



Competency-Based Framework for Civil Engineers

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Concept Note for Competency-based framework for Civil Engineers

I. Objective:

Seek approval of the implementation plan for the Competency Based Framework for Civil Engineers in Professional and Management category

- To establish apprenticeship programme for new recruits
- To identify mandatory training for civil engineers in different position level

II. Background:

The Royal Civil Service Commission being the central agency for civil service is mandated to manage and develop competency of civil servants to unleash potential for accomplishment of organization and nation's goal. A need to develop Competency Framework is felt necessary in delivering the mandates towards fulfillment of organizational intents.

The Competency Framework is crucial in delineating clear roles and responsibilities at each position level in fruition of nation's goal. Such Framework will guide all Government Agencies, especially the Parent Agencies, to identify the skills need of the employees towards achieving organizational goals. The initiative will also help in continuous development and professionalization of civil servants to deliver their responsibilities effectively and enhance productivity.

III. Project progress:

The Competency Framework of a Civil Engineer will serve as a model that identifies knowledge, skills and abilities needed by a Civil Engineer for successful performance of their role in the Civil Service.

The Civil Engineering competency framework includes

- Role Profile of a Civil Engineer; 3 key roles and their role description
- 19 Competencies from 8 Competency Area that is applicable for Civil Engineers to successfully carry out the key roles identified. The Behavioural Indicators relevant for each competencies has also been identified.

A preliminary Training Need Analysis (TNA) was carried out to identify the training gaps and also to identify the appropriate intervention methods. Some technical trainings that are crucial for Civil Engineers in general were also identified.

IV. Evaluation of current situation

Currently, new recruit engineers are directly placed in their placement area without any preparation for the job or role that they are going to play. The inexperience and lack of

preparedness makes it difficult for the new recruits to cope up and therefore making them vulnerable to error in their line of work.

There is no proper system in place for providing training. The following are some of the area in which we are currently lacking:

- Firstly, no proper training need analysis is done especially for building competency. The trainings are provided based on the availability of budget, hence, there is no prioritization on the trainings required.
- Secondly, no training impact assessment are carried out. The individual that receive the training are not evaluated after the completion of the training. Moreover, the training methodology used are also not examined, therefore the effectiveness of the whole training is not known.
- Thirdly, minimal importance is given to develop soft skills of the lower level engineers, the trainings provided are usually technical in nature.

Accountability for deposit works from other Ministries and Agencies is solely left on the Engineers who execute the work, whereas, the capacity building component of those Engineers are rarely included.

The post of Chief Engineers is more attractive than the post of Principal Engineers due to its limited availability. And also there are no prerequisites and encouragements tied with the post of Principal Engineers, therefore, the post of the Principal Engineer is undermined. Presently, the actual difference between the roles of the two post is not known by most of the Engineers. The competency framework will help in defining the difference between the two post and also in defining their clear roles.

V. Key consideration

Civil Engineering is a diverse field with different nature of job responsibilities. The competencies that has been derived are quite broad and general too. It is not necessary for all Civil Engineers to exhibit all competencies and it shouldn't be expected from them as well. The trainings identified, therefore, are the key ones which are applicable to most Civil Engineers and not ones addressing just one competency or behavioral indicator.

In the recent years, the intake of Engineers in the P4 level (With Engineering Degree) has increased. With this comes a high expectation and demand from P4 level Engineers but these expectations are based on the academic qualification that they have attained, however, for the actual professional work they are still inexperienced. Therefore, interventions are required at the beginning of one's career itself.

Civil Engineers at all levels are required to deal with different stakeholders, be it contractors or benefactors of a project or the public at large. Therefore, enhancing their soft skills like communication skills, negotiation skills are quite vital.

VI. Recommendation:

The following recommendations are made from the evaluation done during the development of this framework:

- Any kind of training should be given in a structured manner. It should be properly planned involving comprehensive analysis of training need required at various position level, assessment of the impact of the training, identifying the correct training methodology, etc. A properly structured apprenticeship program can help in kick starting an Engineer's career on the right foot.
- The capacity building component of the deposit work coming from various agency requiring specialised competency be it in terms of knowledge, skills or abilities development should be taken care by that agency as well.
- Identifying and providing soft skill training for Engineers at all level should be given adequate attention. Blending and balancing technical skills and soft skills are essential for personal and professional development of a Civil Engineer.
- Some of the mandatory trainings has been identified and prioritized in the annexure. The trainings identified are based on the evaluation of the current situation keeping in mind the key consideration mentioned above.

Annexure

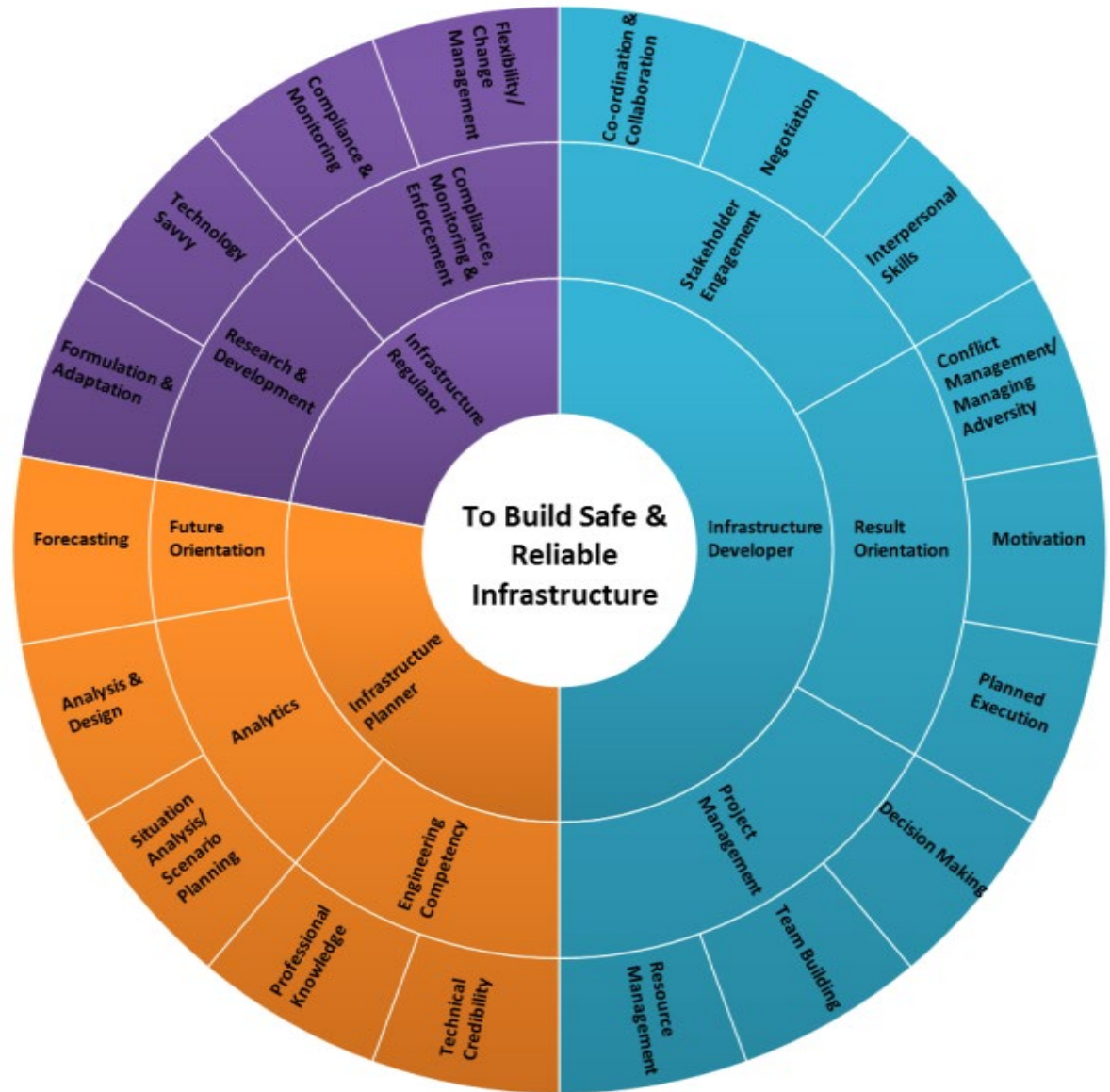
i. About the Ministry of Works and Human Settlement

- **Vision:** *A leading organization in the region in infrastructure development for human settlement and transportation.*
- **Mission:** *To provide safe, reliable and sustainable infrastructure for human settlement and transportation towards balanced regional development embodying the Bhutanese values.*
- Established in 2003 and is the Parent Ministry for Civil Engineers
- **Functions:**
 1. Formulate policies and develop plans related to physical infrastructures in the country;
 2. Develop and implement acts/regulations/standards related to physical infrastructure;
 3. Engage in and coordinate capacity building of technical human resources in the country;
 4. Set policies to promote appropriate construction industry;
 5. Promote research and development that would serve to maintain a synergy between technology, environment and traditional values; and
 6. Develop plans and policies for proper human settlement through growth centres

ii. Overview

Number of Key Roles Identified	3
Number of Competency Areas Identified	8
Number of Competencies Identified	19
Behavioural Indicators	58X4
Proficiency Levels	4

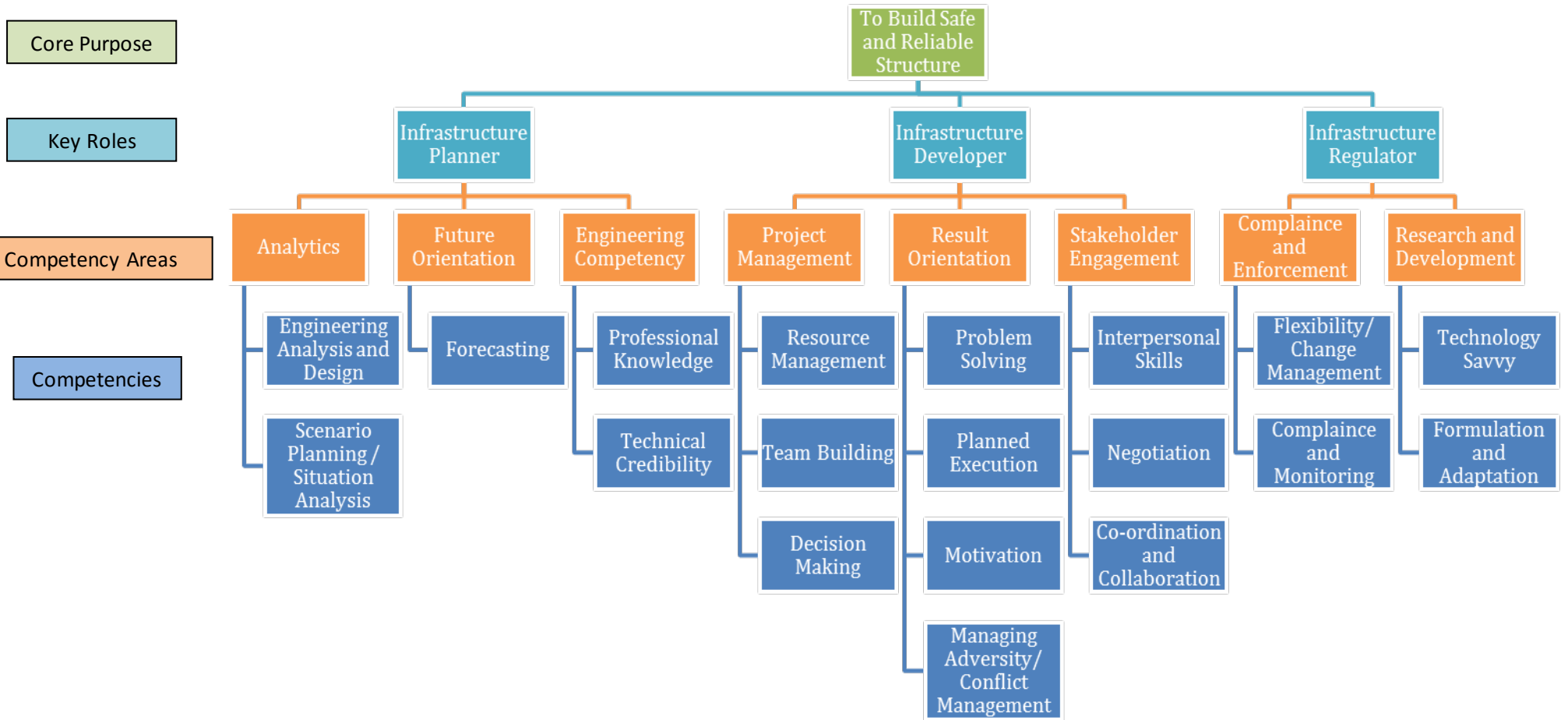
Over View of the Framework



iii. Role Profile of a Civil Engineer

Core Purpose : To build Safe and Reliable Infrastructure		
Sl. No.	Key Role	Key Role Description
1	Infrastructure Planner	<ul style="list-style-type: none"> - Plan and design by analysing related engineering data and factual information so that best alternatives are implemented. - Project long term demand for future sustainability by involving the stakeholders so that their needs are prioritized to avoid future complications. -Plan and design infrastructure in a holistic manner.
2	Infrastructure Developer	<ul style="list-style-type: none"> -Collaborate and strategize proper working modules for ensuring smooth functioning of work by timely consultation with stakeholder to minimize conflicts. -Ensure timely delivery of work so that stakeholder needs are met and resources are utilized optimally. -Comply with current set standards to ensure safety and quality of the infrastructure and maximize the stakeholder satisfaction.
3	Infrastructure Regulator	<ul style="list-style-type: none"> -Advocate good engineering practices to ensure durable, reliable and quality infrastructure. -Monitors construction work to ensure compliance of set standards. -Develop and review existing standards to keep up with changing scenario, technologies, methodologies, etc.

iv. Competency Area and Competencies



v. **Behavioral Indicators for Various Competencies of Infrastructure Planner**

INFRASTRUCTURE PLANNER

Competency Area: Analytics Systematic interpretation and communication of useful data or information related to Civil Engineering Field. Competency: Engineering Analysis and Design Covers the effective interpretation and communication of useful Engineering data or information and also the analysis required for the design of infrastructures.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Ensures collection of reliable and authentic information/data based on reliable standards.	Identify the authenticity of information/data.	Assess critically accuracy, reliability and authenticity of information/data and provide practical recommendation.	Devise models to ensure the authenticity of data collection. Provides practical recommendation on the available information.
Enthusiastically learns the current and emerging development in the field of Engineering Design.	Mentors the subordinates on current and emerging development in the field of Engineering Design.	Keeps abreast of latest design practice and innovation. Motivate fellow Engineers to develop their design skills.	Introduces latest design practice and innovation. Takes lead in creating conducive learning environment and opportunities.
Promptly identifies various engineering designs under different constraints.	Applies wide range of engineering tools to identify and develop alternative concepts for engineering design.	Applies wide range of engineering tools to identify and develop alternative concepts for complex engineering design.	Technical expert in their area of assignment; Makes final recommendations and decisions when specialized engineering knowledge is required.
Effectively prepares detailed cost estimates of a project and its long-term operation and maintenance cost.	Comprehensively analyses the cost that may incur during and after the project such as the maintenance and repair.	Gathers and analyzes information to enable allocation of available resources in a cost effective manner.	Analyses cost effectiveness and explore means to secure budget.

Competency Area: Analytics

Systematic interpretation and communication of useful data or information related to Civil Engineering Field.

Competency: Situation Analysis/ Scenario Planning

Covers the ability to analyze a situation and plan for a scenario. Anticipating issues and coming up with various scenarios and alternatives.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Takes step to develop and maintain knowledge, skills and abilities to come up with better alternative.	Integrates newly acquired knowledge and skills with past experience to provide better solution/alternatives.	Contribute to the development of alternatives relevant for a particular situation and study the pros and cons of those alternatives for the selection of an optimized design option.	Guides in the selection of an optimized design alternative based on the pros and cons.
Studies thoroughly design requirements to prepare complete quantity surveys of materials and labor required.	Prepares and examines the plans and specifications of complete quantity surveys of materials and labor required.	Renders constructive advice on the preparation of plans and quantity surveys of materials and labor required.	Critically reviews and approves completed quantity surveys of materials and labor required
Proactively updates oneself on the trends in the Engineering Sector to enhance their knowledge.	Conceptualizes possible future scenarios and seeks measures to prepare for it.	Provides multiple solutions to address new challenges effectively.	Reviews and seeks best practices to address new challenges.

Competency Area: Future Orientation The extent to which an individual contemplates about the future, anticipates future consequences, and plans ahead before acting. Competency: Forecasting Covers ability to assess future needs and plan accordingly. Assessing risk and coming up with best solution to resolve or reduce that risk.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Maintains proper records of various engineering Data base. Explores various methods of data projection referring to the past practices.	Organize data to meet information need. Uses appropriate data to predict future needs.	Organize data to meet information need. Critically analyses data to predict and prioritize future needs.	Develops system of data management. Effectively evaluates data to predict and prioritize future needs.
Communicates relevant ideas, information, and messages to the stakeholders appropriately.	Proficiently engages stakeholders to understand their needs.	Provides prompt and efficient recommendations to meet the requirements, request, and concerns of stakeholders.	Creates forums and actively engages stakeholders to meet their requirements, request, and concerns.
Writes clear, concise and organized documents such as feasibility study reports, proposals, etc.	Writes clear, concise and organized documents and reports addressing moderately complex engineering concepts and facts.	Writes and reviews documents and reports addressing complex engineering concepts and facts.	Reviews and refines reports and provides technical expertise.
Identifies risk, reliability, and/or uncertainty in a project and its impact on the environment, economy, and society.	Critically analyses the probability of occurrence of risk and its resulting impact for the preparation of mitigation measures.	Prepares appropriate risk mitigation measures.	Prepares appropriately, the mitigation measures for identified risk.
Explores ways to minimize waste, improve efficiency for optimal utilization of resources.	Understands the environmental and economic effects of an infrastructure at every stage of its existence and strive for sustainability.	Assesses the intended and unintended environmental, economic and social impacts of project alternatives and promotes sustainable practices.	Skillfully fulfills present needs of the stakeholders without compromising the ability of future generations to meet their own needs.

Competency Area: Engineering Competency

The capability to successfully perform one's role applying engineering knowledge, skills, and abilities.

Competency: Professional Knowledge

Possession of technical engineering skill or knowledge and the ability to keep up with current developments and trends. Knowledge of acts/codes/regulation, work procedures, methods and practices and their application to specific situation.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Proactively reads and understands technical drawings, plans, reports, etc.	Communicates technical information in an understandable manner when engaging subordinates and other non-technical audience.	Interprets complex technical information in a clear and logical manner based on target audience.	Interprets highly complex technical information in a clear and logical manner based on target audience.
Understands and applies the basic engineering concepts, practices, and theories involved in the design/development/review.	Stays informed and knowledgeable about trends in the field; appropriately aligns knowledge and skills with Organizational initiatives.	Possess and applies higher engineering concepts and practices in enhancing organizational effectiveness.	Effectively applies technical knowledge and past experiences to job situations. Is sought out as an expert to provide advice or solutions.
Actively learns and understands various rules and regulations, standards, practices, etc. relevant in achieving organizational goal.	Applies relevant rules, regulations, standards, etc. in achieving organizational goals.	Provides guidance in application of relevant rules, regulations, standards, etc. in achieving organizational goals.	Create conducive working environment to promote application of relevant rules and regulations, standards, practices, etc. in achieving organizational goal.
Consistently demonstrates foresight and proactively seeks opportunities to expand knowledge for innovative solutions and ideas.	Consistently demonstrates creative behavior and makes significant contributions to developing innovative solutions.	Thoroughly aware of organizational goals and strategic direction. Switches roles and procedures easily to facilitate change in line with organizational priorities.	Anticipates and proactively responds to changing situations. Is consistently receptive to new ideas and information. Inspires, encourages and provides support to others in

Annexure II

			response to change.
Maintains awareness of current procurement rules and regulation and uses it in preparing tender documents in clear cut manner.	Prepares effective tender documents as per current rules and regulation.	Reviews and checks the accuracy of information in tender documents.	Critically examines the detail of tender documents.

Competency Area: Engineering Competency The capability to successfully perform one’s role applying engineering knowledge, skills, and abilities. Competency: Technical Credibility The ability to understand and appropriately apply procedures, requirements, regulations, and policies related to specialized expertise.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Uses subject knowledge to make technically sound recommendations for developing effective plans.	Resolves technical issues promptly using sound judgment for developing effective plans.	Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.	Uses expert knowledge in subject matter area to develop new approaches to resolve technical problems.
Seeks out opportunities to learn existing and new engineering software to design, analysis and plan in an efficient method.	Seek out opportunities to learn new and emerging tools and technology to improve skills. Readily helps the subordinate in learning engineering software.	Proactively learns various engineering software and makes effort to coach the subordinates.	Explore various software and selects the most appropriate ones that can be used to improve the efficiency and skills of colleague.

vi. Behavioral Indicators for Various Competencies of Infrastructure Developer

INFRASTRUCTURE DEVELOPER

Competency Area: Project Management

Effective planning, organizing and management of the program, activities, resources, etc. for successful completion of a project.

Competency: Resource Management

The process of pre-planning, scheduling and allocating resources to maximize efficiency. Covers the effective and efficient management of resources such as human resource, budget and time.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Keeps oneself updated on the current status of work at hand. Defines clear objectives and translates them into workable activities.	Keeps oneself updated on the current status of work at hand. Manages time effectively to ensure that work is completed efficiently as per plan.	Effectively manages one's work at hand and ensure proper allocation of time. Maintains awareness of the interrelationships among various activities of large-scale projects.	Effectively leads and manages diverse teams to complete work at hand within time.
Attentively follows established guidelines and procedures for effective utilization of financial resources.	Manages resources effectively to accomplish desired results. Tracks carefully budget utilization to avoid excessive resourcing or under- utilization of resources.	Rigorously monitors cost incurred against budget and makes adjustments to plans as necessary. When faced with multiple demands, reassigns resources in response to circumstances.	Regularly reviews work strategy, identifying ways to use resources effectively. Considers implications of financial decisions and develops, justifies, and manages budgets accordingly.
Assesses and recognizes one's strengths and weaknesses; pursues self-development.	Identify areas of improvement and peruses self-development while encouraging subordinates.	Seeks feedback on one's performance and acts on it positively.	Builds and manages workforce based on abilities of the team members. Explores learning opportunities for subordinates. Seeks feedback on one's performance and acts on it positively.

Competency Area: Project Management

Effective planning, organizing and management of the program, activities, resources, etc. for successful completion of a project.

Competency: Team Building

Covers the ability of motivating team spirit, leading team and enhancement of overall development of team.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Readily contributes towards the accomplishment of own and common goal, doing his or her share of the work.	Solicits the input of team members and encourages their participation. Encourages team members with opposing viewpoints to express their concerns.	Renders support enthusiastically and energizes people to work together for the accomplishment of common goal.	Motivates colleagues to work towards achievement of common goal.
Coordinates peer's participation with clear instructions to complete tasks.	Encourages subordinates and colleagues to work closely with involved stakeholders to complete tasks.	Establishes strong networks within the organization for achievement of intended goals.	Builds and expands internally and externally networks and coalitions, to achieve organizational goals.
Takes initiative and fulfills the commitments made to other team members.	Finds areas of agreements when working with conflicting individuals or groups. Expresses own opinion while remaining respectful of team decision.	Takes responsibility for the accomplishment of common goal. Gives recognition and credit to people who have contributed to team success.	Delegate responsibility to individuals to make them accountable for successful execution of works. Assumes responsibility for overall work delegated to others.
Initiates collaboration with others and proactively assists others in the delivery of works to achieve a common goal.	Remains respectful and welcoming; inspires collaboration by bridging gaps among individuals.	Works effectively and cooperatively with others. Resolves conflict among team members sensitively and fairly.	Models cooperation and teamwork; creates opportunities for self and others to improve working relationships and work outcomes.

Competency Area: Project Management

Effective planning, organizing and management of the program, activities, resources, etc. for successful completion of a project.

Competency: Decision Making

Covers the action of making prompt, precise and concise decisions.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Seeks out best practices to make sound judgment and timely decisions to implement the assigned activities effectively.	Uses sound judgment to make appropriate and timely decisions in moderately complex situation.	Makes appropriate decisions while encountering complex and differing alternatives.	Makes well-informed, effective, and timely decisions in highly complex situation.
Weighs the advantages and consequences of alternative options before deciding on the approach to take. Knows when to seek decision from higher level.	Makes decisions with available information, even if such information is not fully conclusive. Appropriately solicits the input of those who will be affected by the decision.	Provides instinctive mindful decisions based on past experiences under ad hoc situation.	Makes key decisions that has strategic impact in achieving the organizational goal and develop strategic alternatives.

Competency Area: Result Orientation

The extent to which an individual focus on the outcome to achieve the result as per the goals set.

Competency: Problem Solving

Covers the identification of issues & providing alternative solutions for the issue.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Identifies issues using available information.	Identifies issues and analyze accurately the cause of the problems	Identifies pertinent issues and accordingly analyses their causes and effects.	Identifies and determine the causes and effects of the pressing issues. Justifies and applies appropriate simplifying solutions
Carries out literature and database researches to outline the issue.	Establishes a thorough understanding of more unusual problems and take an active role in their resolution	Conceptualizes alternative approaches and evaluate potential outcomes against appropriate criteria to justify an optimal solution choices	Conceptualizes alternative approaches and evaluate potential outcomes against appropriate criteria to justify an optimal solution choice
Promptly identifies key problem issues in a conflicting situation.	Identifies the affected stakeholders in a conflicting situation and seek their views.	Anticipates the consequences of situations and proactively works to overcome potential obstacles.	Provides clear directives and guidance to resolve the conflicting situation
Solves problems by breaking them down into manageable pieces.	Develops and evaluates alternative solutions for problems. Addresses routine problems by brainstorming various solutions	Foresee to some degree, the problems that are likely to occur and potential consequences of decisions, actions, or events.	Foresee to some degree, the problems that are likely to occur and potential consequences of decisions, actions, or events and devises logical, well-reasoned solutions.

Competency Area: Result Orientation The extent to which an individual focus on the outcome to achieve the result as per the goals set. Competency: Planned Execution Covers proper planning at the execution stage for implementation of proposals that has been prepared during the planning stage.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Prepare action plans to meet deadlines and objectives.	Reviews action plans to meet deadlines and objectives and prioritize accordingly.	Anticipates problems or delays and accordingly prepare mitigation measures for it.	Anticipates problems or delays and accordingly decide on the suitable mitigation measures.
Uses allocated resources effectively and efficiently to complete tasks.	Contributes toward effective allocation of resources.	Guides proper allocation of resources.	Ensures optimal usage of allocated resources.
Contributes toward proper implementation of plans.	Contributes toward proper implementation of plans.	Prioritizes plans appropriately to align with organizational goals and objectives.	Provides directive to ensure all the activities are executed as planned.

<p align="center">Competency Area: Result Orientation</p> <p align="center">The extent to which an individual focus on the outcome to achieve the result as per the goals set.</p> <p align="center">Competency: Motivation</p> <p align="center">Covers the reason for people's actions and goals, the willingness and desire to perform an action.</p>			
<p align="center">Behavioral Indicators</p>			
<p align="center">Entry P4</p>	<p align="center">Experienced P3</p>	<p align="center">Advanced P2</p>	<p align="center">Expert P1</p>
Shows interest to learn by constantly engaging in a variety of self-directed and formal professional development activities to be a champion in one's domain.	Shows interest to learn by constantly engaging in a variety of self-directed and formal professional development activities and accordingly impart it to the subordinates.	Knows the importance of lifelong learning and impart the same to others/subordinates.	Motivates colleagues and subordinates for lifelong learning.
Actively contributes to the work of the team and sets a good example; accepts responsibility for own.	Demonstrates a flexible, positive 'can do' approach to deliver team results. Helps fellow engineer in solving work problems to achieve the common goal.	Encourages teamwork to help recognize the value of alternative and diverse viewpoints, scholarly advice and the importance of professional networking.	Acts as a 'buddy', coach and role model to new colleagues without waiting to be asked. Gives recognition and credit to people who have contributed to team success.
Always keep a positive attitude in the working environment	Takes specific steps to maintain self-esteem under intense work pressure.	Provides intrinsic motivational support to subordinates and colleagues under intense work pressure.	Explores ways to motivate subordinates to achieve desired results.

Competency Area: Result Orientation The extent to which an individual focus on the outcome to achieve the result as per the goals set. Competency: Managing Adversity/Conflict Management Covers the process of managing difficult or unpleasant situations.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Deals calmly with others in adverse situations.	Uses appropriate interpersonal skills to reduce stress or conflict.	Identifies potential conflicts to prevent disagreement.	Recognize when relationships with others are strained. Shows higher degree of emotional intelligence when dealing with adversities.
Respects differences in opinion and gives constructive response.	Manages conflict by using appropriate mediation techniques.	Recognizes conflicts and takes necessary steps to address the conflicts.	Resolves conflicts arising from to competing objectives, limited resources, or differing perspectives.

<p align="center">Competency Area: Stakeholder Engagement</p> <p align="center">The process of involving people who may be affected by decisions or who can influence the implementation of decisions.</p> <p align="center">Competency: Interpersonal Skills</p> <p align="center">Covers the way a person communicates and interact with others. Also the persuasive, captivating and convincing skills of a person.</p>			
<p align="center">Behavioral Indicators</p>			
<p align="center">Entry P4</p>	<p align="center">Experienced P3</p>	<p align="center">Advanced P2</p>	<p align="center">Expert P1</p>
<p>Demonstrates respect for coworkers, colleagues, and stakeholders. A</p>	<p>Works well with others from diverse background. Interact respectfully and cooperatively with others.</p>	<p>Shows understanding of other’s behaviors and motives by demonstrating appropriate responses. Pursues good professional relationship with others.</p>	<p>Establishes a high degree of trust and credibility and encourages establishment of good and productive professional relationship with others.</p>
<p>Contributes to build a sense of common purposes across all work groups.</p>	<p>Works to build a sense of common purpose across all work groups, avoiding a “we versus them” attitude.</p>	<p>Pursues to build a sense of common purpose across all work groups, avoiding a “we versus them” attitude.</p>	<p>Pursues to build a sense of common purpose across all work groups, avoiding a “we versus them” attitude.</p>
<p>Explores ways to deliver assistance stakeholders, subordinates and supervisor. Demonstrates sensitivity to the needs and feelings of others.</p>	<p>Demonstrates flexibility for change based on the ideas and actions of others.</p>	<p>Demonstrates sensitivity, flexibility, open-mindedness, and inclusivity when dealing with others.</p>	<p>Maintains open lines of communication with others. Encourage others to share problems and successes.</p>
<p>Takes responsibility and accountability of the task assigned to oneself in order to avoid/reduce future complications.</p>	<p>Inspire subordinate to take ownership, foster accountability and trust between all levels of the organization.</p>	<p>Delegates’ workload among staff to ensure staff meet key deliverables on time. Promote culture of accountability and make everyone take ownership and responsibility.</p>	<p>Communicates clearly to staff on respective duties, performance expectations, and consequent impacts. Accepts responsibility when faced with major setbacks.</p>

<p align="center">Competency Area: Stakeholder Engagement</p> <p align="center">The process of involving people who may be affected by decisions or who can influence the implementation of decisions.</p> <p align="center">Competency: Negotiation</p> <p align="center">Covers building consensus, dispute settlement and discussions for reaching an agreement.</p> <p align="center">Behavioral Indicators</p>			
Entry P4	Experienced P3	Advanced P2	Expert P1
Deals empathetically when there is a disagreement.	Plans for alternative methods if agreement can't be reached.	Applies alternative methods if agreement can't be reached.	Directs the best alternative agreeable by parties involved.
Uses factual information to convey the intended messages clearly to stakeholder.	Communicates effectively with the stakeholders to gain their support and collaboration.	Develops trust among various parties involved in a negotiation process.	Convinces stakeholder involved for achieving common goals.

<p align="center">Competency Area: Stakeholder Engagement The process of involving people who may be affected by decisions or who can influence the implementation of decisions. Competency: Coordination and Collaboration Covers the ability to bring stakeholders together and working along well with stakeholders.</p>			
<p align="center">Behavioral Indicators</p>			
<p align="center">Entry P4</p>	<p align="center">Experienced P3</p>	<p align="center">Advanced P2</p>	<p align="center">Expert P1</p>
<p>Knows stakeholder need and demonstrates a service-oriented mindset.</p>	<p>Monitors work against milestones; informs stakeholders of delays or issues; negotiates acceptable compromises.</p>	<p>Reviews changes in plan, by exploring all possible options and its consequences to ensure best value and greatest benefit for the stakeholders.</p>	<p>Possesses knowledge of external stakeholder requirements while understanding of internal norms for mutual benefits.</p>
<p>Maintains regular exchange of information with the stakeholders for better collaboration and participation.</p>	<p>Proactively prepares relevant information to convince and gain support from the stakeholders.</p>	<p>Encourages stakeholder involvement to facilitate effective collaboration.</p>	<p>Creates strong professional relationship with various stakeholders for an effective collaboration.</p>

vii. Behavioral Indicators for Various Competencies of Infrastructure Regulator

INFRASTRUCTURE REGULATOR

Competency Area: Compliance, Monitoring and Enforcement

The process of complying and ensuring compliance with engineering acts, rules, regulation, standards, etc.

Competency: Flexibility(Change Management)

Covers the ability to adapt to change in system, information, working methodologies, etc.

Systematic approach to dealing with the transition or transformation of an organization's goals, processes or technologies.

Behavioral Indicators

Entry P4	Experienced P3	Advanced P2	Expert P1
Learns the good engineering aspects & practices and acquire traits of advocacy.	Clearly and concisely advocates good engineering aspects and practices.	Comprehensively advocates good engineering aspects and practices and encourages its usage.	Create conducive working environment to encourage usage of good engineering practices.
Adapts swiftly to new information and changing condition.	Proactively seeks feedback from colleagues/stakeholder while implementing any change.	Prioritizes, considers alternatives, and responds promptly and effectively to unexpected and rapidly changing conditions.	Adjusts organizational priorities promptly to organizational change.

Competency Area: Compliance, Monitoring and Enforcement			
The process of complying and ensuring compliance with engineering acts, rules, regulation, standards, etc.			
Competency: Compliance and Monitoring			
Covers the implementation and application of Engineering rules, regulations, guidelines, etc. and the timely observation and checking of the same.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Proactively keeps oneself updated on the existing and changing acts, rules and regulations.	Proactively keeps oneself updated on the changing acts, rules and regulations and ensures compliance.	Ensures the acts, rules and regulations are enforced and complied while keeping oneself updated on the changing acts, rules and regulations.	Provides constructive suggestions for amendment of the acts, rules and regulations etc. when required.
Drafts clear monitoring plans for timely observation of the site/project. Drafts detailed reports on findings.	Supports in developing viable monitoring plans and ensure timely implementation of the plans. Prepares comprehensive monitoring reports.	Ensures that viable monitoring plans are developed and implemented accordingly. Comprehends monitoring reports for concurrence.	Provides technical expertise in the development of the monitoring plan and gives recommendation when necessary.
Inspects compliance of the Engineering standards, rules and regulations, etc. uniformly.	Inspects compliance of the Engineering standards, rules and regulations, etc. uniformly.	Continuously monitor regulatory changes and proactively acts on new requirement to ensure compliance.	Provides insights on the development of guidelines, rules and regulations, standards, etc.

<p style="text-align: center;">Competency Area: Research and Development Innovation, Introduction and Improvement of products and process related to Civil Engineering. Competency: Technology Savvy Well-informed about or proficient in the use of modern technology and methodologies.</p>			
<p style="text-align: center;">Behavioral Indicators</p>			
Entry P4	Experienced P3	Advanced P2	Expert P1
Demonstrates an interest to learning new and emerging tools and technology.	Demonstrates an interest in learning new and emerging technology and also encourages peers.	Explores emerging tools and technology and adapts the reliable and suitable ones.	Create learning opportunity for enhancing technical capacity.
Identifies and examines the current developments and the issues that are most prevalent and carries out research.	Proactively explores tools and technologies to address the prevalent issues.	Proactively explores tools and technologies to address the complex issues.	Carries out research on the issues and also creates a good environment where by the peers can easily assess the tools needed to carry out research work.

Competency Area: Research and Development Innovation, Introduction and Improvement of products and process related to Civil Engineering Competency: Formulation and adaptation Formulating new products and processes such as guidelines, standards, rules and regulations, etc., improvement of existing ones and adaptation of the same.			
Behavioral Indicators			
Entry P4	Experienced P3	Advanced P2	Expert P1
Proactively refers existing acts, rule and regulation, etc. and keeps record of the obsolete ones.	Proposes for amendment in acts, rules and regulation.	Ensures proposal of amendment and development of the acts, rules & regulations, etc. are aligned with the organization's vision and objectives.	Ensures proposal of amendment and development of the acts, rules & regulations, etc. are aligned with the organization's vision and objectives.
Keeps abreast of any development in rules, regulations, policy, guideline, standard, etc.	Gathers relevant information to predict the impact of new developments on the stakeholder.	Reflects the best Engineering Practices in the formulation of rules, regulations, policy, guideline, standard, etc.	Develops rules, regulations, policy, guideline, standard, etc. taking into account diverse views and needs of external organizations.
Proactively acquires necessary knowledge, skills and competencies to adapt to change.	Adapts effectively to work within changing methodologies, practices and tools.	Reviews, evaluates and disseminates information regarding any change in key methodologies, practices and tools to others.	Takes a holistic perspective of the entire system and takes action to improve the efficiency of processes and quality of outputs.

viii. Summary of Current Performance Gap for Entry Level Engineers (P4)

Sl. No.	Key Roles	Competency Area	Competency	No. of Behavioural Indicators	Competent	Not Competent
1	Infrastructure Planner	Analytics	Engineering Analysis and Design	4	0	4
			Scenario Planning / Situation Analysis	3	2	1
		Future Orientation	Forecasting	5	1	4
		Engineering Competency	Professional Knowledge	5	1	4
			Technical Credibility	2	2	0
2	Infrastructure Developer	Project Management	Resource Management	3	3	0
			Team Building	4	3	1
			Decision Making	2	2	0
		Result Orientation	Problem Solving	4	4	0
			Planned Execution	3	1	2
			Motivation	3	3	0
			Managing Adversity/Conflict Management	2	1	1
		Stakeholder Engagement	Interpersonal Skills	4	4	0
			Negotiation	2	1	1
			Co-ordination and Collaboration	2	1	1
3	Infrastructure Regulator	Compliance, Monitoring & Enforcement	Flexibility/ Change Management	2	1	1
			Compliance, Monitoring & Enforcement	3	2	1
		Research & Development	Technology Savvy	2	2	0
			Formulation and Adaptation	3	3	0
	Total	8	19	58	37	21

ix. Summary of Current Performance Gap for Experienced Level Engineers (P3)

Sl. No.	Key Roles	Competency Area	Competency	No. of Behavioural Indicators	Competent	Not Competent
1	Infrastructure Planner	Analytics	Engineering Analysis and Design	4	2	2
			Scenario Planning / Situation Analysis	3	3	0
		Future Orientation	Forecasting	5	3	2
		Engineering Competency	Professional Knowledge	5	5	0
Technical Credibility	2		2	1		
2	Infrastructure Developer	Project Management	Resource Management	3	3	0
			Team Building	4	4	0
			Decision Making	2	2	0
		Result Orientation	Problem Solving	4	4	0
			Planned Execution	3	3	0
			Motivation	3	3	0
			Managing Adversity/Conflict Management	2	1	1
		Stakeholder Engagement	Interpersonal Skills	4	4	0
			Negotiation	2	1	1
Co-ordination and Collaboration	2		2	0		
3	Infrastructure Regulator	Compliance, Monitoring & Enforcement	Flexibility/ Change Management	2	2	0
			Compliance, Monitoring & Enforcement	3	2	1
		Research & Development	Technology Savvy	2	2	0
			Formulation and Adaptation	3	3	0
	Total	8	19	58	51	7

x. **Summary of Current Performance Gap for Advanced Level Engineers (P2)**

Sl. No.	Key Roles	Competency Area	Competency	No. of Behavioural Indicators	Competent	Not Competent
1	Infrastructure Planner	Analytics	Engineering Analysis and Design	4	1	3
			Scenario Planning / Situation Analysis	3	3	0
		Future Orientation	Forecasting	5	4	1
		Engineering Competency	Professional Knowledge	5	5	0
			Technical Credibility	2	2	0
2	Infrastructure Developer	Project Management	Resource Management	3	3	0
			Team Building	4	3	1
			Decision Making	2	2	0
		Result Orientation	Problem Solving	4	4	0
			Planned Execution	3	3	0
			Motivation	3	3	0
			Managing Adversity/Conflict Management	2	2	0
		Stakeholder Engagement	Interpersonal Skills	4	4	0
			Negotiation	2	2	0
			Co-ordination and Collaboration	2	2	0
3	Infrastructure Regulator	Compliance, Monitoring & Enforcement	Flexibility/ Change Management	2	2	0
			Compliance, Monitoring & Enforcement	3	3	0
		Research & Development	Technology Savvy	2	2	0
			Formulation and Adaptation	3	3	0
	Total	8	19	58	53	5

xi. Summary of Current Performance Gap for Expert Level Engineers (P1)

Sl. No.	Key Roles	Competency Area	Competency	No. of Behavioural Indicators	Competent	Not Competent
1	Infrastructure Planner	Analytics	Engineering Analysis and Design	4	3	1
			Scenario Planning / Situation Analysis	3	3	0
		Future Orientation	Forecasting	5	4	1
		Engineering Competency	Professional Knowledge	5	5	0
			Technical Credibility	2	2	0
2	Infrastructure Developer	Project Management	Resource Management	3	3	0
			Team Building	4	4	0
			Decision Making	2	2	0
		Result Orientation	Problem Solving	4	4	0
			Planned Execution	3	2	1
			Motivation	3	3	0
			Managing Adversity/Conflict Management	2	2	0
		Stakeholder Engagement	Interpersonal Skills	4	4	0
			Negotiation	2	2	0
			Co-ordination and Collaboration	2	2	0
3	Infrastructure Regulator	Compliance, Monitoring & Enforcement	Flexibility/ Change Management	2	2	0
			Compliance, Monitoring & Enforcement	3	3	0
		Research & Development	Technology Savvy	2	2	0
			Formulation and Adaptation	3	3	0
	Total	8	19	58	55	3

xii. Detailed Training Need Analysis under Infrastructure Planner

Competency Area	Competency	Proficiency level	Behavioural Indicator (Not adequate)	Current performance (adequate /not adequate)	Likely reason for performance gap	Method of intervention 1. Classroom training 2. OJT 3. Mentoring 4. Others (specify)	Learning Objectives	
Analytics	Engineering Design and Analysis	Level 1	1	Ensures collection of reliable and authentic information/data based on reliable standards.	Not Adequate	The individual lack basic or task related skills. (Inability to identify authenticity of information/data)	*OJT and exhaustive orientation (induction)	An entry level engineer will be able to collect reliable and authentic data as per the Engineering guideline/SOP/standards of the Department.
			2	Learns enthusiastically the current and emerging development in the field of Engineering Design.	Not Adequate	The individual lacks intrinsic motivation and initiative. Inadequate materials, resources and support services to do the task.	E-Learning Action learning Coaching (personal development)	After the end of coaching, the entry level engineer will be a self-motivated person who will be able to apply the various principles for engineering design
			3	Promptly identifies various engineering designs under different constraints.	Not Adequate	The individual lacks an understanding of the supporting knowledge to do the task.	Mentoring. Action learning.	
			4	Effectively prepares detailed cost estimates of a project and its long term operation and maintenance cost.	Not Adequate	The individual lacks the supporting knowledge to do the task and lack of documentation.	Mentoring. Action learning. Stretch assignments in current role. (more work and take responsibility)	The entry level engineer will be able to project the long-term operation and maintenance cost after referring to the past works executed.

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		Level 2	1	Identify the authenticity of information/data.	Not Adequate	The individual does not have accurate, timely and complete information to do the task. The individual lack basic or task related skills	Peer networking. E-Learning/Distant learning	The experienced level engineer will be able to project the long term operation and maintenance cost after referring to the past works executed.
			2	Mentors the subordinates on current and emerging development in the field of Engineering Design.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Applies wide range of engineering tools to identify and develop alternative concepts for engineering design.	Not Adequate	Materials to perform the task are out dated and also lack of material and resources.	Peer networking. E-Learning/Distant learning.	Will be proficient in identifying and developing alternative engineering design after consultation with other engineer.
			4	Comprehensively analyses the cost that may incur during and after the project such as the maintenance and repair.	Adequate			
		Level 3	1	Assess critically accuracy, reliability and authenticity of information/data and provide practical recommendation.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Keeping abreast of latest design practice and innovation. Motivate fellow	Not Adequate	Lack of adequate time and intrinsic motivation.	Mentoring Online learning forum for discussion for	Will be aware of latest engineering design and also encourage the fellow engineers.

Annexure II

				Engineers to develop their design skills.			different design practice.	
			3	Applies wide range of engineering tools to identify and develop alternative concepts for complex engineering design.	Not Adequate	Materials and resources to perform the task are out dated or are not available.	Peer networking. E-Learning.	Will be proficient in identifying and developing alternative engineering design in complex situation in consultation with other engineer.
			4	Gathers and analyses information to enable allocation of available resources in a cost-effective manner.	Not Adequate	Lack of skill to allocate resources in a cost-effective manner	Peer networking. Classroom training. (resources allocation)	Having acquired the knowledge and skills the advanced level engineer will be able to allocate resources effectively and efficiently.
		Level 4	1	Devise models to ensure the authenticity of data collection. Provides practical recommendation on the available information.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Introduces latest design practice and innovation. Takes lead in creating conducive learning environment and opportunities.	Not Adequate	The individual does not have access to latest design practices. Lack of resources.	E-Learning Institutional linkages Peer networking	Will be able to create conducive learning environment to familiarize fellow engineers on the latest engineering design and innovation, provided they have the time and resource.
			3	Technical expert in their area of assignment; Makes final recommendations and	Adequate	Not Applicable	Not Applicable	Not Applicable

				decisions when specialized engineering knowledge is required.				
			4	Analyses cost effectiveness and explore means to secure budget.	Adequate	Not Applicable	Not Applicable	Not Applicable
Situation Analysis/ Scenario Planning	Level 1	1	Takes step to develop and maintain knowledge, skills and abilities to come up with better alternative.	Adequate	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		2	Studies thoroughly design requirements to prepare complete quantity surveys of materials and labour required.	Not Adequate	The individual lacks basic and task related skill	Action learning Coaching	Will be able to prepare complete quantity survey of materials and labour required referring BSR, LMC and etc.	
		3	Proactively updates oneself on the trends in the Engineering Sector to enhance	Adequate	Not Applicable	Not Applicable	Not Applicable	
	Level 2	1	Integrates newly acquired knowledge and skills with past experience to provide better solution/alternatives.	Adequate	Not Applicable	Not Applicable	Not Applicable	Not Applicable
		2	Prepares and examines the plans and specifications of complete quantity surveys of materials and labour required.	Adequate	Not Applicable	Not Applicable	Not Applicable	Not Applicable

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			3	Conceptualizes possible future scenarios and seeks measures to prepare for it.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Contribute to the development of alternatives relevant for a particular situation and study the pros and cons of those alternatives for the selection of an optimized design option.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Renders constructive advice on the preparation of plans and quantity surveys of materials and labour required.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Provides multiple solutions to address new challenges effectively.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Guides in the selection of an optimized design alternative based on the pros and cons.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Critically reviews and approves completed quantity surveys of materials and labour required	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Reviews and seeks best practices to	Adequate	Not Applicable	Not Applicable	Not Applicable

				address new challenges.				
Future Orientation	Forecasting	Level 1	1	Maintains proper records of various engineering Data base. Explores various methods of data projection referring to the past practices.	Not Adequate	Uniformed about the importance of maintenance of data base	In-house training	The entry level engineer will be able to maintain proper record of data, provided a data management system is in place.
			2	Communicates relevant ideas, information, and messages to the stakeholders appropriately.	Not Adequate	The individual lacks soft skill to convey intended message.	Class room training Feedback system	The entry level engineer will be able to convey intended messages clearly to target audience.
			3	Writes clear, concise and organized documents such as feasibility study reports, proposals, etc.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Identifies risk, reliability, and/or uncertainty in a project and its impact on the environment, economy, and society.	Not Adequate	The individual lacks task related skills	Action learning	The entry level engineer will be able to identify risk and uncertainty of a projects and its impact on the environment and society.
			5	Explores ways to minimize waste, improve efficiency for optimal utilization of resources.	Not Adequate	The individual lacks task related skills	Action learning	The entry level engineer will explore ways to minimize waste for optimum utilization of resources.
		Level 2	1	Organize data to meet information need. Uses appropriate data to predict future needs.	Adequate	Not Applicable	Not Applicable	Not Applicable

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			2	Proficiently engages stakeholders to understand their needs.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Writes clear, concise and organized documents and reports addressing moderately complex engineering concepts and facts.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Critically analyses the probability of occurrence of risk and its resulting impact for the preparation of mitigation measures.	Not Adequate	The individual lacks task related skills	In house training	The experience level engineer will be able to promptly prepare mitigation measures for the probable risk
			5	Understands the environmental and economic effects of an infrastructure at every stage of its existence and strive for sustainability.	Not Adequate	The individual lacks	Peer networking Action learning	The experience level engineer will be able to state the effect of the infrastructure at every stage on environment and economy
			Level 3	1	Organize data to meet information need. Critically analyses data to predict and prioritize future needs.	Adequate	Not Applicable	Not Applicable
		2	Provides prompt and efficient recommendations to meet the requirements, request, and concerns of stakeholders.	Adequate	Not Applicable	Not Applicable	Not Applicable	
		3	Writes and reviews documents and reports	Adequate	Not Applicable	Not Applicable	Not Applicable	

Annexure II

				addressing complex engineering concepts and facts.				
			4	Prepares appropriate risk mitigation measures. A	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Assesses the intended and unintended environmental, economic and social impacts of project alternatives and promotes sustainable practices.	Not Adequate	The individual has limited knowledge on environment, economic and social aspects.	Peer networking Stretch assignment	The advance level engineer will be able to assess the intended and unintended impact on environment, economic and social of a project.
		Level 4	1	Develops system of data management. Evaluates data effectively to predict and prioritize future needs.	Not Adequate	Due to limited resources & Lack of encouragement from management	E-learning Action learning	The expert level engineer will be able to bring in ideas for development of data management system when required.
			2	Creates forums and actively engages stakeholders to meet their requirements, request, and concerns.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Reviews and refines reports and provides technical expertise.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Prepares appropriately, the mitigation measures for identified risk.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Skilfully fulfils present needs of the stakeholders without compromising the	Adequate	Not Applicable	Not Applicable	Not Applicable

Annexure II

				ability of future generations to meet their own needs.				
Engineering Competency	Professional Knowledge	Level 1	1	Proactively reads and understands technical drawings, plans, reports, etc.	Not Adequate	The individual lacks task related skills	Action learning Attachment	The entry level engineer will be able to use the technical drawings, plans, plans, etc. appropriately.
			2	Understands and applies the basic engineering concepts, practices, and theories involved in the design/development/review.	Not Adequate	The individual lacks practical knowledge	Action learning Attachment	The entry level engineer will be able to apply practically the basic engineering concepts and theories.
			3	Actively learns and understands various rules and regulations, standards, practices, etc. relevant in achieving organizational goal.	Not Adequate	The individual lack intrinsic motivation	Induction programme	The entry level engineer will be able to use appropriately relevant rules and regulations, standards, practices, etc. as required.
			4	Consistently demonstrates foresight and proactively seeks opportunities to expand knowledge for innovative solutions and ideas.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Maintains awareness of current procurement rules and regulation and uses it in preparing tender documents in clear cut manner.	Not Adequate	The individual lacks task related skills	Action learning Attachment	The entry level engineer will be able to use the procurement rules and regulations effectively to prepare tender documents.

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		Level 2	1	Communicates technical information in an understandable manner when engaging subordinates and other non-technical audience.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Stays informed and knowledgeable about trends in the field; appropriately aligns knowledge and skills with Organizational initiatives.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Applies relevant rules, regulations, standards, etc. in achieving organizational goals.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Consistently demonstrates creative behaviour and makes significant contributions to developing innovative solutions.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Prepares effective tender documents as per current rules and regulation.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Interprets complex technical information in a clear and logical manner based on target audience.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Possess and applies higher engineering	Adequate	Not Applicable	Not Applicable	Not Applicable

Annexure II

				concepts and practices in enhancing organizational effectiveness.				
			3	Provides guidance in application of relevant rules, regulations, standards, etc. in achieving organizational goals.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Thoroughly aware of organizational goals and strategic direction. Switches roles and procedures easily to facilitate change in line with organizational priorities.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Reviews and checks the accuracy of information in tender documents.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Interprets highly complex technical information in a clear and logical manner based on target audience.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Effectively applies technical knowledge and past experiences to job situations. Is sought out as an expert to provide	Adequate	Not Applicable	Not Applicable	Not Applicable

				advice or solutions.				
			3	Create conducive working environment to promote application of relevant rules and regulations, standards, practices, etc. in achieving organizational goal.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Anticipates and proactively responds to changing situations. Is consistently receptive to new ideas and information. Inspires, encourages and provides support to others in response to change.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Critically examines the detail of tender documents	Adequate	Not Applicable	Not Applicable	Not Applicable
	Technical Credibility	Level 1	1	Uses subject knowledge to make technically sound recommendations for developing effective plans.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Seeks out opportunities to learn existing and new engineering software to design, analysis and plan in an efficient	Adequate	Not Applicable	Not Applicable	Not Applicable

Annexure II

				method.				
		Level 2	1	Resolves technical issues promptly using sound judgment for developing effective plans.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Seek out opportunities to learn new and emerging tools and technology to improve skills. Readily helps the subordinate in learning engineering software.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Use a sound evidence-based approach to problem-solving and contribute to continuous improvement.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Proactively learns various engineering software and makes effort to coach the subordinates.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Uses expert knowledge in subject matter area to develop new approaches to resolve technical problems.	Adequate	Not Applicable	Not Applicable	Not Applicable

Annexure II

			2	Explore various software and selects the most appropriate ones that can be used to improve the efficiency and skills of colleague.	Adequate	Not Applicable	Not Applicable	Not Applicable
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xiii. Detailed Training Need Analysis under Infrastructure Developer

Competency Area	Competency	Proficiency Level	Behavioural Indicator (Not adequate)	Current performance (adequate /not adequate)	Likely reason for performance gap	Method of intervention 1. Classroom training 2. OJT 3. Mentoring 4. Others (specify)	Learning Objectives
Project Management	Resource Management	Level 1	1	Keeps oneself updated on the current status of work at hand. Defines clear objectives and translates them into workable activities.	Adequate	Not Applicable	Not Applicable
			2	Attentively follows established guidelines and procedures for effective utilization of financial resources.	Adequate	Not Applicable	Not Applicable
			3	Assesses and recognizes one's	Adequate	Not Applicable	Not Applicable

				strengths and weaknesses; pursues self-development.				
		Level 2	1	Keeps oneself updated on the current status of work at hand. Manages time effectively to ensure that work is completed efficiently as per plan.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Manages resources effectively to accomplish desired results. Tracks carefully budget utilization to avoid excessive resourcing or under- utilization of resources.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Identify areas of improvement and peruses self-development while encouraging subordinates.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Effectively manages one's work at hand and	Adequate	Not Applicable	Not Applicable	Not Applicable

				ensure proper allocation of time. Maintains awareness of the interrelationships among various activities of large-scale projects.				
			2	Rigorously monitors cost incurred against budget and makes adjustments to plans as necessary. When faced with multiple demands, reassigns resources in response to circumstances.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Seeks feedback on one's performance and acts on it positively.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Effectively leads and manages diverse teams to complete work at hand within time.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Regularly reviews work strategy, identifying ways to use resources	Adequate	Not Applicable	Not Applicable	Not Applicable

				effectively. Considers implications of financial decisions and develops, justifies, and manages budgets accordingly.				
			3	Builds and manages workforce based on abilities of the team members. Explores learning opportunities for subordinates. Seeks feedback on one's performance and acts on it positively.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Team Building	Level 1	1	Readily contributes towards the accomplishment of own and common goal, doing his or her share of the work.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Coordinates peers participation with clear instructions to complete tasks.	Not Adequate	The individual lacks leadership	Leadership training	The entry level engineer will be able to effectively coordinate peers participation
			3	Takes initiative and fulfils the	Adequate	Not Applicable	Not Applicable	Not Applicable

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				commitments made to other team members.				
			4	Initiates collaboration with others and proactively assists others in the delivery of works to achieve a common goal.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Solicits the input of team members and encourages their participation. Encourages team members with opposing viewpoints to express their concerns.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Encourages subordinates and colleagues to work closely with involved stakeholders to complete tasks.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Finds areas of agreements when working with conflicting individuals or groups. Expresses own	Adequate	Not Applicable	Not Applicable	Not Applicable

				opinion while remaining respectful of team decision.				
			4	Remains respectful and welcoming; inspires collaboration by bridging gaps among individuals.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Renders support enthusiastically and energizes people to work together for the accomplishment of common goal.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Establishes strong networks within the organization for achievement of intended goals.	Not Adequate	The individual lacks exposure	Peer networking Workshop and seminars	The advance level engineer will be able buildstrong/durable/conducive work relationship with other.
			3	Takes responsibility for the accomplishment of common goal. Gives recognition and credit to people who have contributed to team success.	Adequate	Not Applicable	Not Applicable	Not Applicable

			4	Works effectively and cooperatively with others. Resolves conflict among team members sensitively and fairly.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Encourages staff to share skills and abilities within work group to facilitate achievement of common goal.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Motivates colleagues to work towards achievement of common goal.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Builds and expands internally and externally networks and coalitions, to achieve organizational goals.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Delegate responsibility to individuals to make them accountable for successful execution of	Adequate	Not Applicable	Not Applicable	Not Applicable

				works. Assumes responsibility for overall work delegated to others.				
			4	Models cooperation and teamwork; creates opportunities for self and others to improve working relationships and work outcomes.	Adequate	Not Applicable	Not Applicable	Not Applicable
			5	Promotes unity of a team by defining roles and responsibilities of each team member and establishing overall objectives. Develops an approach to improve efficiency and effectiveness of the team by using creative reorganizing concepts.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Decision Making	Level 1	1	Seeks out best practices to make sound judgment and timely	Adequate	Not Applicable	Not Applicable	Not Applicable

				decisions to implement the assigned activities effectively.				
			2	Weighs the advantages and consequences of alternative options before deciding on the approach to take. Knows when to seek decision from higher level.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Uses sound judgment to make appropriate and timely decisions in moderately complex situation.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Makes decisions with available information, even if such information is not fully conclusive. Appropriately solicits the input of those who will be affected by the decision.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Makes appropriate decisions while encountering	Adequate	Not Applicable	Not Applicable	Not Applicable

				complex and differing alternatives.				
			2	Provides instinctive mindful decisions based on past experiences under ad hoc situation.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Makes well-informed, effective, and timely decisions in highly complex situation.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Makes key decisions that has strategic impact in achieving the organizational goal and develop strategic alternatives.	Adequate	Not Applicable	Not Applicable	Not Applicable
Result Orientation	Problem Solving	Level 1	1	Identifies issues using available information.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Carries out literature and database researches to outline the issue.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Promptly identifies key problem issues in a conflicting situation.	Adequate	Not Applicable	Not Applicable	Not Applicable

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			4	Solves problems by breaking them down into manageable pieces.	Adequate	Not Applicable	Not Applicable	Not Applicable	
			Level 2	1	Identifies issues and analyze accurately the cause of the problems.	Adequate	Not Applicable	Not Applicable	Not Applicable
				2	Establishes a thorough understanding of more unusual problems and take an active role in their resolution.	Adequate	Not Applicable	Not Applicable	Not Applicable
				3	Identifies the affected stakeholders in a conflicting situation and seek their views.	Adequate	Not Applicable	Not Applicable	Not Applicable
				4	Develops and evaluates alternative solutions for a problem. Addresses routine problems by brainstorming various solutions.	Adequate	Not Applicable	Not Applicable	Not Applicable
			Level 3	1	Identifies pertinent issues and accordingly	Adequate	Not Applicable	Not Applicable	Not Applicable

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				analyses their causes and effects.				
			2	Conceptualizes alternative approaches and evaluate potential outcomes against appropriate criteria to justify an optimal solution choice.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Anticipates the consequences of situations and proactively works to overcome potential obstacles.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Foresee to some degree, the problems that are likely to occur and potential consequences of decisions, actions, or events.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Identifies and determine the causes and effects of the pressing issues. Justifies and applies appropriate simplifying solutions.	Adequate	Not Applicable	Not Applicable	Not Applicable

			2	Conceptualizes alternative approaches and evaluate potential outcomes against appropriate criteria to justify an optimal solution choice.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Provides clear directives and guidance to resolve the conflicting situation.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Foresee to some degree, the problems that are likely to occur and potential consequences of decisions, actions, or events and devises logical, well-reasoned solutions.	Adequate	Not Applicable	Not Applicable	Not Applicable
			Planned Execution	Level 1	1	Prepare action plans to meet deadlines and objectives.	Adequate	Not Applicable
			2	Uses allocated resources effectively and efficiently to complete tasks.	Not Adequate	The individual lacks basic task related skill	Attachment Action learning	The entry level engineer will be able interoperatefficient and effective uses of resources.

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				3	Contributes toward proper implementation of plans.	Not Adequate	The individual lacks basic task related skill	Attachment Action learning	The entry level engineers will be able to implement the plans in consultation with peers.
			Level 2	1	Reviews action plans to meet deadlines and objectives and prioritize accordingly.	Adequate	Not Applicable	Not Applicable	Not Applicable
				2	Contributes toward effective allocation of resources.	Adequate	Not Applicable	Not Applicable	Not Applicable
				3	Contributes toward proper implementation of plans.	Adequate	Not Applicable	Not Applicable	Not Applicable
			Level 3	1	Anticipates problems or delays and accordingly prepare mitigation measures for it.	Adequate	Not Applicable	Not Applicable	Not Applicable
				2	Guides proper allocation of resources.	Adequate	Not Applicable	Not Applicable	Not Applicable
				3	Prioritizes plan appropriately to align with organizational goals and objectives.	Adequate	Not Applicable	Not Applicable	Not Applicable

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		Level 4	1	Anticipates problems or delays and accordingly decide on the suitable mitigation measures.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Ensures optimal usage of allocated resources.	Not Adequate	The individual lacks knowledge on proper resource management	Classroom training Seminars	The expert level engineer will be able to provide guidance on proper usage of resources.
			3	Provides directive to ensure all the activities are executed as planned.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Motivation	Level 1	1	Shows interest to learn by constantly engaging in a variety of self-directed and formal professional development activities to be a champion in one's domain.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Actively contributes to the work of the team and sets a good	Adequate	Not Applicable	Not Applicable	Not Applicable

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				example; accepts responsibility for own.				
			3	Always keep a positive attitude in the working environment	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Shows interest to learn by constantly engaging in a variety of self-directed and formal professional development activities and accordingly impart it to the subordinates.	Adequate	Not Applicable	Not Applicable	Not Applicable
		2	Demonstrates a flexible, positive 'can do' approach to deliver team results. Helps fellow engineer in solving work problems to achieve the common goal.	Adequate	Not Applicable	Not Applicable	Not Applicable	
		3	Takes specific steps to maintain self-esteem under intense work pressure.	Adequate	Not Applicable	Not Applicable	Not Applicable	

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		Level 3	1	Knows the importance of lifelong learning and impart the same to others/subordinates.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Encourages teamwork to help recognize the value of alternative and diverse viewpoints, scholarly advice and the importance of professional networking.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Provides intrinsic motivational support to subordinates and colleagues under intense work pressure.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Motivates colleagues and subordinates for lifelong learning.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Acts as a 'buddy', coach and role model to new colleagues without waiting to be asked.	Adequate	Not Applicable	Not Applicable	Not Applicable

				Gives recognition and credit to people who have contributed to team success.				
			3	Explores ways to motivate subordinates to achieve desired results.	Adequate	Not Applicable	Not Applicable	Not Applicable
Managing Adversity/Conflict Management	Level 1	1	1	Deals calmly with others in adverse situations.	Not Adequate	The individual lacks professional communication skills	Classroom training Mentoring	The entry level engineer deals professional when in adverse situation
		2	2	Respects differences in opinion and gives constructive response.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Level 2	1	1	Uses appropriate interpersonal skills to reduce stress or conflict.	Adequate	Not Applicable	Not Applicable	Not Applicable
		2	2	Manages conflict by using appropriate mediation techniques.	Not Adequate	The individual lacks conflict management skills	Classroom training Mentoring	The expert level engineer will be use mediation techniques to resolve conflict whenever required.
	Level 3	1	1	Identifies potential conflicts to prevent disagreement.	Adequate	Not Applicable	Not Applicable	Not Applicable

		Level 4	2	Recognizes conflicts and takes necessary steps to address the conflicts.	Adequate	Not Applicable	Not Applicable	Not Applicable
			1	Recognize when relationships with others are strained. Shows higher degree of emotional intelligence when dealing with adversities.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Resolves conflicts arising from to competing objectives, limited resources, or differing perspectives.	Adequate	Not Applicable	Not Applicable	Not Applicable
Stakeholder Engagement	Interpersonal Skills	Level 1	1	Demonstrates respect for co-workers, colleagues, and stakeholders.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Contributes to build a sense of common purposes across all work groups.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Explores ways to deliver assistance stakeholders, subordinates and	Adequate	Not Applicable	Not Applicable	Not Applicable

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				supervisor. Demonstrates sensitivity to the needs and feelings of others.				
			4	Takes responsibility and accountability of the task assigned to oneself in order to avoid/reduce future complications.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Works well with others from diverse background. Interact respectfully and cooperatively with others.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Works to build a sense of common purpose across all work groups, avoiding a “we versus them” attitude.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Demonstrates flexibility for change based on the ideas and actions of others.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Inspire subordinate to take ownership,	Adequate	Not Applicable	Not Applicable	Not Applicable

				foster accountability and trust between all levels of the organization.				
		Level 3	1	Shows understanding of other's behaviours and motives by demonstrating appropriate responses. Pursues good professional relationship with others.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Pursues to build a sense of common purpose across all work groups, avoiding a "we versus them" attitude.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Demonstrates sensitivity, flexibility, open-mindedness, and inclusivity when dealing with others.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Delegates' workload among staff to ensure staff meet key deliverables on	Adequate	Not Applicable	Not Applicable	Not Applicable

				time. Promote culture of accountability and make everyone take ownership and responsibility.				
		Level 4	1	Establishes a high degree of trust and credibility and encourages establishment of good and productive professional relationship with others.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Pursues to build a sense of common purpose across all work groups, avoiding a “we versus them” attitude.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Maintains open lines of communication with others. Encourage others to share problems and successes.	Adequate	Not Applicable	Not Applicable	Not Applicable
			4	Communicates clearly to staff on respective duties, performance	Adequate	Not Applicable	Not Applicable	Not Applicable

				expectations, and consequent impacts. Accepts responsibility when faced with major setbacks.				
Negotiation	Level 1	1	Deals empathetically when there is a disagreement.	Not Adequate	The individual lacks professional communication skills	Classroom training Mentoring	The entry level engineer deals professional when in adverse situation	
		2	Uses factual information to convey the intended messages clearly to stakeholder.	Adequate	Not Applicable	Not Applicable	Not Applicable	
	Level 2	1	Plans for alternative methods if agreement can't be reached.	Adequate	Not Applicable	Not Applicable	Not Applicable	
		2	Communicates effectively with the stakeholders to gain their support and collaboration.	Not Adequate	The individual lacks professional communication skills	Classroom training Mentoring	The experience level engineer will be able to deal professional with stakeholder.	
	Level 3	1	Applies alternative methods if agreement can't be reached.	Adequate	Not Applicable	Not Applicable	Not Applicable	
		2	Develops trust among various	Adequate	Not Applicable	Not Applicable	Not Applicable	

				parties involved in a negotiation process.				
		Level 4	1	Applies alternative methods if agreement can't be reached.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Develops trust among various parties involved in a negotiation process.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Coordination and Collaboration	Level 1	1	Knows stakeholder need and demonstrates a service-oriented mind-set.	Not Adequate	The individual lacks basic task related skill	Attachment Action learning	The entry level engineers will be able take into account the needs of all the stakeholder.
			2	Maintains regular exchange of information with the stakeholders for better collaboration and participation.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Monitors work against milestones; informs stakeholders of delays or issues; negotiates acceptable compromises.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Proactively prepares relevant	Adequate	Not Applicable	Not Applicable	Not Applicable

				information to convince and gain support from the stakeholders.				
		Level 3	1	Reviews changes in plan, by exploring all possible options and its consequences to ensure best value and greatest benefit for the stakeholders.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Encourages stakeholder involvement to facilitate effective collaboration.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Possesses knowledge of external stakeholder requirements while understanding of internal norms for mutual benefits.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Creates strong professional relationship with various stakeholders for an effective collaboration.	Adequate	Not Applicable	Not Applicable	Not Applicable

xiv. Detailed Training Need Analysis under Infrastructure Regulator

Competency Area	Competency	Proficiency Level	Behavioural Indicator (Not adequate)	Current performance (adequate /not adequate)	Likely reason for performance gap	Method of intervention 1.Classroom training 2. OJT 3.Mentoring 4. Others (specify)	Learning Objectives	
	Flexibility (Change Management)	Level 1	1	Learns the good engineering aspects & practices and acquire traits of advocacy.	Not Adequate	The individual lacks basic task related skill	Mentoring Classroom training	The entry level engineer will be able to advocate on the good engineering practices.
			2	Adapts swiftly to new information and changing condition.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Clearly and concisely advocates good engineering aspects and practices.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Proactively seeks feedback from colleagues/stakeholder while implementing any change.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Comprehensively advocates good engineering aspects and	Adequate	Not Applicable	Not Applicable	Not Applicable

				practices and encourages its usage.				
			2	Prioritizes, considers alternatives, and responds promptly and effectively to unexpected and rapidly changing conditions.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	1	Create conducive working environment to encourage usage of good engineering practices.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Adjusts organizational priorities promptly to organizational change.	Adequate	Not Applicable	Not Applicable	Not Applicable
	Compliance and Monitoring	Level 1	1	Proactively keeps oneself updated on the existing and changing acts, rules and regulations.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Drafts clear monitoring plans for timely observation of the site/project. Drafts detailed reports on findings.	Not Adequate	The individual lacks basic task related skill	Action learning Attachment	The entry level engineer will be able to draft clear and detailed monitoring plans and reports.
			3	Inspects compliance of the Engineering standards, rules and regulations, etc. uniformly.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Proactively keeps oneself updated on the changing acts, rules and regulations and ensures	Adequate	Not Applicable	Not Applicable	Not Applicable

				compliance.				
			2	Supports in developing viable monitoring plans and ensure timely implementation of the plans. Prepares comprehensive monitoring reports.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Inspects compliance of the Engineering standards, rules and regulations, etc. uniformly.	Not Adequate	The individual lacks basic task related skill	Induction Action learning Attachment	The entry level engineer will be able to inspects uniform compliance of the Engineering standards, rules and regulations, etc.
		Level 3	1	Ensures the acts, rules and regulations are enforced and complied while keeping oneself updated on the changing acts, rules and regulations.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Ensures that viable monitoring plans are developed and implemented accordingly. Comprehends monitoring reports for concurrence.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Continuously monitor regulatory changes and proactively acts on new	Adequate	Not Applicable	Not Applicable	Not Applicable

				requirement to ensure compliance.				
		Level 4	1	Provides constructive suggestions for amendment of the acts, rules and regulations, etc when required.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Provides technical expertise in the development of the monitoring plan and gives recommendation when necessary.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Provides insights on the development of guidelines, rules and regulations, standards etc.	Adequate	Not Applicable	Not Applicable	Not Applicable
Research and Development	Technology Savvy	Level 1	1	Demonstrates an interest to learning new and emerging tools and technology.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Identifies and examines the current developments and the issues that are most prevalent and carries out research.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 2	1	Demonstrates an interest in learning new and emerging technology and also encourages peers.	Adequate	Not Applicable	Not Applicable	Not Applicable

		Level 3	2	Proactively explores tools and technologies to address the prevalent issues.	Adequate	Not Applicable	Not Applicable	Not Applicable
			1	Explores emerging tools and technology and adapts the reliable and suitable ones.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 4	2	Proactively explores tools and technologies to address the complex issues.	Adequate	Not Applicable	Not Applicable	Not Applicable
			1	Create learning opportunity for enhancing technical capacity. A	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Carries out research on the issues and also creates a good environment where by the peers can easily assess the tools needed to carry out research work.	Adequate	Not Applicable	Not Applicable	Not Applicable
			1	Proactively refers existing acts, rule and regulation, etc. and keeps record of the obsolete ones.	Adequate	Not Applicable	Not Applicable	Not Applicable
Formulation and adaptation	Level 1	2	Keeps abreast of any development in rules, regulations, policy, guideline, standard, etc.	Adequate	Not Applicable	Not Applicable	Not Applicable	
		3	Proactively acquires necessary knowledge, skills and competencies	Adequate	Not Applicable	Not Applicable	Not Applicable	

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				to adapt to change.				
		Level 2	1	Proposes for amendment in acts, rules and regulation.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Gathers relevant information to predict the impact of new developments on the stakeholder.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Adapts effectively to work within changing methodologies, practices and tools.	Adequate	Not Applicable	Not Applicable	Not Applicable
		Level 3	1	Ensures proposal of amendment and development of the acts, rules & regulations, etc. are aligned with the organization's vision and objectives.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Reflects the best Engineering Practices in the formulation of rules, regulations, policy, guideline, standard, etc.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Reviews, evaluates and disseminates information regarding any change in key methodologies, practices and tools to others.	Adequate	Not Applicable	Not Applicable	Not Applicable

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		Level 4	1	Ensures proposal of amendment and development of the acts, rules & regulations, etc. are aligned with the organization's vision and objectives.	Adequate	Not Applicable	Not Applicable	Not Applicable
			2	Develops rules, regulations, policy, guideline, standard, etc. taking into account diverse views and needs of external organizations.	Adequate	Not Applicable	Not Applicable	Not Applicable
			3	Takes a holistic perspective of the entire system and takes action to improve the efficiency of processes and quality of outputs.	Adequate	Not Applicable	Not Applicable	Not Applicable

xv. Training List for Civil Engineers in the Professional and Management Category under MoWHS for 2019-2020

Training List for Civil Engineers in the P & M category under MoWHS (2019)				
Priority	Target Group	No. of Participants	Training Description	Training Provider
1	P4 and P3 level Engineers (2010-2019 recruits)	100	Training on contract management including the Procurement rules & regulation, Standard Bidding Documents, Bhutan Schedule of Rates, etc. along with training on Construction management Software(CMS) which is linked with it.	Resource person for CMS from Engineering Services Division along with other subject matter experts
	P1 and P2 level Engineers (Before 2010 recruits)	100	Refresher course on contract management including the Procurement rules & regulation, Standard Bidding Documents, Bhutan Schedule of Rates, etc. along with training on Construction management Software(CMS) which is linked with it.	
2	P4-P1 (Engineers involved in Analysis and Design of Infrastructure)	125 (25 from each type of Infrastructure)	Training on assessment and design of infrastructures like seismic resilient building, hydraulic structures, road, bridges, etc. It will cover software such as ETABS, STAAD, REVIT, EPANET, MIDAS, MX ROAD, etc. Note: The type of training will depend on the nature of work an individual will do for example; EPANET will be relevant to a person working under water division whereas MIDAS will be relevant to a person working with structural design.	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient
3	P3, P4	50	Training on material testing such as pressure testing, aggregate testing, concrete testing, etc.	Subject matter expert from Bhutan or Foreign Country whichever is convenient
4	P4-P1	50	Training on Project Management Software such as Primavera or Equivalent to aid in planning and scheduling project timeline.	Subject matter expert from Bhutan or Foreign Country whichever is convenient

5	P4-P1	50	Training on contract and construction conflict management. This will include the skills development in the area such as stakeholder engagement, leadership, etc.	Subject matter expert from Bhutan or Foreign Country whichever is convenient
6	P4-P1	50	Basic training on Geographical Information System (GIS)	Subject matter expert from Bhutan or Foreign Country whichever is convenient
7	P3, P4	50	Training on Surveying- Techniques and Softwares like LISCAD or equivalent. Note: The training can be further broken down to specific area for example road engineers can focus more on road survey whereas water engineers can focus on water map survey.	Subject matter expert from Bhutan or Foreign Country whichever is convenient
8	P4-P1	50	Training on Statistical Analysis especially Engineering Data analysis and Data management	Subject matter expert from Bhutan or Foreign Country whichever is convenient

Mandatory Training List under different methods of intervention (2019-2020)					
Method of Intervention: Formal Classroom Training (In-country/Ex-country)					
Priority	Target Group	Number of Participants	Training Description	Training Provider	Estimated cost
1	P2-P1	100	Refresher course on contract management including the Procurement rules & regulation, Standard Bidding Documents, Bhutan Schedule of Rates, etc. along with training on Construction management Software(CMS) which is linked with it.	Resource person for CMS from Engineering Services Division along with other subject matter experts	
2	P4-P1 (Engineers involved in Analysis and Design of Infrastructure)	125 (25 from each type of Infrastructure)	<p>Training on assessment and design of infrastructures like seismic resilient building, hydraulic structures, road, bridges, etc. It will cover software such as ETABS, STAAD, REVIT, EPANET, MIDAS, MX ROAD, etc.</p> <p>Note: The type of training will depend on the nature of work an individual will do for example; EPANET will be relevant to a person working under water division whereas MIDAS will be relevant to a person working with structural design.</p>	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	

4	P4-P1	50	Training on Project Management Software such as Primavera or Equivalent to aid in planning and scheduling project timeline.	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
5	P4-P1	50	Training on contract and construction conflict management. This will include the skills development in the area such as stakeholder engagement, leadership, etc.	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
6	P4-P1	50	Basic training on Geographical Information System (GIS)	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
Method of Intervention: On the Job Training					
Priority	Target Group	Number of Participants	Training Description	Training Provider	Estimated cost
3	P4-P3	50	Training on material testing such as pressure testing, aggregate testing, concrete testing, etc.	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
7	P4-P3	50	Training on Surveying-Techniques and Softwares like LISCAD or equivalent. Note: The training can be further broken down to specific area for example road engineers can focus more on road survey whereas water engineers can focus on water map survey.	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	

8	P4-P1	50	Training on Statistical Analysis especially Engineering Data analysis and Data management	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
Method of Intervention: Online Course					
Priority	Target Group	Number of Participants	Training Description	Training Provider	Estimated cost
8	P4-P1	50	Training on Statistical Analysis especially Engineering Data analysis and Data management	Subject matter experts from various area either from Bhutan or Foreign Country whichever is convenient	
Method of Intervention: Pre-Service Training after selection into civil service					
Priority	Target Group	Number of Participants	Training Description	Training Provider	Estimated cost
1	P4 - P3	100	Training on contract management including the Procurement rules & regulation, Standard Bidding Documents, Bhutan Schedule of Rates, etc. along with training on Construction management Software(CMS) which is linked with it.	Resource person for CMS from Engineering Services Division along with other subject matter experts	

Focal Commissioner**Dasho Karma Hamu Dorjee, Commissioner, Royal Civil Service Commission****List of Team Member:**

Sl. No.	Name	Designation	Agency
1	Tshering Pelden	Engineer	Engineering Services Division, Department of Engineering Services, Ministry of Works and Human Settlement
2	Tshering Dema	Engineer	Water & Sanitation Division, Department of Engineering Services, Ministry of Works and Human Settlement
3	Sonam Cheden	Engineer	Engineering Services Division, Department of Engineering Services, Ministry of Works and Human Settlement
4	Sonam Dorji	Senior Human Resource Officer	Human Resource Division, Ministry of Works and Human Settlement
5	Kelzang Jamtsho	Senior Human Resource Officer	Human Resource Division, National Environment Commission
6	Kencho Dema	Assistant Human Resource Officer	Human Resource Division, Ministry of Economic Affairs
7	Karma Yoeser	Assistant Human Resource Officer	Human Resource Division, Royal Audit Authority