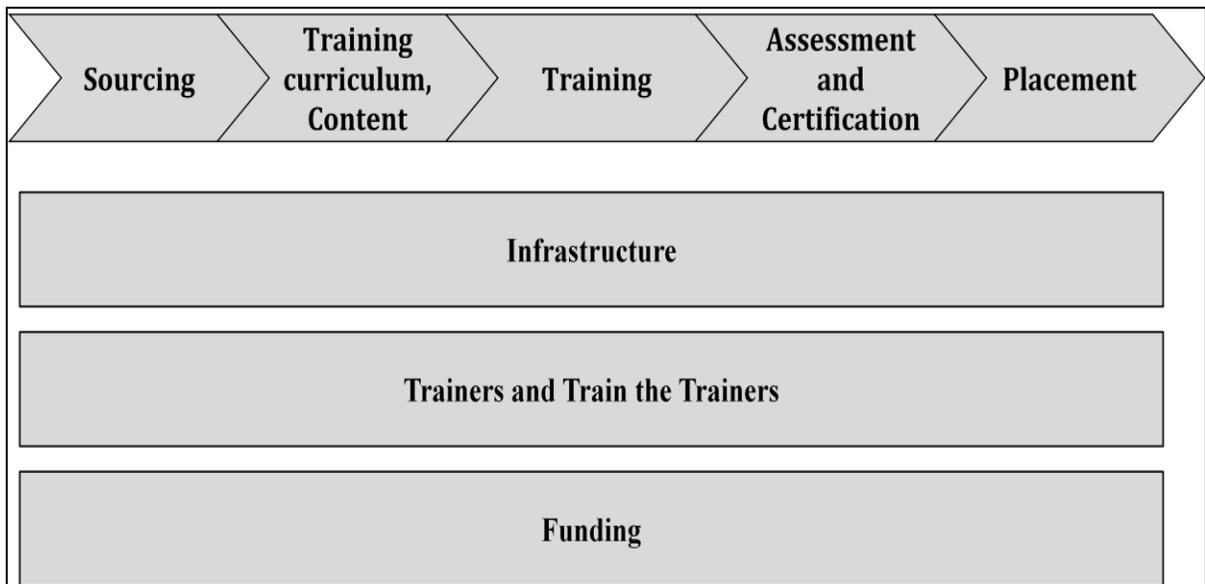
7.3 Challenges in Implementing Skill Development Initiatives at a Ground Level

The majority of India’s vast population is of working age. Urgent and effective action to Skill India is needed to capture the demographic potential of India’s youth. Based on data from the 68th Round of NSSO, it is estimated that only 4.69 percent of India’s total workforce has undergone formal skill training, compared with 52 percent in the USA, 68 percent in the UK, 75 percent in Germany, 80 percent in Japan and 96 percent in South Korea.

India continues to face a skilling challenge of vast proportions. Based on the Census 2011 and NSSO (68th Round) data, it is estimated that 104 million fresh entrants to the workforce will require skill training by 2022, and 298 million of the existing workforce will require additional skill training over the same time period.

As skill development in a large scale takes off, implementing agencies (government, institutes – both government and private, vocational training providers, and other such implementers) would be faced with challenges that come up at every segment of the ‘skill development value chain’. In other words, these are challenges that each skill development centre or groups of such centres are likely to face.

The **Skill Development Value Chain** can be described as below:



Source: IMaCS analysis

The various challenges would be pertaining to the following dimensions:

- How does a centre attract or mobilise students?
- Is there an ability to pay among trainees?
- What are the courses that need to be offered for each centre/institute, or regionally?
- Is there a demand for such courses/trades?
- Will an in-house system work or a franchisee system or a combination of both?
- How does one standardise content and delivery across a large number of centres?
- How is the training delivered?
- What is the infrastructure required and is it available?

- How can qualified trainers be found?
- Is there a system for third party assessment and certification?
- How will the project owner raise funding?
- What will the form of funding – debt, equity, grant?
- Is the model sustainable and viable?
- How would the institute guarantee placement linkages?
- How does the institute or the training provider connect with industry?

It is required that implementing agencies be aware of these challenges and prospect innovative ways to confront them.

7.4 Institutional Gaps for Education & Skill Development

As mentioned at section 5.6 of this report, following six levels of human resource required for industrial wastewater treatment have been recommended:

- Helper (Grade 1 & 2) : NSQF Level – 2 & 3
- Operator/Technician : NSQF Level - 4
- Technician : NSQF Level - 5
- Laboratory Analyst/Chemist : NSQF Level - 5
- Supervisor/Plant Engineer : NSQF Level - 6
- Plant Manager/In-charge : NSQF Level - 7

The requirements of educational qualifications and vocational skills for these levels have also been elaborated at section 5.6.

For desired requirements of above mentioned set of human resource in industrial wastewater treatment sector, the following aspects may be highlighted regarding existing system of academic & vocational education in India, the institutions existing and the gaps therein:

- As far as conventional and formal academic qualifications required at different levels (ranging from primary schooling to graduation in engineering or post graduation in science) are concerned, there are already a number of schools, ITIs, colleges, polytechnics and engineering colleges existing in India. Apart from diploma and degree courses in engineering in conventional streams, some institutes exist in India for imparting diploma and degree courses in relatively specialized branch of Environmental Engineering or Environmental Management.
- However, for fulfilling the requirements of vocational or skill training in the field of Industrial Wastewater Treatment, specific curricula for various levels (certificate, diploma

and degree levels) in this field are not known presently in the country. So far, qualification packs have been developed for “Helper (NSQF Level 3)” and “Technician (NSQF Level 4)” by Skill Council for Green Jobs (SCGJ). In the same way, it is recommended that the QPs for all of the above mentioned designations may be developed by SCGJ.

- The following list (on next page) enumerates a few of the prominent institutions/organizations identified by NPC through literature survey via internet which already exist in India for imparting courses and training programs related to environmental engineering and management:

List of Training Institutes

Sl No	Name of Training Institution	Location/Address	Web-Address
1	National Productivity Council	Utpadakta Bhavan, 5-6 Institutional Area, Lodhi Road, New Delhi – 110003	http://www.npcindia.gov.in /
2	CSIR-NEERI	Nehru Marg, Nagpur	http://www.neeri.res.in/
3	CII- Triveni Water Institute	CII-Triveni Water Institute, C-32, 1st Floor, Pankaj Singhvi Marg, Lalkothi Scheme, Near Vidhan sabha, Jaipur - 302015 Rajasthan, T: +91 141 5112350 / 70, F: +91 141 5112360	http://www.cii.in/CII_Triveni_Water_Institute.aspx
4	IL&FS Academy of Applied Development (IAAD)	The IL&FS Financial Centre, G Block, Plot C-22, Bandra Kurla Complex, Bandra – East, Mumbai 400 051	www.ilfsacademy.org
5	IL&FS Skills Development Corporation(IL&FS Skills)	NTBCL Building, DND Toll Plaza, Noida-201301	www.ilfsskills.com
6	Indo German Competence Academy	Pune and Mumbai	http://igca.in/
7	Gujarat Environment Management Institute (GEMI)	Office of the Director, 3rd Floor, Block no. 13, Dr.Jivraj Mehta Bhavan,	http://www.gemi-india.org/

Sl No	Name of Training Institution	Location/Address	Web-Address
		Old sachivalaya, Sector 10, Gandhinagar. 382010 (Gujarat)	
8	Anil Agarwal Environment Training Institute	Centre for Science and Environment, 38, Tughlakabad Institutional Area (Near Batra Hospital), New Delhi- 110062	http://cseindia.org/
9	Environmental Training Institute (TNPCCB)	Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032	http://tnpcb.gov.in/Envtrianstite.html
10	EPTRI	Hyderabad	http://www.eptri.com/
11	EMPRI	“Hasiru Bhavana”, Doresanipalya Forest Campus Vinayakanagara Circle, J.P. Nagar 5th Phase Bangalore 560 078, INDIA	http://www.karnataka.gov.in/empri/Pages/home.aspx
12	Centre for Mining Environment, Indian School of Mines	Dhanbad	http://www.ismdhanbad.ac.in/
13	Institute of Infrastructure Technology Research and Management, Ahmedabad	Near Khokhra Circle, Maningar (East), Ahmedabad - 380026, Gujarat	registrar@iitram.ac.in
14	CSIR- Central Leather Research Institute	Sardar Patel Road, Adyar, Chennai	

- Once the QPs for above mentioned levels of personnel are prepared, either the above mentioned institutions or similar others already existing in India may be empanelled as “Training Partners” by SCGJ for imparting skill education and up-gradation training in the sector/subsector of Industrial Wastewater Treatment. Moreover, the Certificate, Diploma and Degree Level programs in Wastewater Treatment branch may be introduced in the existing ITIs, Polytechnics, Engineering Colleges after their empanelment. Apart

from these, new training institutes in Government, Private or Public Sector may also be set up to cater to the demand of trained manpower in this sector/subsector.

- It is also suggested that concerned regulatory bodies like Ministry of Environment, Forests & Climate Change (Govt. of India), Department/Ministry of Environment (State Governments), Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) may consider to make it compulsory that “only certified professionals at appropriate levels of QPs would be appointed by industries/organizations for industrial wastewater treatment facilities (ETPs, CETPs)” while issuing environmental clearance or environmental consent to them. It would result into skilled & professional work culture and protection of environment due to appropriate and efficient functioning of ETPs and CETPs.
- It is further suggested that with the application of latest trends in Information & Communications Technology (ICT), the theoretical portion of curriculum may be imparted through E-learning Training Programs via distance learning. A few modules based on developed QPs may be specially developed for such E-learning Programs. The benefits of these E-learning Training Programs would be reflected in terms of flexible training hours and low cost of learning.

8 FUTURE PROJECTION OF MANPOWER REQUIREMENT

The future requirement of manpower in the sector of industrial wastewater treatment has been projected based on the manpower index computed from 66 responses received.

The water consumption pattern in various sectors in India is summarized below:

Sector	Water Demand in km ³ (or BCM)					
	Standing SubCommittee of MoWR (Ministry of water Resources)			NCIWRD (National Council for Integrated Water Resource and Development)		
Year	2010	2025	2050	2010	2025	2050
Irrigation	688	910	1072	557	611	807
Drinking water	56	73	102	43	62	111
Industry	12	23	63	37	67	81
Energy	5	15	130	19	33	70
Others	52	72	80	54	70	111
Total	813	1093	1447	710	843	1180

Table source: Status of water supply, wastewater generation and treatment in class-i cities & class-ii towns of India, control of urban pollution series: cups/ 70 / 2009 – 10, CPCB

Assuming,

- 78% of water consumption comes out as wastewater,
- The treatment plant capacity would be equal to the projected wastewater generation, and
- considering manpower index of 7089.8 person/ Billion cubic meter/year *

*Calculation of manpower index:

The index has been derived from cumulative treatment capacity in 66 responses and manpower involved in operating it.

Treatment capacity (KLD)	Manpower	Index / KLD	Treatment cap on annual basis (considering 365 working days)cum or Kl	Treatment cap on annual basis (considering 365 working days) bcm	index/bcm/yr(=Manpower per bcm/yr)
92552.5 (CETP)	520	0.00561843	33781662.5	0.033	15392.96
182200 (ETP)	191	0.0010483	66503000	0.06	2872.05
274752.5 (Total)	711	0.00258778	100284662.5	0.1002	7089.81

(Conversion factor: 1 BCM = 10⁹ KL)

The wastewater generation based on the derived manpower index in the Industrial sector can be projected as:

Sector	Projected wastewater generation in km ³ (or BCM)					
	Standing SubCommittee of MoWR (Ministry of water Resources)			NCIWRD (National Council for Integrated Water Resource and Development)		
Year	2010	2025	2050	2010	2025	2050
Expected waste water generation in industrial sector	9.216	17.664	48.384	28.416	51.456	62.20
Expected manpower need for waste water treatment	65339.76	125234.5	343033.8	201464.3	364813.7	441043.4

It can be concluded that by 2050, the manpower required in the field of industrial wastewater treatment can up 4 to 4.5 lakhs. To minimize the effect of polluted water on receiving bodies and our environment the sole responsibility will be in the hands of people operating the wastewater treatment plants.

The probable requirement at different job levels based on the existing ratio can be projected as:

SI N	Particulars/ Job levels	Projected manpower requirement
1	Helper	127890
2	Operator/ Technician	149940
3	Senior Technician (electrician/fitter/welder etc.)	35280
4	Lab Chemist	39690
5	Supervisor/ Engineer	52920
6	Plant Incharge/ Manager	35280

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ANNEXURES

Response to Questionnaire

QUESTIONNAIRE FOR OCCUPATIONAL MAPPING IN THE FIELD OF INDUSTRIAL WASTEWATER TREATMENT

Please enter details in cells with colors indicated here

Use drop down menu for cells with colors indicated here

1. Name of Unit/CETP				2. Address						
3. Installed Capacity of ET/CETP, MLD				4. Number of shifts in operation						
5. Industrial sector/s being catered to		Select		6. Name of the Contact Person						
7. Contact No.				8. Email id:						
9. Type of treatment given		Select		9a. If, secondary treatment is done, type of biological process		Select				
9b. If, tertiary treatment is done, components of tertiary treatment				Select						
10a .Types of pumps used		Select		10b. Type of sludge dewatering process/equipment		Select				
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

Note:

Use sheet 2 if number of helpers/operators are more than rows provided in this sheet

Attach your Organogram and Process flow sheet

Code Number	Table 1: Roles and Responsibilities
Helpers	
1.1.	Cleans equipment such as bar screens, comminutors, and weirs.
1.2	Lubricates machinery.
1.3	Drives, loads and unloads trucks; spreads sand, gravel, and dirt.
1.4	Paints (rough) and performs other minor maintenance.
1.5	Digs and refills ditches. Cleans drains, ditches, and culverts.
1.6	Cuts grass, weeds, and brush; trims trees and bushes; rakes grass, leaves, and trash; seeds and cares for lawn and ornamental plantings.
1.7	Collects and disposes of trash
1.8	Washes and cleans vehicles, tools, and equipment.
1.9	Carries or holds material, supplies, or tools to assist operating and/or maintenance personnel.
Add any additional roles and responsibilities being discharged other than above indicated and give an appropriate code which should be indicated in the column titled "Activities/roles/jobs being done"	
Junior Operator/Operator	
2.1	Start the wastewater treatment plant by switching on the pumps, mixers, controllers and other equipment
2.2	Performs any combination of tasks pertinent to controlling operation of plant as well as identifying trouble shooting and taking preventive steps in Pre-Treatment, Primary- Treatment, Secondary- Treatment, tertiary treatment and sludge processing
2.3	Complete the documentation as required
2.4	Monitor and Maintain Wastewater treatment plant
2.5	Check all equipment's and fill out daily activities log sheet.
2.6	Ensure Proper working of Wastewater Collection system.
2.7	Monitor and repair the working of Wastewater Pumping station and record any anomalies
Add any additional roles and responsibilities being discharged other than above indicated and give an appropriate code which should be indicated in the column titled "Activities/roles/jobs being done"	
Electrician/Fitter/Senior Electrician/Senior Fitter	
3.1	Inspects, repairs, and maintains electrical and/or electronic operating and control systems, equipment, and fixtures
3.2	Inspects, maintains and repairs wiring and lighting systems, electrical control equipment, meters, outlets, and panels.
3.3	Supervises Electrician Helper, Maintenance Helper, and/or Laborer. Establishes and operates scheduled maintenance program for plant equipment.
3.4	Electrical maintenance
3.5	Mechanical maintenance
Add any additional roles and responsibilities being discharged other than above indicated and give an appropriate code which should be indicated in the column titled "Activities/roles/jobs being done"	
Laboratory Assistant/ Laboratory chemist/Senior Laboratory Chemist	
4.1.	Collects samples of plant influent, partially treated wastewater, sludge, effluent, and other byproducts.
4.2	Assembles instruments and equipment for analytical or research work. Prepares chemical and bacteriological media, stains, reagents, and test solutions routinely used in laboratory.
4.3	Operates equipment and conducts tests as directed. performs specialized and complex chemical, bacteriological and physical tests and analyses of raw, partially treated, and treated wastewater and byproducts to determine efficiency of plant processes and insure that plant effluent meets regulatory requirements.
4.4	Conducts or supervises less complex routine tests. Supervises collection of laboratory samples.
4.5	Maintains test result records, prepares data sheets. Prepares or assists in preparation of reports.
4.6	Assembles data, maintains records, and prepares periodic reports. Sets up pilot processes when conducting research on improved procedures. Provides direct or indirect instructions to operating personnel regarding chemical requirements
4.7	Cleans, maintains, and stores instruments and equipment. Maintains inventory and orders supplies.
4.8	Performs custodial duties in laboratory.
Add any additional roles and responsibilities being discharged other than above indicated and give an appropriate code which should be indicated in the column titled "Activities/roles/jobs being done"	

Questionnaire on Occupational Mapping in the field of Industrial Wastewater Treatment

UNIT - 1

1. Name of Unit/CETP	Naraina Industrial Area CETP	2. Address	21.6 MLD Naraina Common Effluent Treatment Plant, Near Flyover , CB Area, Ring Road, New Delhi 110028
3. Installed Capacity of ET/CETP, MLD	21.6 MLD	4. Number of shifts in operation	24 hrs operation
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	1. Mr Jattinder Singh, Hony. General Seceretary. 2. Mr. Ram Nath Sharma, Plant Manager
7. Contact No.	1. 9811046358, 2. 9868828889	8. Email id:	narainacetp@gmail.com
9. Type of treatment given	Primary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Combination of above

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	Arts	1.1 to 1.9	Primary section	No			
3	Helper	Male	upto 8th class	Arts	1.1 to 1.9	Primary section	No			
3	Helper	Female	upto 8th class	Arts	1,1 to 1.9	Primary section	No			
3	Helper	Male	upto 8th class	Arts	1.1 to 1.9	Primary section	No			
3	Helper	Male	upto 8th class	Arts		Primary section	No			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	ITI	Electrical	3.1 to 3.5	Primary section	Yes			
4	Operator	Male	ITI	Mechanical	2.1, 2.2, 2.4, 2.6, 2.7	Primary section	Yes			
4	Junior Technician	Male	ITI	Mechanical	2.1, 2.2, 2.4, 2.6, 2.7	All Plant activities	Yes			
4	Operator	Male	upto 10th class	Any other	2.1, 2.2, 2.4, 2.6, 2.7	Primary section	Yes			
4	Operator	Male	upto 10th class	Any other	2.1, 2.2, 2.4, 2.6, 2.7	Primary section	Yes			
4	Laboratory Assistant	Male	upto 10th class	Any other	4.1 to 4.8	All Plant activities	Yes			
5	Laboratory Chemist	Male	BSc	Chemical	4.1 to 4.8	All Plant activities	Yes			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Male	B.A	Arts	2.3,2.5, 5.1 to 5.8	All Plant activities	Yes			

6	Plant Engineer	Male	B.E	Any other	2.3,2.5, 5.1 to 5.8	All Plant activities	Yes		
6	Supervisor	Select	Select	Any other		Secondary section	Select		
6	Supervisor	Select	Select	Any other		Secondary section	Select		
7	Incharge	Male	Others	Arts	6.1 to 6.15	Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		

UNIT - 2

1. Name of Unit/CETP	lawrence road cetp	2. Address	Near nandan petrol pump & lawrence road tel exchange delhi 110035
3. Installed Capacity of ET/CETP, MLD	12	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Sanjiv K Bhasin/Sanjiv Tomar
7. Contact No.	8130797972/77	8. Email id:	
9. Type of treatment given	Primary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Helper	Male	upto 8th class	None		All Plant activities	No			
1	Helper	Male	upto 8th class	None		All Plant activities	No			
1	Helper	Male	upto 8th class	None		All Plant activities				
1	Helper	Male	upto 8th class	None		All Plant activities				
1	Helper	Male	upto 8th class	None		All Plant activities	No			
1	Helper	Male	upto 8th class	None		All Plant activities	No			
1	Helper	Male	upto 8th class	None		All Plant activities	No			
2	Junior Operator	Male	upto 10th class	None		Tertiary section (PSF, Filter press, Centrifuge, etc)	No			
2	Junior Operator	Male	upto 10th class	None		All Plant activities	No			
2	Junior Operator	Male	upto 10th class	None		All Plant activities	No			
2	Junior Operator	Male	upto 10th class	None		Pre primary + Primary section	No			

2	None	Select	Select	Select		Secondary section	No		
2	None	Select	Select	Select		Secondary section	No		
3	None		Select	Any other		Select			
3	Operator	Male	ITI	Any other		Tertiary section (PSF, Filter press, Centrifuge, etc)			
3	Operator	Male	ITI	Any other		Primary section			
3	Operator	Male	ITI	Any other		Pre primary section(Bar screen, Grit chamber, o&g trap)			
3	Operator	Male	ITI	Any other		All Plant activities			
3	Operator	Male	ITI	Any other		All Plant activities			
4	Laboratory Chemist		Diploma	Any other		All Plant activities			
4	Technician	Male	ITI	Any other		All Plant activities			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other					
5	Plant Engineer	Male	B.E	Any other		All Plant activities	Yes		
5	Supervisor	Male	B.A	Any other		All Plant activities	No		
5	Supervisor	Select	Select	Any other		Secondary section	No		
5	Supervisor	Select	Select	Any other		Secondary section	No		
5	Supervisor	Select	Select	Any other		Secondary section	No		
5	Supervisor	Select	Select	Any other		Secondary section	No		
7	Incharge	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		

UNIT - 3

1. Name of Unit/CETP	ENVIRO TECHNOLOGY LIMITED	2. Address	PLOT NO:2413/2414 & 2211 G.I. D.C. ANKLESHWAR-393002
3. Installed Capacity of ET/CETP, MLD	1.8 MLD	4. Number of shifts in operation	Three shifts & General Shifts
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Shri. B.D.Dalwadi
7. Contact No.	9909994959	8. Email id:	dalwadibd@beil.co.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	1.1 to 1.7	ary + secondary + tertiary se	No			
3	Helper	Male	has not gone to school	None	1.1 to 1.7	All Plant activities	No			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 10th class	None	2.1 to 2.7	ary + secondary + tertiary se	No			
4	Junior Technician	Male	ITI	Electrical	3.1 to 3.4	All Plant activities	No			
4	Junior Technician	Male	ITI	Mechanical	3.1/3.2/3.3/3.5	All Plant activities	No			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
5	Laboratory Chemist	Male	BSc	Chemical	4.1 to 4.8	All Plant activities	No			
5	Laboratory Chemist	Male	PhD	Microbiology	4.1 to 4.8	Secondary section	No			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7	ary + secondary + tertiary se	No			
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	All Plant activities	No			
6	Plant Engineer	Male	B.E	Mechanical	5.3/5.4/5.5	All Plant activities	No			
6	Plant Engineer	Male	Diploma	Electrical	6.14	All Plant activities	No			
7	Manager(Health, Safety and Environment Incl ETP)	Male	Graduate (Science)	Any other	6.14	All Plant activities	No		one shift Incharge	one instrument engg.
7	ETP Manager	Male	B.E(any branch)	Mechanical	6.14	All Plant activities	No			
7	Incharge	Male	M.Sc	ry/Biochemical/Bic	6.1 to 6.15	All Plant activities	No			
7	Select	Select	Select	Any other		Secondary section	Select			

UNIT - 4

1. Name of Unit/CETP	Nandesari Industries Association	2. Address	153/A, GIDC, Nandesari, Vadodara, Gujarat - 391340
3. Installed Capacity of ET/CETP, MLD	6.8	4. Number of shifts in operation	3

5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Mr. Babubhai Patel (Chairman)
7. Contact No.	9824001925	8. Email id:	nia_cetp@yahoo.co.in
9. Type of treatment given	Based on latest and newest Technology of Hydrodynamic cavitation using calcium hypochlorite as catalyst	9a. If, secondary treatment is done, type of biological process	Biological treatment has been removed
9b. If, tertiary treatment is done, components of tertiary treatment			
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	<u>Activities/role/jobs being undertaken. Write only the code numbers given in Table 1</u>	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next FIVE year
6	B. C. Patel	Male	B.Sc., M.Sc, Mumbai University	Organic Chemistry	Chairman, involved in process development, R&D activities	Entire Plant	No			
6	Ashish Amin	Male	B.E.	Chemical Engg	President, involved in detailed engg design	Entire Plant	No			
6	Sudhir Verma	Male	B.E. M.Tech	IIT, Powai, Mumbai	C.T.O, Involved in process development, R&D, detailed engg. Design	Entire Plant	No			
4	Mayur Parekh	Male	M.Sc., PGD Safety and Environment	Organic Chemistry	Chief Chemist, Involved in R&D, Overall in charge of Laboratory	Laboratory	No			
6	Haresh I Dave	Male	B.Com	Select	Manager-Admin	Entire Plant	No			
4	Vipul Panchal	Male	B.Sc.	Chemistry	Chemist	Laboratory	No			
4	Purav Patel	Male	M.Sc.	Physical Chemistry	Chemist	Laboratory	No			
4	Rubina Pathan	Female	M.Sc	Environmental Science	Chemist	Laboratory	No			
4	Vikash Bhuptani	Male	B.E	Environment	Environment Engineer	Plant & Lab	No			
4	Nilesh Mecwan	Male	M.Sc.	Inrognic Chemistry	Chemist	Laboratory	No			
4	Priyanka Patel	Female	M.Sc.	Environmental Science	Chemist	Laboratory	No			
4	Viraj Patel	Male	B.Sc.	Chemistry	Chemist	Laboratory	No			
4	Grishma Suthar	Female	M.Sc.	Bio Technology	Chemist	Laboratory	No			
4	Tejal Sharma	Female	M.Sc	Environmental Science	Chemist	Laboratory	No			
4	Amisha Mistry	Female	Dip in Env Sc	Environmental Science	Chemist	Select	No			

4	B.U.Gohil	Male	ITI	Lab Attendant	lab Assistant	Select	No			
5	Karn Patel	Male	M.Sc	Bio Technology	Supervisor	Plant	No			
5	Ajay Gohel	Male	Dip Eng		Supervisor	Plant	No			
5	Vrajesh Patel	Malee	M.Sc	Environmental Science	Supervisor	Plant	No			
5	Mitesh Thakor	Male	M.Sc	Environmental Science	Supervisor	Plant	No			
5	D.D.Patel	Male	ITI		Supervisor	Plant	No			
5	Umesh Panchal	Male	B.Com	Commerce	Accountant	Admn Office	No			
5	Ashish Zala	Male	B.Com	Commerce	Admn-Assistant	Admn Office	No			
5	Ajay Ravalji	Male	B.A		Transportation Office	Admn Office	No			
5	S.S.Gohil	Male	12th		Booking Office	Booking Office	No			
5	Dilip Ravalji	Male	10th		Booking Office	Booking Office	No			
5	Arvind Chauhan	Male	10th		Peon	Admn Office	No			
1	Dinesh Gohil	Male	3rd		Peon	Admn Office	No			
1	Raju Parmar	male	3rd		Helper	plant	No			
1	Ashok Bhoi	Male	7th		Helper	plant	No			
1	Babu Gohil	Male	7th		Operator	plant	No			
1	Hashmukh Parmar	Male	7th		Operator	plant	No			
1	Manu Bhoi	Malee	3rd		Helper	Plant	No			
1	Bhikhabhai Gohil	Male	7th		Operator	Plant	No			
5	H.J.Bhrambhatt	Male	10th		Supervisor	Plant	No			

UNIT - 5			
1. Name of Unit/CETP	ENVIRO INFRASTRUCTURE COMPANY	2. Address	Plot No. 612-B, VECL Channel road, Vill: Umraya, Tal: Padra, Dist. Vadodara
3. Installed Capacity of ET/CETP, MLD	4.5	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Mr. A. R. Joshi
7. Contact No.	9099012369	8. Email id:	arvind.joshi@eiclvadodara.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next FIVE year
1	Helper	Male	upto primary education	None	1.1, 1.2	All Plant activities	No			
1	Laboratory Boy	Male	upto primary education	None	4.1	All Plant activities	No			
2	Junior Operator	Male	upto 10th class	None	2.1	Primary + secondary + tertiary section	No			
3	Operator	Male	upto 10th class	None	2.2	Primary + secondary + tertiary section	No			
4	Laboratory Chemist	Female	Diploma	Science	4.5	Primary + secondary + tertiary section	No			
4	Laboratory Chemist	Male	ITI	Any other	4.6	Primary + secondary + tertiary section	No			
5	Senior Laboratory Chemist	Female	BSc	Science	4.7, 4.8	Primary + secondary + tertiary section	No			
5	Plant Engineer	Male	BSc	Science	5.1, 5.2, 5.3, 5.4, 5.5, 5.6	Primary + secondary + tertiary section	No		1 no.	
5	Plant Engineer	Male	Diploma	Electrical	Electrical Maintenance Work	Primary + secondary + tertiary section	No		2 no.	
5	Supervisor	Male	ITI	Any other	Mechanical Maintenance	Primary + secondary + tertiary section	No		2 no.	
7	Manager(Health, Safety and Environment Incl ETP)	Male	M.Tech	Civil	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13	Primary + secondary + tertiary section	No			
7	Liason officer	Female	M.Sc	Science	Liasoning activity	Primary + secondary + tertiary section	No			
7	Coordinatopr	Female	M.Sc	Science	Plant Activity	Primary + secondary + tertiary section	No			

UNIT - 6

1. Name of Unit/CETP	Narela CETP	2. Address	Narela Indl. Area,
3. Installed Capacity of ETP/CETP, MLD	22.5 MLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to		6. Name of the Contact Person	Ajay sharma (chemist cum incharge)
7. Contact No.	8882210229	8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter

10a .Types of pumps used		Combination of all			10b. Type of sludge dewatering process/equipment		Sludge drying bed			
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto primary education	Select	1.1 to 1.9	Select	Select			
3	Helper	Male	upto 8th class	Select	1.1 to 1.9	Select	Select			
3	Select	Male	upto 10th class	Select		Select	Select			
3	Select	Male	upto 10th class	Select		Select	Select			
3	Select	Male	upto 10th class	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	B.A	Arts	2.1, 2.5,2.6, 2.7	tion (PSF, Filter press, Cer	No			
4	Operator	Male	upto 10th class	None	2.1, 2.5,2.6, 2.7	ction(Bar screen, Grit char	Select			
4	Operator	Male	upto 10th class	None	2.1, 2.5,2.6, 2.7	Secondary section	Select			
4	Operator	Male	upto 8th class	None	2.1, 2.5,2.6, 2.7	Primary section	Select			
4	Operator	Male	upto 8th class	None	2.1, 2.5,2.6, 2.8	Select	Select			
4	Operator	Male	ITI	None		Select	Select			
5	Technician	Male	upto 10th class	Select	fitter	Select	No	on the job training of eletctrical work		
5	Technician	Male	upto 10th class	Select	welder	Select	Select			
5	Technician	Male	upto 10th class	Electrical	electrician	Select	Select			
5	Laboratory Chemist	Male	BSc	Science	chemist, Msc cum plant incharge	Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	None	Male	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	M.Sc	Science	4.2 to 4.5, 5.1 to 5.7,	All Plant activities	Select			
7	ETP Manager	Select	M.Tech	Select	6.1 to 6.9, 6.11 to 6.15	Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 7

1. Name of Unit/CETP	NARMADA CLEAN TECH	2. Address	SURTI BHGOR, UMARWADA ROAD, NR. GUJARAT GAS COMPANY, ANKELSHWAR-393 001
3. Installed Capacity of ETP/CETP, MLD	60 MLD	4. Number of shifts in operation	3 shifts + general shift

5. Industrial sector/s being catered to		6. Name of the Contact Person	Mr. Alok Kumar - Chief Executive Officer
7. Contact No.	02646-645285	8. Email id:	alok.kumar@nctc.co.in, info@nctc.co.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	None	1.1 - 1.9	All Plant activities	Yes	duction training & Safety training		
3	Helper	Male	upto 8th class	None	1.1 - 1.9	All Plant activities	Yes	duction training & Safety training		
3	SENIOR OPERATOR	Male	ITI (Mechanist)	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	HSC, ITI (LACP)	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	ITI (Gas and Electric), B.A.	PROCESS	2.1 - 2.7	All Plant activities				
3	JUNIOR OPERATOR	Male	HSC, BSC- Shridhar University,	PROCESS	2.1 - 2.7	All Plant activities				
3	MASTER OPERATOR	Male	Diploma in Chemical Engineer	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	ITI -Fitter	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	B.A.,	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	B.A., 12th Science & B.Sc.- Bhartiya Shiksha Parishad- Uttar Pradesh,	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	HSC,	PROCESS	2.1 - 2.7	All Plant activities				
3	OPERATOR	Male	8th,	PROCESS	2.1 - 2.7	All Plant activities				
3	JUNIOR OPERATOR	Male	B.A., ITI- E- Commerce,	PROCESS	2.1 - 2.7	All Plant activities				
3	JUNIOR OPERATOR	Male	HSC, B.A., B.Sc.- Shridhar University, Pillani, Rajasthan,	PROCESS	2.1 - 2.7	All Plant activities				
3	SUPERVISOR	Male	SSC, ITI (WIREMAN), Diploma in Electrical Engineering	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities				
3	SENIOR TECHNICIAN	Male	HSC, ITI (Wireman)	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities				

4	TECHNICIAN	Male	ITI- Electrician	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities			
4	TECHNICIAN	Male	ITI - Instrument Mechanic	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities			
4	JUNIOR TECHNICIAN	Male	HSC, ITI- ELECTRICIAN	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities			
4	MASTER TECHNICIAN	Male	DIPLOMA ELECTRICAL	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities			
4	JUNIOR TECHNICIAN	Male	HSC, Diploma in Electrical Engineering from National Inst. Of Engineering	ELECTRICAL & INSTRUMENTATION	3.1 - 3.4	All Plant activities			
4	SENIOR TECHNICIAN	Male	ITI (FITTER)	MECHANICAL	3.5	All Plant activities			
4	SUPERVISOR	Male	HSC, ITI (Mechanical - DIESEL)	MECHANICAL	3.5	All Plant activities			
4	TECHNICIAN	Male	HSC, ITI Fitter	MECHANICAL	3.5	All Plant activities			
4	MASTER ANALYST	Male	F.Y.B.Sc., ITI (LACP)	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
4	ANALYST	Male	ITI (LACP), ITI Steno Cum Computer (Gujarati)	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
4	ANALYST	Male	ITI (LACP)	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
5	ANALYST	Male	ITI (LACP)	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
5	ANALYST	Male	ITI (LACP)	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
5	ANALYST	Male	HSC, ITI - LACP	QUALITY CONTROL	4.1 - 4.8	All Plant activities			
5	JUNIOR OPERATOR	Male	HSC, ITI- Attendant Operator (Chemical Plant),	ONSHORELINE MONITORING	2.1 - 2.7	All Plant activities			
5	ASSISTANT	Male	MONITORING	B.Sc., MBA (Marketing, Finance)	2.1 - 2.7	All Plant activities			
5	SENIOR SUPERVISOR	Male	PROCESS	B.Sc. (Chemistry)	5.1 - 5.2	All Plant activities			
6	SENIOR SUPERVISOR	Male	PROCESS	B.Sc.,	5.1 - 5.2	All Plant activities			
6	SENIOR SUPERVISOR	Male	ELECTRICAL & INSTRUMENTATION	SSC, Diploma in Industrial Electronics,	3.1 - 3.3	All Plant activities			

6	SENIOR SUPERVISOR	Male	ELECTRICAL & INSTRUMENTATION	Diploma in Electronics Communication	3.1 - 3.3	All Plant activities			
6	SENIOR CHEMIST	Male	QUALITY CONTROL	ITI (LACP)	4.1 - 4.7	All Plant activities			
6	ASSISTANT MANAGER	Male	ELECTRICAL & INSTRUMENTATION	ITI (Electrician), Diploma In Electrical Engg.	5.1 - 5.8	All Plant activities			
6	ASSISTANT MANAGER	Male	PROCESS	Diploma in Chemical Engineering	5.1 - 5.8	All Plant activities			
7	SENIOR EXECUTIVE	Male	MECHANICAL (PROJECT)	Diploma in Mechanical Engineering	5.1 - 5.8	All Plant activities			
7	SENIOR EXECUTIVE	Male	MECHANICAL (PROJECT)	Diploma in Mechanical Engineering	5.1 - 5.8	All Plant activities			
7	SENIOR EXECUTIVE	Male	MECHANICAL, SAFETY & FIRE	Diploma in Mechanical Engineering	5.1 - 5.8	All Plant activities			
7	SENIOR EXECUTIVE	Male	QUALITY CONTROL	M.Sc	5.1 - 5.8	All Plant activities			
	EXECUTIVE	Male	CIVIL (PROJECT)	Diploma in Civil Engineering	5.1 - 5.8	All Plant activities			
	EXECUTIVE	Male	CIVIL	Diploma in Civil Engineering	5.1 - 5.8	All Plant activities			
	SENIOR MANAGER	Male	OPERATION	B.E. Environmental, P.D.Industrial Safety- Part time 2years	6.1 - 6.15	All Plant activities			
	GENERAL MANAGER	Male	OPERATION	B.E. Chemical Engg.	6.1 - 6.15	All Plant activities			
	CHIEF EXECUTIVE OFFICER	Male	OPERATION	ISC, B. TECH. (CHEMICAL ENGG.)	6.1 - 6.15	All Plant activities			

UNIT - 8

1. Name of Unit/CETP	Bawana CETP	2. Address	Sector 5, Auchandi Road Bawana Industrial Area Delhi - 110039
3. Installed Capacity of ET/CETP, MLD	35	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Mr. Murthy
7. Contact No.	8130993504	8. Email id:	

9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Helper	Male	has not gone to school	None		Secondary section	No			
1	Select	Select	has not gone to school	Select		Select	Yes			
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
2	Junior Operator	Select	Select	Select		Secondary section	No			
2	Junior Operator	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
3	Junior Technician		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
4	Laboratory Chemist		Select	Any other		Select				
4	Technician		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
5	Supervisor	Select	Select	Any other		Secondary section	No			
5	Plant Engineer	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			

5	Supervisor	Select	Select	Any other		Secondary section	No		
7	Incharge	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		

UNIT - 9

1. Name of Unit/CETP	Bawana CETP	2. Address	Sector 5, Auchandi Road Bawana Industrial Area Delhi - 110039						
3. Installed Capacity of ET/CETP, MLD	35	4. Number of shifts in operation	3						
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Mr. Murthy						
7. Contact No.	8130993504	8. Email id:							
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic						
9b. If, tertiary treatment is done, components of tertiary treatment								Pressure sand filter	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge						

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Helper	Male	upto 8th class	None	1.1 to 1.9	Secondary section	No			
1	Helper	Male	upto 8th class	Select	1.1 to 1.9	Select	Yes			
1	Helper	Male	upto 10th class	Select	1.1 to 1.9	Select				
1	Select	Select	Select	Select		Select				
1	Select	Select	Select	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
2	Select	Select	Select	Select		Secondary section	No			
2	Select	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
3	Operator	Male	Select	Any other	2.1 -2.7	Select				
3	Operator	Male	Select	Any other	2.1 -2.7	Select				
3	Operator	Male	Select	Any other	2.1 -2.7	Select				
3	Operator	Male	Select	Any other	2.1 -2.7	Select				
3	Operator	Male	Select	Any other	2.1 -2.7	Select				
3	Operator	Male	Select	Any other	2.1 -2.7	Select				

4	Laboratory Chemist	Male	BSc	Any other	4.1 to 4.7	Select			
4	Select		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	Technician		upto 10th class	Any other	fitter	Select			
5	Technician	Male	upto primary education	Any other	fitter	Select			
5	Technician	Male	ITI	Electrical	3.1 to 3.3				
5	Select	Select	Select	Any other		Secondary section	No		
5	Select	Select	Select	Any other		Secondary section	No		
5	Supervisor	Select	Select	Any other		Secondary section	No		
5	Select	Select	Select	Any other		Secondary section	No		
5	Select	Select	Select	Any other		Secondary section	No		
6	Supervisor	Male	B.A	Any other	5.1 - 5.7	Secondary section	No		
7	Incharge	Male	B.E(any branch)	Civil	6.1 to 6.9, 6.11 to 6.15.	Secondary section	No		
7	Coordinatopr	Male	M.Tech	ry/Biochemical/Bio	6.1 to 6.9, 6.11 to 6.15.	Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		

UNIT - 10

1. Name of Unit/CETP	Mayapuri CETP		2. Address	Opp Govt of India printing press, Mayapuri, New Delhi
3. Installed Capacity of ET/CETP, MLD	12	MLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Mixed		6. Name of the Contact Person	Mr. Hitesh sharma
7. Contact No.			8. Email id:	mypcetp@yahoo.co.in
9. Type of treatment given	Primary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment				
10a .Types of pumps used	Combination of all		10b. Type of sludge dewatering process/equipment	Vacuum filter

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No	ng on general plant safety aspects		
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No	ng on general plant safety aspects		
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No	ng on general plant safety aspects		
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No	ng on general plant safety aspects		
3	Select	Select	Select	Select		Select	Select			
3	Select	Male	Select	None		Select	Select			

3	Select	Male	Select	None		Select	Select		
4	Laboratory Assistant	Male	upto 12th class	Science	4.1, 4.2, 4.7	Select	No		ng on general plant safety aspects
4	Operator	Male	ITI	Mechanical	2.1 to 2.7	All Plant activities	No		ng on general plant safety aspects
4	Operator	Male	ITI	Mechanical	2.1 to 2.7	Secondary section	No		ng on general plant safety aspects
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
5	Laboratory Chemist	Male	BSc	Chemical	4.3, 4.4, 4.5, 4.6, 4.8, 5.1 to 5.4	Select	No		ng on general plant safety aspects
5	Technician	Male	ITI	Electrical	3.2, 3.3, 3.4	Select	Select		ng on general plant safety aspects
5	Technician	Male	ITI	Fitter	3.1, 3.5	Select	Select		ng on general plant safety aspects
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	No		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Plant Engineer	Male	B.E	Environment	6.2 to 6.14	All Plant activities	No		ng on general plant safety aspects
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	No		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 11			
1. Name of Unit/CETP	GTK Road CETP	2. Address	CETP complex, B-Block, G.T. Karnal Road Indl. Area,
3. Installed Capacity of ETP/CETP, MLD	6 MLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to		6. Name of the Contact Person	Sh. S.P. Gupta
7. Contact No.	011 27433005	8. Email id:	
9. Type of treatment given	Primary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Plate and filter press
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	Select	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 8th class	Select	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Select	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Select	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Select	1.1 to 1.9	All Plant activities	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	B.A	Arts	2.1, 2.5,2.6, 2.7	All Plant activities	No			
4	Operator	Male	upto 10th class	None	2.1, 2.5,2.6, 2.7	All Plant activities	Select			
4	Operator	Male	upto 10th class	None	2.1, 2.5,2.6, 2.7	Secondary section	Select			
4	Operator	Male	upto 8th class	None	2.1, 2.5,2.6, 2.7	Primary section	Select			
4	Operator	Male	upto 8th class	None		Select	Select			
4	Select	Select	Select	None		Select	Select			
5	Technician	Male	ITI	Electrical	3.1, 3.2, 3.4	Select	No	the job training of eletctrical work		
5	Technician	Male	ITI	Mechanical	3.1, 3.2, 3.5	Select	Select			
5	Technician	Male	ITI	Electrical	3.1, 3.2, 3.4	Select	Select			
5	Laboratory Chemist	Male	BSc	Science	4.2 to 4.5	Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Male	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	Graduate (Science)	Science	5.1 to 5.7, 6.1 to 6.12	All Plant activities	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 12			
1. Name of Unit/CETP	Batra car centre ETP	2. Address	humayun road, New Delhi
3. Installed Capacity of ET/CETP, MLD	2.5 KLD	4. Number of shifts in operation	1
5. Industrial sector/s being catered to	Service stations	6. Name of the Contact Person	Mr. K VK Mani
7. Contact No.	9811700189	8. Email id:	batracc@yahoo.co.in

9. Type of treatment given		Primary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process		Select			
9b. If, tertiary treatment is done, components of tertiary treatment					Pressure sand filter					
10a. Types of pumps used		Centrifugal pump			10b. Type of sludge dewatering process/equipment		Sludge drying bed			
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Select	Male	has not gone to school	None		Secondary section	No			
1	Select	Select	has not gone to school	Select		Select	Yes			
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
2	Junior Operator	Male	upto primary education	None	complete ETP operation	All Plant activities	No			
2	Junior Operator	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
3	Junior Technician		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
3	Operator		Select	Any other		Select				
4	Laboratory Chemist		Select	Any other		Select				
4	Technician		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
5	Supervisor	Male	upto primary education	None		All Plant activities	No			
5	Plant Engineer	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			
5	Supervisor	Select	Select	Any other		Secondary section	No			

5	Supervisor	Select	Select	Any other		Secondary section	No		
7	Incharge	Male	Graduate (non science)	Commerce	5.1 -5.7	All Plant activities	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		

UNIT - 13

1. Name of Unit/CETP	M/s National Fertiliser Ltd.	2. Address	National Fertilisers Ltd. Panipat, Gohana Road Pin. Code 132103
3. Installed Capacity of ET/CETP, MLD	200M3/hrs	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Fertilizer	6. Name of the Contact Person	Mr. Khel Singh
7. Contact No.	9416161141	8. Email id:	khel.singh@nfl.co.in
9. Type of treatment given	Secondary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Others
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Helper	Male	has not gone to school	None		Secondary section	No			
1	Select	Select	has not gone to school	Select		Select	Yes			
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		All Plant activities	No			
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
2	Junior Operator	Select	Select	Select		All Plant activities	No			
2	Junior Operator	Select	Select	Select		All Plant activities	No			
2	Junior Operator	Male	Diploma	Select		All Plant activities	No			
2	Junior Operator	Male	Diploma	Science		All Plant activities	No			
2	Junior Operator	Male	Diploma	Science		All Plant activities	No			
2	Junior Operator	Male	ITI	Science		All Plant activities	No			
3	Junior Technician		Select	Science		All Plant activities				
3	Laboratory Assistant	Male	Diploma	Any other		All Plant activities	No			
3	Laboratory Assistant	Male	Diploma	Science		All Plant activities	No			

3	Laboratory Assistant	Male	Diploma	Science		All Plant activities			
3	Laboratory Assistant	Male	Diploma	Science		All Plant activities	No		
3	Laboratory Assistant	Male	Diploma	Science		All Plant activities	No		
4	Laboratory Chemist	Male	Diploma	Science		All Plant activities	No		
4	Technician		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
4	None		Select	Any other		Select			
5	Supervisor	Male	BSc	Science		All Plant activities	Yes		
5	Plant Engineer	Select	Select	Any other		Secondary section	Yes		
5	Plant Engineer	Male	B.E	Electrical		All Plant activities	Yes		
5	Plant Engineer	Male	B.E	Mechanical		All Plant activities	Yes		
5	Plant Engineer	Male	Diploma	Civil		All Plant activities	Yes		
5	Senior Laboratory Chemist	Male	BSc	Science		All Plant activities	Yes		
7	Incharge	Select	Select	Any other		Secondary section	No		
7	ETP Manager	Male	B.E (branch: chemical/biochemical)	Chemical		All Plant activities	Yes		
7	Select	Select	Select	Any other		Secondary section	No		
7	Select	Select	Select	Any other		Secondary section	No		

UNIT - 14			
1. Name of Unit/CETP	M/S NIF Pvt Ltd	2. Address	M/S NIF private limited,Shivrajpur,Kanpur(U.P)
3. Installed Capacity of ET/CETP, MLD	1.2MLD	4. Number of shifts in operation	Three
5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Shri Santosh (DGM) - 7800003392, Mohit Katiyar (Asstt. Manager-Utility) - 7800003442
7. Contact No.		8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Combination of above
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	B.Com	Commerce	1.1 to 1.9	Select	No			
3	Helper	Male	upto 10th class	Arts	1.1 to 1.9	Select	No			
3	Helper	Male	upto 8th class	Arts	1.1 to 1.9	Select	No			
3	Helper	Male	upto 8th class	Arts	1.1 to 1.9	Select	No			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	B.A	Arts	2.1 to 2.7	Select	No			
4	Operator	Male	B.A	Arts	2.1 to 2.7	Select	No			
4	Operator	Male	upto 10th class	Arts	2.1 to 2.7	Select	No			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
5	Laboratory Chemist	Male	BSc	Science	4.1 to 4.6	Select	No			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Male	B.A	Arts	5.1 to 5.8	Secondary section	No			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
7	None	Male	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			

UNIT - 15			
1. Name of Unit/CETP	UPL Limited-1	2. Address	Plot No. 117/118 GIDC Estate, Ankleshwar, Dist- Bharuch.
3. Installed Capacity of ET/CETP, MLD	0.423 MLD	4. Number of shifts in operation	4
5. Industrial sector/s being catered to	Pesticide	6. Name of the Contact Person	Dr P N Parameswaran
7. Contact No.	9909994203	8. Email id:	pnp@uniphos.com

9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Select	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	None	Female	B.E	Any other	6	Select	No			
3	None	Male	B.E	Chemical	5	All Plant activities	No			
3	None	Male	B.E	Chemical	6	Select	Yes			
3	Junior Laboratory assistant	Female	BSc	Science	4	Select	No			
3	Junior Laboratory assistant	Male	BSc	Science	4	Select	No			
3	None	Male	BSc	Science	5	All Plant activities	Select			
3	Helper	Male	ITI	Select	2	All Plant activities	No			
4	Operator	Male	ITI	None	3	Primary + secondary + tertiary section	No			
4	Operator	Male	ITI	Electrical	3	All Plant activities	No			
4	Operator	Male	ITI	Any other	1	Select	No			
4	Operator	Male	Diploma	Any other	1	Select	No			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
5	Laboratory Chemist	Select	Select	Any other		Select	Select			
5	None	Male	PhD	Any other	6	Select	Yes			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Select	Select	Any other		Secondary section	Select			
7	Incharge	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			

UNIT - 16										
1. Name of Unit/CETP		PHILODEN AGROCHEM PVT. LTD.		2. Address		BLOCK NO. 73, B/H GEB SUBSTATION, KARAKHADI, TA. PADRA, DIST. VADODARA-391450, GUJARAT				
3. Installed Capacity of ET/CETP, MLD		10		KLD		4. Number of shifts in operation		3		
5. Industrial sector/s being catered to		Mixed		6. Name of the Contact Person		G.S. UPPIN				
7. Contact No.		9428815481		8. Email id:		uppin@philodenagro.com				
9. Type of treatment given		Primary treatment		9a. If, secondary treatment is done, type of biological process		Aerobic				
9b. If, tertiary treatment is done, components of tertiary treatment						Pressure sand filter				
10a. Types of pumps used		Centrifugal pump		10b. Type of sludge dewatering process/equipment		Plate and filter press				
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next one year
1	Helper	Male	upto primary education	None	1.1,1.2,1.6,1.7	Primary section	No		3	3
1	Helper	Male	upto primary education	None	1.1,1.2,1.6,1.7	Primary section	No			
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Select				
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	has not gone to school	Select		Secondary section	No			
1	Select	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
2	None	Select	Select	Select		Secondary section	No			
3	Laboratory Assistant	Male	upto 10th class	Any other	4.1, 4.2, 4.3, 4.4,4.7	Primary section	No		1	1
3	Operator	Male	upto 10th class	Any other	2.1, 2.2, 2.4, 2.6,	Primary section	No		4	4
3	Operator	Male	upto 10th class	Any other	2.1, 2.2, 2.4, 2.6,	Select	No			
3	Operator		Select	Any other		Select	No			
3	Operator		Select	Any other		Select				
4	Laboratory Chemist	Male	BSc	Chemical	4.5, 4.6, 4.8	Select	Yes	CAL ANALYSIS AND TECHNIQUES		
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				

4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other		Select				
4	None		Select	Any other						
5	None	Select	Select	Any other		Secondary section	No			
5	Plant Engineer	Male	Diploma	Mechanical	5.1, 5.2, 5.4, 5.5,	Primary section	Yes	PLANT MAINTENANCE	1	1
5	None	Select	Select	Select		Select	Select			
5	Supervisor	Male	BSc	Chemical	5.1, 5.2, 5.3, 5.4, 5.5, 5.7	Primary section	Yes	PLANT OPERATION, SHE	2	2
5	Supervisor	Select	BSc	Any other	5.1, 5.2, 5.3, 5.4, 5.5, 5.7	Primary section	Yes	PLANT OPERATION, SHE		
5	Supervisor	Select	BSc	Any other	5.1, 5.2, 5.3, 5.4, 5.5, 5.7	Primary section	Yes	PLANT OPERATION, SHE		
7	ETP Manager	Male	M.Sc	Chemical	6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.	Primary section	Yes	ETY, HEALTH & ENVIRONMENT		
7	Select	Select	Select	Any other		Secondary section	No			
7	Select	Select	Select	Any other		Secondary section	No			
7	Select	Select	Select	Any other		Secondary section	No			

UNIT - 17

1. Name of Unit/CETP	Deccan Fine Chemicals (India) Pvt. Ltd.	2. Address	3501-3515, 6301-6313 & 16 M Road / B1, GIDC Industrial estate, Ankleshwar, Dist: Bharuch							
3. Installed Capacity of ET/CETP, MLD	1200 M3/Day	4. Number of shifts in operation	3							
5. Industrial sector/s being catered to	Pesticide	6. Name of the Contact Person	Mr. Rushi Shah (Head - EHS)							
7. Contact No.	9099036865	8. Email id:	rushishah@deccanchemicals.com							
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic							
9b. If, tertiary treatment is done, components of tertiary treatment									Select	
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	centrifuge							

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.1	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.2	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.3	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.4	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.5	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.6	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
3	Helper	Male	upto 10th class	Science	1.1 & 1.9.7	All Plant activities	Yes	General & basic safety	Refresher training	Refresher training
4	Operator	Male	upto 10th class	Science	2.1 to 2.7	Select	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
4	Operator	Male	upto 10th class	Science	2.1 to 2.7	Select	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
4	Operator	Male	upto 10th class	Science	2.1 to 2.7	Select	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety

4	Operator	Male	upto 10th class	Science	2.1 to 2.7	Select	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
6	Senior Laboratory Chemist	Male	BSc	Science	4.1 to 4.8	Secondary section	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
6	Supervisor	Male	ITI	Any other	5.1 to 5.5	Secondary section	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
6	Supervisor	Male	ITI	Any other	5.1 to 5.5	Secondary section	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
6	Supervisor	Male	ITI	Any other	5.1 to 5.5	Secondary section	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
6	Supervisor	Male	ITI	Any other	5.1 to 5.5	Secondary section	Select	Operational & Gen. safety	Operational & Gen. safety	Operational & Gen. safety
7	ETP Manager	Male	Graduate (Science)	Science	6.1, 6.2, 6.5, 6.13, 6.14	Secondary section	Select	ety, Waste mgt. operation & E	refresher training on same top	refresher training on same top
7	ETP Manager	Male	Graduate (Science)	Science	6.1, 6.2, 6.5, 6.13, 6.15	Secondary section	Select	ety, Waste mgt. operation & E	refresher training on same top	refresher training on same top
7	ETP Manager	Male	Graduate (Science)	Science	6.1, 6.2, 6.5, 6.13, 6.16	Secondary section	Select	ety, Waste mgt. operation & E	refresher training on same top	refresher training on same top
7	Manager(Health, Safety and Environment Incl ETP)	Male	M.Sc	Science	6.3, 6.4, 6.6 to 6.15	Secondary section	Select	ety, Waste mgt. operation & E	refresher training on same top	refresher training on same top

UNIT - 18

1. Name of Unit/CETP	Sanofi India Limited	2. Address	Plot No. 3501, 3503-15,6310B-14, GIDC Estate, Ankleshwar, Dist:Bharuch, Gujarat		
3. Installed Capacity of ET/CETP, MLD	300 m3/day	4. Number of shifts in operation	24 hrs		
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	Mr. Girish Purohit		
7. Contact No.	9426748449	8. Email id:	girish.purohit@sanofi.com		
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic		
9b. If, tertiary treatment is done, components of tertiary treatment	Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis				
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Combination of above		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	2	MEE	No			
3	Helper	Male	upto 8th class	None	2	MEE	No			
3	Helper	Male	upto 8th class	None	2	MEE	No			
3	Helper	Male	upto 8th class	None	2	ary + secondary + tertiary se	No			
3	Helper	Male	upto 8th class	None	2	ary + secondary + tertiary se	No			
3	Helper	Male	upto 8th class	None	2.01	All Plant activities	No			
3	Helper	Male	upto 8th class	None	2.01	All Plant activities	No			
4	Operator	Male	upto 10th class	None	2.1,2.2,2.5	ary + secondary + tertiary se	No	-	None	None
4	Operator	Male	upto 10th class	None	2.1,2.2,2.5	RO	No	-	None	None
4	Operator	Male	upto 10th class	None	2.1,2.2	MEE	No	-	None	None

4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
4	Operator	Select	Select	Any other		Select	Select			
5	Laboratory Chemist	Male	BSc	Science	4.1 to 4.8	All Plant activities	No	-	None	None
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	Select	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
5	None	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	Select	Select	Select	Any other		Secondary section	Select			
6	None	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.8	All Plant activities	Yes		None	None
6	Supervisor	Select	Select	Any other		Secondary section	Select			
6	Supervisor	Select	Select	Any other		Secondary section	Select			
7	ETP Manager	Male	Graduate (Science)	Science	6.1 to 6.15	All Plant activities	Yes		None	None
7	Manager(Health, Safety and Environment Incl ETP)	Male	B.E (branch: chemical/biochemical)	Chemical	6.1 to 6.15	All Plant activities	Yes		None	None
7	Select	Select	Select	Any other		Secondary section	Select			
7	Select	Select	Select	Any other		Secondary section	Select			

UNIT - 19

1. Name of Unit/CETP	of Cygnet Ind.Ltd. (Wholly owned subsidiary of K	2. Address	Kesoram Rayon, Nayasarai, Hooghly-712513
3. Installed Capacity of ET/CETP, MLD	16000m3/day	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Textile	6. Name of the Contact Person	Shyamal Chowdhury
7. Contact No.	8584071477	8. Email id:	shyamalchowdhury@kesoramrayon.com
9. Type of treatment given	Primary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Select
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3 to 1.9	ction(Bar screen, Grit char	No			

3	None	Male	BSc	Science	2.1 to 2.7	Primary section	No		
3	None	Male	Diploma	Electrical	3.1 to 3.5	All Plant activities	No		
3	None	Male	BSc	Science	4.1 to 4.7	All Plant activities	No		
3	None	Male	BSc	Science	5.1 to 5.8	All Plant activities	No		
3	Select	Male	BSc	Science	6.1 to 6.9 & 6.11 to 6.15	All Plant activities	No		
3	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
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6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 20			
1. Name of Unit/CETP	Gulbrandsen Technologies (India) Pvt. Ltd	2. Address	Plot No. 761/A, GIDC Estate, Jhagadia -393110 (Dist Bharuch) Gujarat
3. Installed Capacity of ET/CETP, MLD	36 KLD (Sewage Treatment Plant)	4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	Anish Katchhi
7. Contact No.	02646- 306 805	8. Email id:	akatchhi@gulbrandsen.com
9. Type of treatment given	Secondary + tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Male	Diploma	Any other	3; 6.1; 6.5; 6.6; 6.10; 6.11; 6.12; 6.	All Plant activities	Yes	Diploma in Environment Technology		
3	Junior Operator	Male	upto 10th class	None	2.1; 2.2; 2.4;2.6;2.7	All Plant activities	Select		1	
3	Helper	Male	to school but can read and write in	None	1.1;1.3;1.5;1.6;1.7	Select	Select		1	
3										
3										
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UNIT - 21										
1. Name of Unit/CETP	Dayal metal industries			2. Address	F-28, SECTOR 4, DSIIDC COMPLEX, Bawana industrial area					
3. Installed Capacity of ETP/CETP, MLD	1 KLD			4. Number of shifts in operation	1					
5. Industrial sector/s being catered to	Metal Finishing (electroplating, Pickling, Anodising, etc)			6. Name of the Contact Person	Mr. Dalijeet Singh					
7. Contact No.	9810389191, 9212121010			8. Email id:	dayal_metal@yahoo.co.in					
9. Type of treatment given	Primary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process	Select					

9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter		
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3						Select	Select			
3						Select	Select			
3						Select	Select			
3						Select	Select			
3						Select	Select			
3						Select	Select			
3						Select	Select			
4						Select	Select			
4	Operator	Male	upto primary education	None	1.1, 1.2,2.1, 2.3, 2.4, 2.5, 2.6,	All Plant activities	No			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
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6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	upto 10th class	Science	5.8, 6.1, 6.2, 6.3, 6.5, 6.6, 6.7, 6.	Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 22				
1. Name of Unit/CETP	MOTHER DAIRY CALCUTTA		2. Address	DANKUNI COAL COMPLEX,HOOGLY,PIN-712310
3. Installed Capacity of ET/CETP, MLD	10Lac litre/Day		4. Number of shifts in operation	03(Three)

5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Debabrata Chkroborty(Chief General Manager)
7. Contact No.		8. Email id:	motherdairycal@gmail.com
9. Type of treatment given	Secondary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Select
10a .Types of pumps used		10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1,2.2,2.3,4.1,4.2,4.3,4.4	Pre primary + Primary section	No			
3	Junior Operator	Male	upto 10th class	None	2.4,2.5,4.5	Secondary section	No			
3	Junior Operator	Male	upto 10th class	None	2.6,4.7	Primary section	No			
3	Junior Operator	Male	upto 10th class	Select	2.7,4.8	ction(Bar screen, Grit char	No			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
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7	Select	Select	Select	Select		Select	Select			

UNIT - 23			
1. Name of Unit/CETP	Diamond Beverages (P) Limited	2. Address	P-41, Taratola Road, Kolkata - 700088.
3. Installed Capacity of ETP/CETP, MLD	800 KLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Sujit Das
7. Contact No.	9830049832	8. Email id:	sujitdas@diamondbev.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Helper	Male	upto 8th class	Select	2.1,2.2,2.5,2.6,2.7.	ary + secondary + tertiary se	No			
3	Helper	Male	has not gone to school	Select	2.1,2.2,2.5,2.6,2.7.	ary + secondary + tertiary se	No			
3	Helper	Male	upto 10th class	None	2.1,2.2,2.5,2.6,2.7.	ary + secondary + tertiary se	No			
4	Operator	Male	ITI	Arts	2.1,2.2,2.5,2.6,2.7,3.5.	ary + secondary + tertiary se	No			
4	Operator	Male	ITI	Arts	2.1,2.2,2.5,2.6,2.7,3.5.	ary + secondary + tertiary se	No			
4	Operator	Male	upto 10th class	None	2.1,2.2,2.5,2.6,2.7.	ary + secondary + tertiary se	No			
4	None	Select	Select	None		Select	Select			
4	None	Select	Select	None		Select	Select			
4	None	Select	Select	None		Select	Select			
5	Laboratory Chemist	Male	BSc	None	4.1 ,4.2,4.3,4.4,4.5,4.6,4.7, 4.8.	All Plant activities	No			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Select	Select			
6	Select	Select	Select	Any other		Secondary section	Select			

6	Select	Select	Select	Any other		Secondary section	Select		
6	Select	Select	Select	Any other		Secondary section	Select		
7	ETP Manager	Male	M.Tech	Science	6.5,6.6,6.7,6.8,6.9,6.10,6.11,6.12	All Plant activities	Yes	ISO 14001:2015,Environment Management	
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		

UNIT - 24

1. Name of Unit/CETP	JK Dairy	2. Address	3 Km Stone , Hasanpur Road , Gajraula. District - Amroha. (U.P)
3. Installed Capacity of ET/CETP, MLD	1.7 MLD.	4. Number of shifts in operation	Continous process (24x7x365)
5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Mr Rajbir
7. Contact No.	9557973322	8. Email id:	rajveer@umangdairy.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment	Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis		
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	Science	1.1,1.2,1.3,1.5,1.7,1.8,1.9	Primary + secondary + tertiary section(Bar screen, Grit chamber)	No			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	BSc	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	Primary + secondary + tertiary section	No			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Laboratory Chemist	Male	BSc	Science	4.1,4.2,4.3,4.4,4.5,4.6,4.7,4.8	Primary + secondary + tertiary section	No			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			

5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Supervisor	Male	BSc	Science	5.1,5.2,5.3,5.4,5.5,5.7	ary + secondary + tertiary se	No		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Incharge	Male	Graduate (Science)	ry/Biochemical/Bio	4,6.5,6.6,6.7,6.8,6.9,6.10,6.11,6.	All Plant activities	No		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 25

1. Name of Unit/CETP	Sarita Vihar Metro Depot	2. Address	Sarita Vihar Metro Depot, Sarita Vihar, New Delhi
3. Installed Capacity of ET/CETP, MLD	50 kld	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Service stations	6. Name of the Contact Person	Mr. Ansari / Mr. Jugendra
7. Contact No.	9650233774 / 8527143399	8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Others
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	Select	Select	1.1-1.9	All Plant activities	Select			
3										
3										
3										
3										
3										
4	Operator	Male	upto primary education	Any other	2.1-2.7	All Plant activities	No			
4	Operator	Male	upto 10th class	Any other	2.1-2.7, 3.1-3.4	All Plant activities	Select			
4	Operator	Male	Select	Any other	2.1-2.7	All Plant activities	Select			
4	Operator	Male	Select	Any other	2.1-2.7	All Plant activities	Select			
4	Operator	Male	Select	Any other	2.1-2.7	All Plant activities	Select			

4	Operator	Male	Select	Any other	2.1-2.7	All Plant activities	Select		
5									
5									
5									
5									
5									
6	Supervisor	Male	ITI	Electrical	5.1-5.8	All Plant activities	Select		
6	Supervisor	Male	B.E	Civil	5.1-5.8	All Plant activities	Select		
6									
6									
6									
6									
7									
7									
7									
7									

UNIT - 26

1. Name of Unit/CETP	Sarita Vihar Metro Depot	2. Address	Sarita Vihar Metro Depot, Sarita Vihar, New Delhi
3. Installed Capacity of ET/CETP, MLD	167 kld	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Domestic/Sewage	6. Name of the Contact Person	Mr. Ansari / Mr. Jugendra
7. Contact No.	9650233774 / 8527143399	8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	Select	Select	1.1-1.9	Select	Select			
3										
3										
3										
3										
3										
3										

4	Operator	Male	Select	Any other	2.1-2.7	Select	Select		
4	Operator	Male	Select	Any other	2.1-2.7	Select	Select		
4	Operator	Male	Select	Any other	2.1-2.7	Select	Select		
4	Operator	Male	Select	Any other	2.1-2.7	Select	Select		
4									
4									
5									
5									
5									
5									
5									
5									
6	Supervisor	Male	ITI	Electrical	5.1-5.8	All Plant activities	Select		
6	Supervisor	Male	B.E	Civil	5.1-5.8	All Plant activities	Select		
6									
6									
6									
6									
7									
7									
7									
7									

UNIT - 27

1. Name of Unit/CETP	Hyatt Regency, Bikaji Cama Place	2. Address	Hyatt Regency, Bikaji Cama Place, New Delhi
3. Installed Capacity of ET/CETP, MLD	420 kld	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Mixed	6. Name of the Contact Person	Shubham
7. Contact No.	9953206421	8. Email id:	shubham.mathur@hyatt.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	Select	Select	1.1-1.9, Provided by hotel staff	All Plant activities	Select			
3										

3										
3										
3										
3										
3										
4	Operator	Male	upto 10th class	Arts	2.1-2.7	All Plant activities	No			
4	Operator	Male	B.A	Arts	2.1-2.7	All Plant activities	No			
4	Operator	Male	upto 10th class	Arts	2.1-2.7	All Plant activities	No			
4	Operator	Male	upto 8th class	Any other	2.1-2.7	All Plant activities	No			
4										
4										
5	Technician	Male	ITI	Science	3.1-3.5, Provided by the hotel	nary + Primary + secondary	Select			
5										
5										
5										
5										
5										
6	Supervisor	Male	Select	Select	5.1-5.8	All Plant activities	Select			
6										
6										
6										
6										
6										
7	Incharge	Male	ITI	Science	6.1-6.15	All Plant activities	Select			
7										
7										
7										

UNIT - 28			
1. Name of Unit/CETP	IFB AGRO INDUSTRIES LTD.	2. Address	Vill- Durgapur, post - Noorpur, PS- Ramnagar, South 24pgs , West Bengal, 743368
3. Installed Capacity of ET/CETP, MLD	110 KLPD SPIRIT PRODUCTION EQUIVALENT	4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Brewery/Distillery	6. Name of the Contact Person	SANTANU GHOSH
7. Contact No.	91-9830702959	8. Email id:	santanu_ghosh@ifbagro.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	ITI	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	ary + secondary + tertiary se	Yes	nosis plant, centrifuge and dryer operation.		
3	Junior Operator	Male	ITI	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	ary + secondary + tertiary se	Yes	nosis plant, centrifuge and dryer operation.		
3	Junior Operator	Male	ITI	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	ary + secondary + tertiary se	Yes	nosis plant, centrifuge and dryer operation.		
3	Junior Operator	Male	ITI	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	ary + secondary + tertiary se	Yes	nosis plant, centrifuge and dryer operation.		
3	Helper	Male	upto 8th class	None	1.1,1.7	All Plant activities	No			
3	Helper	Male	upto 8th class	None	1.1,1.7	All Plant activities	No			
3	Helper	Male	upto 8th class	None	1.1,1.7	All Plant activities	No			
4	Operator	Male	B.E	Any other	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
4	Operator	Male	BSc	Science	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
4	Operator	Male	BSc	Science	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
4	Operator	Male	BSc	Science	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
4	Operator	Male	ITI	Mechanical	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
4	Operator	Male	ITI	Any other	2,2.3,2.4,2.5,2.6,2.7, 4.1,4.3,4.4,4	All Plant activities	Yes	ffect evaporator, dryer, reverse osmosis, laboratory analysis		
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Supervisor	Male	BSc	Science	5.1,5.2,5.3,5.4,5.5,5.7,5.8	All Plant activities	Yes	nt operation, data compilation and analysis.		
6	Supervisor	Male	BSc	Science	5.1,5.2,5.3,5.4,5.5,5.7,5.8	All Plant activities	Yes	nt operation, data compilation and analysis.		
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	ETP Manager	Male	B.E (branch: chemical/biochemical)	Science	6.3,6.4,6.6,6.7,6.8,6.10,6.12,6.13,6	All Plant activities	Yes	ETP Management		
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 29										
1. Name of Unit/CETP	Kandhari Beverages Pvt. Ltd, Saha Ambala			2. Address	Kandhari Beverages Pvt. Ltd. Plot No. 460, HSIIDC Industrial growth centre, Saha- Ambala Haryana- 133104					
3. Installed Capacity of ET/CETP, MLD	595kl/day			4. Number of shifts in operation	Three					
5. Industrial sector/s being catered to	Food processing			6. Name of the Contact Person	Mr Praveen Chaudhary					
7. Contact No.	8930666032			8. Email id:	praveen.chaudhary@kbl.net.in					
9. Type of treatment given	Primary + Secondary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process	Aerobic					

9b. If, tertiary treatment is done, components of tertiary treatment					Pressure sand filter					
10a .Types of pumps used		Combination of all			10b. Type of sludge dewatering process/equipment		Plate and filter press			
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	ITI	Mechanical	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9	All Plant activities	No		Nil	Nil
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9	All Plant activities	No		Nil	Nil
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9	All Plant activities	No		Nil	Nil
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.9	All Plant activities	No		Nil	Nil
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 10th class	None	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7	All Plant activities	No		Nil	Nil
4	Operator	Male	upto 10th class	None		All Plant activities	No		Nil	Nil
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Laboratory Chemist	Male	Diploma	Any other	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8	All Plant activities	No		Nil	Nil
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Senior Laboratory Chemist	Male	BSc	Science	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8	All Plant activities	Yes	Operation from Coca Global	Nil	Nil
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	Diploma(any branch)	Mechanical	5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.	All Plant activities	Yes	on ETP Operation from Coca	Nil	Nil
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 30										
1. Name of Unit/CETP		Creative Bakers & Confectioners Pvt.Ltd.			2. Address		1/2 Harish Mukherjee Road,Kolkata-700020			

3. Installed Capacity of ET/CETP, MLD	2400lt/day	4. Number of shifts in operation	03(Three)
5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Mr.Soumyabrata Deb
7. Contact No.	8584035698	8. Email id:	contact@thesugarrandspice.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	None	1.1,1.2,1.5,1.6,1.8,1.9	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
3	Helper	Male	upto 10th class	None	1.1,1.2,1.5,1.6,1.8,1.9	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
3	Helper	Male	upto 10th class	None	1.1,1.2,1.5,1.6,1.8,1.9	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
3	Helper	Male	upto 10th class	None	1.1,1.2,1.5,1.6,1.8,1.9	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 10th class	None	2.1,2.2,2.4,2.5,2.6	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Laboratory Chemist	Male	B.E	Any other	4.1,4.4,4.5,4.6,4.7,4.8	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Supervisor	Male	upto 10th class	None	5.1,5.2,5.4,5.7	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
6	Supervisor	Male	upto 10th class	None	5.1,5.2,5.4,5.7	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
6	Supervisor	Male	upto 10th class	None	5.1,5.2,5.4,5.7	ary + secondary + tertiary se	Yes	ly Control of Effluent Treatment Plant		
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	B.E(any branch)	Any other	6.1,6.2,6.4,6.6,6.8,6.11,6.13,6.14	All Plant activities	Yes	ly Control of Effluent Treatment Plant		

7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 31

1. Name of Unit/CETP	Rama Paper Mills Limited	2. Address	Najibabd Road, Bijnor, Uttar Pradesh
3. Installed Capacity of ET/CETP, MLD	400	4. Number of shifts in operation	3 Shift
5. Industrial sector/s being catered to	Pulp & Paper	6. Name of the Contact Person	Arvind Rajput
7. Contact No.	9917415925	8. Email id:	arvindshry@rediffmail.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Laboratory Boy	Male	Diploma	Mechanical	2.1,2.2,2.3,2.4,2.5,2.6,2.7	All Plant activities	Yes	O&M of ETP,STP,CETP		
3	Laboratory Boy	Male	BSc	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	All Plant activities	Yes	esting and O&M of ETP,STP,CETP		
3	Laboratory Boy	Male	BSc	Science	2.1,2.2,2.3,2.4,2.5,2.6,2.7	All Plant activities	Yes	esting and O&M of ETP,STP,CETP		
3										
3										
3										
3										
4										
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UNIT - 32									
1. Name of Unit/CETP		Sri Lakshmi Narasimha Distilleries Pvt Ltd.,			2. Address		Garag,Dharwad		
3. Installed Capacity of ET/CETP, MLD		240 KL			4. Number of shifts in operation		3		
5. Industrial sector/s being catered to		Brewery/Distillery			6. Name of the Contact Person		S.L Sambrekar (DGM) Suyog Khanvilkar (Environment Officer)		
7. Contact No.		9,448,560,055			8. Email id:		jpsInd@rediffmail.com,slsambrekar@rediffmail.com,suyogkhanvilkar@gmail.com		
9. Type of treatment given		Primary + Secondary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process		Aerobic + Anaerobic		
9b. If, tertiary treatment is done, components of tertiary treatment					Others				
10a .Types of pumps used		Combination of all			10b. Type of sludge dewatering process/equipment		Sludge drying bed		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	<u>Activities/role/jobs being undertaken. Write only the code numbers given in Table 1</u>	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	has not gone to school	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 10th class	Any other		Primary section	No			
4	Operator	Male	upto 10th class	Any other		Primary section	No			
4	Operator	Male	upto 10th class	Any other		Primary section	No			
4	Operator	Male	ITI	Any other		Secondary section	No			
4	Operator	Male	upto 10th class	Any other		Secondary section	Select			
4	Operator	Select	Select	Any other		Select	Select			
5	Laboratory Chemist	Male	BSc	Science		All Plant activities	Yes			
5	Select	Select	Select	Any other		Select	Select			

5	Select	Select	Select	Any other		Select	Select		
5	Select	Select	Select	Any other		Select	Select		
5	None	Select	Select	Any other		Select	Select		
5	None	Select	Select	Any other		Select	Select		
6	Select	Select	Select	Any other		Secondary section	Select		
6	Select	Select	Select	Any other		Secondary section	Select		
6	Supervisor	Male	upto 10th class	Any other		All Plant activities	No		
6	Supervisor	Male	upto 10th class	Any other		All Plant activities	No		
6	Supervisor	Select	Select	Any other		Secondary section	Select		
6	Supervisor	Select	Select	Any other		Secondary section	Select		
7	Incharge	Male	M.Sc	Science		All Plant activities	No		
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		
7	Select	Select	Select	Any other		Secondary section	Select		

UNIT - 33

1. Name of Unit/CETP	United Breweries Ltd	2. Address	M/s. United Breweries Limited
3. Installed Capacity of ET/CETP, MLD	1200KLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Brewery/Distillery	6. Name of the Contact Person	Suresh Polamarasetty
7. Contact No.		8. Email id:	suresh Polamarasetty@gmail.com,sureshp@ubmail.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Combination of above

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	has not gone to school	None	1.5	Secondary section	No			
3	Helper	Male	has not gone to school	None	1.4	Secondary section	No			
3	Helper	Male	has not gone to school	None	1.1	Secondary section	No			
3	Helper	Male	has not gone to school	None	1.5	Secondary section	No			
3	Helper	Male	has not gone to school	None	1.5	Secondary section	No			
3	Helper	Male	upto 8th class	None	2.2	Secondary section	No			
3	Helper	Male	ITI	Mechanical	2.2	All Plant activities	No			
4	Laboratory Assistant	Male	BSc	Science	4.1	All Plant activities	Yes			
4	Operator	Male	ITI	Any other	2.7	All Plant activities	Yes			

4	Operator	Male	ITI	Any other	2.6	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.7	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.7	All Plant activities	Yes		
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5	Select	Select	Select	Select		Select	Select		
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5	Select	Select	Select	Select		Select	Select		
6	Plant Engineer	Male	B.E	Mechanical		All Plant activities	Yes		
6	Select	Select	Select	Select		Select	Select		
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6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	ETP Manager	Male	Graduate (Science)	Science		All Plant activities	Yes	ce from Andhra university work shop and IIT Mumbai Trainer work shop	
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 34

1. Name of Unit/CETP	Cummins India Pvt. Ltd	2. Address	Pithampur SEZ-II
3. Installed Capacity of ET/CETP, MLD	40 KLD	4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Ms. Neha Pendse
7. Contact No.		8. Email id:	neha.pendse@cummins.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 to 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 to 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 to 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
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UNIT - 35			
1. Name of Unit/CETP	Gabrial India Ltd.	2. Address	Dewas
3. Installed Capacity of ET/CETP, MLD	60 KLD	4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Mr. Akhilesh Jha
7. Contact No.		8. Email id:	Akhilesh.Jha@gabriel.co.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed
11. Details of ETP staff			

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Helper	Male	upto 10th class	None	1.1,1.2,1.3,1.5,1.7,1.8	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Select	Select	Select	Select		Select	Select			
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UNIT - 36			
1. Name of Unit/CETP	Johndeere india Ltd	2. Address	Dewas
3. Installed Capacity of ET/CETP, MLD	335 KLD	4. Number of shifts in operation	2 shifts
5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Mr. Sachin Walkey
7. Contact No.		8. Email id:	walkesachin@johndeere.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic

9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter		
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Laboratory Boy	Male	BSc	Science	4.0 To4.8	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Helper	Male	upto 8th class	None	1.1,1.2,1.3,1.5,1.7,1.8	All Plant activities	Yes	afety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Select	Select	Select	Select		Select	Select			
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UNIT - 37				
1. Name of Unit/CETP	Kirloskar	2. Address	Dewas	
3. Installed Capacity of ET/CETP, MLD	70 KLD	4. Number of shifts in operation	3 shifts	

5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Mr. Bacchan Kannongo
7. Contact No.		8. Email id:	Bachchan.Kanungo@kbl.co.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Others	
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Helper	Male	upto 10th class	None	1.1,1.2,1.3,1.5,1.7,1.8	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Select	Select	Select	Select		Select	Select			
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UNIT - 38				
1. Name of Unit/CETP	VE Commercial		2. Address	Dewas
3. Installed Capacity of ET/CETP, MLD	35 KLD		4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Automobile		6. Name of the Contact Person	Mr. Rajesh Ghorpade
7. Contact No.			8. Email id:	reghorpade@vecv.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter	
10a. Types of pumps used	Centrifugal pump		10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	Yes
3	Select	Select	Select	Select		Select	Select			
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UNIT - 39

1. Name of Unit/CETP	Volvo Eicher PDC Plant	2. Address	Pithampur Sec.01
3. Installed Capacity of ET/CETP, MLD	10 KLD	4. Number of shifts in operation	2 shifts
5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Mr. Sanjay Vaishnav
7. Contact No.		8. Email id:	skvaishnav@vecv.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
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UNIT - 40

1. Name of Unit/CETP	Volvo Eicher Power Train	2. Address	Pithampur Sec.01
3. Installed Capacity of ET/CETP, MLD	80 KLD	4. Number of shifts in operation	3 shifts
5. Industrial sector/s being catered to	Automobile	6. Name of the Contact Person	Mr. Abdul Naime
7. Contact No.		8. Email id:	anaime@vecv.in
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
3	Junior Operator	Male	upto 10th class	None	2.1 To 2.7	All Plant activities	Yes	safety,Behaviour based safety,Technical training on ETP/STP	Yes	
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UNIT - 41									
1. Name of Unit/CETP		Canberra Chemicals.			2. Address		C-1, 91 / 7, GIDC, Nandesari 391340. Gujarat India		
3. Installed Capacity of ET/CETP, MLD		40 KL / day			4. Number of shifts in operation		3		
5. Industrial sector/s being catered to		Select			6. Name of the Contact Person		Mr Prashant Patel		
7. Contact No.		0265-2840341			8. Email id:		qacanberra@gmail.com		
9. Type of treatment given		Primary treatment			9a. If, secondary treatment is done, type of biological process		Select		
9b. If, tertiary treatment is done, components of tertiary treatment					Select				
10a .Types of pumps used		Positive displacement pump			10b. Type of sludge dewatering process/equipment		Plate and filter press		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	<u>Activities/role/jobs being undertaken. Write only the code numbers given in Table 1</u>	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	Science		Select	Select			
3	Helper	Select	upto 10th class	Science		Select	Select			
3	Helper	Male	upto 10th class	Science		Select	Select			
3	Helper	Female	B.E	Select		Select	Select			
3	Helper	Male	B.E	Select		Select	Select			
3	Junior Operator	Male	B.E	Select		Select	Select			
3	Laboratory Boy	Male	BSc	Science		Select	Select			
4	Select	Male	B.E	Select		Select	Select			
4	Operator	Male	B.E	Select		Select	Select			

4	Operator	Male	B.E	Select		Select	Select		
4	Operator	Male	B.E	Select		Select	Select		
4	Operator	Select	B.E	Select		Select	Select		
4	Operator	Select	B.E	Select		Select	Select		
5	Laboratory Chemist	Select	B.E	Select		Select	Select		
5	None	Male	B.E	Select		Select	Select		
5	Select	Select	B.E	Select		Select	Select		
5	Select	Select	B.E	Select		Select	Select		
5	None	Select	B.E	Select		Select	Select		
5	None	Select	B.E	Select		Select	Select		
6	Select	Select	B.E	Select		Select	Select		
6	Select	Select	B.E	Select		Select	Select		
6	Supervisor	Male	MSc	Chemical		Select	Select		
6	Supervisor	Select	B.E	Select		Select	Select		
6	Supervisor	Select	B.E	Select		Select	Select		
6	Supervisor	Select	B.E	Select		Select	Select		
7	Incharge	Select	B.E	Select		Select	Select		
7	Select	Select	B.E	Select		Select	Select		
7	Select	Select	B.E	Select		Select	Select		
7	Select	Select	B.E	Select		Select	Select		

UNIT - 42

1. Name of Unit/CETP		Farmson Pharmaceutical Guj Pvt Ltd.			2. Address		Plot NO. 14, GIDC industrial Estate Nandesaari Dist. Vadodara Gujarat Pvt. Ltd.		
3. Installed Capacity of ET/CETP, MLD		400 KLD			4. Number of shifts in operation		3 Shifts		
5. Industrial sector/s being catered to		Drug & Pharmaceuticals			6. Name of the Contact Person		Sudhesh Mishra		
7. Contact No.					8. Email id:		ehs@farmson.com, mishra@farmson.com		
9. Type of treatment given		Based on latest and newest Technology of Hydrodynamic cavitation using calcium hypochlorite as catalyst			9a. If, secondary treatment is done, type of biological process		none		
9b. If, tertiary treatment is							none		
10a. Types of pumps used		centrifugal			10b. Type of sludge dewatering process/equipment		Vacuum filter		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
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3	Helper	Male	10 th Pass	none	<ul style="list-style-type: none"> • Maintain and monitoring of all ETP plant equipment in good condition. To do the house keeping of plant • To open and clean the filter press of the plant • To remove the sludge in HDPE bag • To transfer filled sludge bag from plant area to hazardous waste storage area • To transfer the sample of effluent from ETP to Laboratory • To clean and collect any leakage & slippage material in plant • To fill effluent in CETP tanker • To transfer any maintenance memo to electric or maintenance department • Handling lime bags and making slurry of lime 	All	Inhouse training	Inhouse training in Housekeeping of Plant, Loading and unloading of material, General safety induction		
3	Helper	Male	8 th pass	none		All	Inhouse training			
3	Helper	Male	7 th Pass	none		All	Inhouse training			
3	Helper	Male	8 th Pass	none		All	Inhouse training			
3	Helper	Male	10 th Pass	none		All	Inhouse training			
3	Helper	Male	8 th Pass	none		All	Inhouse training			
3	Helper	Male	5 th Pass	none		All	Inhouse training			
3	Helper	Male	5 th Pass	none		All	Inhouse training			
3	Helper	Male	10 th Pass	none		All	Inhouse training			
3	Helper	Male	5 th Pass	none		All	Inhouse training			
3	Helper	Male	8 th Pass	none		All	Inhouse training			
3	Helper	Male	6 th Pass	none		All	Inhouse training			
3	Helper	Male	10 th Pass	none		All	Inhouse training			
3	Helper	Male	6 th Pass	none		All	Inhouse training			
3	Helper	Male	10 th Pass	none		All	Inhouse training			
3	Helper	Male	10 th Pass	none		All	Inhouse training			
3	Helper	Male	8 th Pass	none		All	Inhouse training			
3	Helper	Male	5 th Pass	none		All	Inhouse training			
3	Helper	Male	8 th Pass	none		All	Inhouse training			
3	Helper	Male	7 th Pass	none		All	No	none		
3	Helper	Male	8 th Pass	none	All	No	none			
3	Helper	Male	5 th Pass	none	All	No	none			
3	Helper	Male	6 th Pass	none	All	No	none			
3	Helper	Male	8 th Pass	none	All	No	none			
3	Helper	Male	9 th Pass	none	All	No	none			

7	Asst. Manager	Male	B.Sc. (IC), Post Diplomna in Industrial Safety	Post Diplomna in Industrial Safety	<ul style="list-style-type: none"> • Maintaining legal documents related to Environment, health & safety • Maintaining safety equipments e.g. extinguishers, showers, SCBA – Self Content Breathing Apparatus, oxygen meter, LEL meter • Conducting Safety Committee Meeting. • Arranging external training programme with the co ordination of P&A dept. • Incident/ Accident Management; investigation, root cause analysis and CAPA. • Plant round for the verification of safety & environmental appliance as per the legal requirement. • Authorizing various Work Permit i.e. hot work permit, Height work permit etc. • Treatment & disposal of various hazardous wastes generated during the process i.e. effluents, 	All	not known	none		
6	Jr. Officer	Male	B.Sc. (Fire & Safety)		<ul style="list-style-type: none"> • To follow all defined SOP of plant at shop floor • To co ordinate with other department related to safety issue • To review the site for authorized the permit to work • Report any accident / incident to superior 	All	Yes	EHS induction for employees, Accident/incident investigation, waste minimisation and waste prevention, standard operating procedure of plant		
6	Jr. Officer	Male	M.Sc. (Environmental Sciences)	Environmental Sciences	<ul style="list-style-type: none"> • To conduct the toolbox talk with the contractual worker • To conduct the safety training • To monitor and maintain the safety equipment in good and healthy condition • To take plant round and identify 	All	Yes	EHS induction for employees, Accident/incident investigation, waste minimisation and waste prevention, standard operating procedure of plant		

6	Chemist	Male	B.Sc.	Chemistry	<ul style="list-style-type: none"> • To implement the defined SOP of plant at shop floor • To co ordinate with other department related to effluent and ETP plant activity • To maintain the equipment in ready condition by preventive maintenance of equipment as per the schedule • Monitoring the effluent parameter during the treatment of effluent • Maintain the inventory of ETP chemicals at plant level. • Communicate for any short of material with superior • Report any accident / incident to superior • Communicate with the outside agencies like CETP, NECL... • Collect the sample from the treated batch and send to QC • Sampling and Labeling of sample to be done as per std. method • To maintain housekeeping in 	All	Inhouse training	EHS induction for employees		
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6	Chemist	Male	B.Sc. (Chemistry)	Chemistry	<ul style="list-style-type: none"> • To implement the defined SOP of plant at shop floor • To co ordinate with other department related to effluent and ETP plant activity • To maintain the equipment in ready condition by preventive maintenance of equipment as per the schedule • Monitoring the effluent parameter during the treatment of effluent • Maintain the inventory of ETP chemicals at plant level. • Communicate for any short of material with superior • Report any accident / incident to superior • Communicate with the outside agencies like CETP, NECL... • Collect the sample from the treated batch and send to QC • Sampling and Labeling of sample to be done as per std. method • To maintain housekeeping in 	All	Inhouse training	EHS induction for employees		
4	Plant Operator	Male	SSC	none	<ul style="list-style-type: none"> • To collect the effluent comes from different stream in dedicated storage tanks • To treat the effluent as per the SOP • To monitored and maintain the level of storage tanks of ETP plant • To report any incident ot superior • To handle the contractual man 	All	Yes	EHS training, General safety guidelines to work safety at workplace, General safety training for the company's employees, Fire and Fire prevention, waste minimisation and waste prevention, standard operating procedure of ETP		

4	Plant Operator	Male	SSC	none	<p>power for day to day activity</p> <ul style="list-style-type: none"> • To maintain housekeeping in good condition • To follow all rule and regulation of company 	All		EHS training, General safety guidelines to work safety at workplace, General safety training for the company's employees, Fire and Fire prevention, waste minimisation and waste prevention, standard operating procedure of ETP		
4	Plant Operator	Male	ITI (AOCP)	AOCP (Assistant operator of Chemical Plant)	<ul style="list-style-type: none"> • To collect the effluent comes from different stream in dedicated storage tanks • To treat the effluent as per the SOP • To monitored and maintain the level of storage tanks of ETP plant • To report any incident ot superior • To handle the contractual man power for day to day activity • To maintain housekeeping in good condition • To follow all rule and regulation of company 	All		EHS training, General safety guidelines to work safety at workplace, General safety training for the company's employees, Fire and Fire prevention, waste minimisation and waste prevention, standard operating procedure of ETP		

4	Plant Operator	Male	ITI (AOCP)	AOCP (Assistant operator of Chemical Plant)	<ul style="list-style-type: none"> To collect the effluent comes from different stream in dedicated storage tanks To treat the effluent as per the SOP To monitored and maintain the level of storage tanks of ETP plant To report any incident of superior To handle the contractual man power for day to day activity To maintain housekeeping in good condition To follow all rule and regulation of company 	All		EHS training, General safety guidelines to work safety at workplace, General safety training for the company's employees, Fire and Fire prevention, waste minimisation and waste prevention, standard operating procedure of ETP		
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UNIT - 43

1. Name of Unit/CETP	J.K.Paper Mills	2. Address	J.K. Paper Mills, Jaykaypur, Rayagada, Odisha		
3. Installed Capacity of ET/CETP, MLD	40MLD	4. Number of shifts in operation	Round the clock (4 shifts), A-shift(06.00 to 14.00hrs), B-Shift (14.00hrs to 22.00hrs), C-shift (22.00hrs to 06.00hrs) and General shift (08.00hrs to 12.30hrs and 13.30hrs to 17.00hrs)		
5. Industrial sector/s being catered to	Pulp & Paper	6. Name of the Contact Person	Satyajit Mohanty		
7. Contact No.	7894439573	8. Email id:	smohanty@jkpm.jkmail.com		
9. Type of treatment given	Secondary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic		
9b. If, tertiary treatment is done, components of tertiary treatment			Select		
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Combination of above		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
1	Plant Manager/In charge/Coordinator	Male	M. Sc. (chemistry) M. Sc. (Environment) PGDM	Chemistry, Env. Science	6.10 to 6.15	Total ETP process	Protection of Environment	Environment	No	Knowledge on advance technology

2	Lab Chemist cum Plant supervisor	Male	B. Sc. (chemistry) M. Sc. (chemistry) M. Sc. (Env. Science)	Chemistry, Env. Science	4.1 to 4.8 and 5.1 to 5.8	primary, Primary and Secor	Process and monitoring of ETP	Total process of ETP and Lab Analysis	No	Knowledge on advance technology
3	Foreman	Male	ITI	Mechanical	2.1 to 2.11	Augmented ETP	Operational training from supplier	Running of equipments	No	Knowledge on advance technology
4	Operator	Male	Primary education to ITI	Any other	2.1 to 2.11	primary and Primary section	Operational training from supplier	Running of equipments	No	Knowledge on advance technology
5	Jr. Operator	Male	Primary education to ITI	Any other	2.1 to 2.11	Sludge dewatering machine and Secondary section	Operational training from supplier	Running of equipments	No	Knowledge on advance technology
6	Helper	Male	Upto primary education	---	1.1 to 1.9	primary, Primary and Secor	--	--	--	--

UNIT - 44

1. Name of Unit/CETP	Delhi Milk Scheme		2. Address	West Patel Nagar, New Delhi 110008
3. Installed Capacity of ET/CETP, MLD	2.5	MLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Food processing		6. Name of the Contact Person	Mr B S Beniwal
7. Contact No.	25872455/ 25872466		8. Email id:	gm.dms@nic.in
9. Type of treatment given	Secondary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment				Select
10a. Types of pumps used	Combination of all		10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Laboratory Boy	Male	upto 10th class	None	4.1, 4.2, 4.3, 4.8	Select	No			
3	Junior Operator	Male	upto 8th class	None	1.1, 1.2, 1.8, 2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 8th class	None	1.1, 1.2, 1.8, 2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 8th class	None	1.1, 1.2, 1.8, 2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 8th class	None	1.1, 1.2, 1.8, 2.1 to 2.7	All Plant activities	No			
4	Select	Select	Select	Select		Select	Select			

4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
5	Technician	Select	upto 8th class	None	3.5	Select	No		
5	Select	Male	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Supervisor	Male	B.A	Arts	supervises all plant activities	All Plant activities	No		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	ETP Manager	Male	BSc	Science	Env officer	All Plant activities	No		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 45

1. Name of Unit/CETP	Eskay Iodine Pvt. Ltd.	2. Address	907/2, Jhagadia GIDC, Dist. Bharuch, Gujarat - 393110
3. Installed Capacity of ET/CETP, MLD	40 KLD	4. Number of shifts in operation	1
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	Sunil G Sharda
7. Contact No.	7567039300	8. Email id:	sunilgsharda@sk1932.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done,			Sand bed filter
10a. Types of pumps used	Select	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	ETP Helpers	Male	Xth	science	1..1, 1.2, 1.4, 1.8, 1.9, 2.1	Complete ETP	No			Rules & Regulations related to Waste Water Treatment
3	ETP Helpers	Male	Xth	science	1..1, 1.2, 1.4, 1.8, 1.9, 2.1	Decontamination of Packing Material	No			

4	ETP Operator	Male	Xth	science	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7	Complete ETP	No			Fundamentals of Waste Water Treatment. Troubleshooting etc.
6	QC Manager	Male	M.Sc	Chemistry	Testing of Treated Water for BOD, COD, TDS (4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8)	Lab Analysis	QCFI			
7	Production Manager	Male	B.Sc	Chemistry	Managing and controlling operations of the ETP (6.2, 6.5, 6.6, 6.7, 6.8, 6.9, 6.11, 6.14, 5.1, 5.5, 5.6)	Complete ETP	QCFI			COD/BOD, Management

UNIT - 46

1. Name of Unit/CETP	Anjaneya Cold Storage (meat packaging)		2. Address	B-35, Lawrence road, New Delhi
3. Installed Capacity of ET/CETP, MLD	73	KLD	4. Number of shifts in operation	1
5. Industrial sector/s being catered to	Food processing		6. Name of the Contact Person	Mr Subodh
7. Contact No.	9810970593		8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment				Pressure sand filter
10a. Types of pumps used	Combination of all		10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Laboratory Boy	Male	upto 10th class	None	1.1, 1.8	Select	No			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	No			
3	Select	Select	Select	Select		All Plant activities	No			
4	Operator	Male	upto 12th class	None	2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 10th class	None	2.1 to 2.7	All Plant activities	No			
4	Select	Select	Select	Select		All Plant activities	No			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			

5	Laboratory Chemist	Male	MSc	Microbiology	4.2 to 4.6, 4.8	Select	Yes	Post graduate in food safety		
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	ETP Manager	Male	B.E	ry/Biochemical/Bio	6.1 to 6.9, 6.11 to 6.14	All Plant activities	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 47

1. Name of Unit/CETP	Britania bread (Shakun consumer products)		2. Address	B-36 Lawrence road, New Delhi - 110035		
3. Installed Capacity of ET/CETP, MLD	600	litres/day	4. Number of shifts in operation	1		
5. Industrial sector/s being catered to	Food processing		6. Name of the Contact Person	Lalit sharma, operations head		
7. Contact No.	011 45914586, 45609586, 9911651702		8. Email id:	lalit.kumar@shakunbreads.com		
9. Type of treatment given	Secondary + tertiary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic		
9b. If, tertiary treatment is done, components of tertiary treatment						
10a. Types of pumps used	Centrifugal pump		10b. Type of sludge dewatering process/equipment	Select		

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Male	Select	None		Select	No			
3	Select	Male	Select	None		Select	No			

4	Select	Male	Select	None		Select	No		
4	Operator	Male	upto 10th class	None	2.1 to 2.7	Select	No		
4	Operator	Male	B.A	Arts	2.1 to 2.7	Select	No		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
5	Laboratory Chemist	Male	BSc	Chemical	4.2 to 4.8, 5.1 to 5.44, 6.2 to 6.8	Select	No		
5	Select	Male	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	No		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	No		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 48

1. Name of Unit/CETP	Lupin Limited	2. Address	124, GIDC, Ankleshwar
3. Installed Capacity of ET/CETP, MLD	1000 KLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	K R Patel
7. Contact No.	9687688271	8. Email id:	kishorpatel@lupin.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment	Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis		
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	ITI	Any other	1.1	Primary section	No		No	

3	Laboratory Boy	Male	ITI	Environment	1.1	Primary section	No		No	
3	Junior Operator	Male	ITI	Any other	2.1,2.2,2.3	Secondary section	No		No	
3	Junior Laboratory assistant	Male		Science	4.1,4.2,4.3	All Plant activities	No		No	
3										
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UNIT - 49										
1. Name of Unit/CETP	M/s Amoli Organics Pvt. Ltd			2. Address	Block No. 422, ECP Canal road, Luna, Padra, Vadodara					
3. Installed Capacity of ET/CETP, MLD	200 KLD			4. Number of shifts in operation	3					
5. Industrial sector/s being catered to	Drug & Pharmaceuticals			6. Name of the Contact Person	Mr. Dipnesh Surti					
7. Contact No.	9099039779			8. Email id:	dipnesh.surti@amoliindia.com					
9. Type of treatment given	Primary + Secondary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process	Aerobic					
9b. If, tertiary treatment is done, components of tertiary treatment					Others					
10a. Types of pumps used	Select			10b. Type of sludge dewatering process/equipment	Plate and filter press					
11. Details of ETP staff										

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	All Plant activities	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	ary + Primary + secondary	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	ary + Primary + secondary	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	ary + Primary + secondary	Select			
4	Operator	Male	Diploma	Environment	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	ary + Primary + secondary	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.7, 4.8	ary + Primary + secondary	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7, 4.2, 4.3, 4.5, 4.6, 4.7, 4.8	ary + Primary + secondary	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7, 4.2, 4.3, 4.5, 4.6, 4.7, 4.8	ary + Primary + secondary	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7, 4.2, 4.3, 4.5, 4.6, 4.7, 4.8	MEE	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7, 4.2, 4.3, 4.5, 4.6, 4.7, 4.8	ary + Primary + secondary	Select			
7	Select	Select	Select	Select		Select	Select			
7	Incharge	Male	BSc	Science	6.5, 6.7, 6.8, 6.12, 6.13, 5.14	ary + secondary + tertiary se	Yes	P, EHS, personal health & hygiene		
7	Manager(Health, Safety and Environment Incl ETP)	Male	MSc	Environment	7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13,	All Plant activities	Yes			
7	Incharge	Male	BSc	Science	6.4, 6.5, 6.6, 6.7, 6.8, 6.12, 6.13,	ary + secondary + tertiary se	Yes	personal health & hygiene		

UNIT - 50

1. Name of Unit/CETP	Kohler India Corporation Pvt. Limited	2. Address	Plot No. 828, GIDC Mega Estate, Jhagadia Valia Road, Jhagadia, Dist. Bharuch-393110
3. Installed Capacity of ET/CETP, MLD	250 KLD	4. Number of shifts in operation	First & Second Shift
5. Industrial sector/s being catered to	Select	6. Name of the Contact Person	Dinesh Vaswani
7. Contact No.	9099424875	8. Email id:	dinesh.vaswani@kohler.com

9. Type of treatment given	Primary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a. Types of pumps used	others	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
1	Junior Operator	Male	B.E	Environment	5.1 to 5.8	All Plant activities	Yes	Regarding ETP	Trouble Shooting of ETP	
3	Junior Operator	Male	ITI	Fitter	2.1 to 2.7	All Plant activities	Yes	Regarding ETP		
3	Junior Operator	Male	B.A	Arts	2.1 to 2.7	All Plant activities	Yes	Regarding ETP		
3	Helper	Male	ITI	Fitter	1.1 to 1.9	All Plant activities	Yes	Regarding ETP		
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No			
3	Helper	Male	upto 8th class	None	1.1 to 1.9	All Plant activities	No			
3	Select	Select	Select	Select			Select			
4	Select	Select	Select	Select			Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 51	
1. Name of Unit/CETP	BASF India Limited
2. Address	Plot No. 8001, Phase VI, GIDC Ankleshwar. Dist: Bharuch (Gujarat)

3. Installed Capacity of ET/CETP, MLD	300 KL/Day	4. Number of shifts in operation	Three shift
5. Industrial sector/s being catered to	Dye & Dye Intermediates	6. Name of the Contact Person	Sanjay Patil
7. Contact No.		8. Email id:	sanjay.a.patil@basf.com
9. Type of treatment given	Secondary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Select	
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	None	1.1 / 1.6 / 1.7 / 1.8 / 1.9 / 1.10	All Plant activities	Yes	sic Safety training. Job training		
3	Helper	Male	upto 10th class	None	1.1 / 1.6 / 1.7 / 1.8 / 1.9 / 1.10	All Plant activities	Yes	sic Safety training. Job training		
3	Helper	Male	upto 10th class	None	1.1 / 1.6 / 1.7 / 1.8 / 1.9 / 1.10	All Plant activities	Yes	sic Safety training. Job training		
3	Helper	Male	upto 10th class	None	1.1 / 1.6 / 1.7 / 1.8 / 1.9 / 1.10	All Plant activities	Yes	sic Safety training. Job training		
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 12th class	Science	2.1 / 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7	All Plant activities	Yes	Safety training. Job training for MEE operation, Biological treatment plant Operation	Work shop on biological treatment plant operation & basic on micro organism	Part time course on operation of wastewater treatment in local language
4	Operator	Male	upto 12th class	Science	2.1 / 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7	All Plant activities	Yes	Safety training. Job training for MEE operation, Biological treatment plant Operation	Work shop on biological treatment plant operation & basic on micro organism	Part time course on operation of wastewater treatment in local language
4	Operator	Male	upto 12th class	Science	2.1 / 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7	All Plant activities	Yes	Safety training. Job training for MEE operation, Biological treatment plant Operation	Work shop on biological treatment plant operation & basic on micro organism	Part time course on operation of wastewater treatment in local language
4	Operator	Male	upto 12th class	Science	2.1 / 2.2 / 2.3 / 2.4 / 2.5 / 2.6 / 2.7	All Plant activities	Yes	Safety training. Job training for MEE operation, Biological treatment plant Operation	Work shop on biological treatment plant operation & basic on micro organism	Part time course on operation of wastewater treatment in local language
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Technician	Male	ITI	Fitter	3.5	Select	Select			
5	Technician	Male	ITI	Electrical	3.4	Select	Select			

5	Technician	Male	ITI	Any other	3.6	Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Plant Engineer	Male	BSc	Chemical	4.8 / 5.1 / 5.2 / 5.3 / 5.4 / 5.5 / 5.6	All Plant activities	Yes	Safety training. Training / seminar / workshop on waste water treatment plant / Solid waste etc.	Advance training on ecological economical wastewater treatment
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Manager(Health, Safety and Environment Incl ETP)	Male	BSc	Chemical	7 / 6.8 / 6.9 / 6.10 / 6.11 / 6.12 / 6.	All Plant activities	Yes	Safety training. Training / seminar / workshop on waste water treatment plant / Solid waste etc.	Advance training on ecological economical wastewater treatment
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 52

1. Name of Unit/CETP	Cadila	2. Address	Plot No. 26-29 &31, dabhasa-Umraya road, vill Dabhasa - 2391440
3. Installed Capacity of ET/CETP, MLD	300 KLD	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	Ashoksinh Rana
7. Contact No.	2662679107	8. Email id:	ashoksinh.rana@zyduscadila.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Others
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Select	upto 10th class	Any other	1.1 TO 1.9	All Plant activities	Yes			
3	Helper	Select	upto 10th class	Any other	1.1 TO 1.9	All Plant activities	Yes			
3	Helper	Male	upto 10th class	Any other	1.1 TO 1.9	All Plant activities	Yes			
3	Helper	Female	upto 12th class	Any other	1.1 TO 1.9	All Plant activities	Yes			

3	Helper	Male	upto 10th class	Any other	1.1 TO 1.9	All Plant activities	Yes		
3	Helper	Male	upto 10th class	Any other	1.1 TO 1.9	All Plant activities	Yes		
3	Helper	Male	upto 12th class	Any other	1.1 TO 1.9	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
4	Operator	Male	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
4	Operator	Select	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
4	Operator	Select	ITI	Any other	2.1 TO 2.7	All Plant activities	Yes		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Supervisor	Male	M.Tech	Chemical	5.1 TO 5.9	All Plant activities	Select		
6	Supervisor	Male	B.E	Chemical	5.1 TO 5.9	All Plant activities	Select		
6	Supervisor	Male	Diploma	Environment	5.1 TO 5.9	All Plant activities	Select		
6	Select	Select	B.E	Chemical		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Manager(Health, Safety and Environment Incl ETP)	Select	MSc	Chemical	6.2 TO 6.15	All Plant activities	Yes		
7	Select	Select	B.E	Select		Select	Select		
7	Select	Select	B.E	Select		Select	Select		
7	Select	Select	B.E	Select		Select	Select		
	ETP assistance		12 + AOCP (ITI)		Handicap, ETP admin Post	All Plant activities, Routine	Yes	In House	

UNIT - 53

1. Name of Unit/CETP	KUMAR ORGANIC PRODUCTS LIMITED	2. Address	PLOT NO. 379, CANAL ROAD, MAITRI MARG, VILL LUNA, TAL PADRA, DI-STT VADODARA- 48
3. Installed Capacity of ETP/CETP, MLD	210 kld	4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Drug & Pharmaceuticals	6. Name of the Contact Person	Suresh Govardhan, General Manager (Works)
7. Contact No.	9824716997	8. Email id:	gm_baroda@kumarorganic.net
9. Type of treatment given	Primary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Select
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
3	Select	Select	Select	Select		Select	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	All Plant activities	No			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7, 4.1, 4.4, 4.5	All Plant activities	No			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Technician	Male	Diploma	Electrical	3.1 to 3.4	Select	Select			
5	Select	Male	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Supervisor	Male	BSc	Science	5.1 to 5.7	All Plant activities	No			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
7	ETP Manager	Male	MSc	Science	6.1 to 6.15	All Plant activities	Select			
7	Manager(Health, Safety and Environment Incl ETP)	Male	Diploma	Chemical	6.4, 6.6, 6.7, 6.12, 6.13, 6.14	All Plant activities	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	B.E	Select		Select	Select			

UNIT - 54

1. Name of Unit/CETP	Pragati Power Station	2. Address	Pragati Power Station I.P. Estate, Ring Road, New Delhi 110002
3. Installed Capacity of ET/CETP, MLD	0.5 MLD	4. Number of shifts in operation	One
5. Industrial sector/s being catered to	Select	6. Name of the Contact Person	Dr. Parvin Gupta
7. Contact No.	9717694840	8. Email id:	parvinguptaipgcl@yahoo.co.in

9. Type of treatment given	Primary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Select
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	ITI	Science	2.1	Primary section	No			
3	Junior Laboratory assistant	Male	BSc	Science	4.3	All Plant activities	No			
2	Laboratory Boy	Male	upto 8th class	None	4.1	All Plant activities	No			

UNIT - 55

1. Name of Unit/CETP	Padra Coating works	2. Address	Bil, Near Bhaili Railway Station< Padra Road, Vadodara
3. Installed Capacity of ET/CETP, MLD	10 KLD	4. Number of shifts in operation	one
5. Industrial sector/s being catered to	Metal Finishing (electroplating, Pickling, Anodising, etc)	6. Name of the Contact Person	Mr. rakesh Amin
7. Contact No.	9374795158	8. Email id:	ehs.head@bancoindia.com
9. Type of treatment given	Primary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Select
10a. Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
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3	Helper	Male	upto 10th class	Any other	1.1, 1.3, 1.5, 1.7, 1.8, 1.9	All Plant activities	Select		
3	Helper	Male	upto 10th class	Any other	1.1, 1.3, 1.5, 1.7, 1.8, 1.10	All Plant activities	Select		
3	Select	Select	Select	Select		Select	Select		
3	Select	Select	Select	Select		Select	Select		
3	Select	Select	Select	Select		Select	Select		
3	Select	Select	Select	Select		Select	Select		
3	Select	Select	Select	Select		Select	Select		
4	Operator	Male	ITI	Chemical	2.1 to 2.7	All Plant activities	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Male	Select	Select		Select	Select		
4	Select	Male	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
4	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Male	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
5	Select	Select	Select	Select		Select	Select		
6	Supervisor	Male	MSc	Environment	5.1 to 5.7	All Plant activities	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
6	Select	Select	Select	Select		Select	Select		
7	Manager(Health, Safety and Environment Incl ETP)	Male	BSc	Chemical	5.5, 6.6, 6.7 6.8, 6.9, 6.11, 6.12, 6.	All Plant activities	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 56			
1. Name of Unit/CETP	Cairn India Limited - CBOS-2	2. Address	CAIRN INDIA LIMITED
3. Installed Capacity of ET/CETP, MLD		4. Number of shifts in operation	03 Shifts (A Shift: 06:30 Hrs. to 14:30 Hrs.; B Shift : 14:30 Hrs. to 22:30 Hrs. and C Shift 22:30 Hrs. to 06:30 Hrs.)
5. Industrial sector/s being catered to	Petrochemicals	6. Name of the Contact Person	
7. Contact No.		8. Email id:	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment			Pressure sand filter
10a .Types of pumps used	Positive displacement pump	10b. Type of sludge dewatering process/equipment	Sludge drying bed

11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Laboratory Boy	Male	BSc	Chemical		All Plant activities	Yes	Handling of Equipment	nil	
3	Laboratory Boy	Male	BSc	Chemical		Tertiary section (PSF, Filter press, Cen	Yes	Handling of Equipment	nil	
3	Junior Operator	Male	BSc	Chemical		Tertiary section (PSF, Filter press, Cen	Yes	Handling of Equipment	nil	
3	Junior Operator	Male	B.A	Arts		Primary + secondary + tertiary se	Yes	Handling of Equipment	nil	
3	Junior Operator	Male	B.A	Arts		Primary + secondary + tertiary se	Yes	Handling of Equipment	nil	
3	Helper	Male	ITI	Chemical		Primary + secondary + tertiary se	Yes	Handling of Equipment	nil	
3	Helper	Male	ITI	Science						
4	Helper	Male	ITI	Chemical						
4	Helper	Male	ITI	Science						
4	Helper	Male	ITI	Chemical						
4										
4										
4										
5										

UNIT - 57

1. Name of Unit/CETP	M/s. GSP Crop Science Pvt. Ltd.	2. Address	Plt No. 1,15&16, GIDC Estate, Vill: Nandesari-391340, Dist.: Vadodara	
3. Installed Capacity of ET/CETP, MLD	200 KL/day	4. Number of shifts in operation	4 Shifts	
5. Industrial sector/s being catered to	Pesticide	6. Name of the Contact Person	Mr. Jayesh Visavadia	
7. Contact No.	9687652910	8. Email id:	environment@gspcrop.in	
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic	
9b. If, tertiary treatment is done, components of tertiary treatment			Others	
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press	

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Select	Male	Select							
3										

3									
3									
3									
3				Select		Select			
3		Male		Select		Select			
4	Operator	Male	ITI	Chemical	Bharat Gohel (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	1. Safe Handling of Chlorine & Emergency Preparedness-GACL Team 2. Fire Prevention & Control	
4	Operator	Male	ITI	Chemical	Pravin Parmar (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	Fire Prevention & Control	
4	Operator	Male	ITI	Chemical	Dinesh Parmar (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	Fire Prevention & Control	
4	Operator	Male	ITI	Chemical	Manhar Parmar (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	Fire Prevention & Control	
4	Operator	Male	ITI	Chemical	Rajni Makwana (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	Fire Prevention & Control	
4	Operator	Male	ITI	Chemical	Kamlesh Gohel (2.1,2.2,2.3,2.4,2.5,2.7,4.1)	Select	Yes	Fire Prevention & Control	
5	Select	Select	B.E	Select		Select	Select		
5	None	Female	BSc	Environment	Mittal Bhavsar (4.1,4.2,4.5,4.7,5.8)	Select	Yes	Fire Prevention & Control	
5	Select	Select	B.E	Select		Select	Select		
5	Select	Select	B.E	Select		Select	Select		
5	None	Select	B.E	Select		Select	Select		
5	None	Select	B.E	Select		Select	Select		
6	Supervisor	Male	MSc	Environment	Rukesh Patel (5.1,5.2,5.3,5.4,5.5,5.7)	All Plant activities	Yes	1.Gujarat Safety Council 2.Fire Prevention & Control	Ind. Hygine Safety
6	Supervisor	Male	B.E	Environment	Amit Patel (5.1,5.2,5.3,5.4,5.5,5.7)	All Plant activities	No	Fire Prevention & Control	
6	Supervisor	Male	BSc	Chemical	Vasudev Damor (5.1,5.2,5.3,5.4,5.5,5.7)	All Plant activities	No	Fire Prevention & Control	
6	Supervisor	Male	B.E	Select		Select	Select		
6	Supervisor	Select	B.E	Select		Select	Select		
6	Supervisor	Select	B.E	Select		Select	Select		
7									
7	Incharge	Male	BSc	Chemical	Nitin Vara (6.1 to 6.14)	All Plant activities	Yes	1. Safe Handling of Chlorine & Emergency Preparedness-GACL Team 2. Fire Prevention & Control	

7	Select	Select	Select	Select	Select	Select		
7	Select	Select	Select	Select	Select	Select		

UNIT - 58

1. Name of Unit/CETP	bharuch enviro infrastructure ltd	2. Address	9701-16, GIDC, Ankleshwar- 393002
3. Installed Capacity of ETP/CETP, MLD	ETP	0.36	4. Number of shifts in operation 3
5. Industrial sector/s being catered to	Select	6. Name of the Contact Person	B.D. Dalwadi
7. Contact No.	9909994959	8. Email id:	dalwadibd@uniphos.com
9. Type of treatment given	Primary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Select
9b. If, tertiary treatment is done, components of tertiary treatment			Others
10a .Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Select

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 10th class	Any other	1.1 to 1.9	MEE	Select			
3	Helper	Male	upto 12th class	Any other	1.1 to 1.9	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
4	Operator	Male	upto 12th class	Any other	2.1 to 2.7	MEE	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select			
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select			
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select			

6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select		
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select		
6	Plant Engineer	Male	B.E	Chemical	5.1 to 5.7	MEE	Select		
7	Incharge	Male	B.E	Chemical	6.1 to 6.15	MEE	Select		
7	Manager(Health, Safety and Environment Incl ETP)	Male	BSc	Chemical	6.2, 6.4 to 6.9, 6.11-6.13	MEE	Select		
7	Manager(Health, Safety and Environment Incl ETP)	Male	BSc	Chemical	5.1 to 5.7	MEE	Select		
7	Select	Select	Select	Select		Select	Select		

UNIT - 59

1. Name of Unit/CETP	Biological Effluent Treatment Plant	2. Address	Jindal Steel & Power Limited
3. Installed Capacity of ET/CETP, MLD	400 m3/Hr	4. Number of shifts in operation	Three
5. Industrial sector/s being catered to	Iron & Steel	6. Name of the Contact Person	Alok Kumar Sahu
7. Contact No.	9777443300	8. Email id:	aloksahu@angul.jspl.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic + Anaerobic
9b. If, tertiary treatment is	RO system		
10a. Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Belt press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	GM	Male	M.Tech	Chemical	Plant In Charge	All Plant activities	No			
3	AGM	Male	B.E	Chemical	Daily plant activities, supervision	All Plant activities	No			
3	DM	Male	BSc	Science	Daily plant activities, supervision	All Plant activities	No			
3	OJT	Male	B.E	Mechanical	plant operation	Primary + secondary + tertiary section	No			
3	JET	Male	Diploma	Chemical	plant operation	Primary + secondary + tertiary section	No			
3	JE	Male	Diploma	Chemical	plant operation	Primary + secondary + tertiary section	No			

3	JE	Male	Diploma	Chemical	plant operation	Primary + secondary + tertiary section	No			
4	AM	Male	Diploma	Mechanical	plant operation	Primary + secondary + tertiary section	No			
4	DEAT	Male	Diploma	Mechanical	plant operation	Primary + secondary + tertiary section	No			
4	DEAT	Male	Diploma	Mechanical	plant operation	Primary + secondary + tertiary section	No			
4	DEAT	Male	Diploma	Mechanical	plant operation	Primary + secondary + tertiary section	No			
4	HELPER	Male	upto 10th class	None	chemical loading/unloading,support	Select	No			
4	HELPER	Male	upto 10th class	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto 10th class	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto 8th class	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto 8th class	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto 8th class	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto primary education	None	chemical loading/unloading,support	Select	No			
5	HELPER	Male	upto primary education	None	chemical loading/unloading,support	Select	No			
6	HELPER	Male	upto primary education	None	chemical loading/unloading,support	Select	No			
6	HELPER	Male	upto primary education	None	chemical loading/unloading,support	Select	No			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select	Select		Select	Select			
6	Select	Select	Select			Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			
7	Select	Select	Select	Select		Select	Select			

UNIT - 60				
1. Name of Unit/CETP	ETP		2. Address	RAVVA ONSHORE TERMINAL.
3. Installed Capacity of ET/CETP, MLD	CETP	3200 m3/day	4. Number of shifts in operation	Three shifts.
5. Industrial sector/s being catered to	Select		6. Name of the Contact Person	
7. Contact No.			8. Email id:	

9. Type of treatment given		Primary + Secondary + Tertiary treatment			9a. If, secondary treatment is done, type of biological process		Aerobic			
9b. If, tertiary treatment is done, components of tertiary treatment					Pressure sand filter					
10a. Types of pumps used		Combination of all			10b. Type of sludge dewatering process/equipment		centrifuge			
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	Select	Select	2.1,2.4,2.5,2.6,2.7.	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
3	Junior Operator	Male	Select	Select	2.1,2.4,2.5,2.6,2.7.	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
3	Junior Operator	Male	Select	Select	2.1,2.4,2.5,2.6,2.7.	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
3	Junior Operator	Male	Select	Select	2.1,2.4,2.5,2.6,2.7.	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
3	Junior Operator	Male	Select	Select	2.1,2.4,2.5,2.6,2.7.	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
3	Helper	Male	Select	Select	1.1,1.3,1.7.	ction(Bar screen, Grit char	Yes	inail training,First aid,Fire fighting training.		
	None	Select	Select	Select		Select	Select			
4	Operator	Male	Select	Select	2.1,2.2,2.4,2.6,2.7.	All Plant activities	Yes	inail training,First aid,Fire fighting training.		
4	Junior Technician	Male	Select	Select	1.2,3.1,3.5	All Plant activities	Yes	inail training,First aid,Fire fighting training.		
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
5	Technician	Male	Select	Select	3.1,3.3,3.4,3.5.	All Plant activities	Yes	inail training,First aid,Fire fighting training.		
5	Technician	Male	Select	Select	3.1,3.3,3.4,3.5.	All Plant activities	Yes	inail training,First aid,Fire fighting training.		
5	Laboratory Chemist	Male	BSc	Science	4.1,4.4,4.3,4.7	ary + secondary + tertiary se	Yes	inail training,First aid,Fire fighting training.		
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
6	Senior Laboratory Chemist	Male	Select	Science	4.4,4.5,4.6,4.8	All Plant activities	Yes			
6	Plant Engineer	Male	Select	Select	5.1,5.2,5.35,4,5.5.	All Plant activities	Yes			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			
7	Incharge	Male	Select	Select	5.3,5.6,5.7,5.8,6.4,6.12	All Plant activities	Select			
7	ETP Manager	Male	Select	Select	6.1,6.2,6.7,6.9,6.11,6.13,6.14,6.15	All Plant activities	Select			
	None	Select	Select	Select		Select	Select			
	None	Select	Select	Select		Select	Select			

UNIT - 61				
1. Name of Unit/CETP	Birla Century(A Div. of Century Textile and Ind. Ltd)		2. Address	Plot No. 826, Jhagadia GIDC Estate, Dist Bharuch
3. Installed Capacity of ET/CETP, MLD	2.5MLD		4. Number of shifts in operation	3
5. Industrial sector/s being catered to	Textile		6. Name of the Contact Person	Shailesh Trivedi
7. Contact No.			8. Email id:	shaileshtrivedi@birlacentury.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done,				Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis
10a. Types of pumps used	All types		10b. Type of sludge dewatering process/equipment	Centrifuge

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Select	B.E	Select		Select	Select			
3	Helper	Select	B.E	Select		Select	Select			
3	Helper	Male	B.E	Select		Select	Select			
3	Helper	Female	B.E	Select		Select	Select			
3	Helper	Male	B.E	Select		Select	Select			
3	Junior Operator	Male	B.E	Select		Select	Select			
3	Laboratory Boy	Male	B.E	Select		Select	Select			
4	Operator	Male	Diploma		To run the machine & control the	Filtration	No			Nil
4	Operator	Male	ITI			Filtration	No			Nil
4	Operator	Male	Diploma			Filtration	No			Nil
4	Operator	Male	ITI			Filtration	No			Nil
4	Operator	Male	Diploma			Filtration	No			Nil
4	Operator	Male	ITI			Operation	No			Nil
4	Operator	Male	ITI			Operation	No			Nil
4	Operator	Male	ITI			Operation	No			Nil
4	MEE Operator	Male	ITI		To run the machine & control the	MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
4	MEE Operator	Male	ITI			MEE	No			Nil
5	Fitter	Male	ITI			Maintenance	No			Nil
5	Fitter	Male	ITI			Maintenance	No			Nil
5	Fitter	Male	ITI			Maintenance	No			Nil

5	Fitter	Male	ITI			Maintenance	No			Nil
5	Sr.Fitter	Male	ITI			Maintenance	No			Nil
5	Electrical	Male	ITI		Maintenance of equipment/Machi	Maintenance	No			Nil
5	Electrical	Male	ITI			Maintenance	No			Nil
5	Electrical	Male	ITI			Maintenance	No			Nil
5	Electrical	Male	ITI			Maintenance	No			Nil
5	Electrical	Male	ITI			Maintenance	No			Nil
6	Officer	Male	Bsc	Chemistry	Operatio & supervised of plant & c	Operation	No			Nil
6	Officer	Male	MBA	ENVIRONMENT		Operation	No			Nil
6	Officer	Male	B.Sc.	Chemistry		Operation	No			Nil
6	Jr.Officer	Male	B.Sc.	Chemistry		Lab	No			Nil
7	CHIEF ENGINEER	Male	M.TECH	ELECTRICAL	O & M UTILITY/ETRP	O&M	YES	ZLD System		Nil
7	Manager	Male	Bsc	Chemistry	O & M ETRP	Operation	Yes	ZLD System		Nil

UNIT - 62

1. Name of Unit/CETP	Pioneer Processing India - ETP		2. Address	Pioneer Processing India, 187 - 189 Bhavani Main Road, R.N.Pudur (po), Erode, Tamil Nadu - 638005						
3. Installed Capacity of ET/CETP, MLD	1400	KLD	4. Number of shifts in operation	3						
5. Industrial sector/s being catered to	Textile		6. Name of the Contact Person	T.A.C. Prakkash						
7. Contact No.	9842788826		8. Email id:	prakash@jansongroup.com						
9. Type of treatment given	Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process	Aerobic						
9b. If, tertiary treatment is done, components of tertiary treatment	Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis									
10a .Types of pumps used	Centrifugal pump		10b. Type of sludge dewatering process/equipment	Plate and filter press						

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary section	No			
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary section	No			
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary section	No			
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary + secondary section	No			
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary + secondary section	No			

3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	Pre primary + Primary + secondary section	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		
3	Junior Operator	Male	Diploma	Mechanical	2.1, 2.2, 2.4, 2.5, 2.7	RO	No		
3	Junior Operator	Male	Diploma	Chemical	2.1, 2.2, 2.4, 2.5, 2.7	RO	No		
3	Junior Operator	Male	ITI	Mechanical	2.1, 2.2, 2.4, 2.5, 2.7	MEE	No		
3	Junior Operator	Male	ITI	Mechanical	2.1, 2.2, 2.4, 2.5, 2.7	All Plant activities	No		
3	Junior Laboratory assistant	Male	BSc	Biochemistry/Biochemical/Biotechnology	4.1, 4.2, 4.3, 4.5, 4.7, 4.8	All Plant activities	No		
4	Operator	Male	upto 12th class	Any other	2.1, 2.2, 2.5	All Plant activities	No		
7	ETP Manager	Male	MSc	Environment	6.1, 6.2, 6.3, 6.5, 6.6, 6.8, 6.9, 6.11, 6.12, 6.13, 6.14	All Plant activities	No		

UNIT - 63

1. Name of Unit/CETP	Aavin-Ambattur Dairy Plant-ETP	2. Address	Aavin Dairy, No.29 & 30, Industrial Estate , Ambattur, Chennai -600098
3. Installed Capacity of	3.5 MLD	4. Number of shifts in	3 (three Shifts)
5. Industrial sector/s being catered to	Food processing	6. Name of the Contact Person	Y.Hanumantha Rao, Hr. Manager
7. Contact No.	044-23464529/530/531	8. Email id:	hrdamb2014@gmail.com

9. Type of treatment given		Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process		Aerobic				
9b. If, tertiary treatment is done, components of tertiary treatment						Others				
10a .Types of pumps used		Combination of all		10b. Type of sludge dewatering process/equipment		Sludge drying bed				
11. Details of ETP staff										
NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		yes	yes
3	Helper	Male	upto 8th class	None	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8 & 1.9	All Plant activities	No		yes	yes
4	Operator	Male	ITI	Any other	2.1, 2.2, 2.5	All Plant activities	No		yes	yes
4	Laboratory Assistant	Female	Diploma	Science	4.1, 4.2, 4.3, 4.5, 4.7, 4.8	All Plant activities	No		yes	yes
4	Laboratory Assistant	Female	BSc	Science	4.1, 4.2, 4.3, 4.5, 4.7, 4.8	All Plant activities	No		yes	yes
5	Laboratory Chemist	Male	BSc	Any other	4.2, 4.3, 4.5	All Plant activities	No		yes	yes
6	Plant Engineer	Male	Diploma	Electrical	5.1, 5.2, 5.3, 5.4	All Plant activities	No		yes	yes
7	ETP Manager	Female	B.E(any branch)	Mechanical	6.1, 6.2, 6.3, 6.5, 6.6, 6.8, 6.11, 6.14	Select	No		yes	yes

UNIT - 64										
1. Name of Unit/CETP		V.B.MEDICARE PRIVATE LIMITED		ETP	2. Address		V.B.MEDICARE PRIVATE LIMITED, Plot No: 59 to 65, Sipcot industrial area, Krishnagiri bye pass road, Hosur-635109			
3. Installed Capacity of ET/CETP, MLD		70		KLD	4. Number of shifts in operation		3 Shifts			
5. Industrial sector/s being catered to		Drug & Pharmaceuticals		6. Name of the Contact Person		K.Prakash				
7. Contact No.		9994161175		8. Email id:		ehs@bioplus.in				
9. Type of treatment given		Primary + Secondary + Tertiary treatment		9a. If, secondary treatment is done, type of biological process		Aerobic + Anaerobic				
9b. If, tertiary treatment is done, components of tertiary treatment						Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis				
10a .Types of pumps used		Combination of all		10b. Type of sludge dewatering process/equipment		Combination of above				
11. Details of ETP staff										

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Junior Operator	Male	upto 10th class	None	2.1, 2.4, 2.5, 2.7	Primary + secondary + tertiary section	Yes			
3	Junior Operator	Male	upto 10th class	None	2.1, 2.4, 2.5, 2.7	Primary + secondary + tertiary section	No			
3	Junior Operator	Male	ITI	Any other	2.1, 2.4, 2.5, 2.7	Primary + secondary + tertiary section	No			
3	Junior Operator	Male	upto 8th class	None	2.1, 2.4, 2.5, 2.7	Primary + secondary + tertiary section	No			
4	Operator	Male	ITI	Mechanical	2.1, 2.2, 2.4, 2.5, 2.6, 2.7	All Plant activities	Yes			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
4	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
5	Select	Select	Select	Select		Select	Select			
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7	Select	Select	Select	Select		Select	Select			

UNIT - 65				
1. Name of Unit/CETP	ETP & STP		2. Address	Wheels India Ltd, MTH Road,Padi,Chennai
3. Installed Capacity of ET/CETP, MLD	ETP - 0.3MLD: STP - 0.3 MLD		4. Number of shifts in operation	3 (Three Shifts)
5. Industrial sector/s being catered to	Metal Finishing (electroplating, Pickling, Anodising, etc)		6. Name of the Contact Person	S.Ravi

7. Contact No.	044 - 26258511	8. Email id:	ravi@wheelsindia.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Pressure sand filter	
10a .Types of pumps used	Combination of all	10b. Type of sludge dewatering process/equipment	Combination of above

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	ITI	Electrical	1.2; 1.4; 1.9	Primary + secondary + tertiary section	No		NIL	NIL
3	Helper	Male	upto 8th class	None	1.1;1.9	Pre primary + Primary + secondary section	No		NIL	NIL
3	Helper	Male	upto 8th class	None	1.1; 1.9	Pre primary + Primary + secondary section	No		NIL	NIL
4	Operator	Male	B.A	Arts	2.1;2.2;.2.4;2.5;2.7	All Plant activities	No		NIL	NIL
4	Operator	Male	upto 10th class	None	2.1;2.4;2.5;2.7	Primary + secondary + tertiary section	No		NIL	NIL
4	Operator	Male	upto 10th class	None	2.1;2.4;2.5;2.7	Primary + secondary + tertiary section	No		NIL	NIL
4	Operator	Male	upto 10th class	None	2.1;2.4;2.5;2.7	Primary + secondary + tertiary section	No		NIL	NIL
6	Supervisor	Male	BSc	Chemical	6.1;6.2;6.5;6.7;6.14	All Plant activities	No		NIL	NIL

UNIT - 66

1. Name of Unit/CETP	STG- ETP+RO	2. Address	Switching Technologies Gunther Limited- No.: B-9, B-10 & C-1, Special Economic Zone(MEPZ), Kaddaperi, Tambaram,
3. Installed Capacity of ET/CETP, MLD	500	Litters/Hr	4. Number of shifts in operation
5. Industrial sector/s being catered to	Metal Finishing (electroplating, Pickling, Anodising, etc)	6. Name of the Contact Person	P.Jayachandran
7. Contact No.		8. Email id:	jayachandran@stg-india.com
9. Type of treatment given	Primary + Secondary + Tertiary treatment	9a. If, secondary treatment is done, type of biological process	Aerobic
9b. If, tertiary treatment is done, components of tertiary treatment		Ultrafiltration/Microfiltration + Multiple Effect Evaporator + Reverse Osmosis	
10a .Types of pumps used	Centrifugal pump	10b. Type of sludge dewatering process/equipment	Plate and filter press

11. Details of ETP staff

NSQF Level	Designation	Male or Female	Educational Qualification	Subjects /Field of study in School/College/ Institute	Activities/role/jobs being undertaken. Write only the code numbers given in Table 1	Type of Treatment section being handled	Any vocational training undertaken by outside training agency	If Yes, area of training	Future requirement of skilled manpower against each job role in next one year	Future requirement of skilled manpower against each job role in next five year
3	Helper	Male	upto primary education	None	1.1, 1.4, 1.5, 1.6, 1.8, 1.9	Primary + secondary + tertiary section	No			
3	Helper	Select	upto 8th class	None	1.1, 1.4, 1.5, 1.6, 1.8, 1.9	All Plant activities	No			
4	Operator	Male	upto 10th class	None	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2,3.3, 3.4 & 3.5	All Plant activities	No		no	no
4	Operator	Male	upto 10th class	None	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2,3.3, 3.4 & 3.5	All Plant activities	No		no	no
4	Operator	Male	ITI	None	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2,3.3, 3.4 & 3.5	All Plant activities	No		no	no
4	Operator	Male	BSc	Chemical	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 3.1, 3.2,3.3, 3.4 & 3.5	All Plant activities	No		no	no
4	Select	Select	Select	Select		Select	Select			
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Response to Questionnaires from Training Institutes

1. Response from Institute of Infrastructure Technology Research and Management, Ahmedabad

Questionnaire Survey for Institutes/ Organizations providing training in the field of industrial wastewater treatment for plant operating staff				
S	General Information			
N				
1	Name of Institute/Organization	Institute of Infrastructure Technology Research and Management, Ahmedabad		
2	Address	Near Khokhra Circle, Maningar (East), Ahmedabad - 380026, Gujarat		
3	Contact Person Name	Dr NN Bhuptani		
4	Designation	Registrar		
5	Phone no.	079-29292910		
6	Emailid	registrar@iitram.ac.in		
	Area / Topic of training (choose Y/N for topics you can provide training)		Please specify any other relevant topic your institute/organisation can impart training on	
1	Wastewater characteristics	Yes	1	Wastewater Engineering Software - SewerGEMS
2	Operational parameters of wastewater treatment plant	Yes		
3	Application of chemicals and their dosage	Yes		
4	occupational health and safety aspects of the plant	No		
5	Operation & Maintenance aspects of plant	Yes		
	Available of training infrastructure(choose Y/N)			
1	Training room/ class room	Yes		
2	Training modules	Yes		
3	Workshop/Lab facility for hands on training	Yes		
4	Audio/video facility	Yes		
	Details of trainers available			
a)	Total number of trainers available for giving training	2		
b)	Maximum batch size that can be trained at a time	30		

c)	Name of trainer	Experience as a trainer (in yrs)	Area of specialization
1	Dr Jaidevi Jeyaraman	Less than One year	Environmental Engineering
2	Dr Manoj Langhi	Less than One year	Water Resources Engineering

2. Response from CSIR- Central Leather Research Institute

Questionnaire Survey for Institutes/ Organizations providing training in the field of industrial wastewater treatment for plant operating staff			
SN	General Information		
1	Name of Institute/Organization	CSIR- Central Leather Research Institute	
2	Address	Sardar Patel Road, Adyar, Chennai	
3	Contact Person Name	Dr. (Ms.) K. Sri Bala Kameswari/Dr. S.V. Srinivasan	
4	Designation	Senior Scientist	
5	Phone no.	9445264853/9445393300	
6	Emailid	sribala_k@yahoo.com/ srinivasansv@yahoo.com	
	Area / Topic of training (choose Y/N for topics you can provide training)	Please specify any other relevant topic your institute/organisation can impart training on	
1	Wastewater characteristics	Yes	1
2	Operational parameters of wastewater treatment plant	Yes	2
3	Application of chemicals and their dosage	Yes	3
4	Occupational health and safety aspects of the plant	Yes	4
5	Operation & Maintenance aspects of plant	Yes	5
	Available of training infrastructure(choose Y/N)		
1	Training room/ class room	Yes	
2	Training modules	Yes	Training Materail shall be prepared based on Participants
3	Workshop/Lab facility for hands on training	Yes	
4	Audio/video facility	Yes	
	Details of trainers available		

a)	Total number of trainers available for giving training			12
b)	Maximum batch size that can be trained at a time			10 to 15
c)	Name of trainer	Experience as a trainer (in yrs)	Area of specialization	
1	Dr. NK Chandra Babu	30	Process and Cleaner Technology	
2	Mr. R. Suthanthararajan	25	Environmental Science	
3	Dr. MCK Dhanaselvan	25	Environmental Science	
4	Dr. P. Shanmugam	25	Environmental Science	
5	Mr. B. Prasada Rao	20	Environmental Biotechnology	
6	Dr. K. Sri Bala Kameswari	10	Environmental Engineering	
7	Dr. S.V Srinivasan	10	Environmental Engineering	
8	Dr. S. Swarnalatha	5	Environmental Chemistry	
9	Mr. P. Kanthasamy	30	Mechanical Engineer	
10	Mrs. Umamaheswari	25	Environmental Microbiology	
11	Dr. Chitra Kalyanaraman	25	Environmental Chemistry	
12	Mr. K. Thirumaran	15	Environmental Management	
13	Occupational health and safety expert		Occupational health and safety aspects	
*Note:	Training modules shall be separate for different levels e.g. helper, operator, technician, supervisor, plant engineer etc.			