

Restructuring and Capacity Building of Environment Protection Department Punjab

Restructuring Report *Submission 3.2* *Training Need Assessment*



THE URBAN UNIT
Urban Sector Planning & Management Services (Pvt) Ltd.
A Public Sector Company.



Restructuring and Capacity Building of Environment Protection Department Punjab

Training Need Assessment Report

Submitted To:

Dr. Zafar Nasrullah Khan

Secretary

Environment Protection Department

Submitted By:

The Urban Unit

EY – Ford Rhodes supported by EY – France

Finnish Consulting Group Asia Pte. Ltd.

Saleem, Alam and Company

Restructuring and Capacity Building of Environmental Protection Department Punjab

1. Inception Report

2. Gap Analysis Report

3. Restructuring Report

3.1: Restructuring of Environmental Governance in Punjab

3.2: Training Need Assessment Report

4. Legal Report

4.1: Report on Multilateral Environmental Agreements

4.2: Environmental Governance and Monitoring Framework of Punjab

4.3: New and Amended Laws, Rules, Regulations, Guidelines, SOPs, Checklists

5. Technical Report

5.1: Environmental Laboratories, SOPs for Environmental Sampling, Recommendations on Environmental Quality Standards, Environmental Modelling, Monitoring Framework and Curriculum

5.2: Environmental Approvals/EIAs, Market-based Instrument for Environmental Management

6. Information and Communication Technology Solutions Report

7. Final Report

DISCLAIMER

Urban Sector Planning and Management Sector Unit (Private.) Limited, (USPMSU) has prepared this report for purpose of Restructuring and Capacity Building of Environmental Protection Department (EPD). Extreme care and caution has been observed while developing this document.

No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or information storage and retrieval system, without the express permission, in writing, by competent authority.

Authors

Ms. Aisha Nadeem

Mr. Majid Hussain

Mr. Ali Qamar

Mr. Areeb Pasha

Mr. Abid Hussainy

Technical Review Team

Mr. Alexis Gazzo

Dr. Nasir Javed

Dr. Kiran Farhan

Mr. Rafay Alam

The Urban Unit

503-Shaheen Complex, Egerton road, Lahore

Tel: +42 992005316-22

Fax : +42 99205323

Email: uspmsu@punjab.gov.pk

Website: www.urbanunit.gov.pk

Table of Content

Executive Summary	i
Section 1	
Project Background	13
Section 2	
TNA Purpose & Objective	17
Section 3	
Methodology	21
Summary of Foundation Concepts.....	21
Detailed Methodology	21
Step 1 – Baseline Research	21
Step 2 – Thematic Group Approach.....	27
Step 3 – Tool Development.....	28
Step 4 – Sample Selection.....	30
Section 4	
Results & Findings.....	35
Introduction (Gap Analysis – Mapped to Future State).....	35
A. EPD and Shared Services.....	36
1. Human Resource.....	36
2. Administration - General	45
3. Finance.....	52
4. Procurement	60
5. Multilateral Environmental Agreements (MEAs).....	67
B. Environment Protection Agency (EPA).....	73
1. Environmental Impact Assessment (EIA).....	73
2. Complaint management	81
3. Environmental Economics	88
4. Environmental Law.....	96
C. Environmental Monitoring Centre (EMC).....	103
1. Environmental Laboratories.....	103
2. Environmental Modelling	113
3. Environmental Monitoring.....	120
D. Institute of Environmental Technology and Training (IETT).....	129
Learning Styles Inventory	135
Stakeholders Issues & Recommendations	142
I. Training and development	142
II. HR policies and procedures.....	144
III. Performance Management.....	145
IV. Manpower Planning and Recruitment.....	145
V. Improved SOPs	146
VI. Workplace and Organization	147
VII. Infrastructure and Support	148
Section 5	
Training Plan.....	153

Introduction.....	153
The Guiding Principles	153
1. Training Vision	153
2. Training Approach	154
3. Training Relevance and Prioritization:.....	155
4. The Use of Training / Learning Maps	156
5. Training / Learning Methods.....	158
6. Training Evaluation Methods.....	162
Section 6	
Training Curricula.....	167
Introduction and Background	167
Objectives	167
Curriculum Design.....	167
1. Environmental Education and Awareness	171
2. Multilateral Environmental Agreements (MEAs).....	180
3. Environmental Modelling	187
4. Environmental Law.....	195
5. Climate Change Mitigation and Adaptation	203
6. Environmental Monitoring, Laboratories and Reporting.....	211
7. Solid Waste Management	223
8. Environmental Audit.....	231
9. Environmental Assessment.....	239
10. Environmental Application of gis	249
11. Environmental Economics	255
12. Human Resource Management	263
13. Finance.....	276

Acronyms

ADP	Annual Development Programmes
CEIA	Cumulative Environmental Impact Assessment
CMS	Complaint Management System
EDH	Environmental Health, Dengue Control and Hazardous Waste
EIA	Environmental Impact Assessment
EMC	Environmental Monitoring Center
EMS	Environmental Management Systems
EMMS	Environment Management and Monitoring System
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
EPO	Environmental Protection Orders
GIS	Geographic Information System
HRIS	Human Resource Information System
HRM	Human Resource Management
IEE	Initial Environmental Examination
IETT	Institute of Environmental Technology and Training
KSAs	Knowledge, Skills and Abilities
L&C	Legal and Compliance
MBI	Market Based Instrument
MEAs	Multilateral Environmental Agreements
MIS	Management Information System
ML&I	Monitoring, Labs and Implementation
MRFs	Material Recovery Facilities
NEQS	National Environment Quality Standards
NOC	No Objection Certificate
P&C	Planning and Coordination
PEPA	Punjab Environmental Protection Act
PEQS	Punjab Environmental Quality Standards
PET	Punjab Environmental Tribunal
POPs	Persistent Organic Pollutants
QA/QC	Quality Assurance/Quality Control

R&D	Research and Development
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SIR	Site Inspection Report
SME	Small and Medium-Sized Enterprises
SMRs	Subject Matter Resources
SOPs	Standard Operating Procedures
SSC	Share Service Centre
TFRs	Transactional Flow Reviews
TNA	Training Needs Assessment
TORs	Terms of Reference
TT	Technology Transfer

Executive Summary

Executive Summary

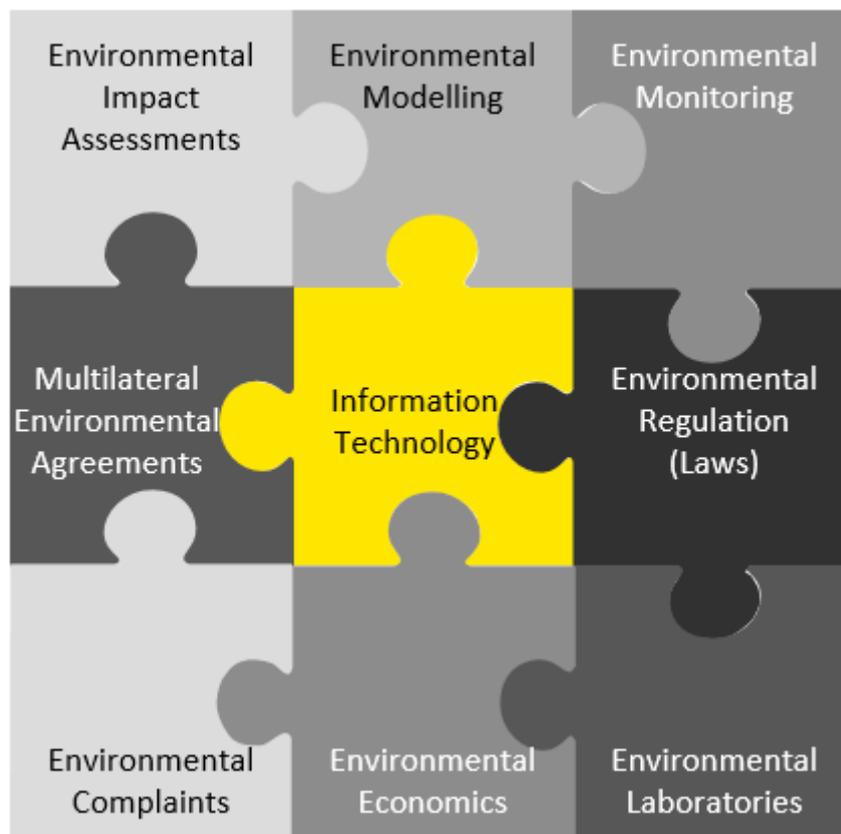
This report presents the results of the Training Needs Assessment (TNA) conducted as part of the Restructuring and Capacity Building of EPD Punjab. The objective of this exercise was to assess the Environmental Protection Department's (EPD) and other associated institutions' capacity development needs to meet future challenges. The TNA was also aimed at identifying a comprehensive list of knowledge, skills and attitudes required for the future state of EPD.

The TNA process was carried out by the Urban Unit and EY Ford Rhodes bringing in relevant TNA and Human Resource Management (HRM) experts. The TNA groundwork

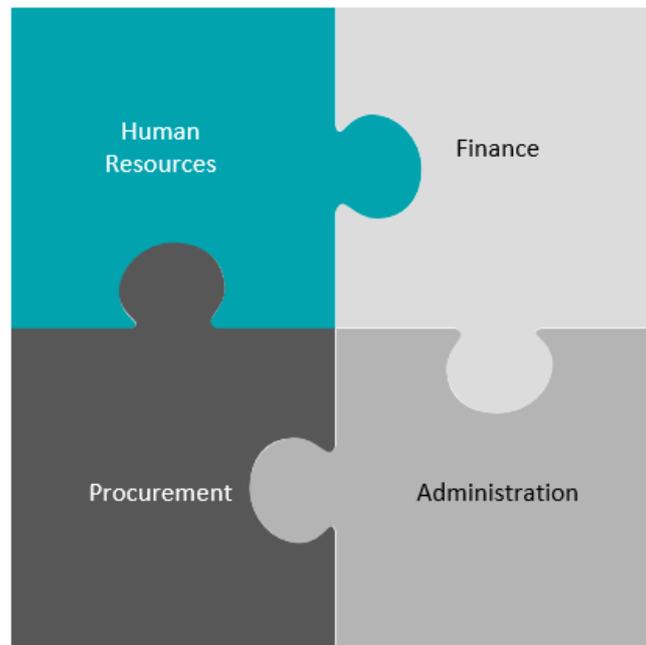
- started with some baseline research to understand the human resource dynamics
- then went into identification of a sample of employees to conduct the TNA on,
- also included segregation of the TNA into different thematic areas keeping in mind the future needs of the organization
- focused on development of a tool to cater to the TNA exercise

A total of 6 TNA sessions were held with approximately 50 to 60 participants in each session; these included both gazette and non-gazette officers of the EPD. The six sessions focused on thirteen different thematic areas. Some of these thematic areas are part of the current state already, however some additional elements were added to cater to the future state of the EPD.

Nine of these areas related to technical elements of the environmental value chain, and included:



Four of these areas related to the support functions that any organization has and included:

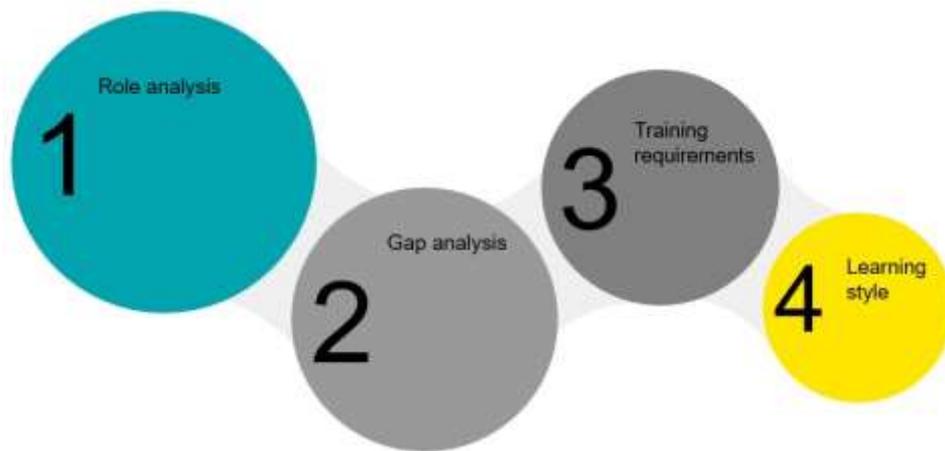


The data for the TNA was gathered using specially designed questionnaires for each one of the six sessions. Each questionnaire aligned with the relevant thematic area; thirteen in total.

Open ended discussions were carried out at the start of every TNA session and participants were asked about the key issues and challenges they faced while performing their jobs. This helped set the tone for the rest of the session. The participants were very enthusiastic and provided valuable input related to the environmental governance framework in place, including suggestions for improvement and better integration/linkages among government bodies for transparent environmental monitoring and enforcement in the province of Punjab.

These discussions were followed by questionnaires filling activity for which a four stage approach was adopted.

- The first part of this included a role analysis to understand what the responsibilities of the person filling the questionnaires entails.
- This was followed by identification of gaps focusing on the knowledge, skills and attitudes of the different participants, in terms of relevance and also competence.
- The third part consisted of identifying the training requirements focusing on the relevance of the training required, the target competence to be acquired, and finally prioritizing which elements should be focused on first
- The final part of the questionnaire focused on the learning style as to what would be the best way to deliver the desired trainings.



The questionnaires also included open ended questions for the participants to provide recommendations and suggestions focusing on effectiveness and efficiency. The sessions ended with thematic area group discussions where participants were got an opportunity to have a brainstorming sessions followed by a presentation on the required knowledge, skills and training including the different topics to be covered, their personal and departmental objectives, time frames for the trainings to be received and preferred learning styles.

The analysis that follows shows the responses on the thirteen thematic areas identifying areas where the most focus is required. There are a total of three tables, one focusing on the Knowledge, one on the Skills and the final one on Attitudes.

- Green represents areas of high relevance and high competence. The darker the green, the better the current situation
- Red represents areas of low relevance and low competence. The darker the red, the worse the current situation
- Amber represents areas which are in between the two extremes.

This heat map approach clearly identifies areas which are relevant and also where the staff believes they are competent.

Knowledge

The staff at environmental institutions should have the relevant knowledge and also the right competence level to perform their duties. Knowledge revolves around the understanding of the different concepts that are needed to perform your day to day tasks in an effective manner.

Functional Areas		Relevance					Competency				
		N/A	Low	Medium	High		Novice	Basic	Moderate	Fully Competent	Expert
Technical	Environmental Impact Assessments	13%	12%	31%	44%	K n o w l e d g e	11%	18%	37%	30%	4%
	Environmental Modeling	46%	10%	11%	32%		47%	15%	17%	16%	5%
	Environmental Monitoring	26%	13%	26%	36%		12%	18%	35%	24%	12%
	Multilateral Environmental Agreements	18%	7%	23%	51%		1%	50%	33%	16%	0%
	Environmental Regulation (Laws)	36%	4%	24%	36%		6%	6%	39%	20%	29%
	Environmental Complaints	4%	8%	35%	52%		9%	17%	40%	23%	11%
	Environmental Economics	22%	10%	22%	46%		10%	24%	39%	25%	2%
	Environmental Laboratories	13%	15%	28%	45%		9%	20%	33%	29%	9%
Support	Information Technology	20%	11%	29%	39%		17%	26%	33%	21%	4%
	Human Resources	9%	13%	56%	21%		5%	15%	54%	20%	6%
	Procurement	14%	18%	41%	27%		8%	30%	26%	24%	12%
	Finance	26%	23%	36%	15%		19%	20%	38%	18%	5%
	Administration	15%	15%	39%	31%		12%	18%	35%	25%	9%

Based on the results in the table above, it is clear that the respondents were self-aware as they clearly marked the technical areas as highly relevant to their job, responses varying between 32% for Environmental Modelling to 52% for Environmental Complaints. However the worrying aspect is that the current competence level for the technical areas is nowhere near Expert level. The best response received was for Environmental Regulation where 29% of the respondents felt they were at Expert level. It is clear that for the technical areas the competence level sits at Moderate level for the majority of the technical areas, which is not sufficient enough for an institution that should be the expert in environmental issues.

For all technical areas the Expert level competence ranges between only 0% - 12 %, excluding Environmental Regulation where 29% of respondents rated their knowledge at Expert level. This clearly highlights the need to arrange knowledge sessions on all of the technical areas to pull the majority of the responses to a more acceptable level. The areas which have been marked as highly relevant i.e. the technical areas lack the competence levels that are needed for an institution of this importance. The future training exercises need to be focused on the technical areas bringing the majority human resource up to at least the Fully Competent level.

Likewise respondents who rated themselves Fully Competent ranged between 16% - 30% which shows that the competence levels need to be improved; from their current position i.e. on average Moderate. It's notable that half of the respondents rated the knowledge for all technical areas as of Medium or High relevance, however only a third of the respondents were either at Fully Competent or Expert levels.

In terms of the technical areas, the strongest current competence is in the area of Environmental Regulation (49% respondents rated either Fully Competent or Expert) and the weakest is in Multilateral Environmental Agreements (16% respondents rated either Fully Competent or Expert). Feedback from the six TNA sessions held also suggested that the employees focus on the legal requirements rather than using their initiative to solve problems. Environmental Modeling is another area that received a low percentage i.e. only 21%. Predictive analysis is one of the most modern and important techniques that is being used across the world to address problems early before they turn into disasters, a skill that is clearly lacking in the current setup.

Support functions are areas where quality human resource is easily available so even though the current competence levels are not up to the mark, it is an area that can be easily improved by external hiring and internal trainings.

Skills

The staff at environmental institutions should also have the relevant skills and also the right competence level to perform their duties. Skills revolve around the ability to use the possessed knowledge through a set of activities to achieve efficient day to day results.

Functional Areas		Relevance				Skills	Competency				
		N/A	Low	Medium	High		Novice	Basic	Moderate	Fully Competent	Expert
Technical	Environmental Impact Assessments	21%	10%	24%	45%		16%	17%	33%	30%	3%
	Environmental Modeling	8%	18%	27%	47%		5%	12%	35%	41%	8%
	Environmental Monitoring	22%	14%	28%	36%		12%	16%	36%	24%	12%
	Multilateral Environmental Agreements	7%	1%	13%	80%		5%	36%	16%	34%	8%
	Environmental Regulation (Laws)	35%	5%	35%	25%		0%	3%	63%	33%	1%
	Environmental Complaints	5%	8%	40%	47%		6%	15%	39%	31%	8%
	Environmental Economics	28%	6%	27%	39%		20%	22%	29%	25%	3%
Support	Environmental Laboratories	17%	13%	29%	40%		12%	13%	34%	36%	5%
	Information Technology	32%	19%	19%	29%		35%	26%	27%	9%	3%
	Human Resources	12%	21%	45%	22%		6%	32%	52%	10%	0%
	Procurement	28%	20%	52%	0%		18%	15%	56%	12%	0%
	Finance	48%	16%	25%	12%		19%	20%	34%	20%	7%
	Administration	26%	19%	28%	27%		15%	22%	28%	23%	12%

Based on the results in the table above, it is clear that the respondents were self-aware as they clearly marked the technical areas as highly relevant to their job, responses varying between 25% for Environmental Regulation (Laws) to as high as 80% for Multilateral Environmental Agreements. However the worrying aspect is that the current competence level for the technical areas is nowhere near Expert level. The best response received was for Environmental Modelling where only 12% of the respondents felt they were at Expert level. It is clear that for the technical areas the competence level sits at Moderate level for the majority of the technical areas, which is not sufficient enough for an institution that should be the expert in environmental issues. Having looked at the knowledge levels in the preceding section it is not surprising to note that the skill levels follow pretty much the same pattern.

For all technical areas the Expert level competence ranges between only 1% - 12%. This clearly highlights the need to arrange skill development sessions on all of the technical areas to pull the majority of the responses to a more acceptable level. The areas which have been marked as highly relevant i.e. the technical areas lack the competence levels that are needed for an institution of this importance. The future training exercises need to be focused on the technical areas bringing the majority human resource up to at least the Fully Competent level.

Likewise respondents who rated themselves Fully Competent ranged between 24% - 41% which shows that the competence levels need to be improved; from their current position i.e. on average Moderate. It's notable that half of the respondents in most cases and in some areas even two thirds of the respondents rated the skill level for all technical areas as of Medium or High relevance, however only about a third of the respondents were either at Fully Competent or Expert levels.

In terms of the technical areas, the strongest current competence is in the area of Environmental Modeling (49% respondents rated either Fully Competent or Expert) and the weakest is in Environmental Economics (28% respondents rated either Fully Competent or Expert). This is in contrast to the responses received in the knowledge section where Environmental Modeling was received one of the lowest ratings i.e. only 21%. Trainings in future need to focus on areas that are highlighted as having low competence across the knowledge, skills and attitudes analysis.

It's notable that more than 85% of the respondents felt that Multilateral Environmental Agreements and Environmental Complaints are two areas which are at least of Medium relevance whereas the competence levels for both are lagging.

Also it can be observed that only a small percentage of respondents believed that technical skills required are of Low relevance however the competence levels are Moderate at best.

Support functions are areas where quality human resource is easily available so even though the current competence levels are not up to the mark, it is an area that can be easily improved by external hiring and internal trainings. However the responses are pretty evenly spread when it comes to relevance which is not correct given these skills are key in the modern world where everyone needs to understand IT. It should have been rated as highly relevant as none of the technical areas can function without the use of IT in the current environment.

In addition procurement and human resource management are two areas where the competence level has turned out to be quite low. No respondents rated their skills at Expert level even though about half of the respondents thought that these two areas were either of Medium or High relevance.

Attitudes

Even if the employees have the right level of knowledge and carry the skills needed to perform their duties, it cannot work without having the right attitude. Therefore an analysis of the different behavioral competencies has been conducted which will be key for the future state of the organization.

	Relevance				A t t i t u d e s	Competency				
	N/A	Low	Medium	High		Novice	Basic	Moderate	Fully Competent	Expert
Accountability	5%	7%	31%	57%		3%	10%	35%	38%	14%
Analyzing & Interpreting	11%	13%	32%	44%		7%	17%	34%	29%	12%
Communications	15%	17%	37%	30%		10%	16%	36%	25%	13%
Direction/Motivation	5%	7%	38%	50%		3%	11%	35%	38%	13%
Enterprising & Performing	5%	5%	31%	59%		2%	9%	32%	43%	13%
Interpersonal	6%	10%	34%	50%		2%	10%	37%	38%	13%
Judgement	5%	10%	36%	49%		3%	11%	36%	39%	11%
Planning & Organising	6%	9%	39%	46%		3%	11%	35%	40%	11%
Team Skills	6%	7%	36%	52%		4%	10%	35%	40%	11%
Technology Savvy & Adaptability	7%	10%	37%	46%		4%	14%	42%	32%	8%

As per the table above, it is quite clear that the employees are well aware of the different soft skills that are needed for performing their jobs, ranging from accountability to team building, use of judgement to communications etc. It is strange to see responses which say that these skills are not applicable to them or are of low relevance, however for most behavioral competencies at least 75% of the employees felt that these skills are either of Medium or High relevance to them.

The competencies identified are in fact all highly relevant for the employees specially those who take day to day operational decisions. The employees

- Should be held accountable and responsible for the decisions they take,
- should have the capability to analyse and interpret different cases,
- should have sound communication ability to send messages with clarity,
- should have the ability to motivate their direct reports,
- should have excellent interpersonal skills to understand what others are saying and get their point across
- should be enterprising and self-driven motivated to perform highly
- should have the ability to exercise judgment where required
- should be able to plan and organize themselves in a way that they are able to deliver efficiently
- should have excellent teaming ability to tackle tasks together with others
- should have an excellent understanding of latest technology and should be willing to change

As per the table above the bulk of the staff has Moderate competencies, at least one third in all cases. A lot of people i.e. another third rated themselves highly i.e. Fully Competent for most behavioral competencies. However measuring these competencies is not very easy and from the interaction with the participants in the six training sessions, the TNA and HRM experts noted that most of the staff lacked the soft skills needed for perform their jobs.

Learning behaviors is a continuous process and it is ok for the majority to think they are not at Expert level as it is very hard to get to that position. Even the senior most members of most organizations have room for improvement when it comes to delivering soft skills. Based on the results of the analysis it is clear that training sessions need to be arranged focusing on:

- how to deal with different members of the society
- how to keep pace with the changes in technology
- how to organize time to ensure efficient delivery
- how to work as a team and motivate one and other
- how to use judgement in difficult situations

Once the curriculum is developed for technical areas, it should also include short modules on soft skills to ensure that once the knowledge and skills have been gained, the attitude to deliver these is also enhanced.

Training

Each of the different thematic areas (thirteen in total) were evaluated for different sub-areas. This exercise focused on

- Identifying the relevance of training required for a particular sub thematic area
- Followed by the level of training required i.e. basic, intermediate or advanced
- And finally the prioritization of the training required i.e. how quickly should it be imparted.

The table below summarizes the priority areas that need to be addressed for the gaps to be closed. The top three sub areas for each theme have been identified. Details are provided in the other sections of the report.

Functional Areas		Training Prioritization
Technical	Environmental Impact Assessments	<ol style="list-style-type: none"> 1. EIA of development projects in Urban areas 2. GIS techniques using in EIA 3. PC I, II, III,IV preparation
	Environmental Modelling	<ol style="list-style-type: none"> 1. Introduction to Air Pollution 2. Air Quality modelling 3. Basics of Air Quality
	Environmental Monitoring	<ol style="list-style-type: none"> 1. Sampling techniques 2. Sample analysis tools 3. Baseline monitoring
	Multilateral Environmental Agreements	<ol style="list-style-type: none"> 1. Climate Change 2. Technology Transfer 3. Amendments
	Environmental Regulation (Laws)	<ol style="list-style-type: none"> 1. Bill, Act, Policy, Rules & regulations 2. Climate Change 3. PEPA 1997 (Amended 2012)

	Environmental Complaints	<ol style="list-style-type: none"> 1. Environmental Laws 2. Code of Criminal Procedure 3. Grievance redress Mechanism
	Environmental Economics	<ol style="list-style-type: none"> 1. Best Available Technology 2. Pollution abatement technologies 3. Efficient Waste minimization techniques
	Environmental Laboratories	<ol style="list-style-type: none"> 1. Standard Operating Procedures for sampling and testing 2. Quality control and Quality assurance 3. Hazards –Physical
Support	Information Technology	<ol style="list-style-type: none"> 1. Maps and Spatial Data Analysis 2. Geographic information system 3. Management information System
	Human Resources	<ol style="list-style-type: none"> 1. Recruitment & Selection 2. Training & Development 3. Compliance & Regulatory Requirements
	Procurement	<ol style="list-style-type: none"> 1. Punjab Procurement Rules -PPRA 2014 2. IAS 16-"Propert Plant and Equipment" 3. Conflict Resolution & Mediation
	Finance	<ol style="list-style-type: none"> 1. Record Management 2. Internal Audit & Internal Controls 3. Automated System for Reporting
	Administration	<ol style="list-style-type: none"> 1. Information Technology (IT) 2. MER (Monitoring, Evaluation & Reporting) 3. Third-party Relationship Management

The table below summarizes the level of training required that is most advanced. The top three sub areas in terms of the level of training required for each theme have been identified. Details are provided in the other sections of the report.

Functional Areas		Training Level - Advanced
Technical	Environmental Impact Assessments	<ol style="list-style-type: none"> 1. GIS techniques using in EIA 2. EIA of foreign funded projects 3. EIA of development projects in Urban areas
	Environmental Modelling	<ol style="list-style-type: none"> 1. Applications of Dispersion Modelling 2. Types of Water Quality Modelling 3. Basics of Air Quality
	Environmental Monitoring	<ol style="list-style-type: none"> 1. Change management 2. Business case writing 3. Team Building & Management
	Multilateral Environmental Agreements	<ol style="list-style-type: none"> 1. Convention and Protocol 2. Types of agreements 3. GSP Plus
	Environmental Regulation (Laws)	<ol style="list-style-type: none"> 1. Law drafting 2. Petition writing 3. PEPA 1997 (Amended 2012)

	Environmental Complaints	<ol style="list-style-type: none"> 1. Microsoft Office (Word, Excel, Power Point, Outlook) 2. Persuasion, Follow ups, Public Dealing and Control 3. Conflict / Problem Resolution
	Environmental Economics	<ol style="list-style-type: none"> 1. Efficient Waste minimization techniques 2. Pollution abatement technologies 3. Best Available Technology
	Environmental Laboratories	<ol style="list-style-type: none"> 1. Standard Operating Procedures for sampling and testing 2. Quality control and Quality assurance 3. International standards and certifications (ISO/IEC etc.)
Support	Information Technology	<ol style="list-style-type: none"> 1. Budget and Resources alignment 2. MS office 3. Risk Management (Contingency Plan)
	Human Resources	<ol style="list-style-type: none"> 1. HR Information Systems 2. Employee/People Orientation 3. Stress Management
	Procurement	<ol style="list-style-type: none"> 1. Negotiation Skills 2. Evaluating Alternatives 3. Third-party Relationship Management
	Finance	<ol style="list-style-type: none"> 1. Capital Requirements 2. Flexibility/Adaptability 3. Persuasion, Follow ups, Public Dealing and Control
	Administration	<ol style="list-style-type: none"> 1. Office Operations 2. General Accounting Principals 3. Compliance/Regulatory Requirements

Section 1
Project Background

Section 1

Project Background

In recent decades, environmental dilapidation is escalating rapidly as a result of human activities and inadvertent management of the technological development of different areas, resulting in significant impact on the ecosystem. Innumerable human activities have induced many detrimental effects to the environment which can be threatening towards human health, natural resources and gene pool of ecosystems such as greenhouse effect, global warming, soil erosion and air pollution.

The **EPA Punjab** has the responsibility for the enforcement of rules, regulations, and guidelines, including some qualitative and quantitative standards for the discharge of effluents, wastes, air emissions, noise etc. in the form of Punjab Environmental Quality Standards (PEQS). Despite the fact that EPA is building on its success with the environment through available regulations/rules including draft ones along with PEQS – the matter of effective implementation still remains a big challenge. The escalating industrialization and exponential growth in technology with its demand for knowledge and skills of the individuals, the need for training and capacity development has become more pronounced.

To cope up with the overreaching issues, the **Environmental Protection Department (EPD)**, Government of Punjab, has engaged the Urban Unit and its partners (EY Ford Rhodes supported by EY France, Saleem Alam & Company and Finnish Consulting Group Asia Pvt. Ltd.) to carry out the institutional restructuring and capacity building of EPD Punjab for effective enforcement of environmental standards in the province. The core objective of the consultancy is to develop an integrated system of environmental governance employing state-of-the-art solutions, including human resource and instruments that meet the present and future challenges of environmental protection, pollution control, sustainable development, and climate change in the province with special emphasis on *capacity building of its staff through training need assessment* in order to achieve organizational objectives.

Section 2
TNA Purpose & Objective

Section 2

TNA Purpose & Objective

The significance of training has long been recognized as an integral part of smooth running of organizations. Reportedly, there is has been no proper TNA conducted at Environmental Protection Agency (EPA) or its associated departments; as a consequence, this has made the training of the staff a supply driven process (with Management and Professional Development Department (MPDD) or senior management referring or suggesting trainings for their staff) rather than being a demand driven process (based on well assessed capacities and current skills in place).

The purpose of the TNA is to ensure that the workforce of EPA and its related agencies have the right mix of KSA (Knowledge, Skill and Attitude) to deliver the desired results in their respective work-streams. It also sets out a training strategy and plan to ensure any gaps that could compromise the delivery of job performance are addressed in timely manner. It is crucial to establish a training system which in turn develops a competent and professional manpower. TNA is used for:

1. Analyzing what training needs are vital/prerequisites for effective training programs; simply conducting training for individuals may miss priority needs, or even cover areas that are not essential.
2. Identifying a comprehensive list of the required Knowledge, Skills and Attitudes (KSA) needed for each job role/family.
3. Enabling the channeling of resources into the areas where they will contribute the most to employee development, enhancing morale and organizational performance.
4. Providing a baseline for preparation of a training plan to develop required KSAs and ensure that staff have the best capacity to deliver desired results.
5. Enabling the institutional arrangements to ensure the delivery of effective training and maximize use of scarce resources; respond to existing context and needs.

For optimal functioning, the workforce of EPA and related agencies need to be equipped with the necessary level of professional knowledge and skills. As per requirements and our understanding of the Terms of Reference (TORs), TNA was carried out with the following aims:

1. Carrying out an assessment of the required competencies for the future state of the environmental institutions
2. Conducting an evaluations of the staff member's existing competencies
3. Devising a training plan to upskill the competencies of the staff
4. Proposing the curriculum based on the TNA exercise conducted

Section 3
Methodology

Section 3

Methodology

SUMMARY OF FOUNDATION CONCEPTS

- A need is a discrepancy or gap between “what is – current state” and “what should be – desired state”. The need is neither the present nor the future state; it is the gap between them.
- A “need assessment” is a systematic set of procedures that are used to determine needs, examine their nature and causes, and set priorities for future action. It is always focused on a particular target group.
- The “need assessment” also sets the criteria to determine effective utilization of scarce resources.

In performing the training need assessment a number of key factors determined the approach and high level methodology. Some of the questions that need to be addressed include:

- What are the roles?
- Who needs to be trained?
- What material needs to be developed?

DETAILED METHODOLOGY

- The TNA process was carried out by the Urban Unit, and EY Ford Rhodes using relevant TNA and HRM experts. The TNA groundwork started with a baseline research exercise, which in turn led to group-wise segregation into thematic areas. Tools were developed which subsequently drove to sample selection to conduct the TNA exercise.



Step 1 – Baseline Research

The purpose of the baseline research was to investigate what is already known about the target group and determine the scope of the need assessment.

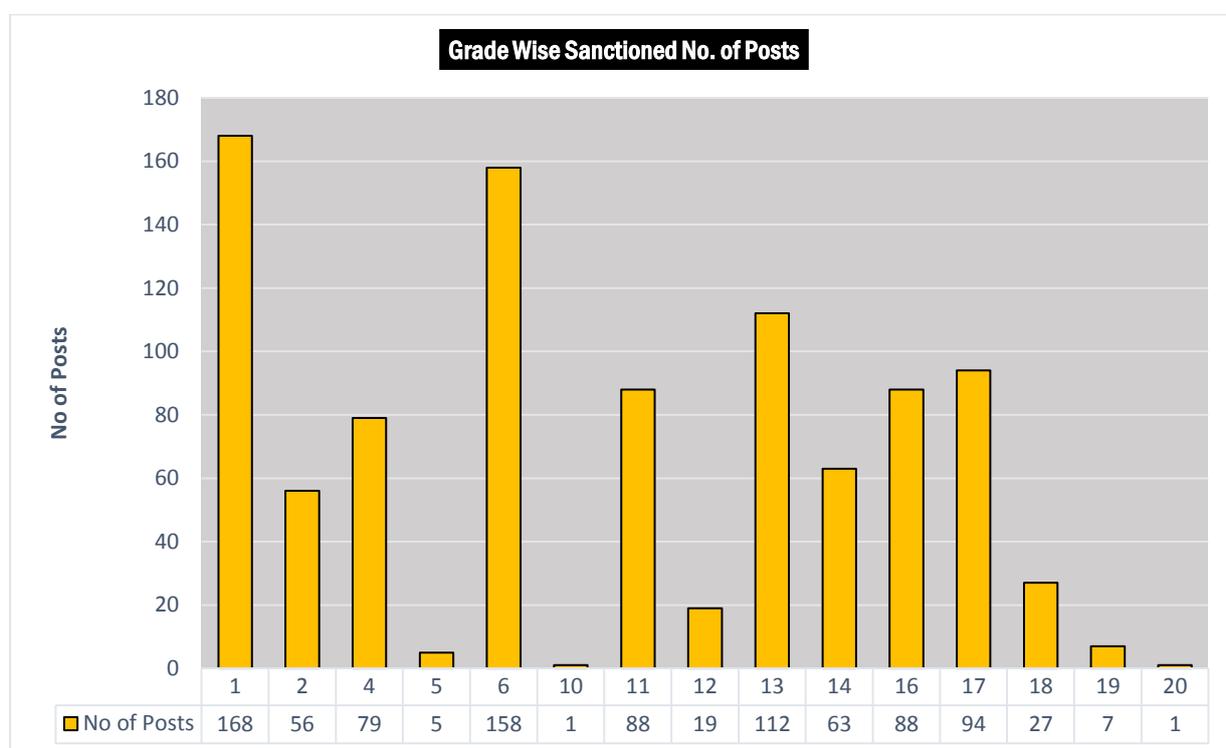
This was carried out as a pre-workshop activity in which data related to HR demographics was collected through a series of interviews and meetings with Director Administration and Monitoring of EPA. The main aim was to identify numbers of employees under various categories.

Subsequently, an independent task and competency analysis was conducted (refer to annexures) to identify the key functions and their summaries of roles and responsibilities (section-wise) using PEPA

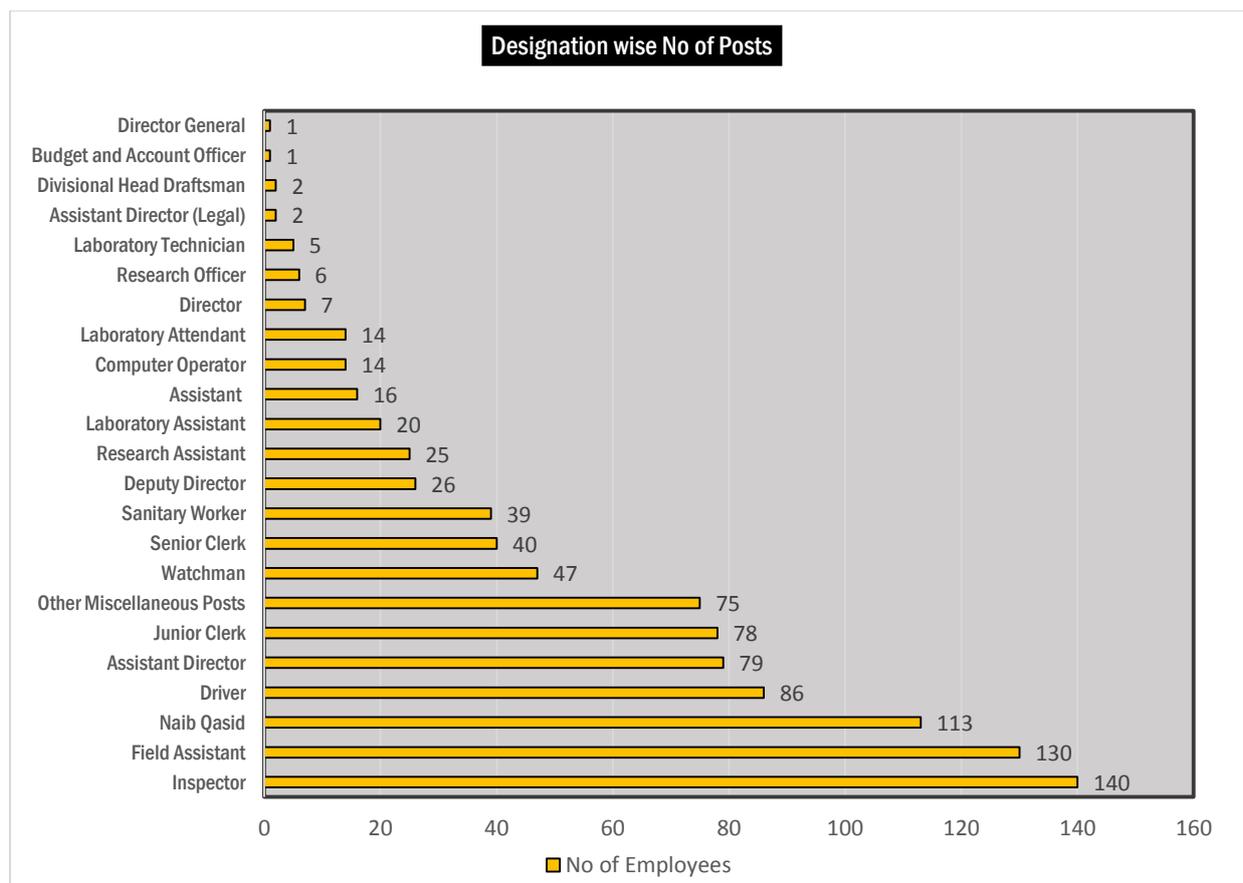
1997 (Amd. 2012), sectoral guidelines, Transactional Flow Reviews (TFRs) (refer to gap report), the website and meetings with senior management. Input from thematic area and subject matter experts was also taken during this phase.

HR Demographic Data

The staff at EPA is spread across a total of 15 BPS Grades (ranging from 01 to 20). As can be seen in the graph below the highest number of budgeted posts are in Grade BPS-1 i.e. a total of 168 which is entry level staff. The total number of budgeted posts for the FY 2017-18 are 966 out of which a total of 464 (about 50% of the workforce) posts lie between Grade BPS-11 and BPS-17 which is the core for smooth functioning of the agency. It is sensible to have the bulk of the workforce within these Grades as technical staff is key for the smooth functioning of the department. Another key Grade for the EPA is BPS-6 where all the laboratory and field assistants sit, thus a high number of approved posts for this level is not out of the ordinary.

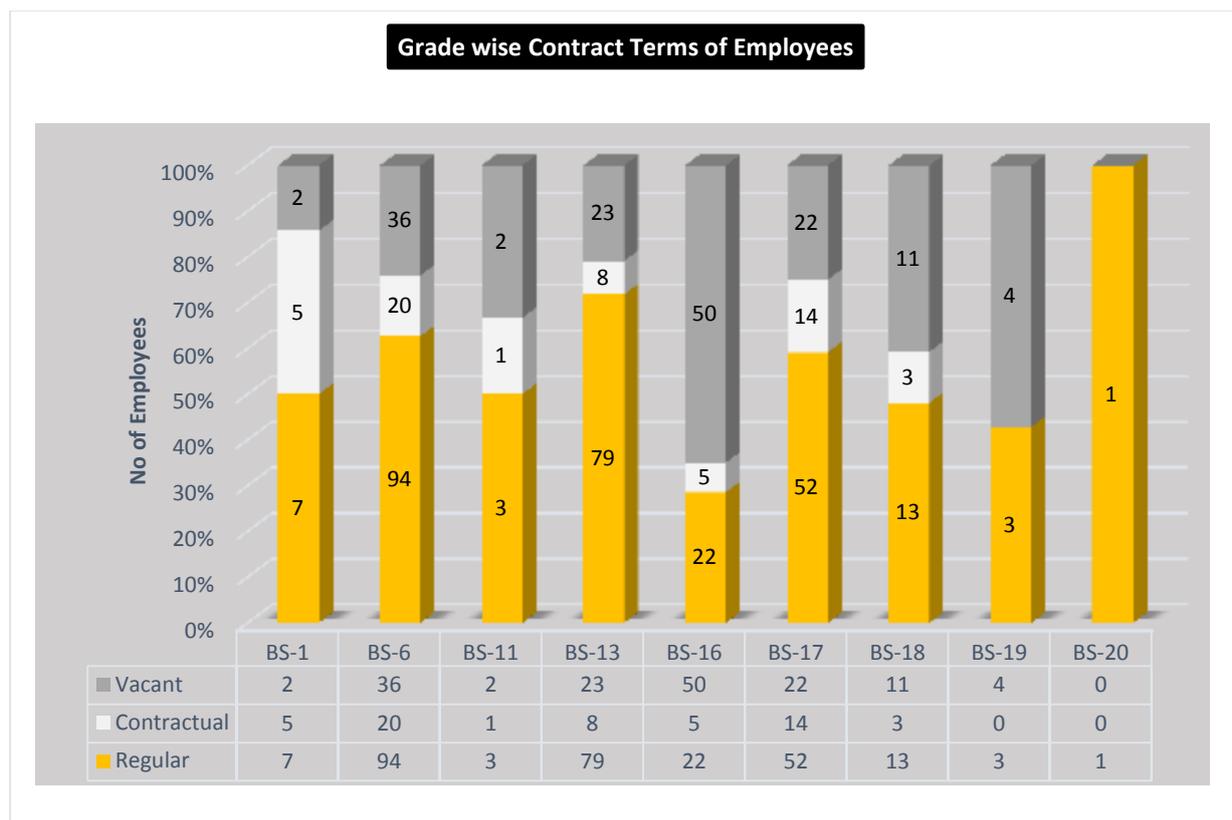


It can be seen in the graph below the maximum number of posts approved are for Inspectors (these include both juniors and seniors) i.e. a total of 140. On average the number of inspectors approved per District amount to just under 04 which is not sufficient given the size and scale of industries in some of the Districts. As per discussions with the management about 600 positions from the budgeted 966 are vacant which immediately highlights the capacity issues that the EPA is facing. The graphs that follow show how a lot of the vacancies are within the Inspector cadre which is not ideal for enforcement.



Note: Other miscellaneous posts includes designations like Chemical engineer, Statistical Officer, Superintendent, Computer Programmer, Database Manager, Librarian and Network Administrator

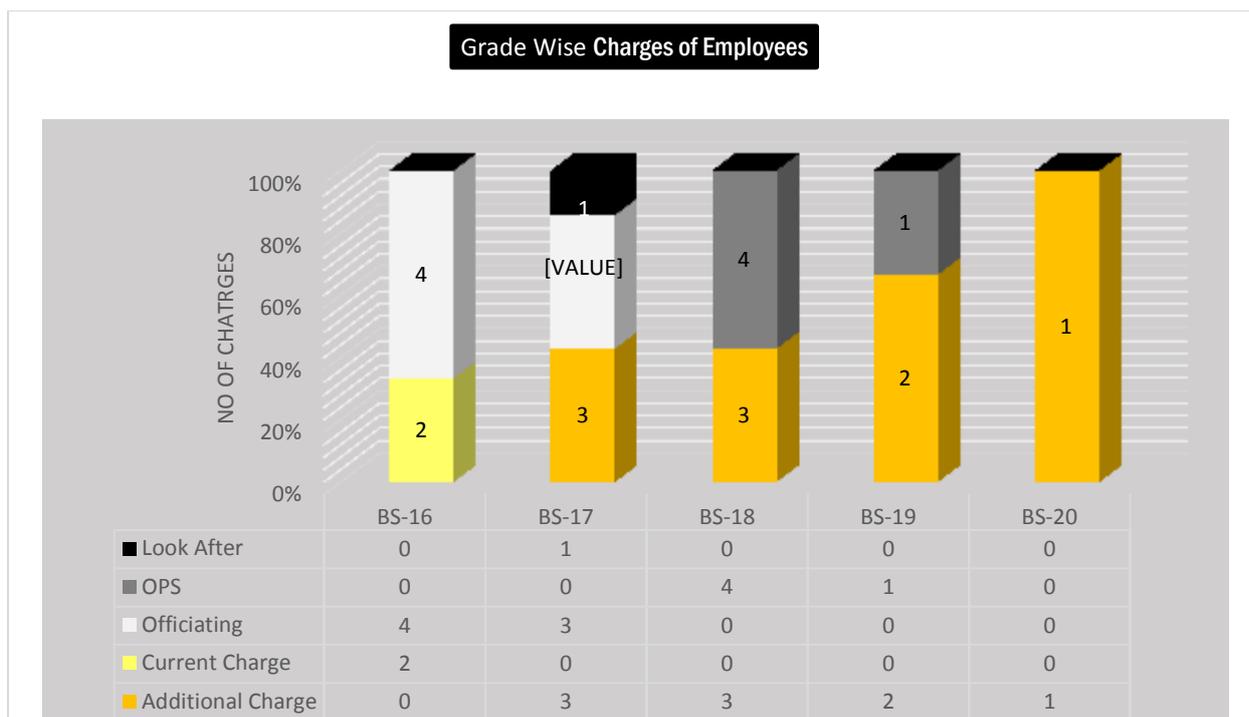
The graph below shows that most posts under Grade BPS-13 and Grade BPS-16 which relate to Inspection staff are vacant, a total of 73. This again highlights the capacity issues. A further 08 posts across these two Grades are contractual positions which means they are not filled by permanent employees, continuity for inspectors is key towards successful implementation. The inspection capacity is quite obviously lacking which in turn results in weak enforcement. Grade BPS-6 also have several vacancies i.e. a total of 36, again a key part of the EPA where the laboratory testing and field work capacity sits.



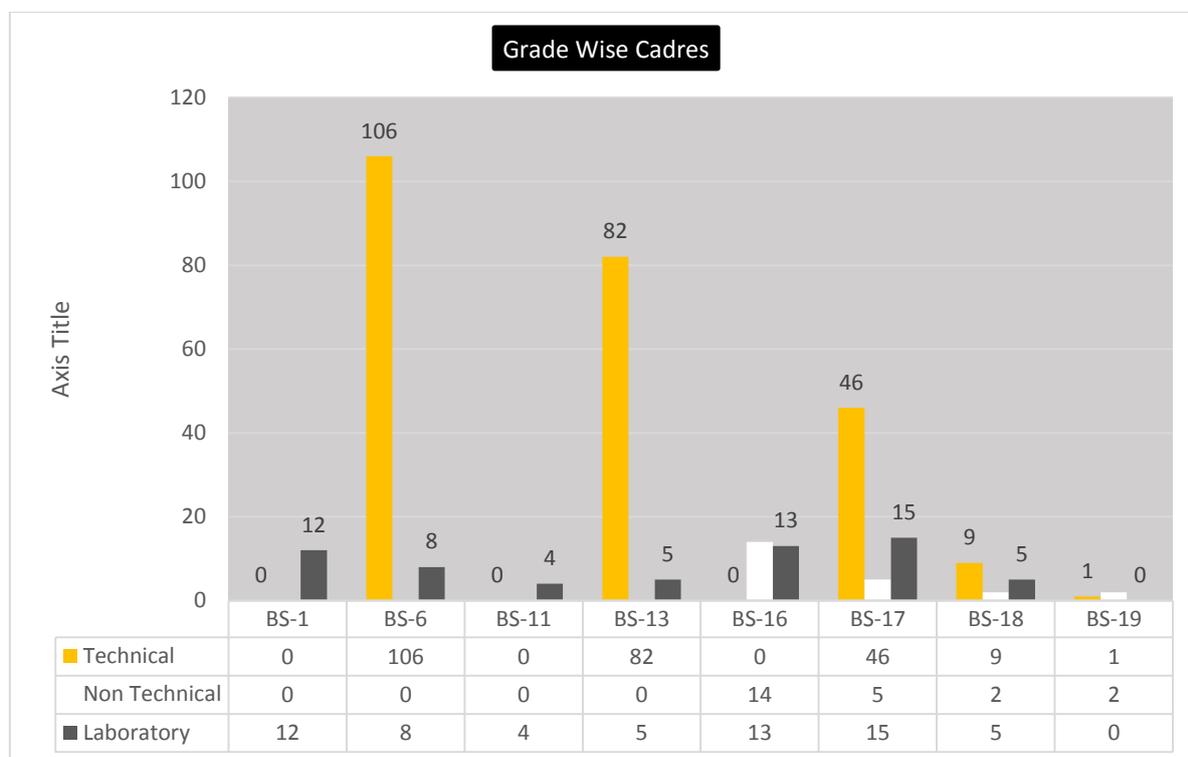
The graph below shows that there are several employees:

- That have Additional Charges which means they are performing two jobs at one time – 9 employees in total.
- That are OPS which means they are drawing a salary of a more senior scale – 5 employees in total.
- That have Officiating Charges which means they are performing two jobs at one time – 7 employees in total

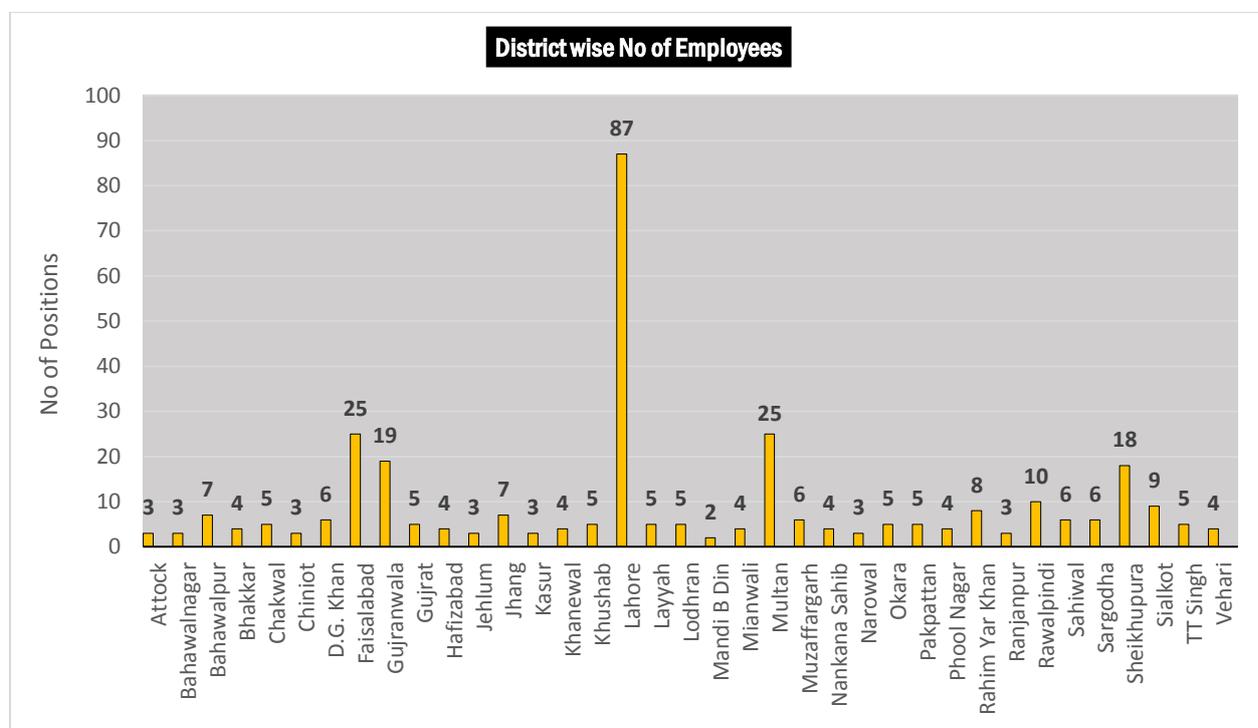
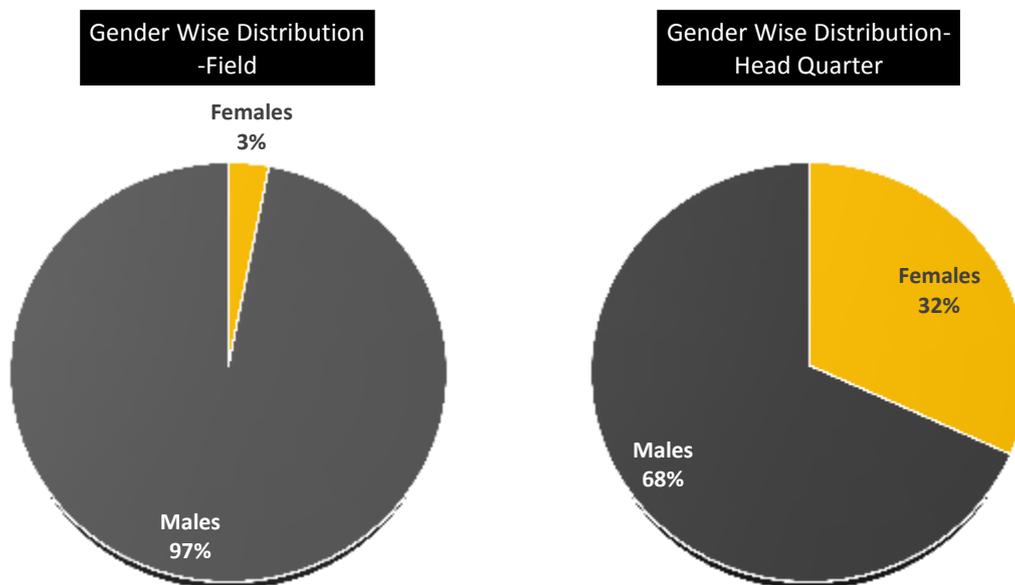
In addition an employee also has Look-After Charge which is also where the person is performing two jobs at one time. From the above data it is quite clear that a lot of the employees in the key management positions i.e. between Grade BPS-17 to BPS-20 are performing more than one role. This not only causes confusion but also highlights the lack of capacity across the key grades. Important management positions require a lot of focus and when an employee is pushed into taking additional responsibility, the performance can fall.



The graph below shows the division of key staff into different cadres i.e. technical, non-technical and laboratory staff. As can be seen the count of the technical staff is gradually decreases as you move upward in the tier ladder with majority falling under Grade BPS-6 and the lowest in BPS-19. Majority of the technical staff in Grade BPS-13 relates to field inspectors and the majority of the laboratory staff is sitting within the Grade BPS-16.



Another key element in the current environment is the presence of a gender balanced team. As can be seen in the graphs below the gender mix is heavily in favor of men. Only about 3% of the field force is female and a more substantial 32% of headquarter based staff is female. Although it is quite difficult for women to be operating in the field, with the access to better transport and communication, it is something that can be improved specially in the more developed districts.



Note: EPA has operations in 37 different localities in 36 districts across Punjab. Only district Kasur has two operational offices – one is in Kasur city and the in Phool Nagar.

Step 2 – Thematic Group Approach

As per the TORs, there were a total of 20 thematic areas. These thematic areas were mapped to the different directorates within EPA's current structure. Subsequent to mapping of thematic areas, individual questionnaires were developed (Step 3 has more details) to assess the current competency levels of participants. In addition, two more thematic areas – Share Service Centre (SSC) and IT (Information Technology) were considered and made part of the evaluation as these would form part of the future state of the organization. A mapping of the thematic areas to the different departments can be seen below.

S#	Sections	Thematic Areas as per TORs	Individual Questionnaires (13 Thematic Areas)	Generic**
1	EIA	<ul style="list-style-type: none"> Environmental Impact Assessment (EIA) Cumulative Environmental Impact Assessment Strategic Environmental Assessment 	EIA	ADP/PC-I & II (12) IT
2	ML&I	<ul style="list-style-type: none"> Industrial Pollution Assessment & Prevention Waste Minimization and Cleaner Production Environmental Sampling Environmental Compliance Monitoring Assessment of Automobile Pollution and Management Hazardous Substances Management Hospital Waste Management Solid Waste Management Multilateral Environmental Agreements Introduction of Treatment Technologies Environmental Laboratory Techniques Environmental Economics Environmental Modeling 	Monitoring, Modelling, Laboratories, Economics, MEAs*	
3	P&C	<ul style="list-style-type: none"> Environmental Compliance Monitoring Environmental Economics 	Complaint, Economics	
4	Legal & Compliance	<ul style="list-style-type: none"> Environmental Laws 	Environmental Laws	
5	EDH	<ul style="list-style-type: none"> Industrial Pollution Assessment & Prevention Waste Minimization and Cleaner Production Assessment of Automobile Pollution and Management Hazardous Substances Management Hospital Waste Management Solid Waste Management Hazardous Waste Management 	Monitoring	
6	MEAs*	<ul style="list-style-type: none"> Environmental Awareness Techniques Multilateral Environmental Agreements 	MEAs	
7	Admin & Monitoring	SSC***	HR, Finance, Admin, Procurement	

* Charge of MEAs is with ML&I Directorate; so relevant questionnaires were filled by personnel of ML&I
** In case of Information Technology, a separate questionnaire was built to collect data from all sections except Admin & Monitoring (SSC) and Legal; on the other hand questions regarding ADP/PC-I & II (12) were asked in different technical questionnaires
*** Share Service Centre (SSC) is part of the future state for non-technical staff - not being part of TORs.

Step 3 – Tool Development

I. Quantitative Data Collection:

To determine the current competency levels of the target group, data was gathered through a total of 13 questionnaires in relation to the desired outcome (future state) and task & competency analysis; namely

1. Complaints
2. Environmental Impact Assessment
3. Environmental Economics
4. Environmental Laws
5. Environmental Modelling
6. Environmental Monitoring
7. Information Technology
8. Laboratories
9. Multilateral Environmental Agreements
10. Finance
11. Human Resources
12. Admin (General) and
13. Procurement.

Aforementioned questionnaires acted as a backbone for carrying out the assessment. These questionnaires were aimed at assessing the required KSA including technical and behavioral components.



A four stage approach was adopted for the questionnaires (copies of compiled blank questionnaires are attached in annexures) which is set out below; along with an additional General Information at the start:

Section A – Role Analysis

This section started with the head of general information seeking details related to designation, grade, section, and education, overall experience/experience with EPA/EPD and employment status

- i. Participants were then asked to list down principal duties/ responsibilities and their level of importance to their job ranging from ‘most important to least important’.

Section B – Gap Analysis

Second section was divided into three main categories i.e. knowledge, skill and attitude.

- Knowledge part of the questionnaire was designed to evaluate the understanding and body of knowledge of the respondent against identified components in their respective thematic area (e.g. Basic Concepts, Analytical Tools etc.).
- Skill was designed with an aim to check the ability of the participant to perform a particular task
- Attitude part assessed the internal drivers/behaviours required to perform the job
 - i. Participants were asked to mark relevance and competency against identified components on a Likert scale ranging from ‘highly relevant to not applicable’ and ‘Novice to Expert’ respectively.

Section C – Training Requirements

This section aimed to identify the training courses/areas that needed attention.

- i. Participants were asked to identify training relevance, required training level and prioritization on a Likert scale ranging from ‘highly relevant to self-learning’, ‘basic to advance’ and ‘high priority to low priority’.

Section D – Learning Style Inventory

- i. Last section of the questionnaires was designed to understand the preference of training delivery options. Furthermore, it also aimed to prepare a pool of opinion regarding participants’ preferences related to training and employee development in EPA/EPD.

II. Qualitative Data Collection:

Followed by quantitative data collection, qualitative data were also gathered through two different means:

Open Ended Discussions

This was carried out at the start of every TNA session followed by introduction; participants were asked about the key issues and challenges they faced while performing their jobs. Session was carried out by a moderator and a facilitator who was responsible for taking notes.

Thematic Area Group Discussions

It was carried out at the last of every TNA session; total participants were divided into thematic areas (refer to thematic group approach). Each group was led by respective thematic area expert who triggered discussion regarding understanding of knowledge/skills required to perform their job in line

with the future state. Followed by discussion, the activity ended by concluding courses/training they require to perform their job. The results were concluded on a chart paper in four major components – objective, course topic, time frame and preferred learning style.

Step 4 – Sample Selection

Non-probability judgmental sampling was used to identify the target groups.

- A total of 23 positions were selected representing varied grades starting from Director General, Director, Deputy Director, Assistant Director, Inspector, Field Assistant, Laboratory Attendant etc. whereas, there were several positions that were not considered such as Tracer, Driver, Naib Qasid, Electrician etc. (for more details please refer to annexures). Sample selection conducted by TNA and HRM experts, aimed to ensure that the assessment exercise covered all those positions which are likely to be key in the future state of the organization from a technical perspective and will be likely to play a critical role in organizational change process. Any positions that were generic and did not require technical environmental expertise were excluded from the sample.
- The identified number of positions were clumped into two main clusters i.e.
 - Grade \geq 17 and
 - Grade \leq 16

The segregation of clusters were based on the premise that the upper tier is usually responsible for strategic insight, giving directions and managing performance whereas the mid-low level staff is what forms the foundation of the organization involved in day to day operations. Based on this bifurcation, only the relevant questionnaires developed (explained in step 3) were shared with the two clusters of staff. The thirteen questionnaires designed for the TNA exercise, were divided on the bases of the nature of work and also the tier that the employee sits in. E.g. participants representing Grade \geq 17 in P&C section were required to fill ‘Complaint, Economics and IT’ questionnaires; whereas, for Grade \leq 16, they were only required to fill the ‘Complaint’ questionnaire. The table below summarizes this approach.

Note: Field staff (technical) who were associated with all sections representing grade 18, 17, 13 and 6 were distributed among all department/sections to ensure balanced coverage and authentic response, as they work with different sections. For more details, please refer to annexures

S#	Section	Questionnaires to be filled	Grade s
1	EPD	All Questionnaires	17 & Above
2	ML&I	Labs, Monitoring, Modelling, Economics, MEAs and IT	
3	Admin & Monitoring (Lab)		
4	EIA	EIA and IT	
5	EDH	Monitoring and IT	
6	P&C	Complaint, Economics and IT	
7	Admin & Monitoring (Non-Tech)	SSC (HR, Admin, Finance, Procurement)	
8	L&C	Environmental Laws	
9	Admin & Monitoring (Tech)	Segregated among all sections	
10	ML&I	Monitoring and Labs	16 & Below
11	Admin & Monitoring (Lab)		
12	EIA	EIA	

13	EDH	Monitoring
14	P&C	Complaint
15	Admin & Monitoring (Non-Tech)	SSC (HR, Admin, Finance, Procurement)
16	L&C	Environmental Laws
17	Admin & Monitoring (Tech)	Segregated among all sections

A total of six TNA sessions (S-1 to S-6) were arranged to cover the selected sample (refer to below table) – each session included 45-60 participants. A summary is given in the table below.

Thematic Area/Section	S-1	S-2	S-3	S-4	S-5	S-6	Grand Total
DG	1						1
EPD	1						1
EDH	8		56			10	74
Admin & Monitoring (Technical)	4		49			10	63
EDH	3		7				10
Secretary/EDH	1						1
EIA	9				57	11	77
Admin & Monitoring (Technical)	9				52	11	72
EIA					5		5
Legal	6						6
L&C	6						6
ML&I	9	59				13	81
Admin & Monitoring (Lab)	1	13					14
Admin & Monitoring (Technical)						13	13
ML&I	8	46					54
P&C	10			56		11	77
Admin & Monitoring (Technical)	9			49		11	69
P&C	1			7			8
SSC	3					11	14
Admin & Monitoring (Non-Tech)	3					11	14
Grand Total	46	59	56	56	57	56	330

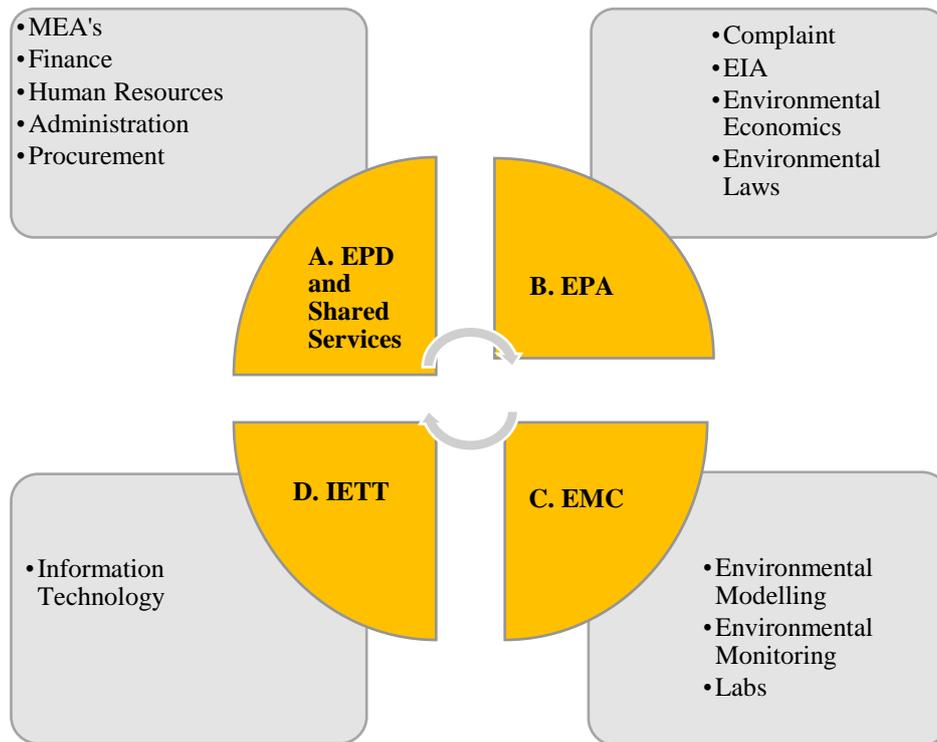
Section 4
Results & Findings

Section 4

Results & Findings

INTRODUCTION (Gap Analysis – Mapped to Future State)

In this section the number of responses received from thirteen functional areas have been collated and mapped accordingly to the future state. Its classification is represented in the below chart:



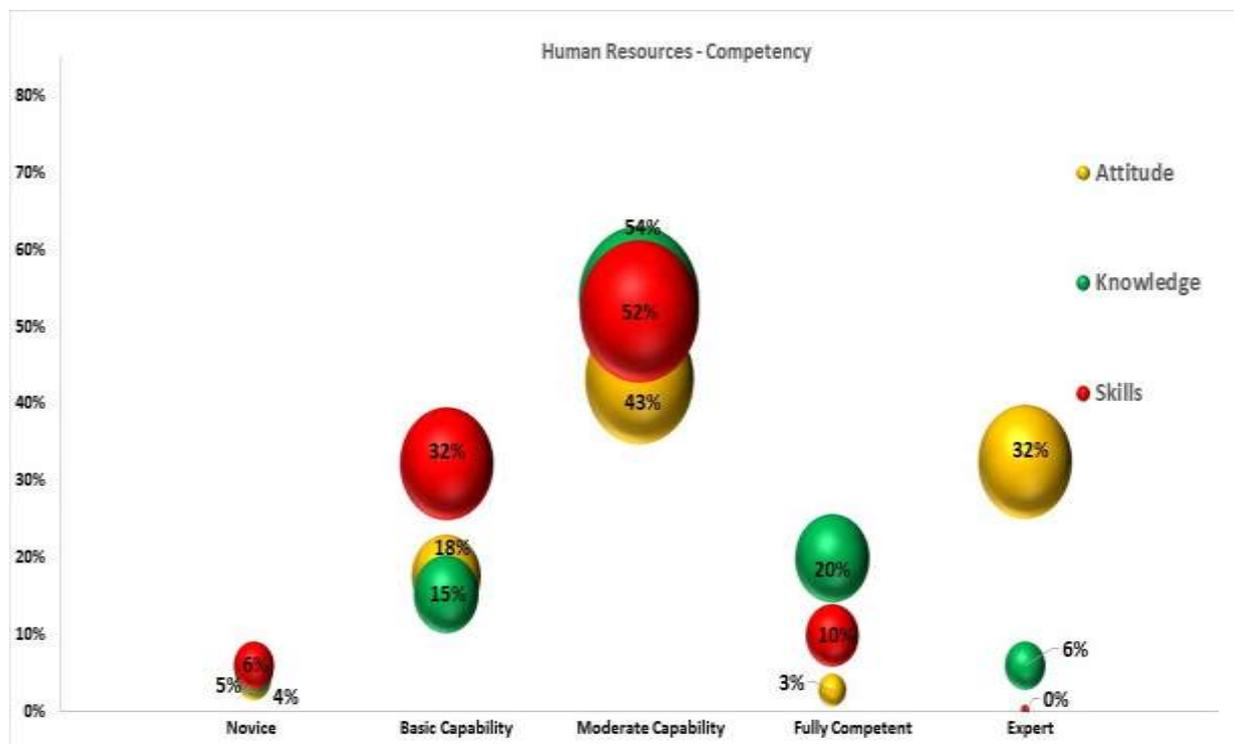
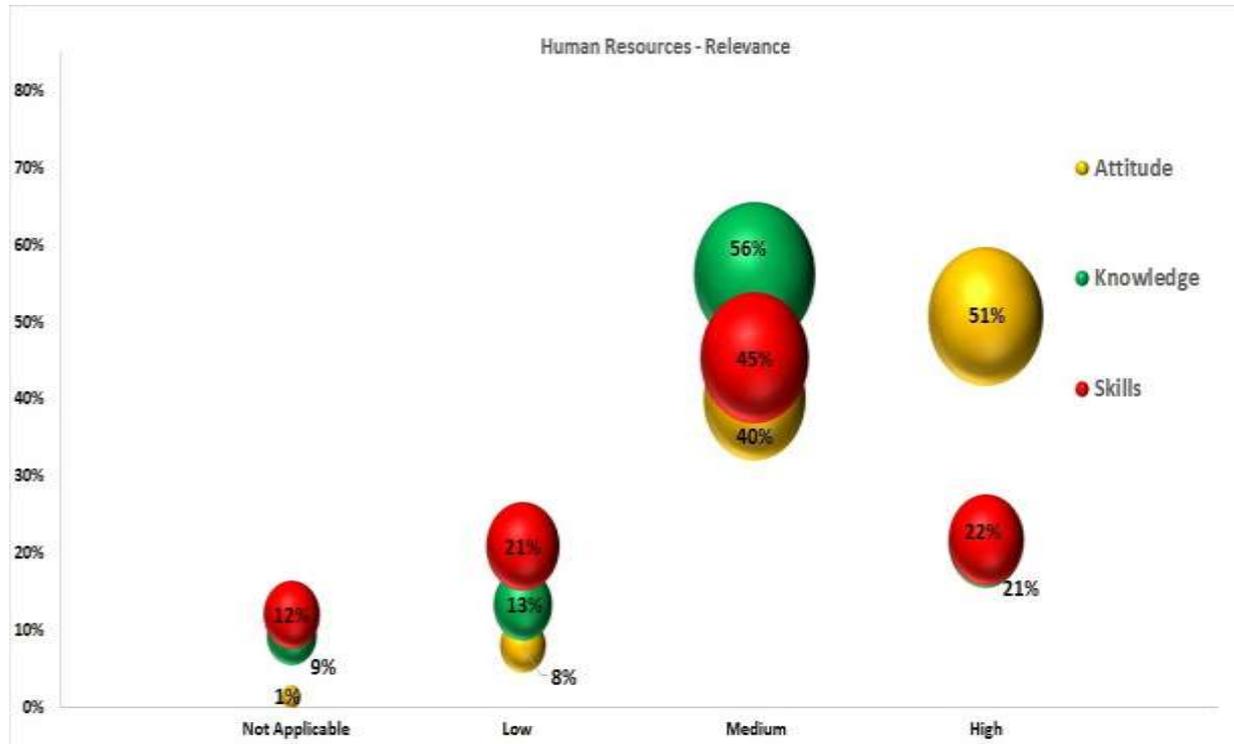
The gap analysis is done on the basis of KSA (Knowledge, Skills and Attitude), where observations are noted for each KSA relevance and its rated competency. Inferences are made on the comparative analysis between the respective relevance and competency. Relevance rating ranges from 0-3 with '3', '2' and '1' signifying relevance at high, moderate and low levels respectively. While '0' expresses non applicable. Likewise for competency its rating ranges from 1-5, with 1 representing competency at the lowest level, gradually increasing with the increase in number (i.e. 1=Novice, 2= Basic Capability, 3= Moderate Capability, 4= Fully Competent and 5= Expert (Able to teach others))

This process is continued to Training section also, where observations are noted for required training relevance, level and priority and inference are made on their correlation. Relevance rating remain same as of KSA, while training levels were rated from 1-3 where 1 represents the basic level, 2 indicates an intermediate stage and 3 specifies an advance level and training priority is ranked from a scale of 1-3 where 1 indicates the 1st (highest) priority, 2 shows 2nd priority while 3 represents the 3rd (lowest) priority.

Gap analysis is followed by overall learning style required for training delivery and summary of issues & recommendations received by respondents via questionnaires and workshop sessions.

A. EPD and Shared Services

1. HUMAN RESOURCE

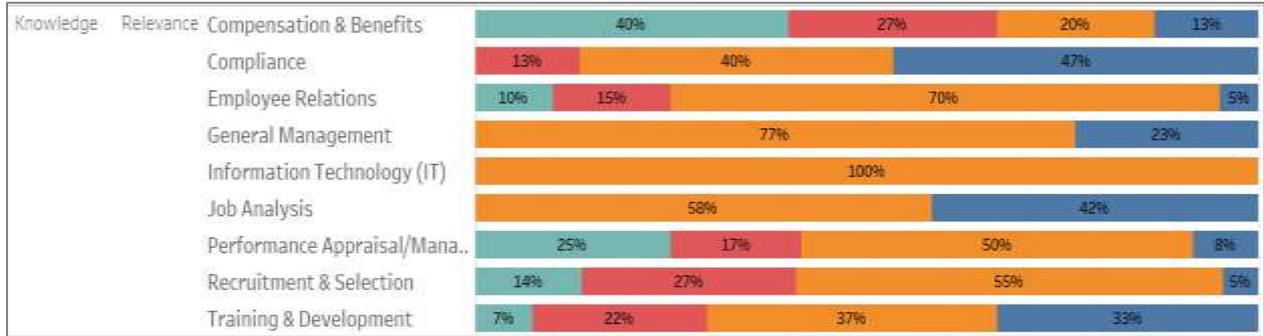


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Human Resources relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

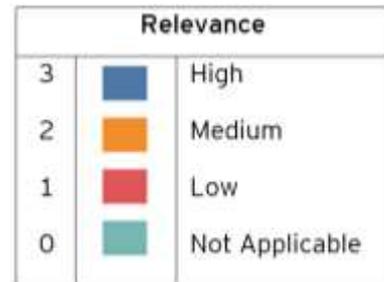
Section B: Gap Analysis (Human Resource)

I. Knowledge

Relevance

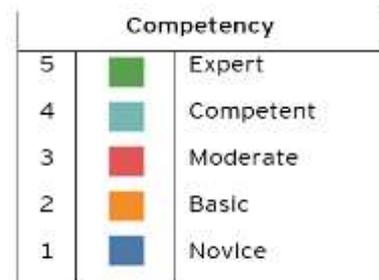


The knowledge questions portrayed under Human Resources sets out the criteria to evaluate the understanding of the respondent against identified components (Compensation & Benefits, Compliance, Employee Relations, General Management, Information Technology, Job Analysis, Performance Appraisal/Management, Recruitment & Selection and Training & Development).

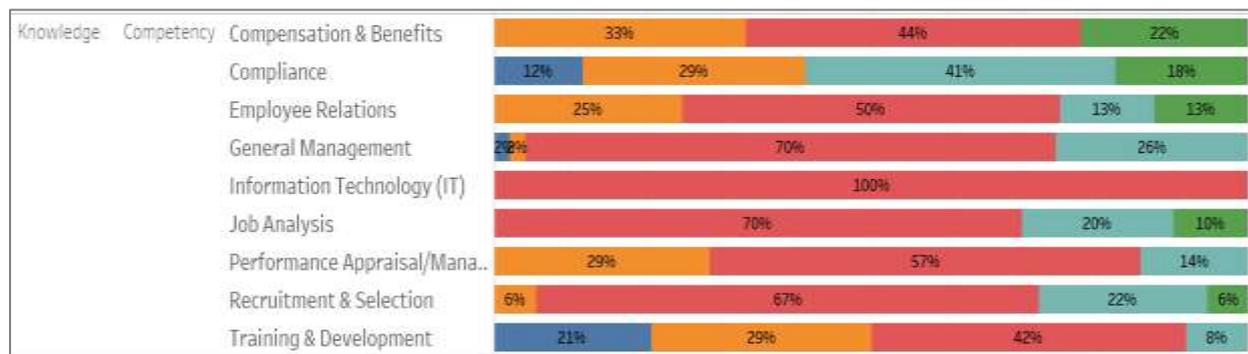


General Observations:

- 40% of the employees rated ‘compensation & benefits’ to be not applicable at their current job. On the other hand nearly 50% of the participants rated compliance to be highly relevant
- In 08 out of 09 components, majority of the respondents fall under the category of moderately relevant ranging from 37% to 100%
- ‘Job analysis’ and ‘training & development’ have also been marked highly relevant in comparison with other elements constituting HR’s function ranging from 33% to 42%
- ‘General Management’, ‘IT’ including HRIS ‘job analysis’ were the only components which are either being marked highly or moderate relevant
- ‘Compensation & benefit’ is the only component in HR who is being considered (around 70%) low relevant or not applicable to current functions of HR.



Competency



General Observations:

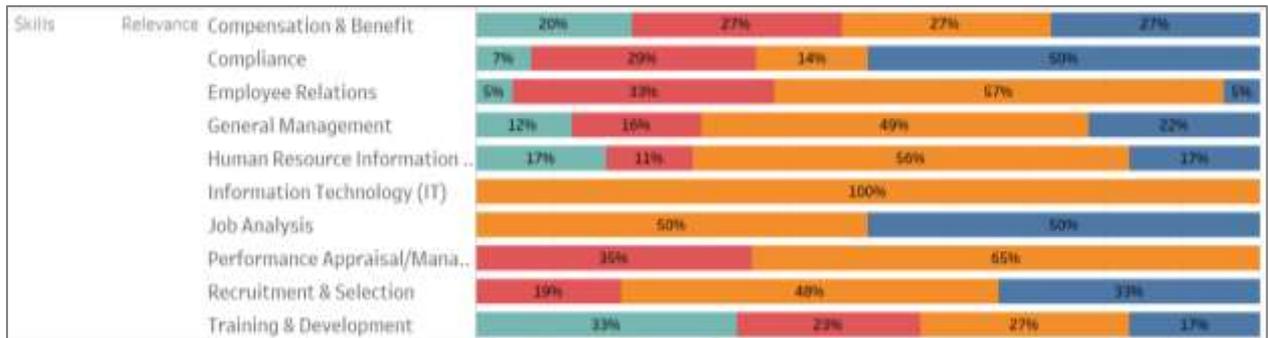
- More than 1/5 of the respondents have marked their competency level as expert in 'compensation & benefits'; whereas, in 'general management' only 02% of the individuals have marked their competency at novice
- In 08 out of 09 components, majority of the respondents fall under the category of moderately competent ranging from 42% to 100%
- 'Compliance' is the only component where around 60% of the individuals have marked their competency at competent to expert level; where rest of the employees have marked their competency level at novice or basic in nature
- 'Information technology' including HRIS is the only component where the all of the individuals (100%) fall under the category of moderately competent
- 'Compensation and benefits', 'employee relation', 'performance appraisal/management' and 'training & development' are the only components where respondents have marked their competency at either novice or basic level ranging from 21% to 33%.

Inferences:

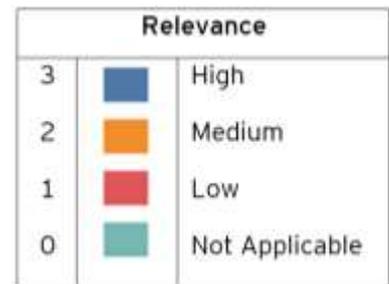
- In 'compensation & benefit', around 70% of participants have rated it to be no and least relevant which is in harmony with their competency level at basic or moderate 80%
- In 'compliance', 87% of participants have ranked it to be medium or high relevance; whereas more than 40% of employees have marked their competency level at novice and basic
- In 'employee relation', 75% of the participants rated it to be medium or high relevance; whereas only 1/4 (approximately) of the employees are either competent or expert
- In 'general management', 100% of the respondents rated it to be medium or high relevance which is in contradiction with their competency level representing only 26% of the population falling under the category of competent and 0% in expert level
- In 'general management', 100% of the respondents rated it to be medium or high relevance which is in contradiction with their competency level representing only 26% of the population falling under the category of competent and 0% in expert level
- In 'job analysis', 100% of the participants rated it to at medium or high relevance; whereas only 30% of the respondents have marked their competency at either competent or expert
- In 'training & development', 70% of the employees have marked it medium or highly relevant to their job but only 08% employees are fully competent.

II. Skills

Relevance

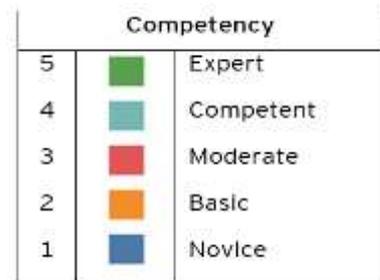


The skill questions portrayed under Human Resources sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Compensation & Benefits, Compliance, Employee Relations, General Management, Information Technology, Job Analysis, Performance Appraisal/Management, Recruitment & Selection and Training & Development).

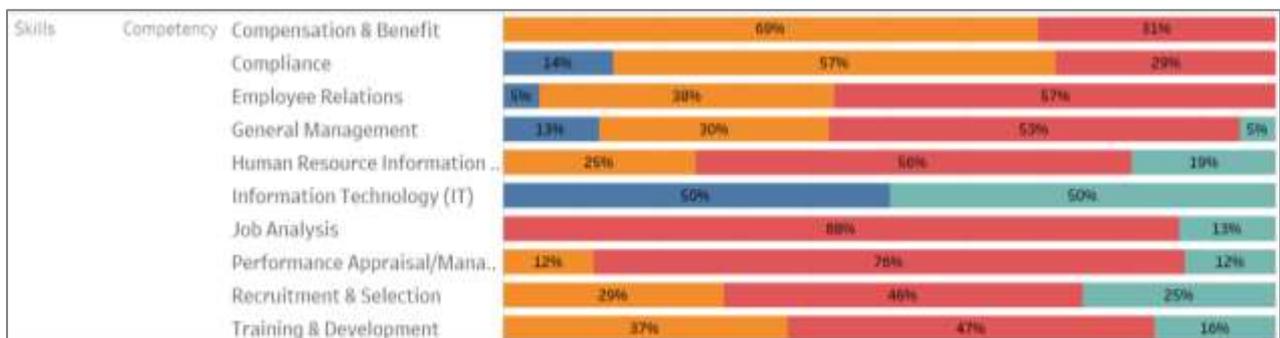


General Observations:

- Half of the respondents have marked ‘compliance’ and ‘job analysis’ skills relevant to their job; on the other hand skill of ‘training & development’ have been marked least relevant (33%) among other components of HR
- In 07 out of 10 components, majority of the respondents fall under the category of moderate relevance ranging from 48% to 100%
- Skill of ‘recruitment & selection’ and ‘compensation & benefits’ have also been marked highly relevant in comparison with the other components ranging from 27% to 33%
- Skill of ‘information technology’ and ‘job analysis’ were the only two components which are either being marked highly or moderate relevance (50% to 100%)
- ‘Performance appraisal/management’ skills is also being marked two tailed from moderate to medium relevance ranging from 35% to 100%.



Competency



General Observations:

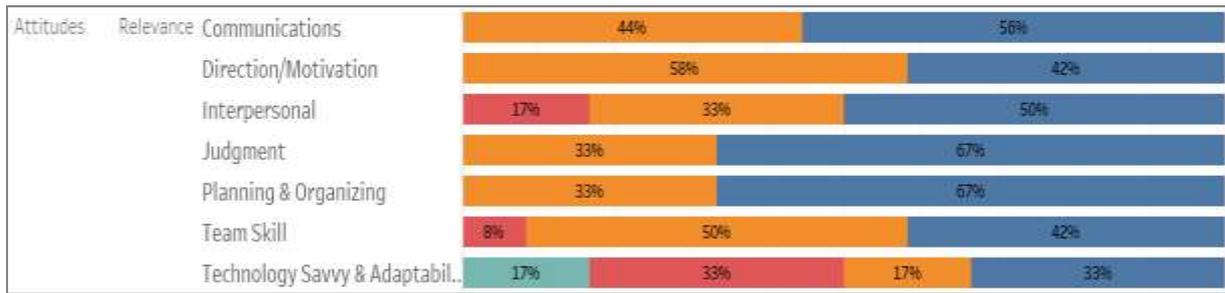
- Half of the population have marked their competency in skill of ‘information technology’ at competent level; whereas the other half have marked at novice
- In 09 out of 10 components, majority of the participants fall under the category of moderately competent ranging from 29% to 88%
- Around 70% of the participants have marked participants have marked their competency in ‘compensation & benefit’ skill at basic level
- ‘Job analysis’ skill is the only component being marked at around 4/5 of the total participants at moderate level
- More than 70% of the participants have ranked their competency in ‘compliance’ skill at novice and basic level.

Inferences:

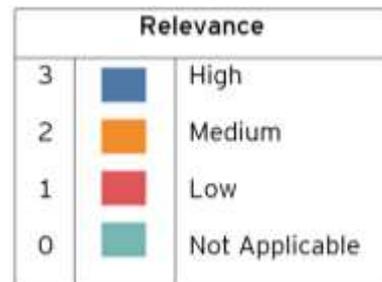
- In ‘compensation & benefit’, more than 50% of the participants have rated it to be medium and high relevant which is in contradiction with their competency; as majority of the participants (69%) falls at basic level
- In ‘compliance’, 50% of participants have ranked it to be highly relevant with their job but more than 80% of the respondents have either basic or moderate competency
- In ‘general management’, more than 70% of the respondents have ranked it to be medium or high relevance; whereas only 05% of the employees are competent under this domain
- In human resource information system, more than 70% of the employees fall under the category of medium to highly relevance; on the other hand only 1/5 of the participants have marked their competency at fully competent.
- In ‘information technology’, 100% of the participants have marked their relevance at medium level; whereas half of the participants possess novice level competency
- In job analysis, 100% of the participants rated the level of relevance either at medium or high; whereas only 13% of the respondents have marked themselves at competent level
- In ‘recruitment & selection’, almost 80% of the respondents marked themselves at medium and high relevance; but major chunk (nearly 50%) possess medium level competency.

3. Attitudes

Relevance

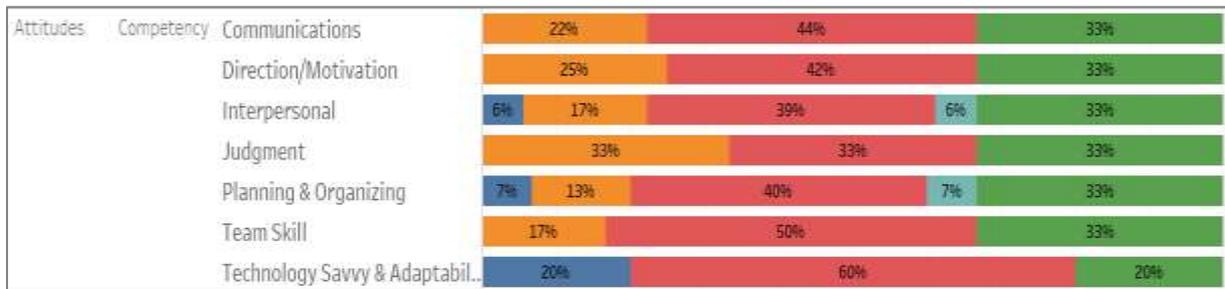


The attitude questions portrayed under Human Resources sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Communication, Direction/Motivation, Interpersonal, Judgement, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.



General Observations:

- ‘Judgement’ and ‘planning & organizing’ have been ranked highly relevant at 67%
- Half of the participants were of the opinion that ‘technology savvy & adaptability’ is less or not relevant to their job
- All components have been marked highly relevant ranging from 33% to 67%.



General Observations:

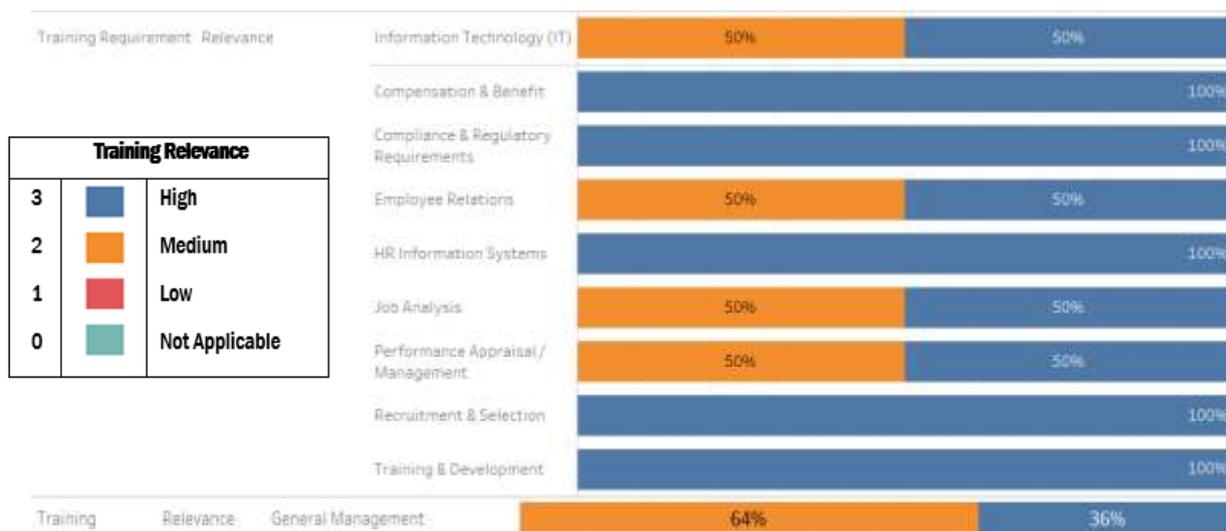
- In 06 out of 07 components, 1/3 of the participants have ranked their competency at expert level
- Majorly all component have been marked at moderate competency level ranging from 33% to 60%
- 1/5 of the population has ranked their competency in ‘technology savvy & adaptability’ at novice levels

Inferences:

- 100% of the participants are of the opinion that communication is of medium and high relevance to their job; whereas, 66% of the participants have ranked themselves basic or moderate level in competency
- In relevance of ‘direction/motivation’, all participants fall under either high or medium ranges from 42% to 100% which is in contradiction with their competency level as 67% of the participants fall between the category of basic and moderate
- In ‘interpersonal’, more than 80% of the participants have rated their relevance from medium to high; on the other hand, only 39% are those individuals who are either competent or at expert competency level
- ‘Judgement’ and ‘planning & organizing’ have been equally marked at relevancy ranging from 33% to 100% but on competency level participants rated themselves at novice to moderate cumulatively ranging from 66% (‘judgement’) to 60% (‘planning & organizing’) respectively
- In ‘team skills’, 92% of the individuals have assigned medium to high relevance; but on competency end, 67% of the participants have marked themselves on basic and moderate level.

Section C: Training Requirements (Human Resource)

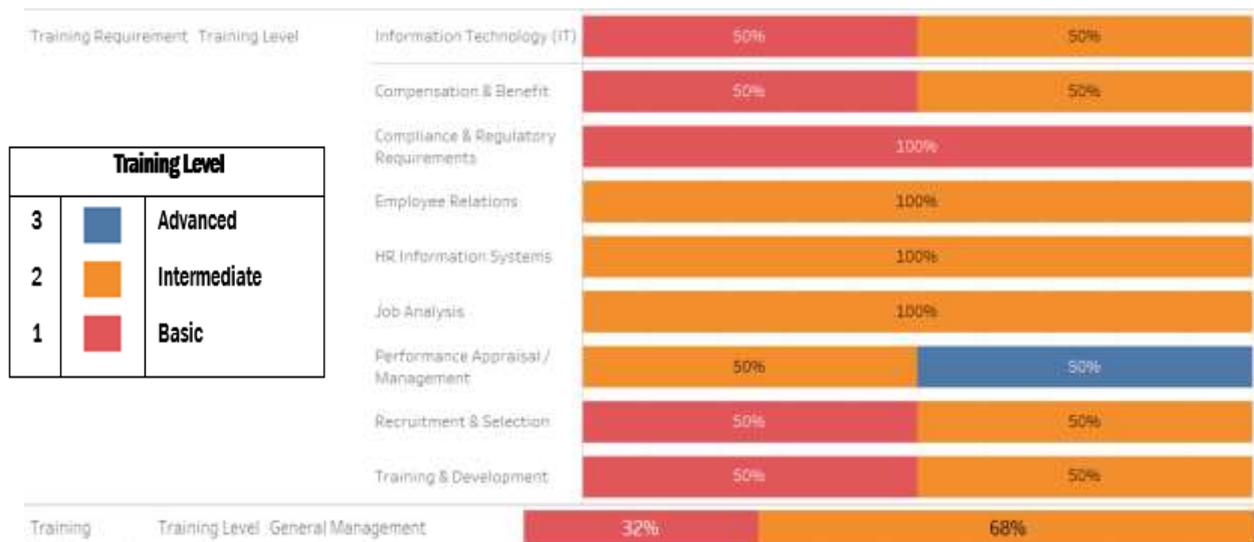
I. Training - Relevance



General Observations:

- 64% of the respondents ranked components of ‘general management’ as moderate relevance; on the other hand only 36% individuals rated it as highly relevant
- 100% of the population rated ‘Compensation & Benefit’, ‘Compliance and Regulatory Requirements’, ‘HR information Systems’, ‘Recruitment & Selection’, and ‘Training & Development’ as highly important components by marking it as highly relevant with respect to job requirements.
- On the other hand four of the components have been marked either highly or moderately relevant i.e 50% for both of the categories in each of the respective components.

II. Training Level



General Observations:

- Majority of the respondents (68%) ranked training level requirement of ‘general management’ component at intermediate level; whereas, rest marked at basic level.
- ‘Performance Appraisal/Management’ being the only component where half of the respondents required advanced level trainings for the said component.
- Three of the components i-e ‘Employee Relations’, ‘HR Information Systems’, ‘Job Analysis’ have been marked at intermediate level training by 100% of the population in each of the said components.
- For the element ‘Compliance & Regulatory Requirements’ 100% of the population rated it at basic level.

Training Prioritization



General Observations:

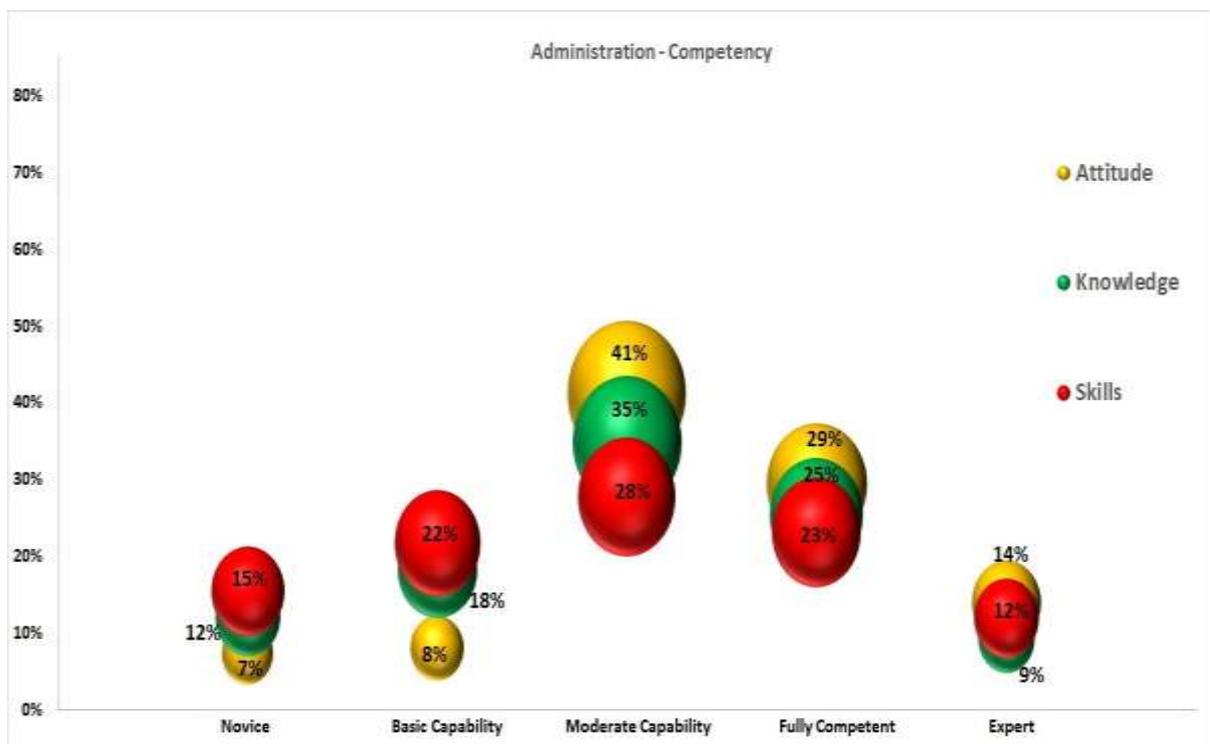
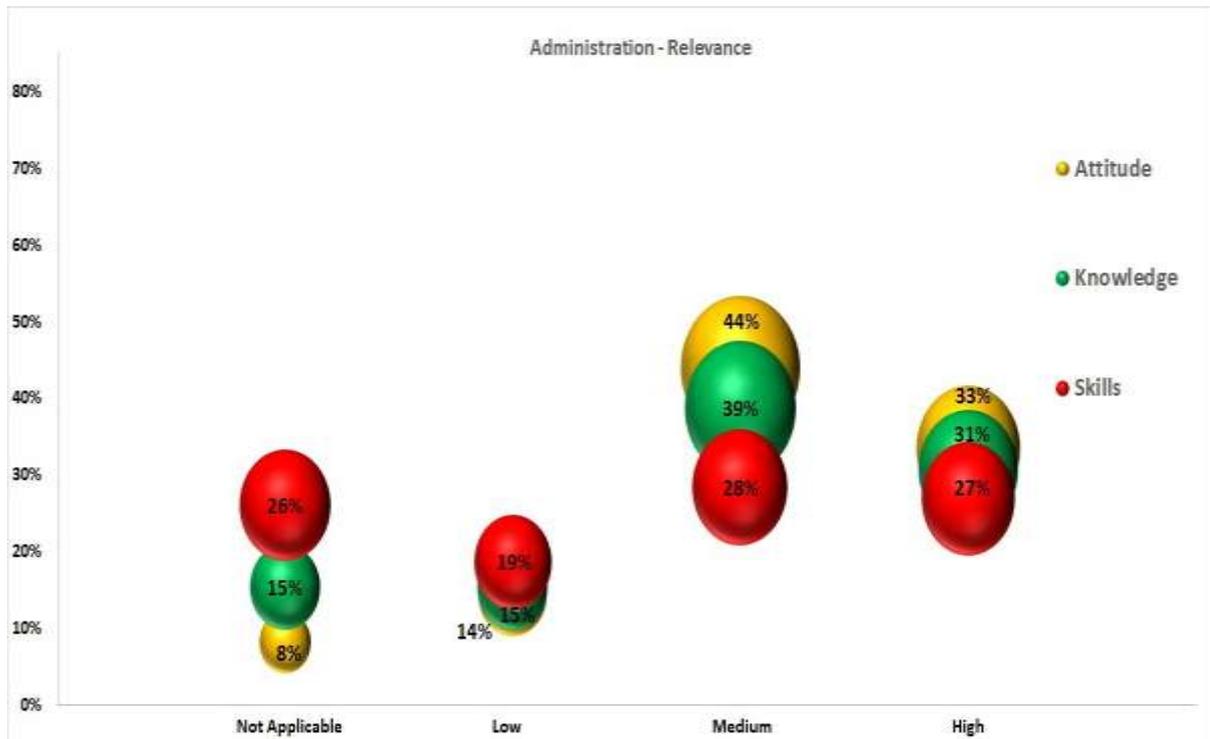
- More than 70% of the individuals prioritized the training requirement of ‘general management’ at moderate level whereas 100% of the population rated ‘HR Information Systems’ at the same level.

- The aforesaid % is 50 in five of the components 'Information Technology', 'Compensation & Benefits', 'Employee Relations', 'Job Analysis', and 'Performance Appraisal & Management'
- 100% of the population rated 'Compliance & Regulatory Requirements', 'Recruitment & Selection', and 'Training & Development' the most prioritized elements with priority level 1.

Inferences:

- Majority of the participants need to be trained at intermediate level in components of 'Information Technology', 'general management', 'Compensation and Benefit', 'Recruitment & Selection' and 'Training and Development' under moderate priority (P2) and high priority (P1), while the percentage being 100 for training level in three of the components i-e 'Employee Relations', 'HR Information Systems', and 'Job Analysis'
- 100% of the population marked five components i-e 'Compensation & Benefit', 'Compliance & Regulatory Requirements', 'HR Information Systems', 'Recruitment & Selection' and 'Training and Development' as highly relevant with their job requirements while none of the respondents in the respective elements ranked for advanced level training
- All of the elements falling under Human Resource have been considered highly or moderately relevant with none being irrelevant or of low relevance with job requirements.
- Majority of the elements falling under Human Resource have been considered at priority level 1 i-e high priority and none of the elements have been rated at level 3 i-e at least priority.

2. ADMINISTRATION - GENERAL



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Administration relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

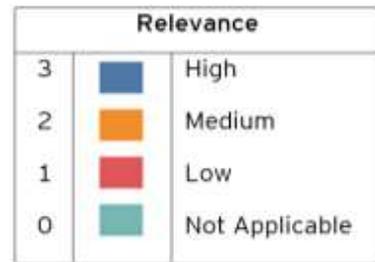
Section B: Gap Analysis (Admin-General)

I. Knowledge

Relevance



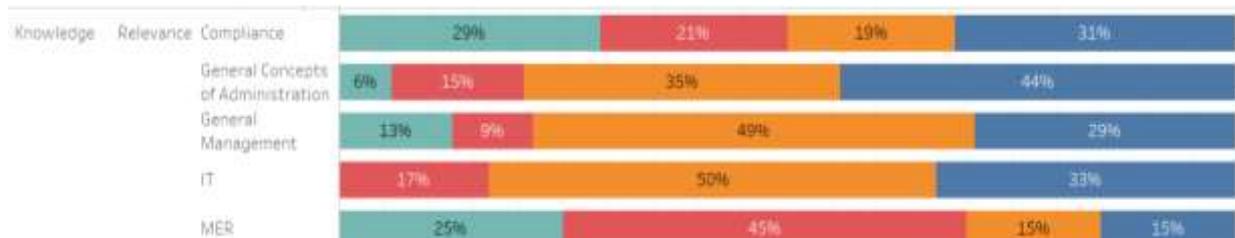
The knowledge questions portrayed under Admin sets out the criteria to evaluate the understanding of the respondent against identified components (Compliance, General Concepts of Administration, General management, IT and MER).



General Observations:

- 29% of the employees rated ‘compliance’ to be not applicable at their current job. On the other hand 44% of the participants rated general concepts of administration to be highly relevant
- In 03 out of 05 components, majority of the respondents fall under the category of moderately relevant ranging from 35% to 50%
- ‘General management’ and ‘IT’ have also been marked highly relevant in comparison with other elements constituting Admin’s function 29% and 33% respectively
- ‘MER’ is the only component in Admin which is being considered (around 70%) low relevant or not applicable to current functions of admin
- ‘IT’ is the only component which is considered to be an integral part of admin because no one has marked it as irrelevant.

Competency



General Observations:

- About 1/5 of the respondents have marked their competence as expert in ‘MER’; whereas, in general concepts of administration only 05% of the individuals have marked themselves at novice
- In all components, majority of the respondents fall under the category of moderately competent ranging from 21% to 59%
- General concept of ‘administration’ is the only component where around 50% of the individuals have marked their competency at fully competent to expert level



- ‘IT’ and ‘MER’ are the components where majority of the respondents (around 60%) have marked their competency to be at moderate level.

Inferences:

- In ‘compliance’, more than 30% of the participants are of the opinion that it is highly relevant with their current job; whereas more than 70% of the participants possess novice, basic or moderate competency levels
- Nearly 80% of the population consider ‘general concept of administration’ to be moderately or highly relevant with their jobs but only 48% of the participants fall under the category of either fully competency or expert
- Almost 80% of the population consider ‘IT’ to be moderately or highly relevant with their jobs but only 09% of the participants fall under the category of expert
- 70% of the participants consider component of ‘MER’ as low or irrelevant with their jobs and likewise around 60% of the participants possess moderate level competency.

II. Skills

Relevance



The skill questions portrayed under Admin sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (General Concepts of Administration, General management, IT and MER).

Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

General Observations:

- About half of the respondents (46%) have marked ‘IT’ skills highly relevant to their job; on the other hand ‘MER’ has been marked least relevant (50%) among other components of admin
- ‘General concept of administration’ and ‘general management’ have also ranked on high relevance side ranging from 22% to 33%
- ‘General concept of administration’ and ‘general management’ have also been marked irrelevant ranging from 23% to 27% respectively
- Skills in ‘IT’ is the only component which is not being marked as irrelevant

Competency



General Observations:

- 1/5 of the respondents have ranked their competency in ‘general concept of administration’ at expert level
- Around 30% of the respondents have marked their competency in ‘IT’ at novice level
- In all components majority of the respondents fall under the category of moderate competency ranging from 26% to 36%
- In ‘IT’ and ‘MER’, no one have marked their competency at basic and fully competent level respectively
- More than 60% of the respondents have marked their competency level in ‘MER’ on lower side ranging from novice to basic.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- In ‘general concepts of administration’, 60% of the respondents fall under the category of medium or high relevance; whereas more than 30% of the participants their competency at novice and basic level
- In ‘general management’, more than 50% of the individuals marked on higher side (medium to high relevance) whereas only 31% have rated their competency at competent and expert
- Around half of the participants consider ‘IT’ as highly relevant to their job but only 09% of the respondents have marked their competency at expert level
- Nearly 70% of the individuals have marked ‘MER’ as of low or irrelevant; which is in line with their competency level (63%) ranging from novice to basic.

3. Attitude

Relevance



The attitude questions portrayed under Admin sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Communication, Direction/Motivation, Interpersonal, Judgment, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.

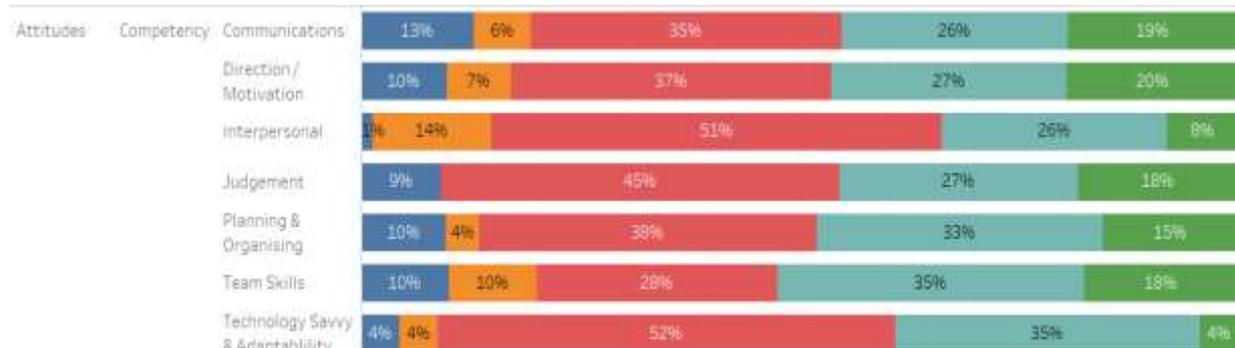
Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- ‘Judgement’ has been ranked highly relevant at 50% among other elements; whereas only 13% individuals have marked team skill as irrelevant to their job
- More than 85% of the participants rated ‘technology savvy and adaptability’ to be moderately to highly relevant

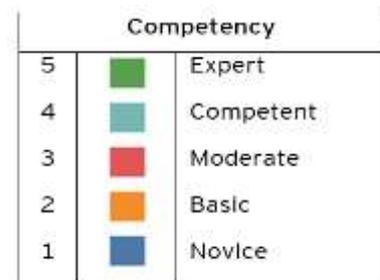
- All component have been marked majorly either on moderate or highly relevant ranging from 33% to 64% and 23% to 50% respectively
- ‘Judgement’ is the only component which is not being marked as irrelevant.

Competency



General Observations:

- In 05 out of 07 components, almost 1/5 participants have ranked their competency at expert level; whereas on the lower side only 1% people rated their attitude competency (interpersonal) at novice level
- Majorly all components have been marked at moderate competency level ranging from 28% to 52%
- 1/10 of the population has ranked their competency in motivation, ‘planning & organizing’ and ‘team skills’ at novice levels
- Among all more than 50% of the participants have ranked their attitude competency (interpersonal) at moderate level.
- Only 4% of the participants are at expert level of competency in ‘technology savvy & adaptability’.

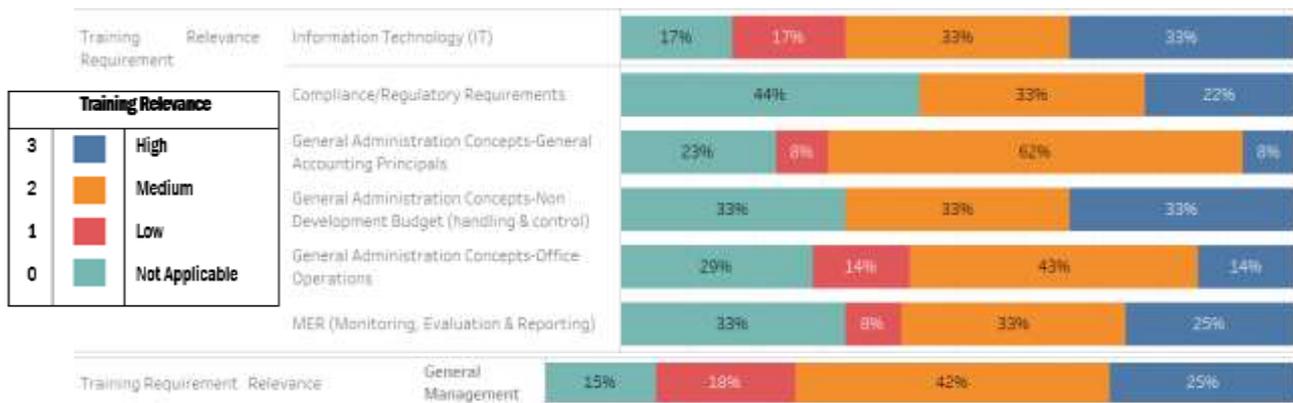


Inferences:

- More than 85% of the participants are of the opinion that ‘communications’ is of medium and high relevance to their job; whereas, slightly over 40% of the participants have ranked themselves at basic or moderate level in competency
- In relevance of ‘direction/motivation’, all participants fall under either high or medium ranges summarizing about 80%; whereas less than 50% of the participants have ranked themselves at competent or expert level
- In ‘interpersonal’, more than 67% of the participants have rated their relevance from medium to high and more than 50% of the individuals fall under the category of moderate competence
- ‘Judgement’ and ‘planning & organizing’ have been marked at moderate to high relevance (about 80%) but on competency level more than 50% of the participants rated themselves at novice to moderate level cumulatively
- In ‘team skills’, 78% of the individuals have assigned medium to high relevance; but on competency almost 50% of the participants have marked themselves on novice to moderate.
- In ‘technology savvy & adaptability’, more than 85% of the individuals have ranked moderate to highly relevant; but most of the participants (52%) possess moderate level competency.

Section C: Training Requirements (Admin-General)

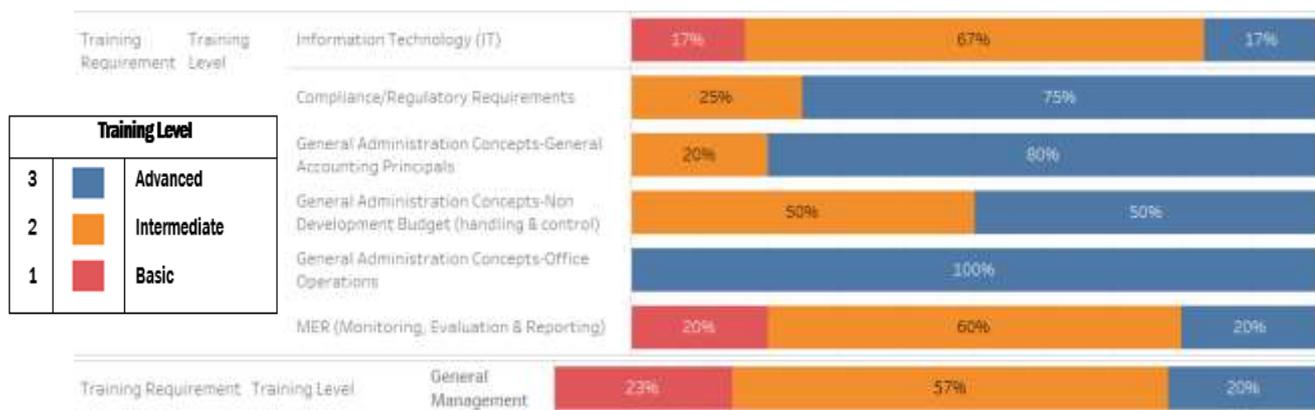
Training Requirement - Relevance



General Observations:

- 67% of the respondents ranked components of ‘general management’ as moderate to high relevance; on the other hand only 33% individuals rated it as low or irrelevant
- Highest relevance (33%) is achieved by ‘general administration concepts-non development budget’ and ‘IT’; on the other hand, ‘compliance/regulatory requirements’ is the only component being rated irrelevant (44%) by majority of respondents
- Response of ‘general administration concepts-non development budget’ are equally bifurcated into three streams i.e. not applicable, medium, high
- A small portion of the participants marked 05 out of 07 components at ‘low relevance’ ranging from 08% to 18%
- Highest value (62%) for moderate relevance is being achieved by ‘general administration concepts-general accounting principals’.

Training Level

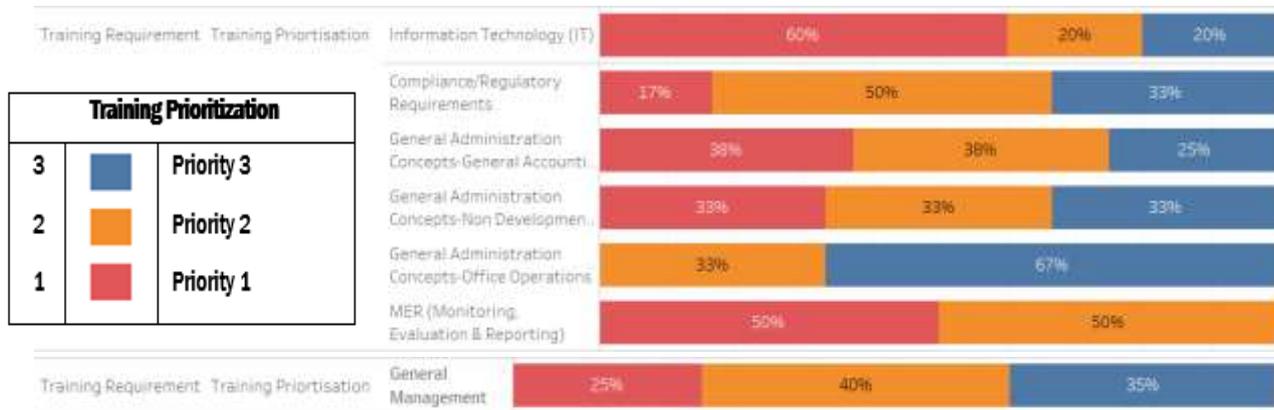


General Observations:

- Majority of the respondents (nearly 80%) ranked training level requirement for ‘general management’ at either intermediate or advance; on the other hand, highest majority (23%) is also being recorded for basic training level in ‘general management’
- 100% of the participants ranked training level requirement for ‘general administration concepts-office operations’ at advance level

- ‘General administration concepts-non development budget’ is the only component in which responses were split in two half i.e. intermediate and advance training level
- Highest value (67%) for intermediate training level is being considered for ‘IT’
- In 4 out of 7, more than half of the participants have ranked advance training level
- <25% participants also ranked basic level training for ‘general management’, ‘MER’ and ‘IT’.

Training Prioritization



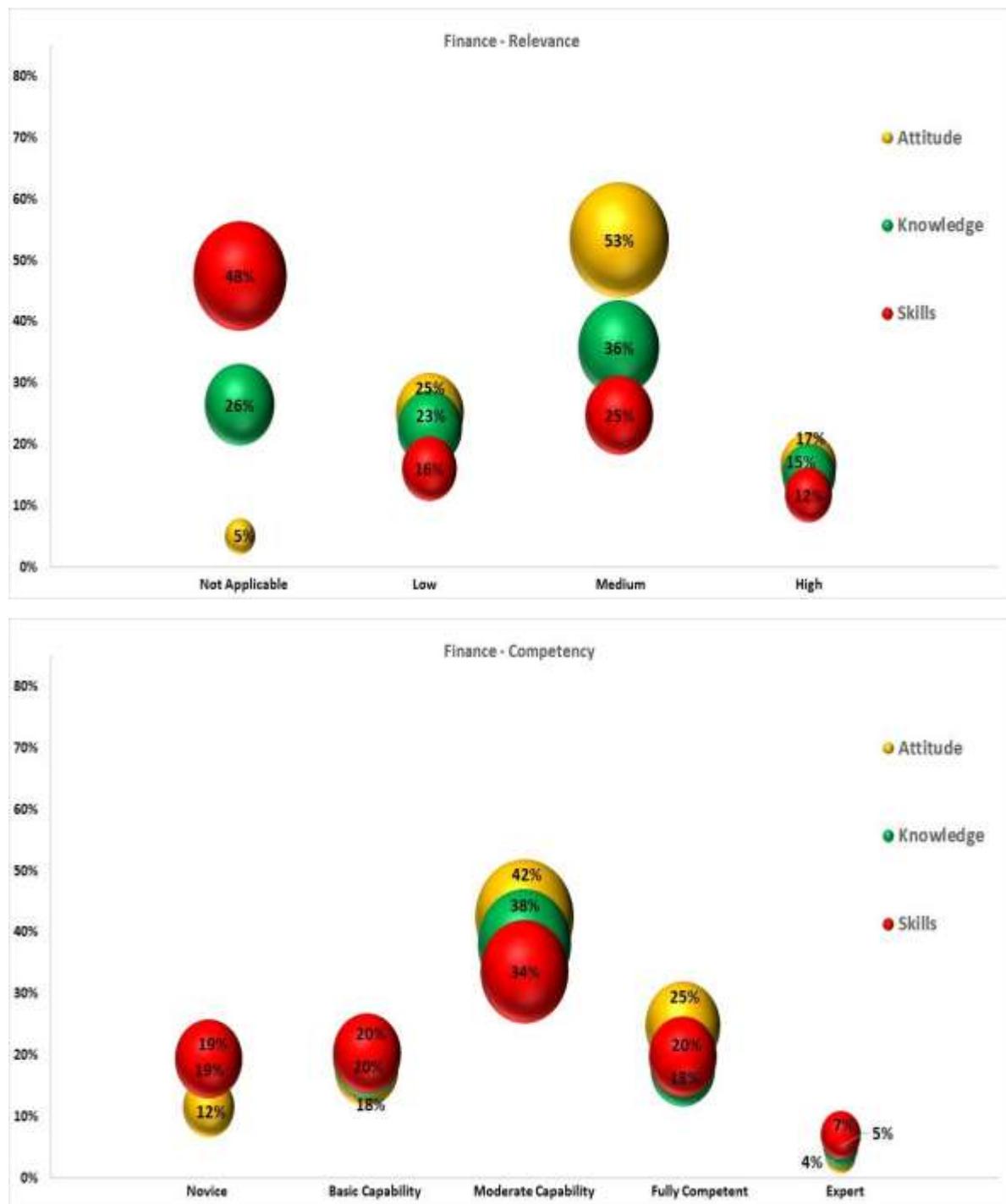
General Observations:

- Majority (60%) have selected training for ‘IT’ as their top priority (P1); whereas, ‘general administration concepts-office operations’ is marked as least priority (P3) by majority of the respondents (67%)
- Highest figure for moderate priority (P2) is being considered for ‘MER’ and ‘compliance/regulatory requirements’ by majority of the respondents (50%)
- ‘MER’ and ‘general administration concepts-office operation’ are the components in which responses were split in two streams – priority 1 & 2 for ‘MER’ and priority 2 & 3 for the other
- ‘General administration concepts-non development budget’ has been prioritized equally among P1, 2 and 3 (33% for each)
- Top priority is being marked for all components except ‘general administration concepts-office operations’ ranging from 17% to 60%.

Inferences:

- Majority of the participants need to be trained at intermediate level in ‘IT’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘compliance/regulatory requirements’ under moderate priority (P2)
- Participants need to be trained at advance level in ‘general administration concepts-general accounting principals’ under either P1 or P2
- Half of the participants need to be trained at intermediate and the other half at advance level in ‘general administration concepts-non development budget’; whereas, priority for this component is indecisive as responses are equally segregated under P1, P2, and P3.
- Participants need to be trained at advance level in ‘general administration concepts-office operations’ under least priority (P3)
- Participants need to be trained at intermediate level in ‘MER’ under either P1 or P2
- Participants need to be trained at intermediate level in ‘general management’ under medium priority (P2).

3. FINANCE



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Finance relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (Finance)

I. Knowledge

Relevance



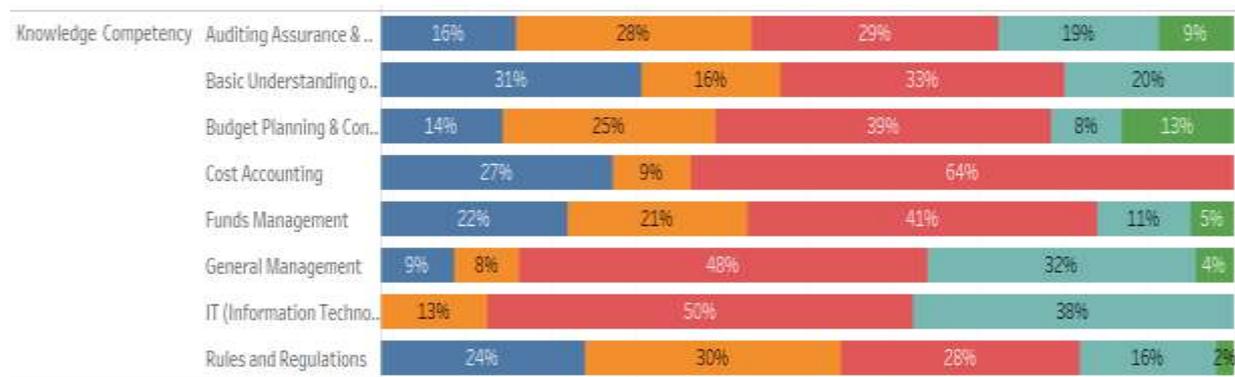
The knowledge questions portrayed under finance sets out the criteria to evaluate the understanding of the respondent against identified components (Basic Understanding of Accounting Concepts, Budget Planning and Control, Auditing Assurance & Risk Management, Cost Accounting, Funds Management, General Management, IT (Information Technology), Rules and Regulations)

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- 50% of the respondents rated 'Auditing Assurance' and 'Risk Management' to be irrelevant with job. Whereas, 29% of the employees, ranked the aforementioned component as either highly or medium relevant (13% and 16% respectively).
- 19% of the employees rated 'Basic Understanding of Accounting Concepts' and 'General Management' to be not applicable with their current job requirements whereas approx. 42% rated these components as medium relevant to their job.
- 67% of the population rated the component 'IT (information Technology)' as medium relevant. While 33% considered their job as highly relevant. None of the employees in this particular category are such who consider the element as irrelevant or of low relevance with their job.
- For the component 'Funds Management' up to 66% of the population rated their job relevance from low to medium.
- 39% of the employees ranked the component 'Cost Accounting' as 'irrelevant' to their job whereas 9% considered the component as highly relevant.
- For the element 'Rules and Regulations' 18% of the respondents marked their job as highly relevant, 24% to 29% ranked their job as low to moderately relevant while the rest considered the component as irrelevant (Not Applicable) to their job.

Competency



General Observations:

- For the element 'Auditing Assurance & Risk Management' 9% of the employees rated themselves as experts whereas 44% of the employees rated their competency level from novice to basic capability.
- There were zero responses recorded for employees being at expert level for the elements 'Basic understanding' and IT, whereas 13% recorded responses were the highest being at the expert level for component 'Budget planning'.
- 27% and 22% of the employees rated their knowledge to be at 'novice' level for 'Cost Accounting' and 'Funds management' respectively.
- Ranging from 32% and 38% of the employees rated themselves as 'fully competent' for the components 'General Management' and 'IT' respectively.
- 8% (being the lowest out of all the categories) of the employees rated themselves as fully competent for the component 'Budget planning and control' and 39% represented their competency at moderate level.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- Approx. 30% of the employees are of the view that 'Auditing Assurance & Risk Management' is either highly or medium relevant with job. This is in contradiction with the competence level for which 73% of employees rated their competency from novice to moderate.
- Out of all the components falling under 'Finance', 'Auditing Assurance & Risk Management' is the component with highest number of participants marking it as irrelevant (Not Applicable) to their job while 9% of the population being second highest in having expert competency fall in this element.
- 'IT (Information Technology)' is relevant for all the respondents with their competency being marked from Basic to Competent level. None of the employees marked competency in this particular element at Expert level.

II. Skill

Relevance



The skill questions portrayed under finance sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Basic understanding of accounting concepts, Budget planning and control, Funds Management, Auditing Assurance and Risk Management, Cost Accounting, General Management, Communication skills, Rules and Regulations and (IT) Information Technology).

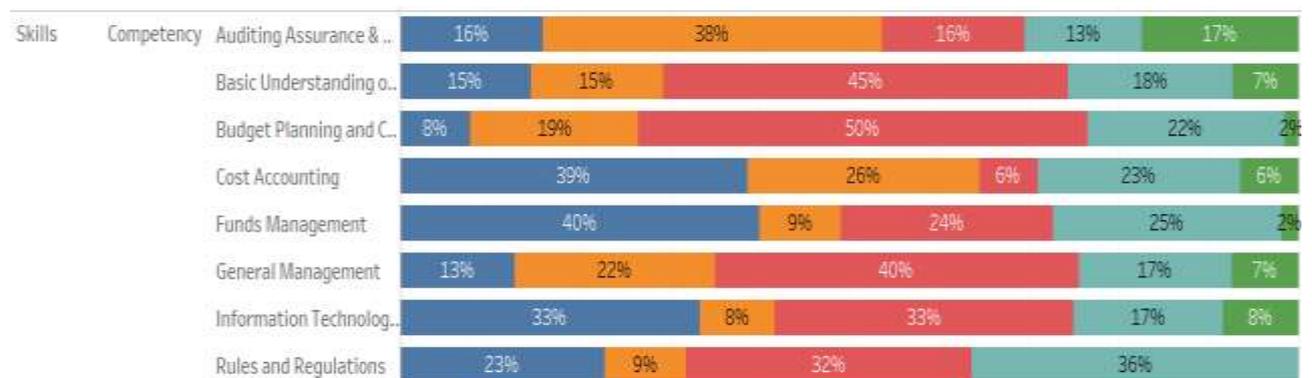
Relevance	
3	High
2	Medium
1	Low
0	Not Applicable

General Observations:

- 9% of the respondents rated their skill set under ‘Auditing Assurance & Risk Management’ and ‘Basic Understanding of Accounting Concepts’ to be highly relevant to their job
- 39% and 54% of the respondents under the aforementioned components rated their skill set as either low or medium relevant
- 75%, 74% and 64% (three highest out of all the constituents) rated their skills to be irrelevant to the nature of their job under the elements ‘Funds Management,’ ‘Cost Accounting’ and ‘Rules and Regulations’ respectively.
- 31% of the respondents is the highest percentage observed who ranked their skill set as highly relevant under the component ‘Rules and Regulations’ while the same percentage is lowest i.e 2% for the element ‘Funds Management’.

Competency	
5	Expert
4	Competent
3	Moderate
2	Basic
1	Novice

Competency

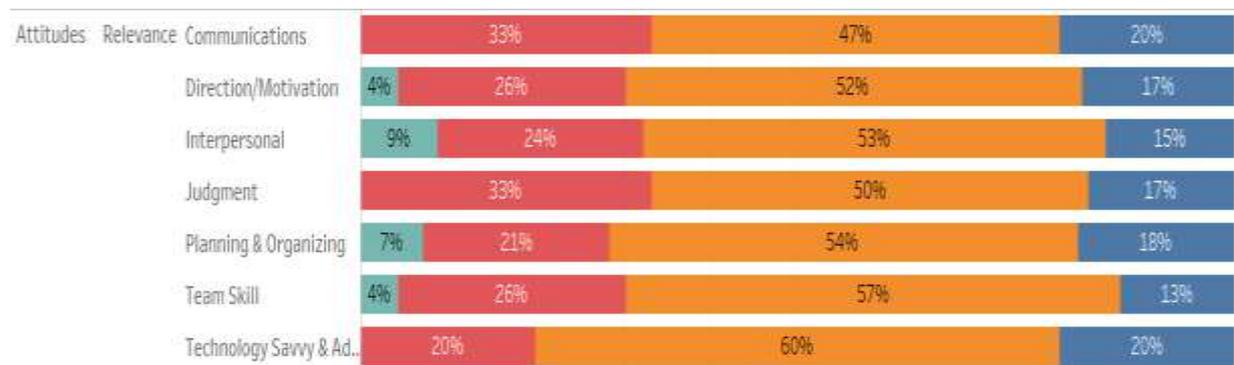


General Observations:

- Only 2% of the respondents marked their competency at an expert level covering their skill set under the constituent 'Budget Planning & Control' and 'Funds Management'.
- The aforesaid percentage is highest in the constituent 'Auditing Assurance & Risk Management' layering 17% of the respondents.
- Approx. half of the participants under the sections 'Basic Understanding of Accounting Concepts' and 'Budget Planning and Control' ranked their skills at moderate level.
- Ranging from 8% to 38% employees are such who categorized their skills at basic competency level.
- Under the Section Finance, 'Funds Management' and 'Cost Accounting' are the heads with approx. 40% of respondents retorting with beginner (novice) skill competency, whereas this component is lowest i-e 8% in 'Budget Planning and Control'.

Inferences:

- 31% of the employees are of the view that skill set under 'Rules and Regulations' is highly relevant with job. But the case is in contradiction with their competence level for which 32% of employees rated their competency from novice to moderate.
- 29% of the employees ranked their skill set under 'Information Technology' as highly relevant with job. But the case is in contradiction with their competence level for which 74% of employees rated their competency from novice to moderate.
- 'Cost Accounting' and 'Funds Management (74% and 75% respectively) were rated irrelevant at the highest range with respect to Finance while this percentage is lowest in 'General Management' and 'Information Technology'.

III. AttitudeRelevance

The attitude questions portrayed under finance sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include (Communication, Direction/Motivation, Interpersonal, Judgment, Planning & Organizing, Team Skill and Technology Savvy & Adaptability).

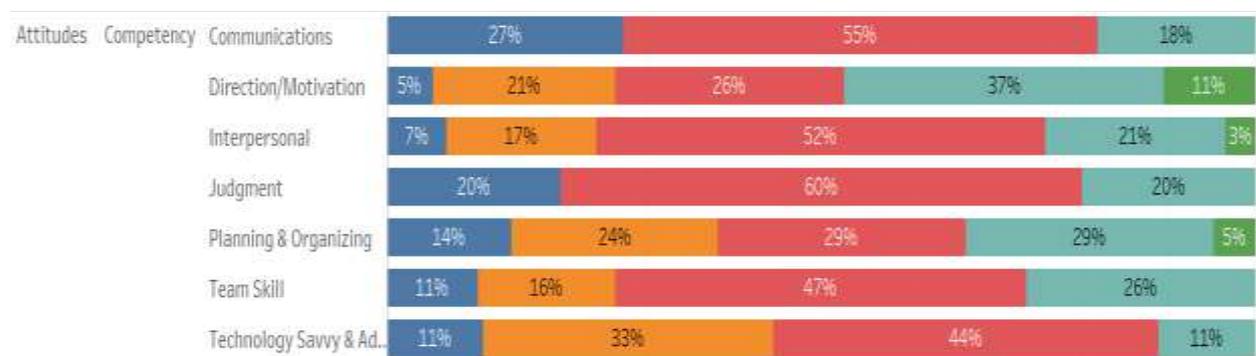
Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

General Observations:

- 20% has been recorded as the highest number of respondents rating 'Communications' and 'Technology Savvy & Adaptability' as the most relevant attitude with respect to Finance.

- Six elements that are ‘Direction/Motivation’, Inter personal, ‘Judgment’, ‘Planning & Organization’, and ‘Team Skill’ and ‘Technology Savvy & Adaptability’ scored more than 50% or more as medium relevance.
- ‘Judgment’ & ‘Communications’ scored the maximum i.e. 33%, in being lowest relevant with job amongst the other elements.
- None of the employees found the elements ‘Communications’, ‘Judgement’ and ‘Technology Savvy and Adaptability’ to be of zero relevance with job.
- Majority of the respondents considered every element falling under Attitudes to be of medium relevance
- Up to 20% of the respondents considered each category under Attitude Section as highly relevant with their job requirement.
- Ranging from 20% to 33% of the employees ranked every element under Attitudes as Low relevance

Competency



General Observations:

- 20% of the population rated their competency under the component ‘Judgment’ as novice while this percentage is being observed at maximum i-e 27% under the head ‘Communications’.
- 47% and 44% of the employees rated their competency under constituents ‘Team Skill’ and ‘Technology Savvy & Adaptability’ at the moderate level.
- 11% of the employees rated their competency under the constituent ‘Direction/Motivation’ to be at expert level while this number is zero under ‘Communications’, ‘Judgment’, ‘Team Skill’, ‘Team skill’ and Technology Savvy & Adaptability’

Competency		
5	■	Expert
4	■	Competent
3	■	Moderate
2	■	Basic
1	■	Novice

Inferences:

- 20% of the population covering our sample rated their competency under the component ‘Judgment’ as novice, whereas 55% of the employees rated their competency as moderate, and 37% as fully competent under the constituent ‘Communication’ and ‘Direction Motivation’ respectively.
- None of the personnel considered themselves as expert in competency related to ‘Communication’, ‘Judgment’, ‘Team skill’ and ‘Technology Savvy’.

Section C: Training Requirements (Finance)

I. Training Requirement - Relevance

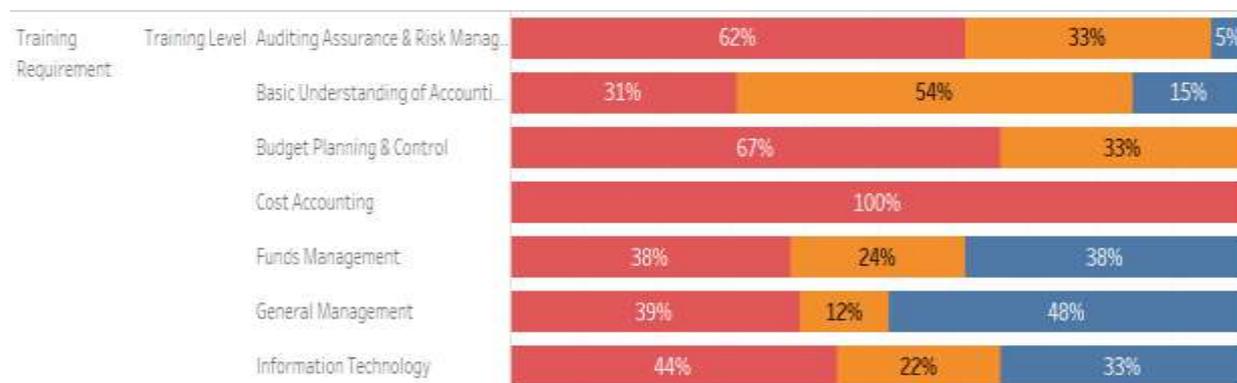


General Observations:

- 56% of the employees rated ‘Funds Management’ to be irrelevant to their job while this percentage is lowest in ‘Cost Accounting’
- 50% of the employees rated ‘Basic Understanding of Accounting Concepts’ as low relevance to job while this number being lowest in General Management & Funds Management i.e. 16%
- Ranging from 2% to 33% of the respondents for all the elements falling under Finance assigned high training relevance with the job
- 27% and 39% of the employees for the constituents ‘Funds Management’ and ‘General Management’ assigned medium training relevance with the job
- Only 1 employee for each of the category ‘Financial ratios and their types and ‘Understanding of International Accounting Standards’ opted for self-learning.

Training Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

II. Training Level



General Observations:

- More than two fifth (48%) respondents suggested advanced level trainings in context to ‘General Management’. Whereas, 67% assigned basic level training for ‘Budget Planning & Control’.

- Approximately, one third of the attendees suggested intermediate level training in two of the components i-e ‘Auditing Assurance & Risk Management’ and ‘Budget Planning & Control’.
- 100% of the population suggested Basic Training Level for the element ‘Cost Accounting’.

III. Training Prioritization



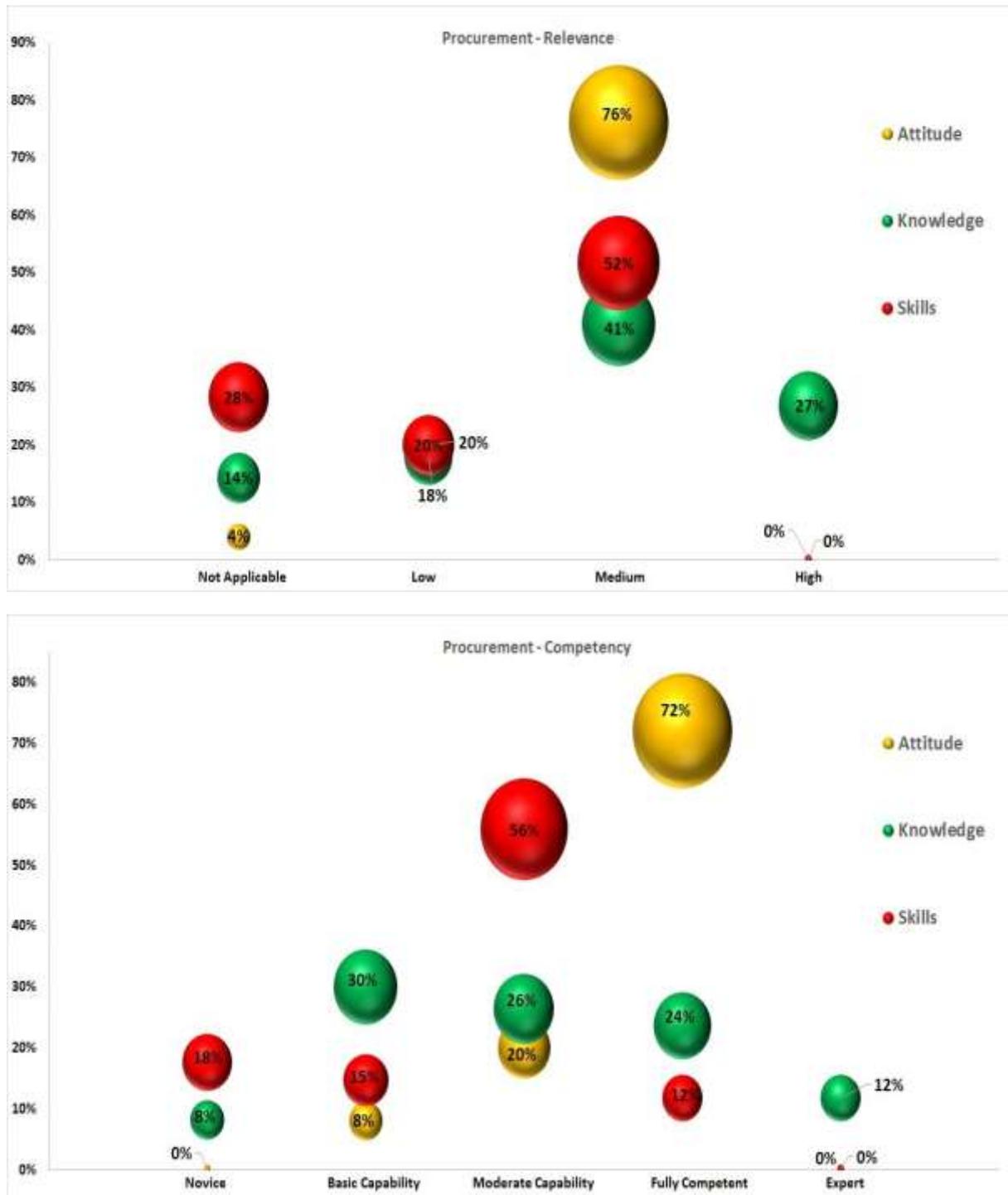
General Observations:

- ‘Cost Accounting’ was voted the most prioritized element casing 100% population
- Ranging from 9% to 48% of the respondents prioritized all the elements to be at priority level two except for ‘Cost Accounting’.
- Approx. one fifth of the employees lie in the pool of respondents who rated priority level 3 for the components ‘Auditing Assurance & Risk Management’ and ‘Basic Understanding of Accounting Concepts’

Inferences:

- By defining ‘Cost Accounting’, ‘General Management’ and ‘Information Technology’ high at priority end suggests the fact that these three elements are the fundamental tasks of the respondent’s job.
- The abovementioned case is in contradiction with the Training relevance level where only one third of the population assessed high training relevance for one of the element i-e ‘Cost Accounting’
- Also the case is in contradiction with the Training relevance level where only 24% of the population assessed high training relevance for the element ‘General Management’ and
- Same case being observed with the Training relevance level where only 22% of the population assessed high training relevance for the element ‘Information Technology’

4. PROCUREMENT

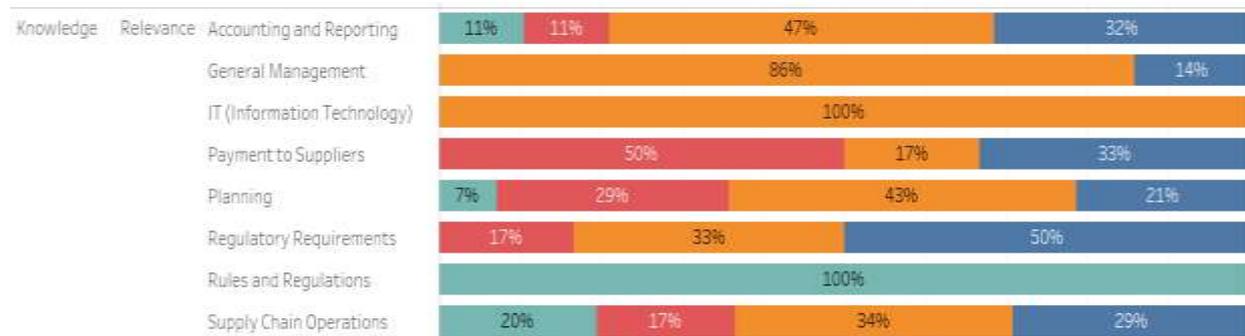


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Procurement relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (Procurement)

I. Knowledge

Relevance



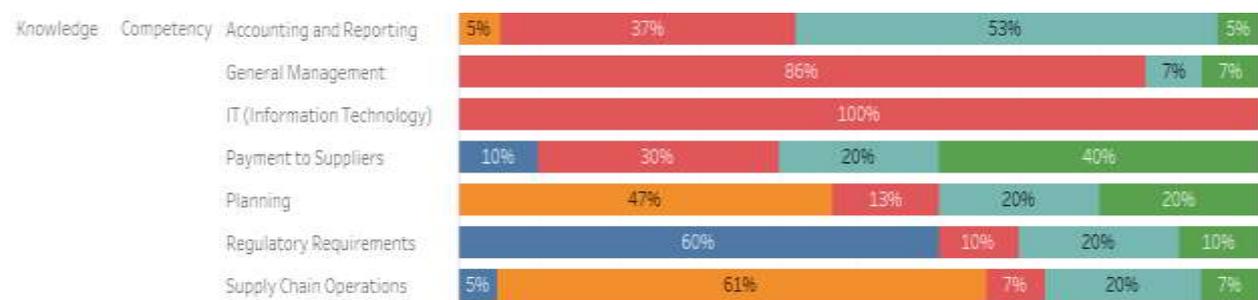
The knowledge questions portrayed under Procurement sets out the criteria to evaluate the understanding of the respondent against identified components (Accounting & Reporting, General Management, Information Technology, and Payment to Suppliers, Planning, Regulatory Requirements, Rule & Regulations and Supply Chain Operations).

Relevance		
3	High	
2	Medium	
1	Low	
0	Not Applicable	

General Observations:

- Half of the respondents rated ‘regulatory requirements’ to be highly relevant to their job; whereas, all participants were of the opinion that sub-components constituting rule and regulation are not relevant to their job
- In 04 out of 08 components, majority of the respondents fall under the category of moderately relevant ranging from 43% to 100%
- ‘Payment to supplier’, ‘accounting & reporting’ and ‘supply chain operations’ are marked on relatively high relevance ranging from 29% to 33%
- ‘Supply chain operation’ is marked as the second most irrelevant component with 20%
- ‘Information technology’ is the only component being marked as moderately relevant by all of the respondents
- Half of the participants are of the opinion that components related to ‘payment to supplier’ are less relevant to their job.

Competency



General Observations:

- 40% of the respondents have marked their competency level as expert in components of ‘payment to supplier’; whereas, in ‘regulatory requirements’, 60% of the respondents have marked their competency level at novice
- Highest range of moderate level of competency has been observed ranging from 86% to 100% in ‘general management’ and ‘information technology’
- 53% of the respondents have marked their level of competency as fully competent in ‘accounting & reporting’
- In ‘planning’ and ‘supply chain operations’, most of the respondents fall under the category of basic competency ranging from 47% to 61%
- Due to no application/irrelevancy of ‘rules & regulation’, respondents didn’t rate their competency level

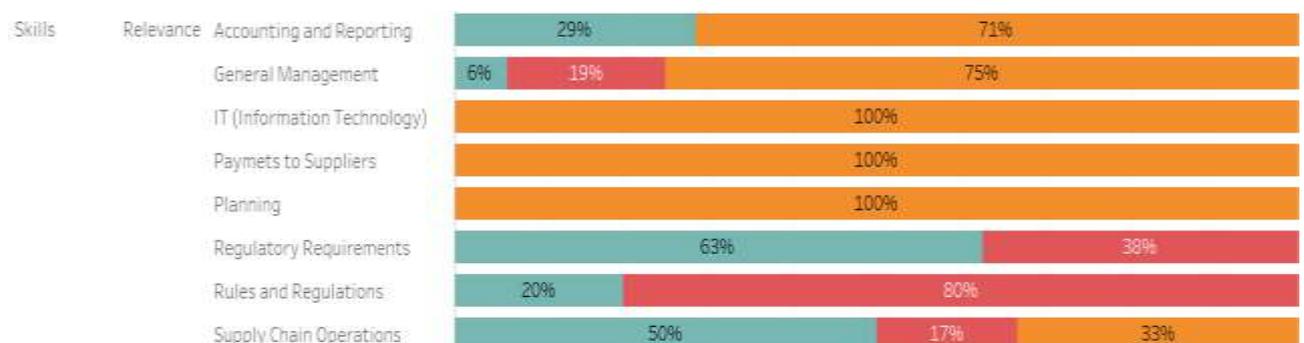
Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- ‘Accounting & Reporting’ are being marked almost 80% relevant to their job on the scale of medium to high relevance; whereas only 05% of the individuals have rated themselves at expert level of competency
- ‘General Management’ are being ranked at 100% relevant on the scale of medium to high relevance; whereas only 14% of the individuals have rated themselves at either competent or expert level
- ‘Payment to Suppliers’ are being ranked at 50% relevant on the scale of medium to high relevance which is in harmony with their competency level ranging from fully competent to expert level (cumulatively 60%)
- In ‘planning’, 64% of the respondents marked it as high or of medium relevance; whereas 47% individuals stood at basic competency level
- In ‘Regulatory Requirements’ half of the respondents marked it as highly relevant; whereas 60% individuals stood at novice competency level
- Almost 2/3 of the individuals have ranked ‘supply chain operations’ as medium or highly relevant; on the other hand, 61% of the individuals fall under the category of basic competency level.

II. Skills

Relevance



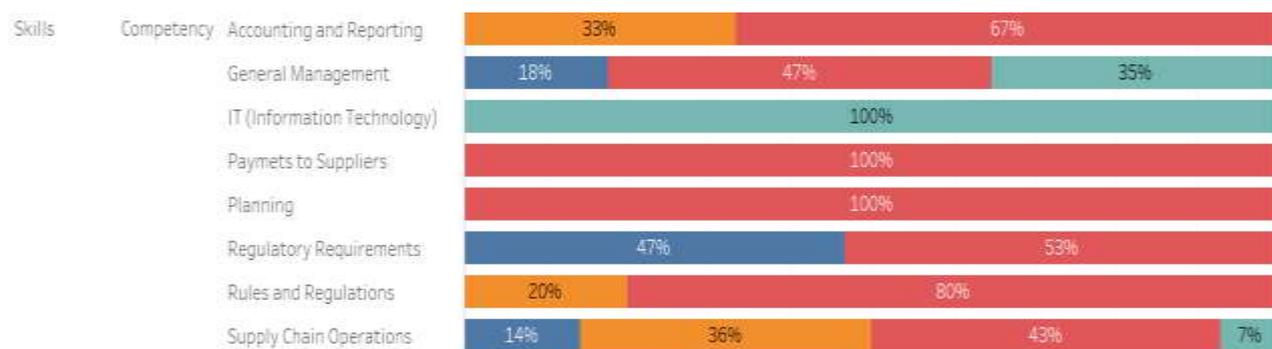
The skill questions portrayed under Procurement sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Accounting & Reporting, General Management, Information Technology, and Payment to Suppliers, Planning, Regulatory Requirements, Rule & Regulations and Supply Chain Operations).

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- ‘Information technology’, payments to suppliers and planning have been marked moderately relevant at 100% in comparison with the other components
- In 05 out of 08 components, majority of the respondents fall under the category of moderate relevance ranging from 71% to 100%
- 63% of the individuals consider that the skill of ‘regulatory requirements’ are irrelevant with their job
- Half of the respondents ranked ‘supply chain operations’ as irrelevant with their job
- All participants were of the opinion that component of rules and regulations are either low or irrelevant.

Competency



General Observations:

- ‘Payments to suppliers’ and ‘planning’ have been marked at moderate competency with 100% in comparison with other components
- ‘Information technology’ is the only competency being ranked at fully competent level with 100%
- In 03 out of 08 components, majority of the respondents fall under the category of moderate competency ranging from 80% to 100%
- About half of the individuals have ranked skill competency in ‘regulatory requirements’ at lowest (novice) among the other components
- 35% of the individuals have marked themselves fully competent in ‘general management’.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

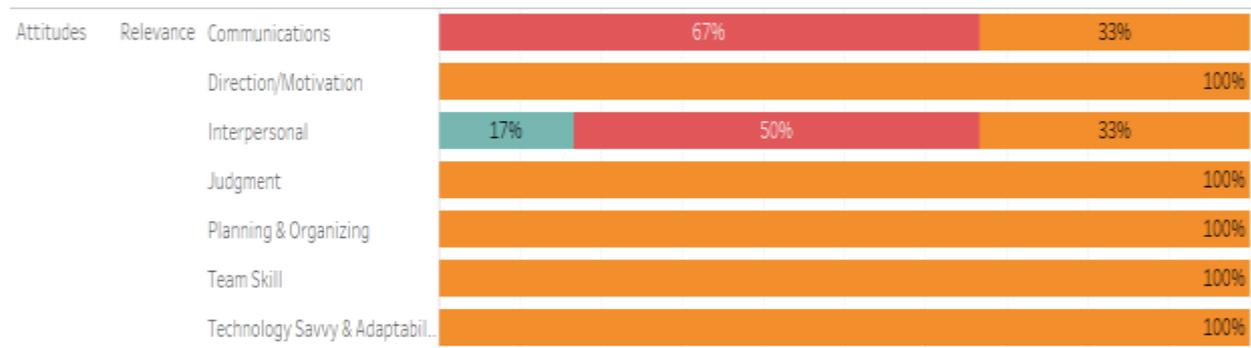
Inferences:

- In ‘information technology’, ‘payments to suppliers’ and ‘planning’, all respondents have marked their relevant at moderate level which is in harmony with their competency level that is being marked either moderate or fully competent level

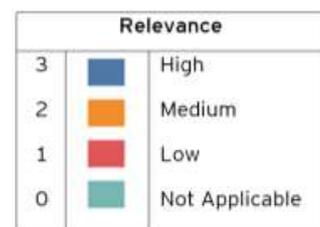
- ‘Accounting & reporting’ and ‘general management’ both are ranked at medium level of relevance which is in line with their competency level being marked at moderate to fully competent ranging from 47% to 100%
- 50% of the participants ranked relevance of ‘supply chain operations’ between low to medium; whereas half of the participants have marked their competency at novice or basic level ranging from 14% to 50%.

III. Attitudes

Relevance



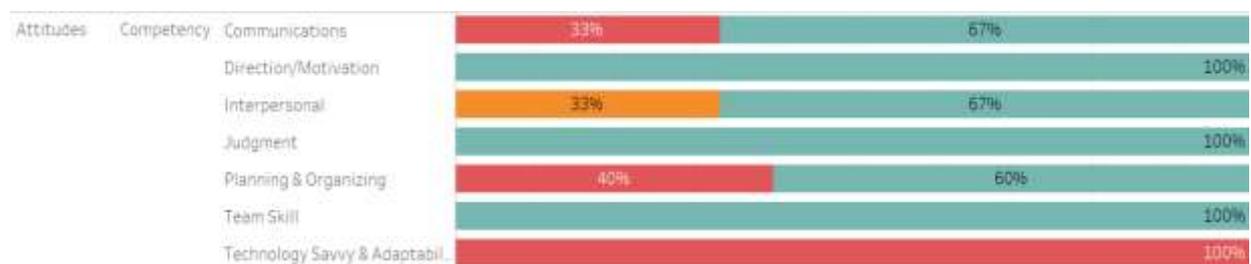
The attitude questions portrayed under Procurement sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Communication, Direction/Motivation, Interpersonal, Judgement, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.



General Observations:

- All the respondents have marked 05 out of 07 components to be relevant of medium level
- 2/3 of the respondents ranked ‘communication’ as of low relevance to their job
- 67% of the individuals ranked components of ‘interpersonal’ skills to be low or irrelevant.

Competency



General Observations:

- In 06 out of 07 components, participants have ranked themselves at fully competent level ranging from 67% to 100%
- 1/3 of the respondents have marked their competency in interpersonal skills at basic level
- ‘Technology savvy and adaptability’ is the only component where all the individuals have marked their competency level



to be at moderate level

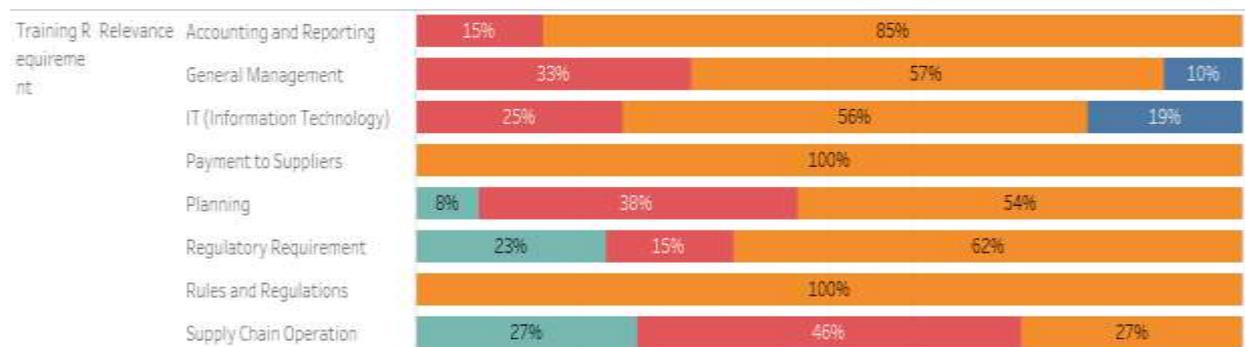
- Two components i.e. ‘communication’ and ‘planning & organizing’ have been marked at moderate level of competence ranging from 33% to 40%.

Inferences:

- In all of the cases, scores of relevancy are in line or relevatively high with their competency levels e.g. in case of ‘direction/motivation’ relevancy and competency stand at medium and fully competent level respectively.

Section C: Training Requirements (Procurement)

I. Training Requirement - Relevance

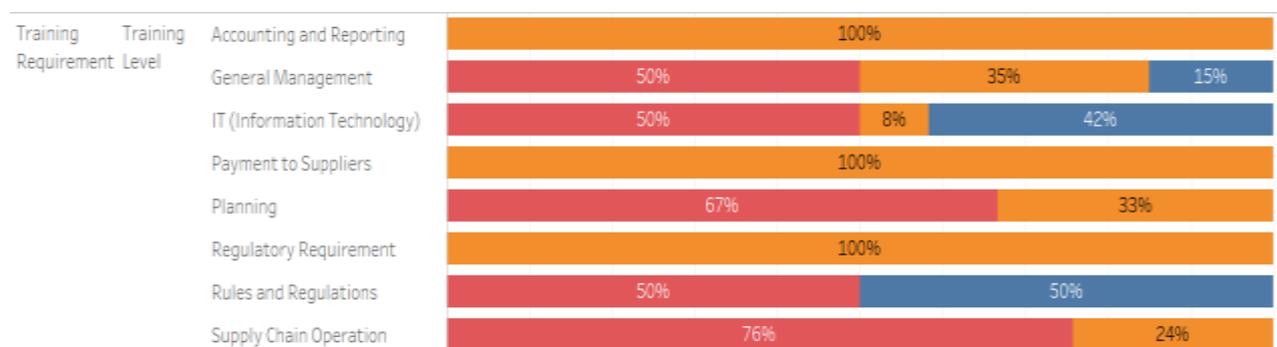


General Observations:

- 19% of the respondents ranked ‘information technology’ highly relevant; on the hand supply chain operations ranked as irrelevant with 27%
- All components have been majorly marked at moderate relevance with respect to training ranging from 27% to 100%
- ‘Regulatory requirements’ have been marked irrelevant by 23% of the individuals alongside supply chain operations
- Only 10% individuals marked ‘general management’ as highly relevant with their job.

Training Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

II. Training Level



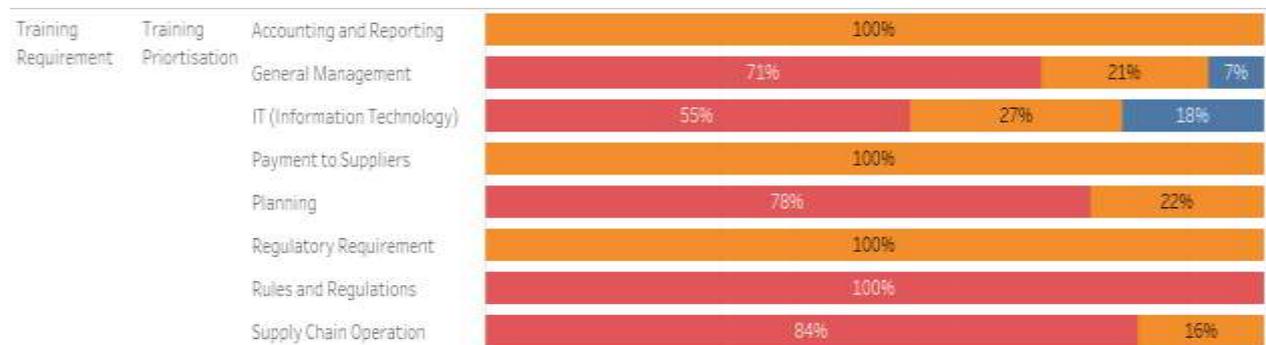
General Observations:

- Advanced level training have been marked by around half of respondents in ‘information technology’ and ‘rules & regulation’

Training Level		
3		Advanced
2		Intermediate
1		Basic

- In 05 out of 08 components, basic level training has been marked ranging from 50% to 76%
- Around 1/5 of the population ranked advance level training in ‘general management’
- 100% respondents marked ‘accounting & reporting’, ‘payment to suppliers’ and ‘regulatory requirements’ ‘on intermediate training level.

III. Training Prioritization



General Observations:

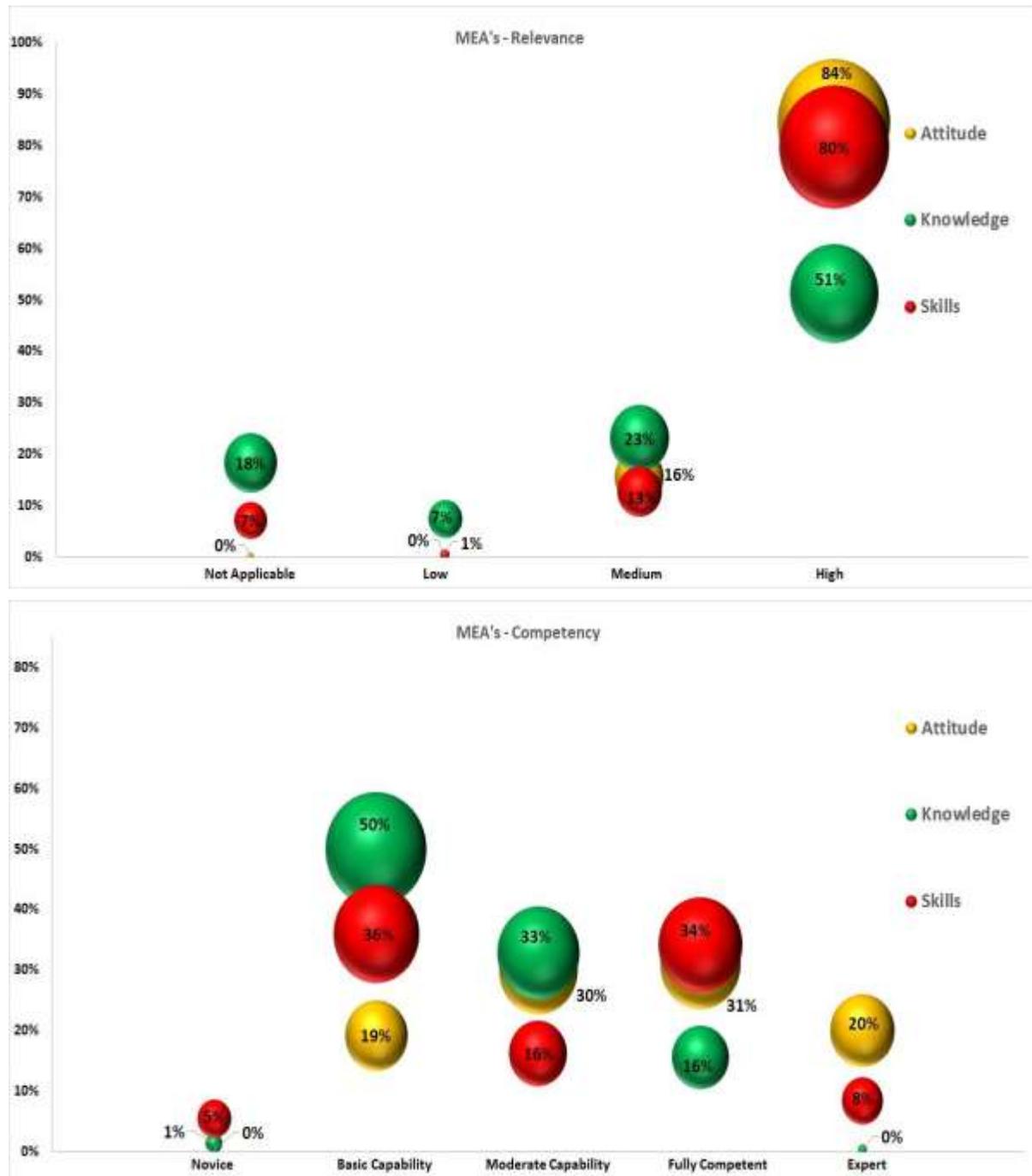
- 03 of 08 components have been prioritized at moderate level by all the respondents
- Majority of the respondents prioritized 05 of 08 components at high in comparison with other components ranging from 55% to 100%
- Around 1/5 of the participants have prioritized ‘information technology’ as of least importance; on the other hand only 07% of the individuals ranked general management as of least priority

Training Prioritization		
3	■	Priority 3
2	■	Priority 2
1	■	Priority 1

Inferences:

- 100% of the participants need to be trained at intermediate level in ‘accounting & reporting’ under moderate priority (P2)
- Majority of the participants need to be trained at basic level in ‘general management’ under high priority (P3)
- Majority of the participants need to be at trained at basic level in ‘Information technology’ under high priority (P3)
- All of the respondents need to be trained at intermediate level in ‘payment to suppliers’ under moderate priority (P2)
- Majority of the participants need to be at trained at basic level in ‘planning’ under high priority (P1)
- Majority of the participants need to be at trained at intermediate level in ‘regulatory requirements’ under moderate priority (P2)
- Half of the participants need to be trained at basic level in ‘rules & regulations’ under high priority (P1); while the other half need to be trained on the same at advanced level.

5. MULTILATERAL ENVIRONMENTAL AGREEMENTS (MEAS)

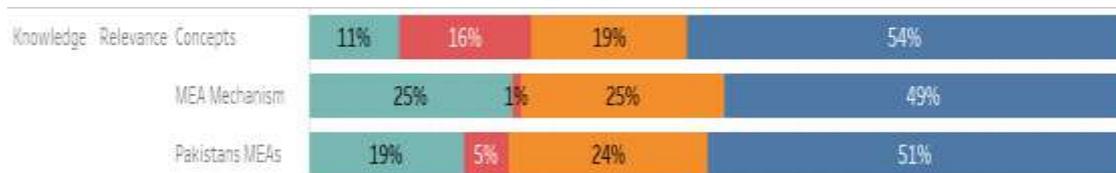


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall MEA's relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (MEAs)

I. Knowledge

Relevance

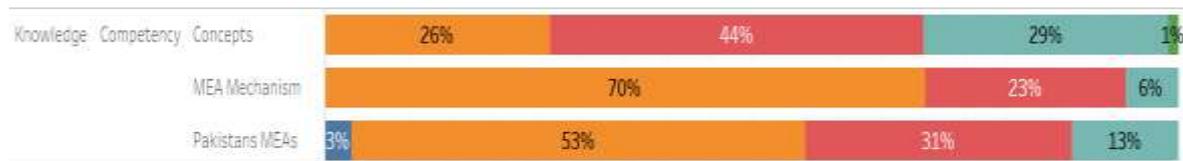


The knowledge questions portrayed under MEAs sets out the criteria to evaluate the understanding of the respondent against identified components (Concepts, MEA Mechanism and Pakistan’s MEAs).

General Observations:

- Almost more than 50% of the participants rated high relevance for all the components
- Ranging from 19% to 25% employees scored moderate relevance for all the components
- Ranging from 11% to 25% employees marked irrelevancy for all identified components of MEAs.

Competency



General Observations:

- Ranging from 13% to 29% employees scored high level competence for all the components
- ‘MEA mechanism’ was ranked the highest (70%) amongst the elements depicting basic level competency
- Only 01% respondent rated their competency level to be at ‘expert’ with respect to elements of ‘concepts’; no such rating (expert) has been recorded for other components
- 03% recorded their competency to a novice in the components of ‘Pakistan MEAs’; No such rating (novice) has been recorded for other components
- Ranging from 23% to 44% employees scored moderate level competency for all the components.

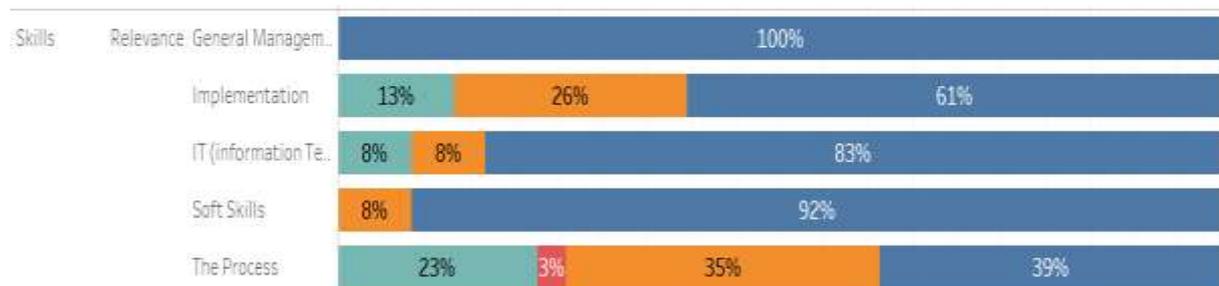
Competency	
5	Expert
4	Competent
3	Moderate
2	Basic
1	Novice

Inferences:

- ‘Expert’ level proficiency is almost non-existent for the sections MEAs; except 01% in ‘concepts’
- ‘Fully competent’ employees have also been recorded quite low for all the components in this particular segment
- Most of the employees have rated their proficiency to be at ‘basic’ in all the elements of the section.

II. Skills

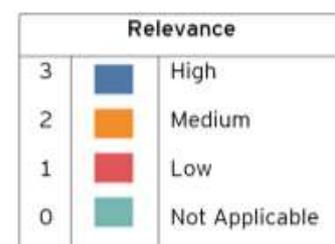
Relevance



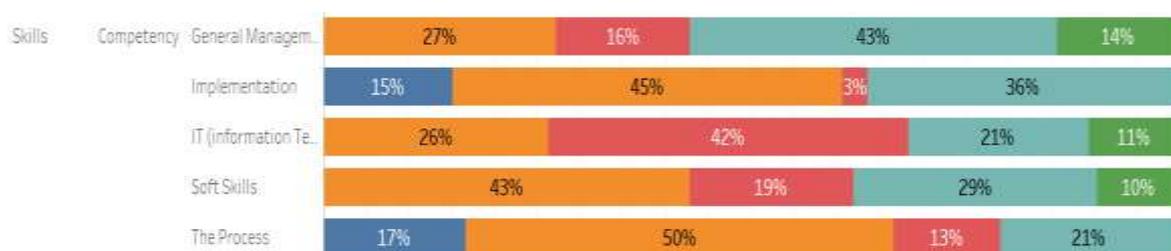
The skill questions portrayed under MEAs sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (General Management, Implementation, IT, Soft Skills and The Process).

General Observations:

- Components of ‘general management’ skills has been rated 100% high relevance
- Ranging from 08% to 23%, employees marked irrelevant for the components ‘information technology’, ‘implementation’ and ‘the processes’.
- Followed by ‘general management’; ‘implementation’, ‘IT’, ‘soft skills’ and ‘the process’ have also been marked highly relevant with 61%, 83%, 92% and 39% respectively
- Low relevance is only being observed in the components of ‘the process’ (03%).



Competency



General Observations:

- Ranging from 11% to 14% employees ranked expert level competence for all the components except ‘implementation’ and ‘the process’.
- Only two components are being marked at novice level of competency i.e. implementation (15%) and the process (17%)
- Ranging from 21% to 43% employees rated ‘fully competent’ for all the elements.
- Ranging from 26% to 50% employees rated ‘basic’ level competency for all the elements.



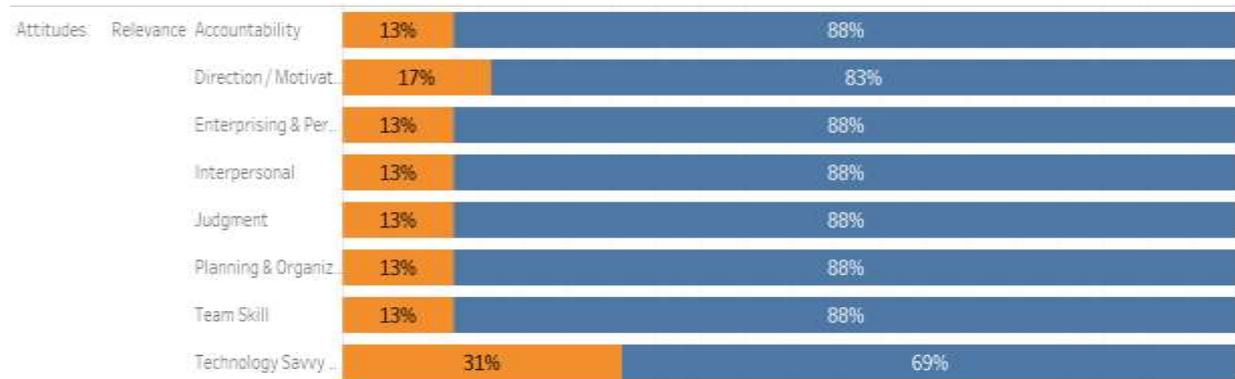
Inferences:

- More than 50% of the employees rated high relevance of all the components except for the component- the process. Whereas, the expert level proficiency (less than 15%) are only being reported for ‘general management’, ‘information technology’ and ‘soft skills’

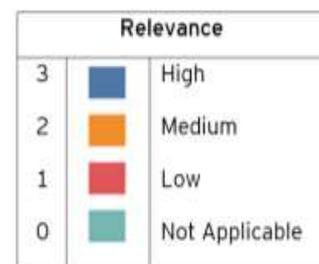
- Majority of the employees are mapped in basic or moderate level competency; in comparison, their relevancy graph is skewed on either medium or high relevant.

III. Attitude

Relevance

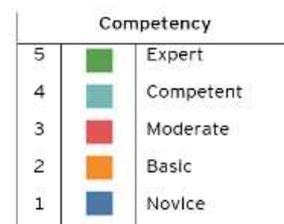


The attitude questions portrayed under MEAs sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgement, Planning & Organizing, Team Skill and Technology Savvy & Adaptability).



General Observations:

- 88% employees rated high relevance of all the components except for ‘direction/motivation’ and ‘technology savvy and adaptability’
- Followed by the rest, ‘Direction/motivation’ and ‘technology savvy and adaptability’ also recorded high relevance with 83% and 69% respectively
- 13% employees rated medium relevance of all the components except for ‘direction/motivation’ and ‘technology savvy and adaptability’
- ‘Direction/motivation’ and ‘technology savvy and adaptability’ recorded medium relevance with 17% and 31%, respectively
- All components have been marked either medium or high relevance.



Competency



General Observations:

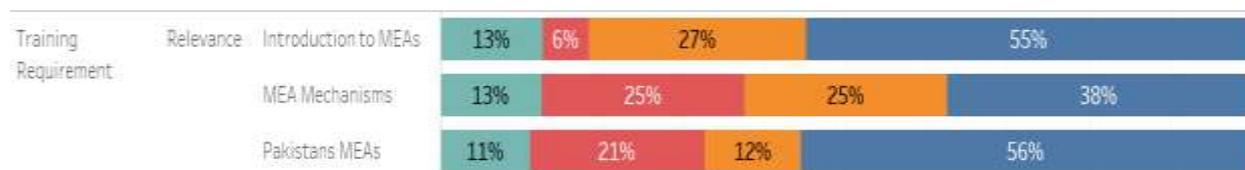
- Ranging from 14% to 29%, employees assigned ‘expert’ level competence for all the components
- Ranging from 14% to 43%, employees ranked ‘fully competent’ for all the components
- Ranging from 14% to 43%, employees assigned ‘moderate’ competence for all the components
- Ranging from 14% to 29%, employees ranked ‘basic’ competence for all the components
- No one have marked their competency at novice level.

Inferences:

- Employees have rated all the components highly relevant to their job. While the competency chart shows that they majority of the employees falls in the skill set of basic and medium level except in ‘interpersonal’, judgement’, planning & organizing’ and team skill
- In team skill, there is tie between the scores; as 50% have ranked their competency levels ranging from basic to moderate while the other half from fully competent to expert
- In ‘interpersonal and judgement, majority of the respondents have marked their competency between fully competent and expert level.

Section C: Training Requirements (MEAs)

I. Training Requirement - Relevance

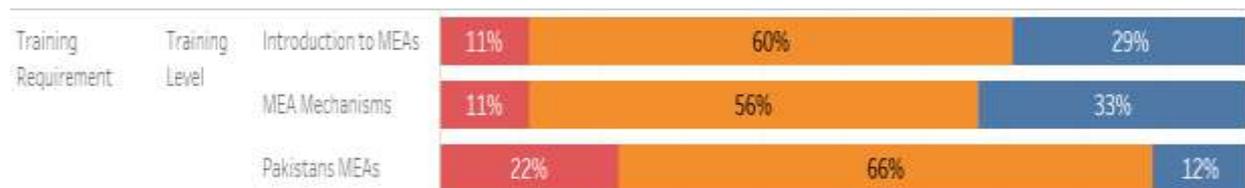


General Observations:

- More than 50% employees rated ‘high’ relevance of all the components with respect to training except ‘MEA Mechanism’
- Ranging from 12% to 27%, employees rated ‘medium’ relevance of all the components with respect to training
- Ranging from 6% to 25%, employees rated ‘low’ relevance of all the components with respect to training
- Less than 1/5 of the individuals rated all components to be irrelevant with respect to training.

Training Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

II. Training Level



General Observations:

- Ranging from 12% to 33%, employees rated ‘advanced’ level training for all the components

Training Level		
3	Advanced	Blue
2	Intermediate	Orange
1	Basic	Red

- Ranging from 56% to 66%, employees rated ‘intermediate’ level training for all the components
- Ranging from 11% to 22%, employees rated ‘basic’ level training for all the components.

III. Training Prioritization



General Observations:

- More than 50% of the individuals prioritized all components at moderate priority (P2)
- Ranging from 32% to 38%, employees prioritized the training requirement for all components at high priority (P1)
- 13% and 07% of the individuals prioritized the training requirement at least priority (P3) for ‘introduction to MEAs’ and ‘Pakistan MEAS’ respectively.

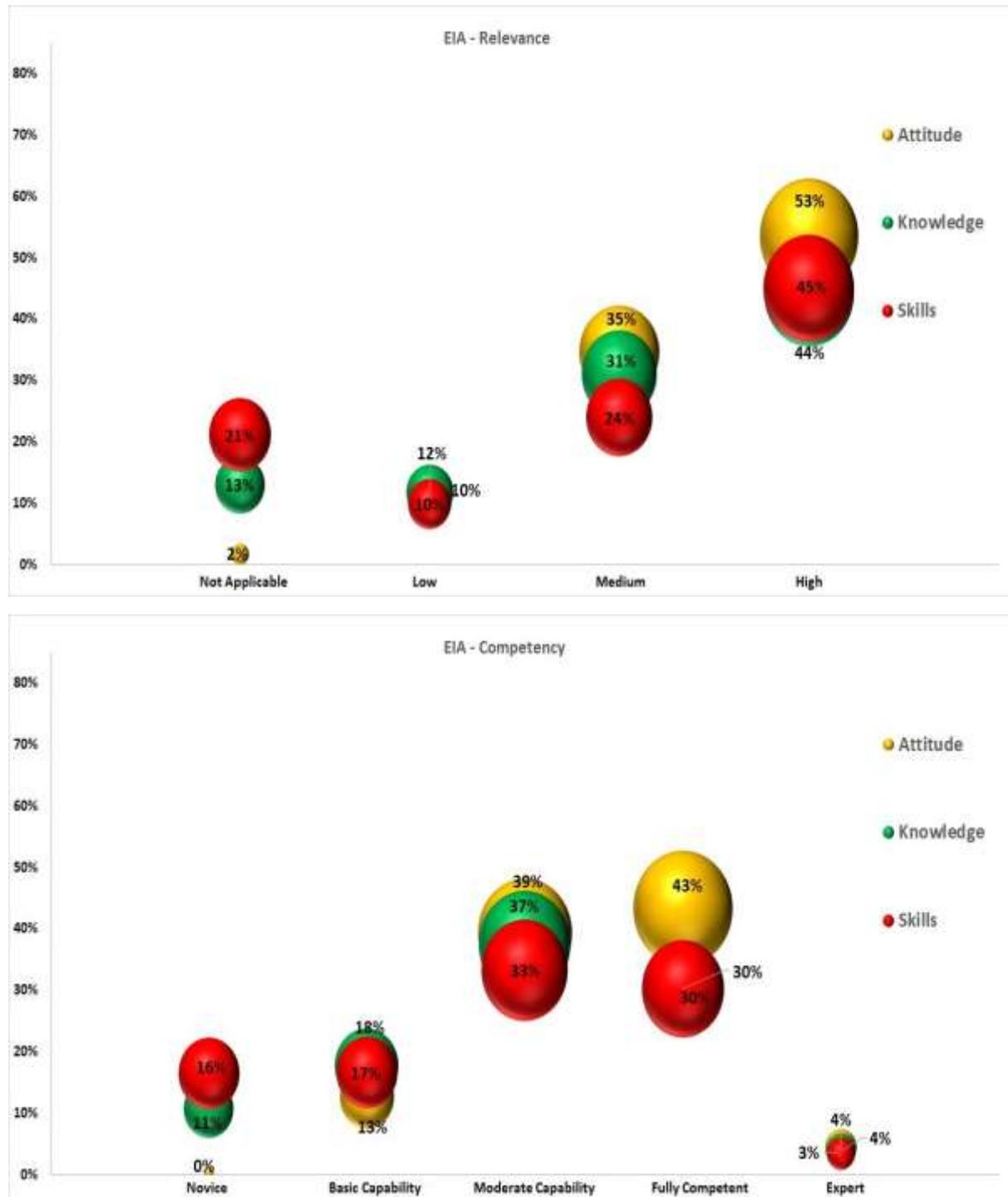
Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Majority of the participants need to be trained at intermediate level in components of ‘introduction to MEAs’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in components of ‘MEA mechanisms’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in components of ‘Pakistan MEAs’ under moderate priority (P2).

B. Environment Protection Agency (EPA)

1. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall EIA relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (EIA)

I. Knowledge

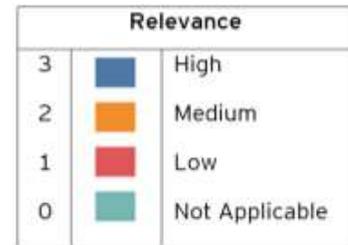
Relevance



The knowledge questions portrayed under EIA sets out the criteria to evaluate the understanding of the respondent against identified components (Baseline Study, Consideration of alternatives, EMP, General Management, Impact Assessment, Preliminary Scrutiny, Project Description, Public Hearing, Rules and Regulations, Scoping Process and Screening Criteria).

General Observations:

- ‘Public hearing’ and ‘preliminary scrutiny’ has been rated highest by the respondents as extremely relevant with the job (56%). Whereas, 20% of the respondents recorded the element ‘screening criteria’ to be of zero relevance
- Almost all of the components have been marked at high relevance (nearly 50% or above) except general management which is being marked at 36%
- Elements ‘baseline study’, ‘consideration of alternatives’, ‘general management’, ‘preliminary scrutiny’, ‘public hearing’, ‘scoping process’ and ‘screening criteria’ have been rated irrelevant by employees ranging from 10% to 20%
- Less than 10% recorded their response to be irrelevant with respect to elements ‘EMP’, ‘impact assessment’, ‘project description’ and ‘rules and regulations’
- Less than one fifth of the population rated low relevance for all the components
- Ranging from 30% to 40%, respondents assessed ‘medium’ relevance of all the components except for ‘baseline study’, ‘preliminary scrutiny’, ‘public hearing’ and ‘screening criteria’ which are being rated at 29%, 26%, 19% and 28%, respectively.



Competency



General Observations:

- Respondents ranging from 03% to 05%, rated their competency to be at expert level for all the components
- Respondents ranging from 30% to 39%, rated their competency to be fully competent for most the components except for ‘baseline study’, ‘consideration of alternatives’, ‘project description’, ‘scoping process’ and ‘screening criteria’
- The highest competency recorded for a single element is moderate capability (52%) in ‘consideration of alternatives’. Whereas, on a lower side, only 02% are at novice level for the component ‘scoping process’
- More than one third of the population rated moderate competency for all the components except ‘public hearing’
- There were multiple elements for which employees possessed novice level competency ranging from 10% to 15%. The components less than the aforementioned range are ‘consideration of alternatives’, ‘EMP’, ‘impact assessment’, ‘project description’, ‘rules and regulations’ and ‘scoping process’
- Low level competency, marked by less than one fifth of the employees, is for all of the elements except for ‘scoping process’ (28%).

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- ‘Preliminary scrutiny’ and ‘public hearing’, are rated high on relevance as well as competency among other elements. This can be also an inference of the facts that people working in ‘Environment Impact Assessment’ possess both aforementioned elements
- Raters’ assessment for the elements ‘screening criteria’, ‘general management’ and ‘baseline study’ have been highest for irrelevance with their job ranging from 16% to 20%. Similarly, the competency has been rated more than 65% from being novice to moderate level
- A general inference can be drawn that every component in this segment has a high or moderate relevance, collectively 67% or higher. This certifies the fact that most of the components are related to their job in one way or the other. The major concern is that majority of the population lies in moderate capability suggesting that a very few are either fully competent or experts at their job
- Followed ‘preliminary scrutiny’ and ‘public hearing’, components such as ‘impact assessment’ and ‘rules & regulations’, are rated most relevant in the segment knowledge. Employees ranging from 18% to 20% rated their competency to be at novice or basic level.

II. Skills

Relevance



The skill questions portrayed under EIA sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Compliance Monitoring, EIA process, General Management, IT and Report Preparation).

General Observations:

- ‘Compliance monitoring’ has been rated by the highest majority of the respondents at 59%
- The second most rated element in skill relevancy segment is ‘report preparation’
- ‘General management’ has been rated ‘not applicable’ by the first most majority by the respondents (24%); other components, with respect to the status of being ‘not applicable or irrelevant’, exceeding 20% are ‘EIA process’ and ‘information technology’
- Employees, ranging from 5% to 15%, rated all the components to be of low relevance are ‘compliance monitoring’, ‘EIA process’, ‘general management’, ‘information technology’ and ‘report preparation’
- Ranging from 20% to 30%, respondents marked all the components to be of ‘medium’ relevance
- Approximately half of the population rated all the components to be highly relevant with skills except for ‘information technology’.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Competency



General Observations:

- Ranging from 02% to 05%, employees rated their competency to be at expert level against all components
- Ranging from 26% to 38%, employees rated their competency to be ‘fully competent’ for all components
- All the elements have been marked at moderate level competency ranging from 25% to 35%.
- Ranging from 14% to 24%, respondents rated their competency against identified components at low level
- Majority of the respondents are fully competent in ‘compliance monitoring’ with 38%; whereas ‘IT’ is being marked at novice with the highest percentage (23%) in comparison with all components.

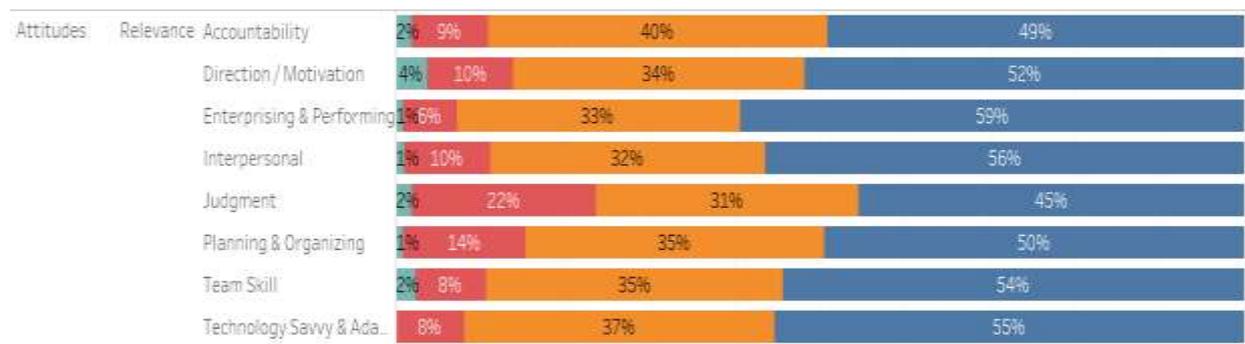
Inferences:

- Given that the element ‘compliance monitoring’ scored the highest relevance amongst the rest, only 38% respondents recorded their competency to be fully competent. While, 22% rated themselves to be at novice or basic level proficiency

- Half of the respondents scored ‘report preparation’ to be highly relevant. But, then again, only 35% employees are fully competent, a low figure. Whereas, 25% rated themselves to be at novice or basic level proficiency
- Approximately, 50% employees rated ‘EIA processes and ‘general management’ to be extremely relevant. Whereas, figures of 20% and 16% have been recorded for novice competency in the aforementioned elements.

III. Attitude

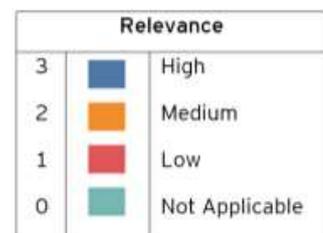
Relevance



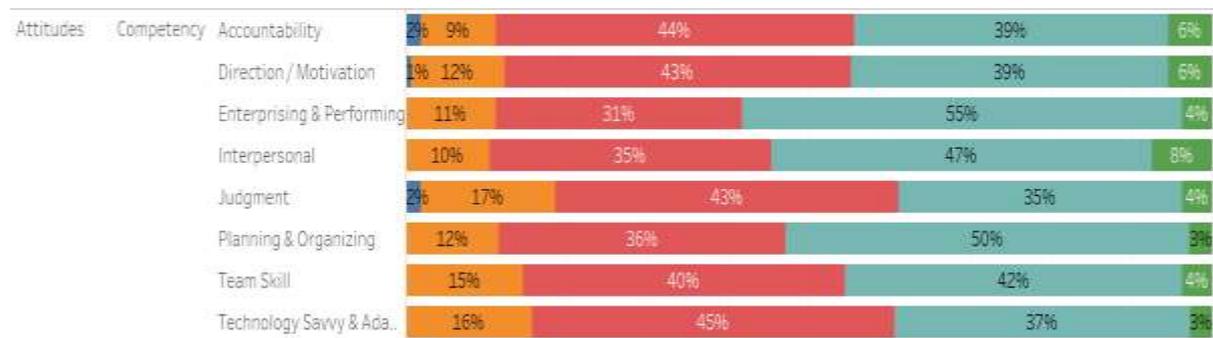
The attitude questions portrayed under EIA sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgment, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.

General Observations:

- More or less half of the population rated all the elements extremely relevant for the attitude segment
- ‘Enterprising & performing’ scored the highest rating as compared to all the other components (59%).
- Less than 5% of the employees registered rating ‘not relevant’ of all the components. Element ‘technology savvy & adaptability’ was an exception in this context as no employee rated this component as irrelevant
- Range between 30% to 40%, employees rated medium level relevance against all components with respect to their job
- In term of relevance – ‘Judgement’ recorded a high of 22% on ‘low’ relevance level; alongside, 6% is the lowest rating given to component ‘enterprising & performing’ for the same aforementioned level of relevance.



Competency



General Observations:

- More than half of the respondents rated fully competent for ‘enterprising & performing’
- 50% of the employees rated full competence level with respect to ‘planning & organizing’
- Ranging from 31% to 45%, employees rated moderate level competency in all the components with respect to their job
- Less than 20% employees rated their competency levels to be at ‘basic’ for all the components
- 1% to 2% employees rated their competencies to be at novice for components of ‘judgement’, ‘direction/motivation’ and ‘accountability’. None of the respondents rated aforementioned competency for the rest of elements.

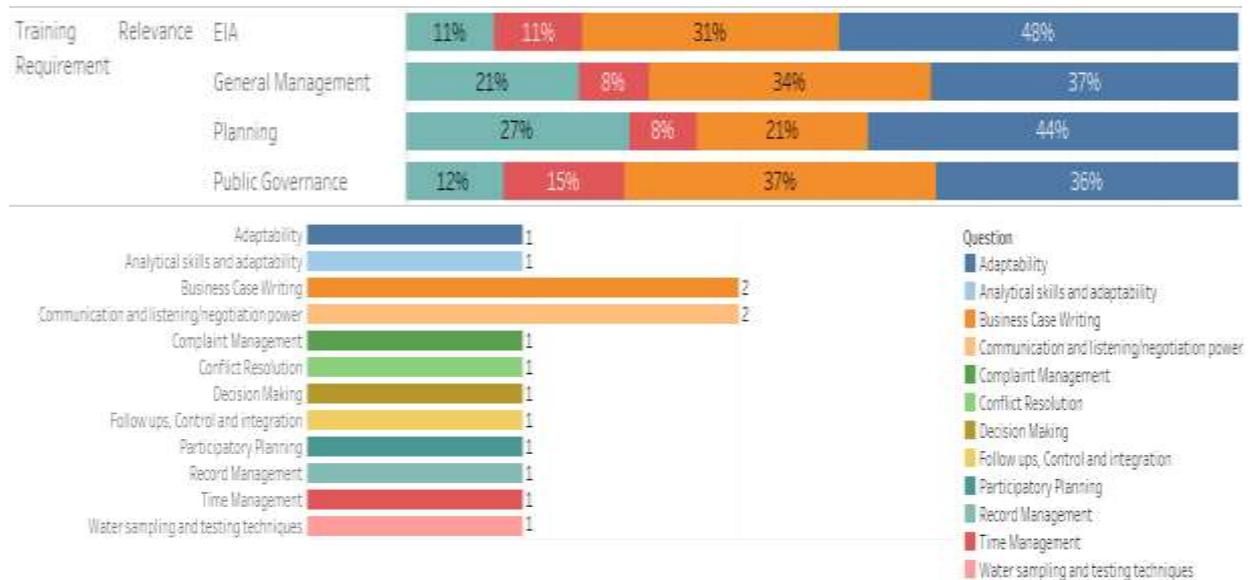
Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- More than half of the population rated high relevance of component ‘enterprising & performing’; while approximately 60% employees rated their competency to be either at expert level or fully competent
- ‘Technology savvy & adaptability’ has been rated third highly relevant component with respect to their job (55%). 45% claimed to moderately capable while 37% rated themselves to be fully competent with respect to this particular component
- It has been observed that the employees know about the significance of working in team skills as majority (54%) of the employees rated it highly relevant. The competency figures tell a completely different story as half of the respondents marked their competency level at either basic or moderate
- Elements ‘judgement’ and ‘accountability’ have been scored extremely relevant by less than half of the respondents. On the other hand, only 4% to 6% individuals are at expert level.

Section C: Training Requirements (EIA)

I. Training Requirements – Relevance



General Observations:

- Ranging from 36% to 48%, employees rated ‘high’ relevance of all the components with respect to training
- Ranging from 21% to 37%, employees rated ‘moderate’ relevance of all the components with respect to training
- Ranging from 08% to 15%, employees rated ‘low’ relevance of all the components with respect to training
- Ranging from 11% to 27%, individuals were of the opinion that identified components are irrelevant with respect to training
- Only 02 employees rated ‘self-learning’ for the components of ‘business case writing’ and ‘communication and listening/negotiation power’; whereas only 1 employee rated self-learning for rest of the components.

Training Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

II. Training Level



General Observations:

- Ranging from 20% to 31%, employees rated ‘advanced’ level training for all the components.
- Ranging from 44% to 50%, employees rated ‘intermediate’ level training for all the components
- Ranging from 26% to 31%, employees rated ‘basic’ level training for all the components.

Training Level		
3	Advanced	Blue
2	Intermediate	Orange
1	Basic	Red

III. Training Prioritization



General Observations:

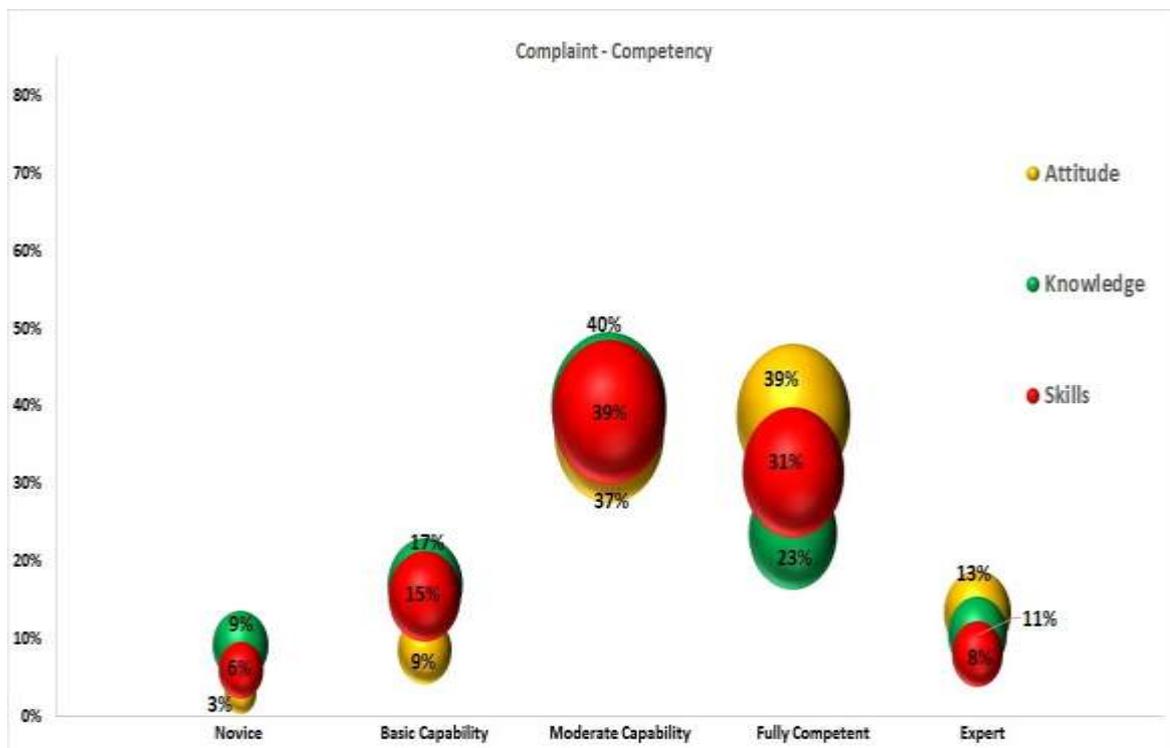
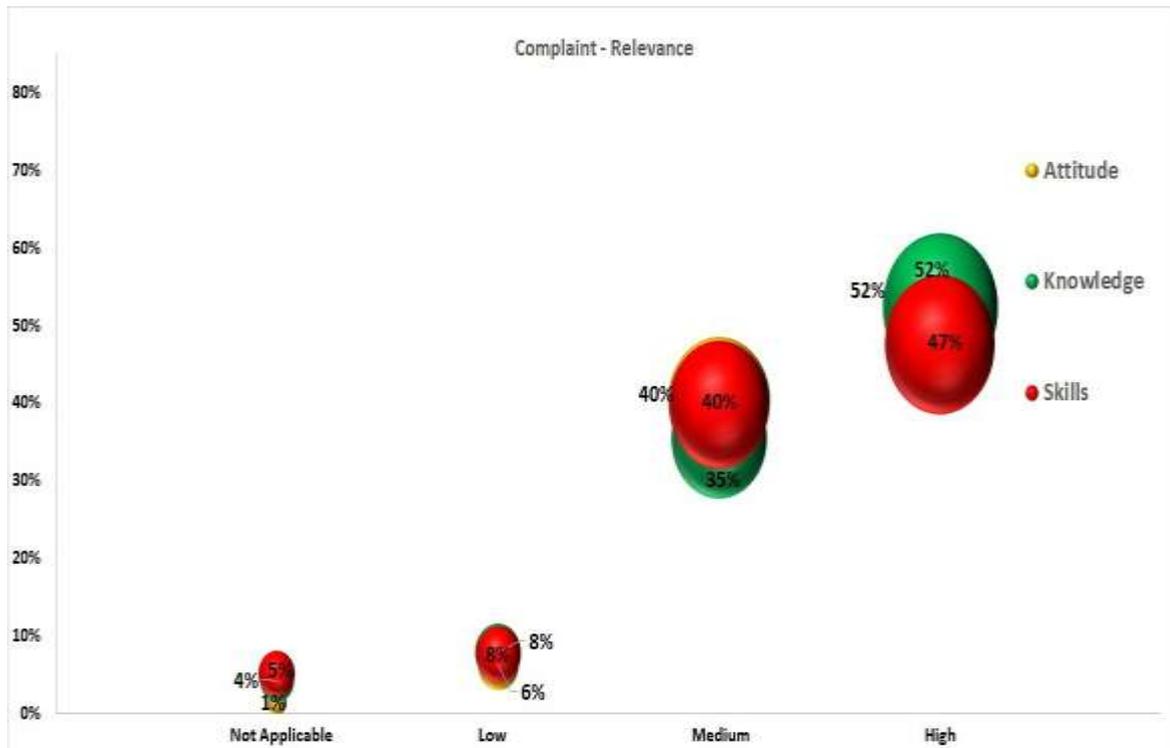
- Ranging from 24% to 33%, employees prioritized training for all the components as P3.
- Ranging from 33% to 44%, employees prioritized training for all the components as P2.
- Ranging from 28% to 43%, employees prioritized training for all the components as P1.

Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Majority of the participants need to be trained at intermediate level in components of ‘EIA’ under high priority (P1)
- Majority of the participants need to be trained at intermediate level in components of ‘general management’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in components of ‘planning’ under high priority (P1)
- Majority of the participants need to be trained at intermediate level in components of ‘public governance’ under moderate priority (P2).

2. COMPLAINT MANAGEMENT

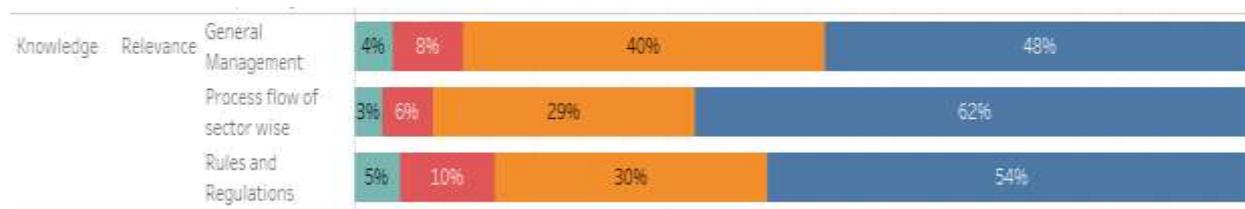


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Complaint relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

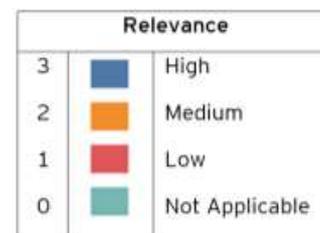
Section B: Gap Analysis (Complaint)

I. Knowledge

Relevance



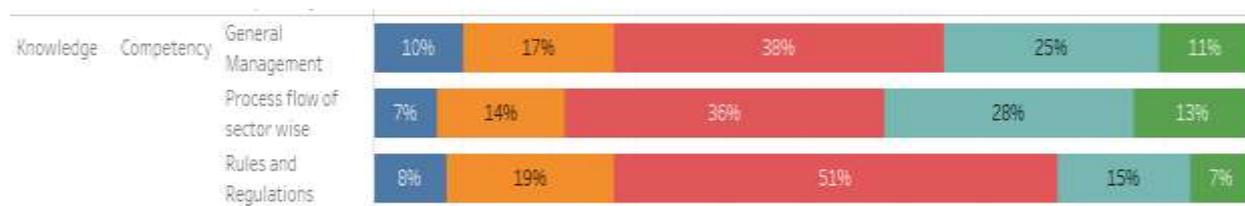
The knowledge questions portrayed under Complaint sets out the criteria to evaluate the understanding of the respondent against identified components (General Management, Process flow of sector wise and Rules and Regulations).



General Observations:

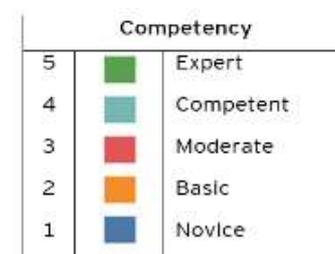
- 62% of the respondents rated ‘Process flow of Sector wise’ to be highly relevant with job. Whereas, 29% of the employees, ranked the aforementioned component as moderately relevant.
- 54% of the employees rated ‘Rules and Regulations’ to be of high relevance whereas 10% rated this component as low relevance and 30% as moderately relevant to their job.
- Up to 5% of the population ranked General Management, Process flow of sector wise and Rules and Regulations as irrelevant to the nature of their job.

Competency



General Observations:

- For the element ‘Process flow of Sector wise’ 13% of the employees rated themselves as experts, whereas 50% of the employees rated their competency level from basic to moderate capability.
- 10%, 07% and 08% of the employees rated their knowledge to be at ‘novice’ level for the components ‘General Management’ and ‘Process flow of Sector wise’ and ‘Rules and Regulations’ respectively.
- Ranging from 15% to 28% of the employees rated themselves as ‘fully competent’ for the aforesaid components.
- 36% to 51% of the employees rated themselves as moderately competent for the aforesaid components

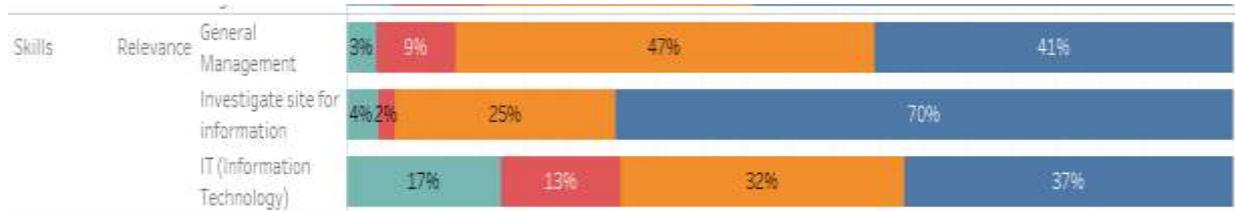


Inferences:

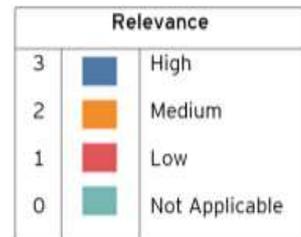
- 62% of the employees are of the view that ‘Process Flow of Sector Wise’ is highly relevant with job. The case was in contradiction with the competence level for the very same constituent, as more than half (57%) of the employees rated their competency at novice to moderate level.
- 54% of the respondents under the element ‘Rules and Regulations’ considered the relevance as high whereas 51% population marked their competency to be moderate and only 7% of the respondents assessed their competency for the same component to be at expert level.

II. Skills

Relevance



The skill questions portrayed under Complaints sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Investigate site for information, general management, (IT) Information Technology).



General Observations:

- 70% of the respondents rated their skill set under ‘Investigate site for information’ to be highly relevant to their job whereas 27% rated the relevance as either low or medium while 4% ranked the element as irrelevant.
- 3% and 17% of the population rated their skill set to be irrelevant to the nature of their job under the elements ‘General Management’ and ‘IT (Information Technology)’.
- Ranging from 2% to 13% of the respondents ranked their skill set at low relevance under the components ‘General Management’, ‘Investigate site for Information’ & IT(Information Technology).

Competency



General Observations:

- 11% of the respondents marked their competency at an expert level under the constituent ‘Investigate site for Information’ while this figure is 6% and 9% for the constituents ‘General Management’ and IT (Information Technology)’
- Majority of the population i.e. ranging from 35% to 41%



assessed their competency under the aforesaid sections at moderate level

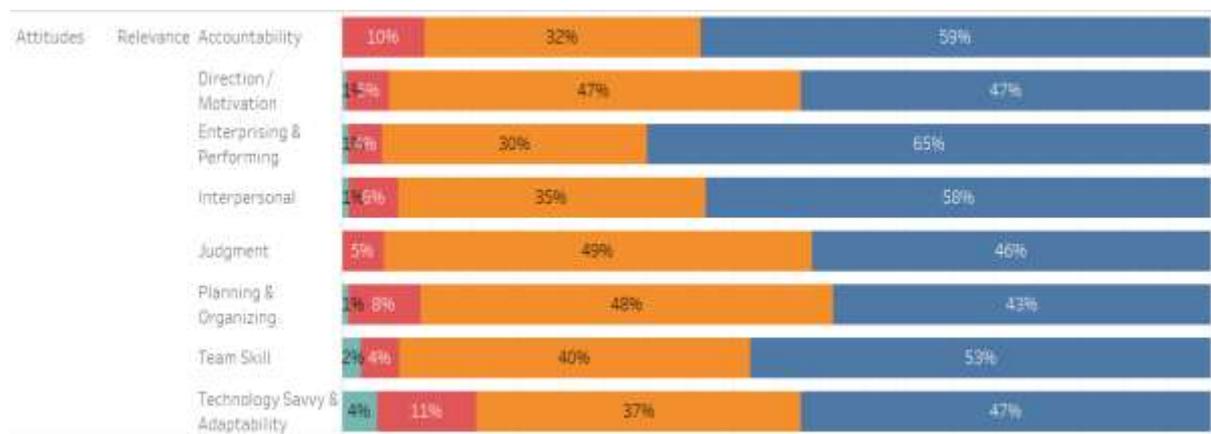
- Ranging from 15% to 19% employees are such who categorized their skills at basic competency level for the above mentioned components.
- Under the section IT (Information Technology) 13% rated their competency at novice level while the number being lowest under the head 'General Management' i.e. 3%.

Inferences:

- 69% of the employees are of the view that skill set under 'IT' Information' is moderate to highly relevant with the job. This is in contradiction with their competence level for which 32% of employees rated their competency as either fully competent or at an expert level.
- 41% of the employees ranked their skill set under 'General Management' 'as highly relevant with job. But the case is in contradiction with their competence level for which 59% of employees rated their competency from novice to moderate capability.

III. Attitude

Relevance



The attitude questions portrayed under Complaints sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Communication, Direction/Motivation, Interpersonal, Judgment, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.

General Observations:

- Enterprising & Performing have been ranked highly relevant at 65%
- 15% of the population were of the opinion that technology savvy & adaptability is less or not relevant to their job
- All components have been marked highly relevant ranging from 43% to 65%.

Competency

General Observations:

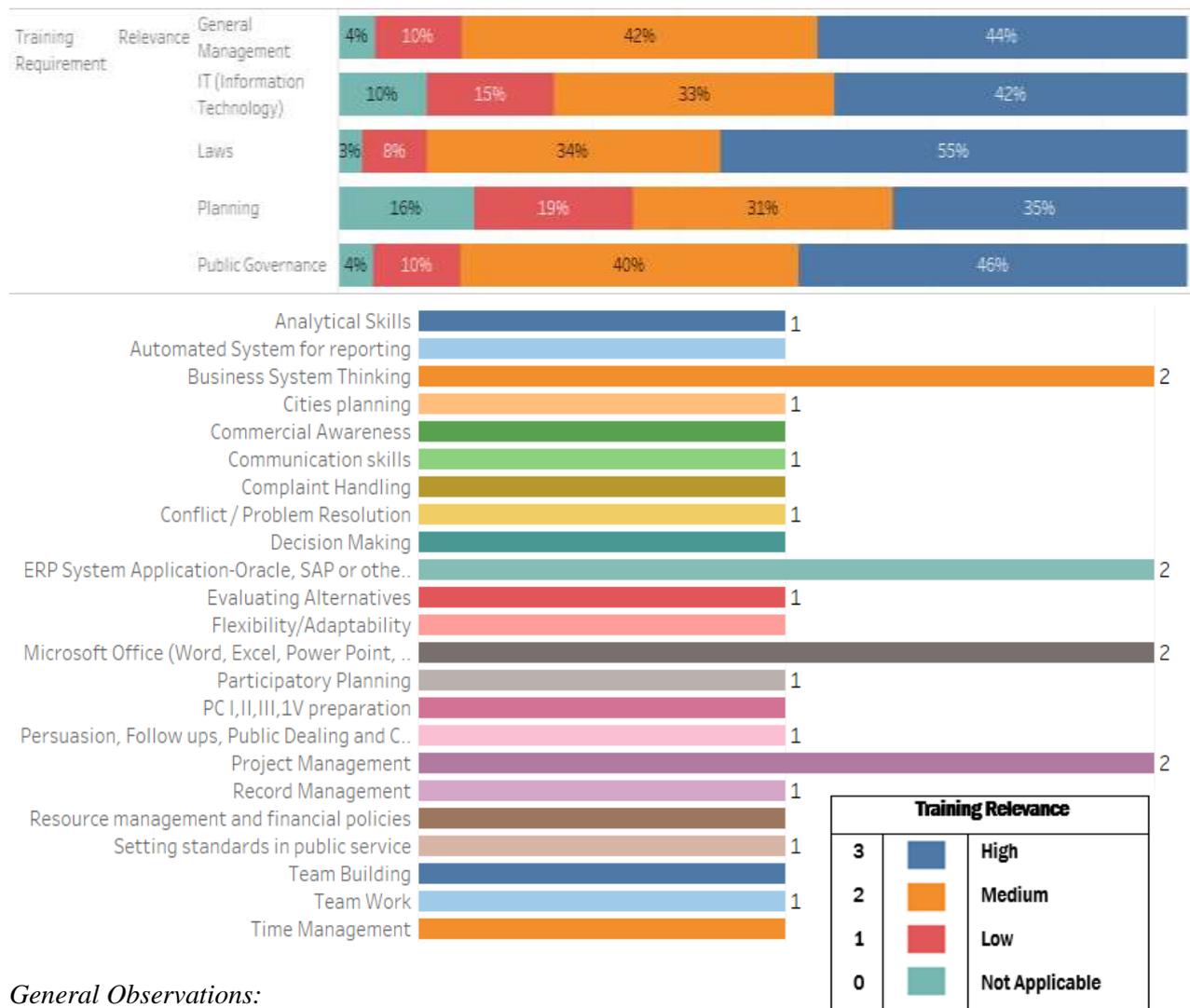
- 10% to 19%, of the participants have ranked their competency at expert level in all of the aforesaid components
- Majorly all components have been marked at moderate competency level ranging from 33% to 44%
- Approx. 3% of the population has ranked their competency at novice level in all of the aforesaid components.

Inferences:

- 65% of the participants are of the opinion that ‘Enterprising & Performing’ is of high relevance to their job; whereas, 48% of the participants have ranked themselves from novice to moderate level in competency.
- In relevance of ‘Accountability’, 90% of the participants fall under either high or medium ranges which is in contradiction with their competency level as 44% of the participants fall between the category of novice to moderate
- Under the head ‘Interpersonal’, more than 90% of the participants have rated their relevance from medium to high; on the other hand, only 57% of the individuals are such who are either competent or experts for the aforesaid element.
- In team skills, 93% of the individuals have assigned medium to high relevance; but on competency end, 53% of the participants have marked themselves as either fully competent or experts.

Section C: Training Requirements (Complaint)

I. Training Requirements - Relevance

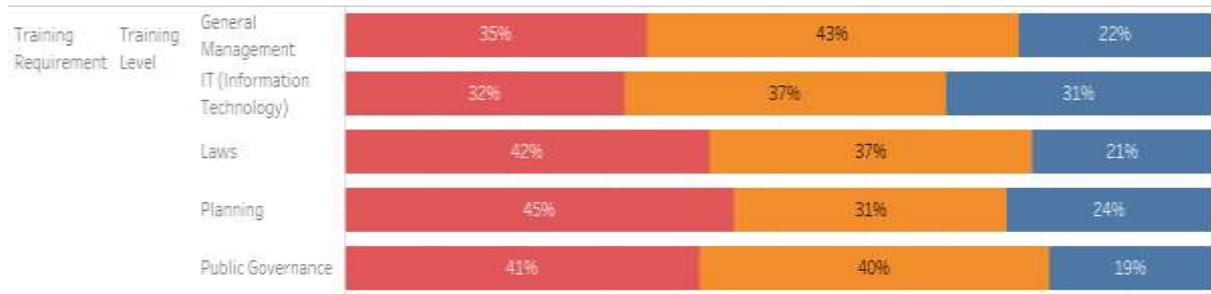


General Observations:

- 42% of the respondents ranked component ‘General Management’ as moderately relevant; on the other hand 44% individuals rated it as highly relevant.

- 55% of the participants rated the constituent ‘Laws’ as highly relevant while 34% are of the opinion that training requirement for the above mentioned component is moderately relevant.
- Ranging from 8% to 19% ranked all the elements as of low relevance with training requirement.
- 2 employees opted for ‘Business System Thinking’, ‘ERP System Application’, ‘Microsoft Office’ and ‘Project Management’ whereas 1 employee opted for the rest of the components.

II. Training Level

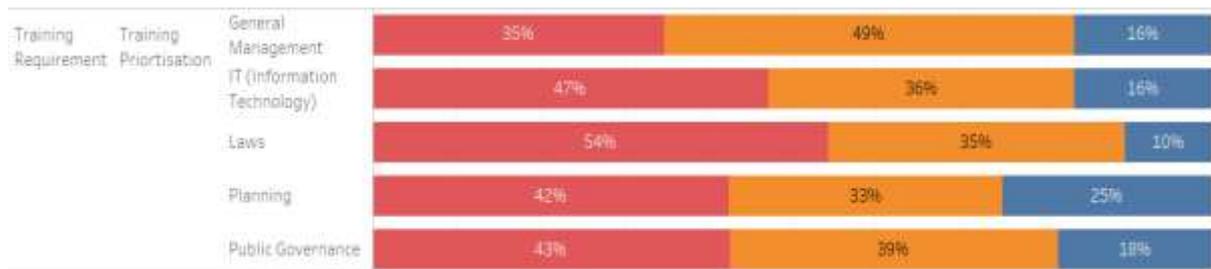


General Observations:

- 31% (being highest out of all components) of the employees ranked advanced training level requirement for the component ‘IT (Information Technology)’.
- 43% (being highest out of all components) of the employees ranked intermediate training level requirement for the component ‘General Management’.
- 45% (being highest out of all components) of the employees ranked basic training level requirement for the component ‘Planning’.

Training Level		
3		Advanced
2		Intermediate
1		Basic

III. Training Prioritization



General Observations:

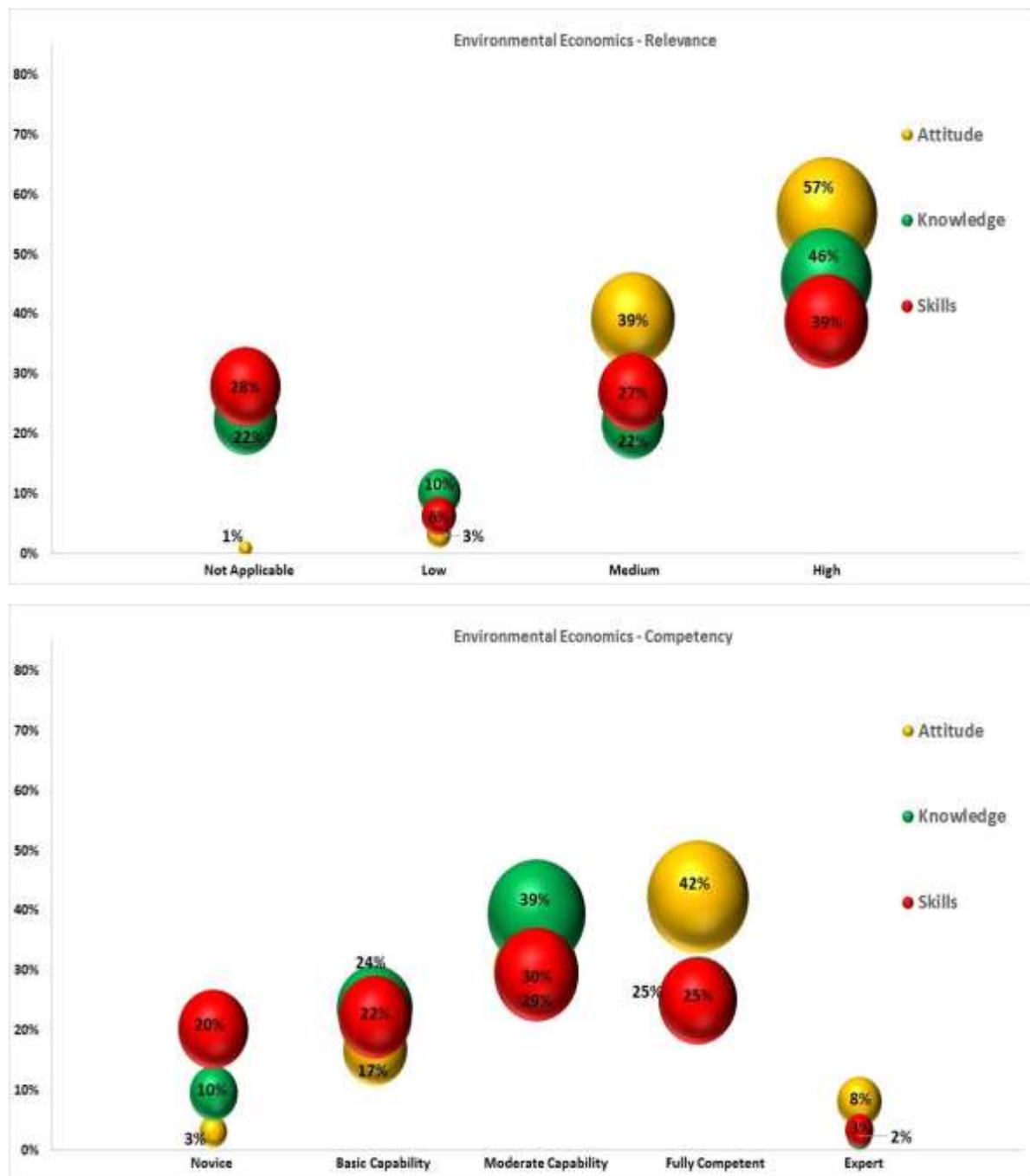
- ‘Laws’ was voted the most prioritized element (54%) among all the components falling under Training Requirement.
- 25% of the population lie in the pool of respondents who rated priority level 3 for the component ‘Planning.’
- 49% (being the highest) of the population lie in the pool of respondents who rated priority level 2 for the component ‘General Management’

Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Ranging from 31% to 43% of the participants need to be trained at intermediate level in all components
- Ranging from 32% to 45% of the participants need to be trained at basic level in all components
- Ranging from 19% to 31% of the participants need to be trained at advanced level in all components.

3. ENVIRONMENTAL ECONOMICS

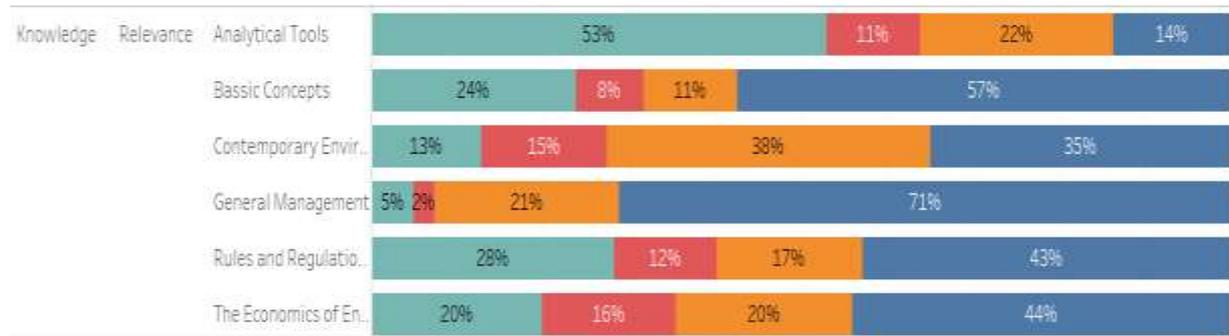


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Environmental Economics relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (Environmental Economics)

I. Knowledge

Relevance



The knowledge questions portrayed under Environmental Economics sets out the criteria to evaluate the understanding of the respondent against identified components (Analytical Tools, Basic Concepts, Contemporary Environmental Issues, General Management, Rules and Regulations and The Economics of Environmental Quality).

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- 5% of the employees rated ‘general management’ to be not applicable at their current job. Whereas, 71% rated ‘general management’ to be highly relevant with job. Meanwhile, 2% scored low relevance for the particular component.
- Less than 40% employees rated ‘contemporary environmental issues’ to be moderately relevant.
- Ranging from 5% to 53% employees marked all of the elements falling under ‘Environmental Economics’ as irrelevant to the nature of their job.
- Four elements scored medium relevance (the economics of environmental quality, general management, Contemporary Environmental Issues and analytical tools), recording more than 20% responses.
- The maximum percentage 71% of respondents rated ‘general management’ to be highly relevant with respect to environmental economics. Whereas, majority of the employees (53%) recorded ‘analytical tools’ to be of no relevance with their work.

Competency



General Observations:

- More than half of the population (57%) recorded their competence to be at ‘moderate capability’ for component ‘the economics of environmental quality’.
- Zero responses recorded for employees being at expert level for element ‘analytical tools’. Whereas, 5% recorded responses were the highest population of being at expert level for component ‘rules and regulations’.
- Ranging from 32% to 57% employees rated their competency to be at moderate capability for ‘basic concepts’, ‘contemporary environment issues’, ‘general management’, ‘rules and regulations’ and ‘The Economics of Environment’.
- More than half of the population (51%) rated ‘analytical tools’ to be at basic capability.
- 17% being the highest percentage shared by the employees as ‘novice’ for element ‘analytical tools’.
- Only 2% employees rated their skill set to be at ‘novice’ level for the component ‘contemporary environment issues’.
- For the element ‘general management’, 47% and 9% are the recorded extremes for ‘fully competent’ skill level.

Competency		
5	■	Expert
4	■	Competent
3	■	Moderate
2	■	Basic
1	■	Novice

Inferences:

- 92% of the population are of the view that ‘general management’ is either highly or moderately relevant with job. This was in harmony with the competence level for which the employees rated their skill at ‘moderate capability’ or higher with a collective percentage of 86%.
- Analytical tools have been rated 64% with respect to zero to low relevance with job, with majority (68%) of the employees rating their competency to be at ‘novice’ or ‘low’ level.
- Majority of the respondents (57%) rated basic concept to be highly relevant with their jobs while more than half (64%) employees scored their skills to be of moderate capability or higher.
- Approximately half of the population (44%) rated ‘the economics of environment quality’ to be highly relevant. Whereas, 57% of the respondents lie in moderate capability zone as depicted by the competency chart.
- ‘Contemporary Environmental Issues’ have been categorized, either moderately or high relevant with respect to job. While, most of the employees fall in the range of ‘moderate capability’ (45%).

II. Skills

Relevance



The skill questions portrayed under Environmental Economics sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Analytical Tools, Environmental Policy, General Management, Planning and Research & Investment).

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- ‘Analytical tools’ has a high rating of 67% for being ‘not applicable’ to job. While, only 3% rated element ‘general management’ to be of zero relevance with job.
- 63% employees have recorded ‘general management’ to be highly relevant skill. Whereas, ‘environmental policy’ recorded the lowest of 6% in the aforementioned relevance factor.
- Majority of the population, more than 50%, have rated elements ‘analytical tools’ and ‘environmental policies’ to be zero or low relevance skill required for the job.
- Whereas, more than 50% of the respondents voted elements ‘research and investments’, ‘general management’ and ‘planning’ medium to highly relevant.
- Less than one sixth of the population voted all the elements to be of low relevancy with respect to environmental economics.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Competency



General Observations:

- Less than 5% employees rated their competency at expert level for all elements.
- 4% is the highest while 1% is the lowest score for the elements ‘research and investment’, ‘general management’ and ‘planning’.
- The majority (48%) number of employees rated to be novice level competent for element ‘environmental policy’. While, only 9% rated to be novice for component ‘general management’.
- The second most component to be rated at novice level competency is the element ‘analytical tools’ with a score of 43%.
- Ranging from 13% to 15%, employees rated their skills to be novice level proficient for elements ‘planning’ and ‘research and investment’.

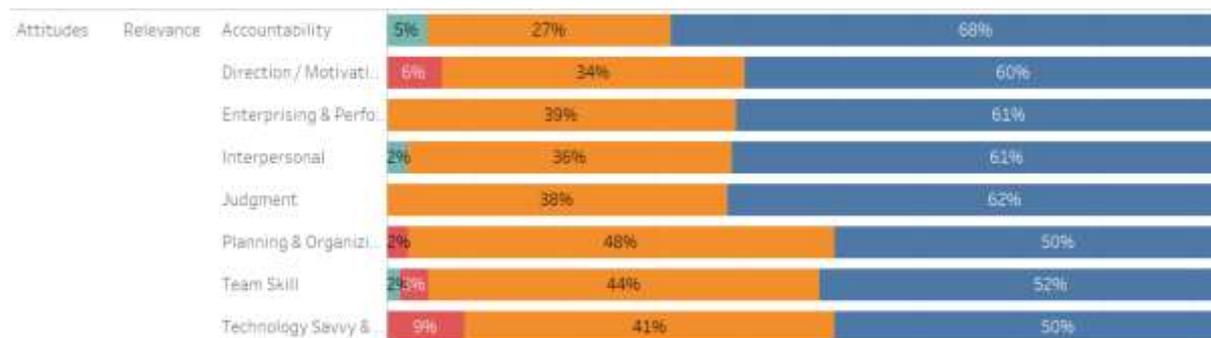
Inferences:

- ‘Analytical tools’ and ‘environmental policy’ are the highest two elements (i.e 67% & 66% respectively) which have been rated irrelevant with their respective job. Whereas, the competency for both of these elements has also been rated low or at novice level. Hence, it is prudent to mention here either employees be trained or communicated regarding these particular elements.

- There is a general consensus on the component ‘general management’ being part of the respondents’ job description. Hence, majority of the employees have a proficient skill level to perform this task. 7% employees who recorded low on this particular element should be identified and quarantined.
- ‘Planning’ and ‘research and investment’ has recorded a skill level (relevance) of 33% and 14%, respectively. Therefore, training sessions and knowledge boosters are a requirement to address gaps in the aforementioned components.

III. Attitude

Relevance



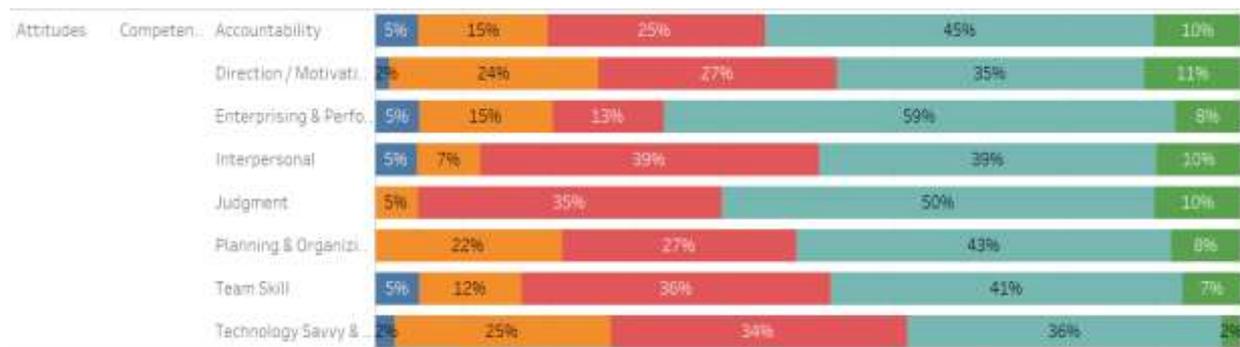
The attitude questions portrayed under Environmental Economics sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgement, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.

Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

General Observations:

- 68% has been recorded the highest number of respondents rating ‘accountability’ as the most relevant attitude with respect to environmental economics.
- Five elements scored more than 60% with respect to relevance i-e high on relevance with environmental economics that are ‘accountability’, ‘direction/motivation’, ‘enterprising and performing’, ‘interpersonal’ and ‘judgement’.
- Ranging from 30% to 50%, all respondents marked the elements as medium relevant with respect to their job except for the component ‘accountability’ (27%).
- ‘Technology savvy & adaptability’ scored the maximum, in being the lowest relevant with job among the other elements (9%).
- None of the employees found the elements ‘enterprising & performing’, ‘direction/motivation’, ‘planning & organizing’, ‘judgement’ and ‘technology savvy & adaptability’ to be of zero relevance with job.
- Element ‘accountability’ recorded a figure of 5% being ‘not applicable’ with job. While, elements ‘interpersonal’ and ‘team skill’ recorded 2% for the relevance.

Competency



General Observations:

- 11% employees being the highest recorded their competency at expert level for component ‘direction/motivation’. Whereas, 2% being the lowest number of respondents scored expert level competency for element ‘technology savvy & adaptability’.
- Ranging from 35% to 59%, all employees rated themselves as ‘fully competent’ for each of the components.
- Between 2% to 5% respondents evaluated their competency ‘novice’ for every element except for ‘judgement’ and ‘planning & organizing’.
- ‘Technology savvy and adaptability’ is the only component which has been rated by most of the employees to have low competency level i-e 25%.
- A mere 5% respondents believed their skills to be of low-level with respect to competency for the element ‘judgement’.

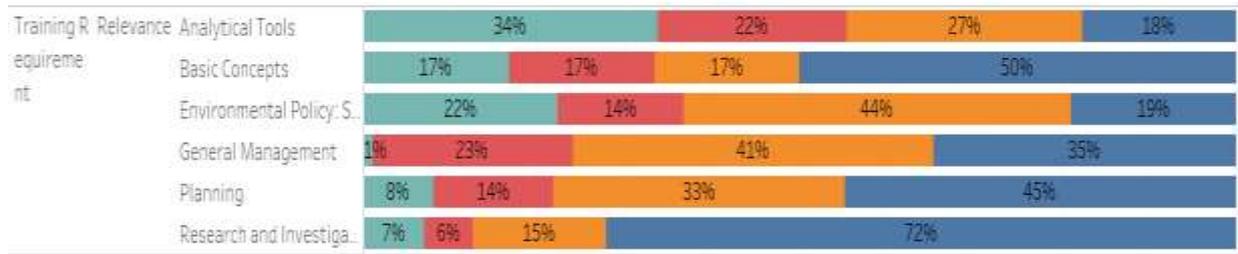
Competency	
5	Expert
4	Competent
3	Moderate
2	Basic
1	Novice

Inferences:

- Majority of the employees rated ‘accountability’ to be highly relevant to job. And, the competence level of the employees is recorded to be either at expert or moderate level. There is a 5% employee base who thinks that this element is neither of relevance nor they have a decent capability for it i-e novice competency recorded.
- More than 80% employees believed there was either moderate relevance or more for all the components with respect to their job. The same majority believed themselves to be at expert level for all the elements.
- Approximately 10% employees rated all the elements to be low relevance or of zero relevance with their job. While, less than 30% defined their proficiency at low or novice level, as being reflected by the ratings.

Section C: Training Requirements (Environmental Economics)

I. Training requirements - Relevance

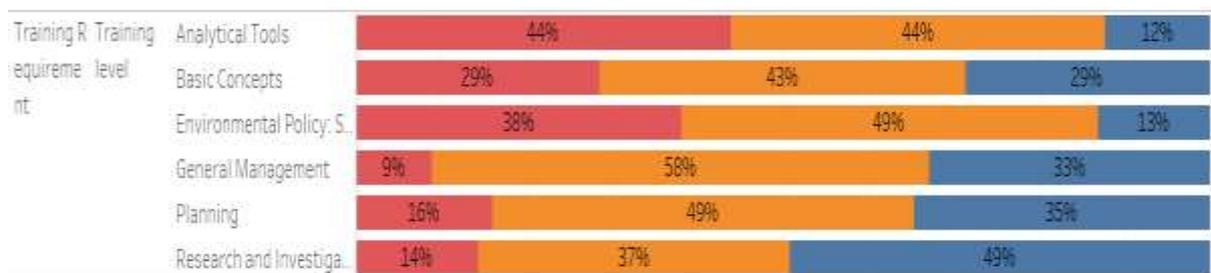


General Observations:

- ‘Research and Investigation’ has been ranked highest amongst all the elements i-e 72% with respect to training requirement relevance.
- Approx. half of the population, ranging from 45% to 50%, rated elements ‘basic concepts’ and ‘planning’ to be highly relevant.
- Less than two fifth of the respondents scored high relevance for the components ‘general management’, ‘environmental policy’ and ‘analytical tools’.
- Ranging from 33% to 44% of the employees scored medium relevance for the components ‘planning’, ‘general management’ and ‘environment policy’.
- Less than one fourth of the employees rated all the components to be of low relevance in context to training relevance.
- 34% recorded the highest percentage of responses for the element ‘analytical tools’ of being not applicable in relation to relevance. While, 1% is the lowest record for the element ‘general management’ in the aforementioned situation.

Training Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

II. Training Level



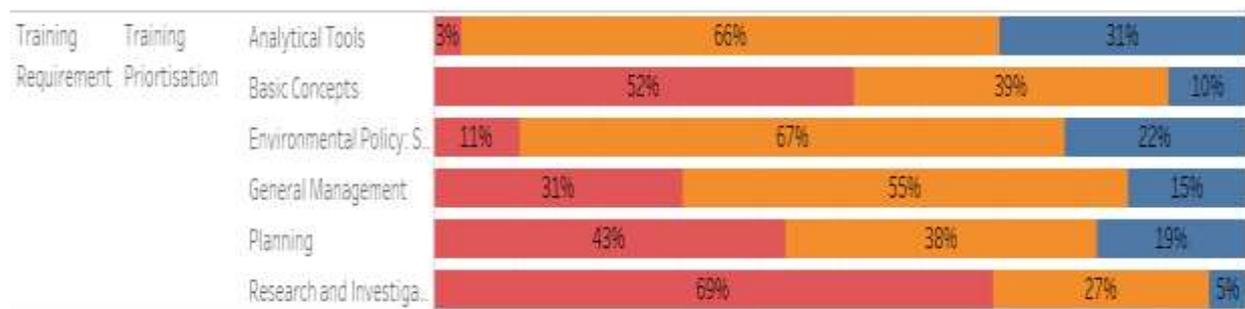
General Observations:

- ‘Research and investigation’ has been ranked the highest (49%) by employees amongst all the elements at advanced training level.
- ‘Analytical tools’ has been rated the highest by employees amongst all the elements at 44% (basic level training). Whereas, 12% of the respondents voted for advanced level training for the aforementioned component – lowest rated element with respect to advanced level trainings.
- 9% of the employees wanted basic level training for the component ‘general management’, lowest rating recorded for the category basic level requirements.

Training Level		
3		Advanced
2		Intermediate
1		Basic

- Employees ranging from 37% to 58% opted for ‘intermediate’ level training for all the components.
- Respondents ranging from 29% to 35% opted for ‘advanced’ level trainings for the elements ‘planning’, ‘general management’ and ‘basic concepts’.
- Employees ranging from 10% to 20% opted for ‘basic’ level training and ‘advanced’ level training for components; planning, research and development. And, ‘environmental policy’ and ‘analytical tools’, respectively.

III. Training Prioritization



General Observations:

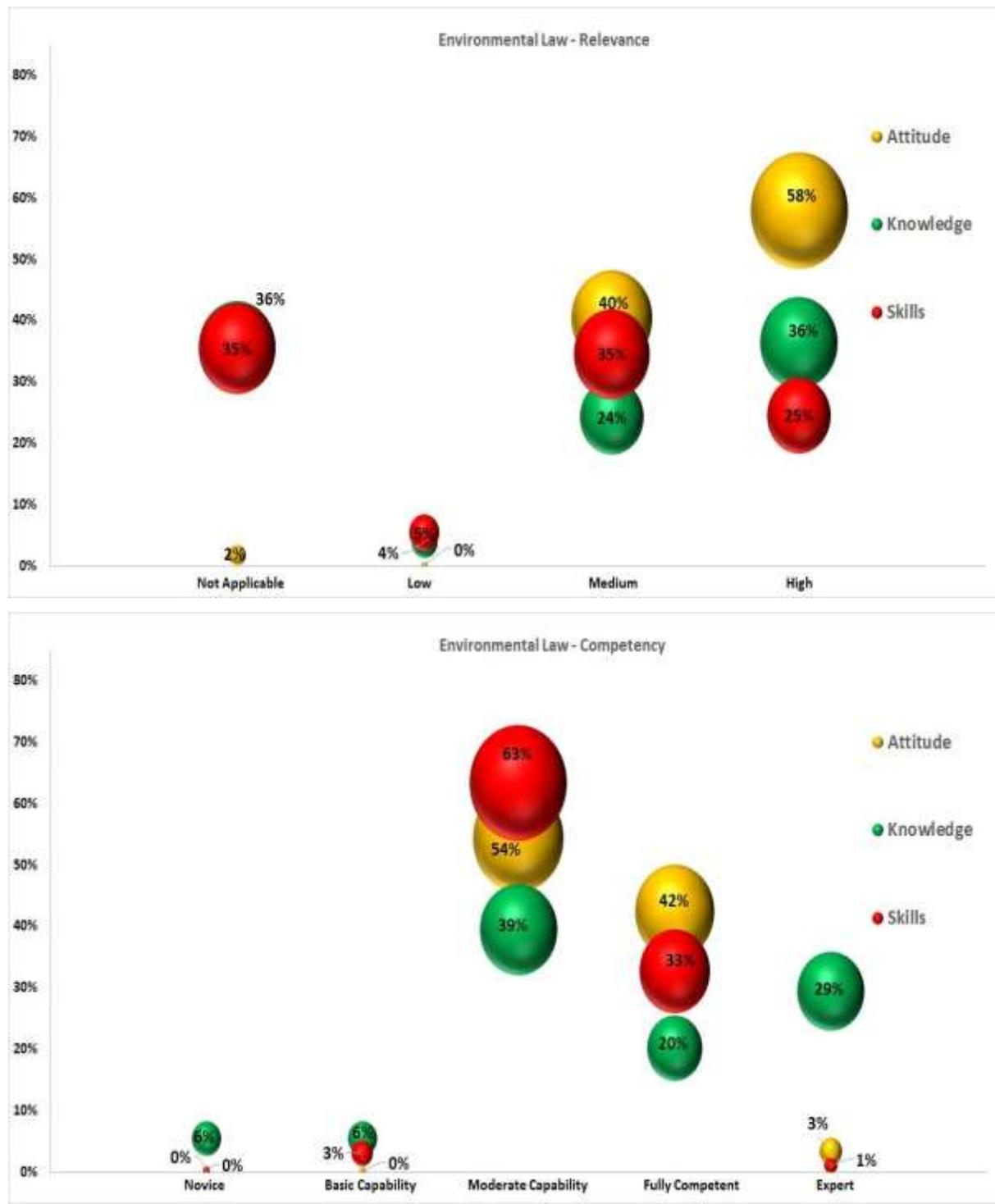
- ‘Research and investigation’ has been scored the highest by employees amongst all the elements at 69% (training prioritization level 1). Whereas, ‘analytical tools’ recorded the lowest percentage of ratings (3%) amongst all the components.
- ‘Analytical tools’ has been rated the highest by employees amongst all the elements at 31% for training prioritization level 3. Whereas, ‘research and investigation’ recorded the least percentage of ratings (5%) amongst all the components for the same prioritization level.
- For the elements ‘environmental policy’, ‘analytical tools’ and ‘general management’, more than half of the respondents rated prioritization level 2.
- Approximately, 40% employees suggested elements ‘planning’ and ‘basic concepts’ to be at priority level 2.
- The least number of employees who suggested priority level 2 is for the component ‘research and investigation’.

Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Training relevance, training level and training prioritization, all three aspects, have a strong relationship with each other for the component ‘research and investigation’. The high scores in all three segments is the basis for the above conclusion.
- ‘Analytical tools’ has been peaked for being irrelevant with the job of the employees. Hence, the same trend can be seen in the aforesaid segment as majority of the respondents have opted for either basic or intermediate level training with only 3% rating this element as a priority level 1 with respect to their job.
- ‘Basic concepts’ has been rated highly relevant (50%) while more than half of the respondents (52%) scored it priority level 1. 58% suggested basic and advanced level trainings while 43% opted for intermediate training.

4. ENVIRONMENTAL LAW



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Environmental Law relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

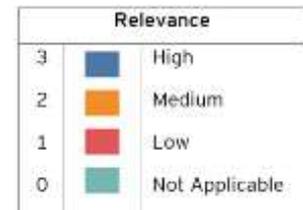
Section B: Gap Analysis (Environmental Law)



I. Knowledge

Relevance

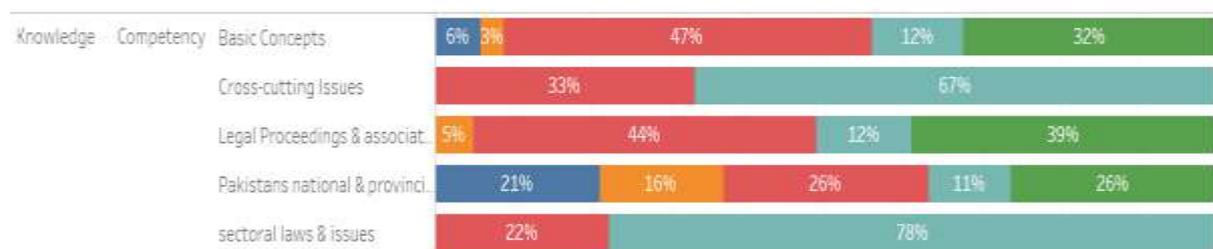
The knowledge questions portrayed under Environmental Law sets out the criteria to evaluate the understanding of the respondent against the identified components (Basic Concepts, Legal proceedings & associated processes, Pakistan’s national & provincial environmental statute, sector laws & issues, and cross cutting issues).



General Observations:

- ‘Legal proceedings and associated processes’ attained the highest relevancy of 55% among all the components of knowledge
- Most of the employees found ‘basic concepts’ to be relevant as they either fall under moderate (43%) or high (40%) relevancy
- ‘Cross cutting issues’ and ‘sectoral laws & issues’ are ranked irrelevant by majority of the respondents ranging from 70% to 75%
- Other areas like ‘Pakistan national & provincial environmental statute’ and ‘sectoral laws & issues’ have been marked highly relevant ranging from 19% to 20%
- No one has ranked either low or moderate level of relevance with respect to cross cutting issues.

Competency



General Observations:

- More than half of the population recorded their knowledge to be fully competent under ‘cross-cutting issues’ and ‘sectoral laws and issues’ as they signified 67% and 78% of the portion, respectively.
- Lowest number of percentage for competency (novice) has been recorded for ‘basic concept’
- ‘Basic concepts’, ‘legal proceedings & associated precosses’, ‘Pakistan’s national and provincial statute’ are the only components in which participants have ranked their competency to be at expert level ranging from 26% to 39%

- Nominal percentage has been recorded in basic level competency ranging from 03% to 16% for ‘Basic concepts’, ‘legal proceedings & associated processes’ and ‘Pakistan’s national and provincial statute’

Inferences:

- In ‘Basic Concepts’, more than 80% of the respondents considered it to be highly or of moderate relevance; whereas, almost half of the participants have ranked their competency at moderate level
- Majority of the respondents consider ‘Cross cutting issues’ to be irrelevant (75%) where rest of them consider it be highly relevant; but majority of the individuals have marked their competency to be at moderate or fully competent
- More than half of the respondents consider ‘Legal proceedings & associated processes’ to be highly relevant with their jobs; which is in harmony with their competency level as more than 50% have ranked themselves to be expert or fully competent
- Almost half of the population consider ‘Pakistan’s national & provincial environmental statute’ as medium or highly relevant; whereas 63% of the participants fall under the category ranging from novice to moderate level competency
- 70% of the participants are of the opinion that ‘sector laws & issues’ are irrelevant with their jobs; whereas, almost 80% of the individuals have marked their competency level at fully competent.

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

II. Skills

Relevance



The skill questions portrayed under Environmental Law sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (The process, soft skills, general management, and IT).

General Observations:

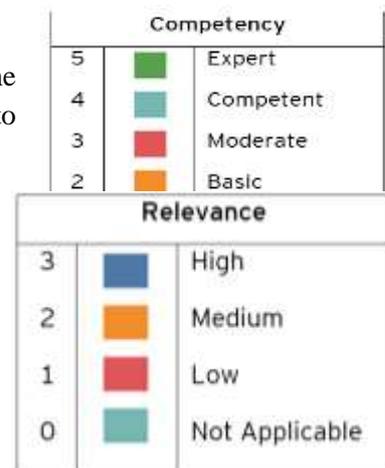
- The majority rated their skills as not applicable to perform the tasks as they represented more than 50% of the respondents in the areas of ‘IT’ and ‘The process’
- High relevancy of skills was attained by the ‘soft skills’ bagging 50% of the score. While only a minor portion (08%) has marked it not applicable
- The low relevancy being ranked by an insignificant portion of the employees as it was 10% or below in all the areas
- Moderate relevance are being marked for all components ranging from 25% to 48%
- Followed by ‘soft skills’, components of ‘general management’ are also being marked either moderate or highly relevant accumulatively almost by 80% of the participants.

Competency



General Observations:

- The respondents most commonly rated their skills to be at the moderate level of competency, highly ranging between 60% to 70% in all the components
- Rest of the skills were assessed to be at the fully competent level and covered below 40% of the minority
- A minimal value of 03% was appointed to the Expert under ‘The process’ only
- There were zero responses recorded for employees being at the novice competency level in all the areas
- Basic competency was achieved by the ‘general management’ and ‘IT’ with minor ratings of 03% and 18% respectively.

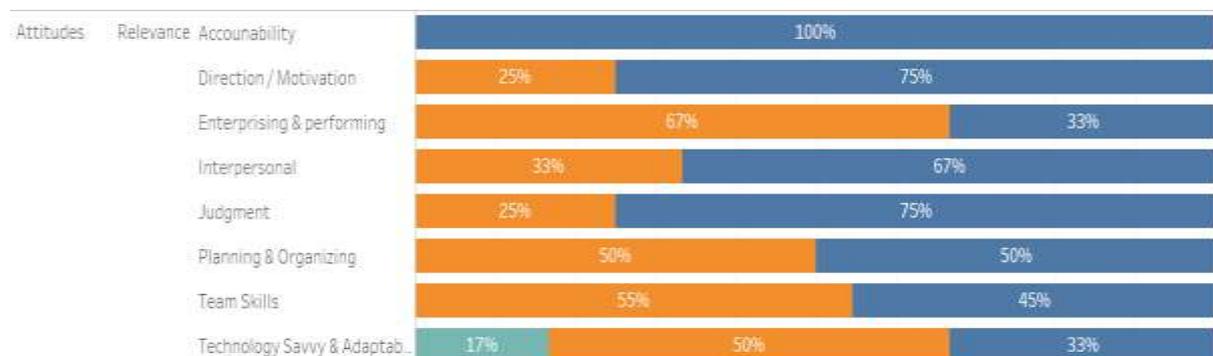


Inferences:

- The ‘general management’ had its skills relevance from medium to high level. It matched its potential as it had a vast majority of 60% at the moderate level as well, along with the rest 38% scoring the competent level.
- Half of the responses recorded in ‘IT’ were not applicable. Although its competency level was recorded at the moderate level scoring 64%.
- The ‘soft skills’ were ranked at high relevance with competency matching the moderate level at 70%.
- The skills in the ‘the processes’ were not applicable by a majority of 50% while their competency matched the moderate level at 65% and competent level at 33%.

III. Attitude

Relevance



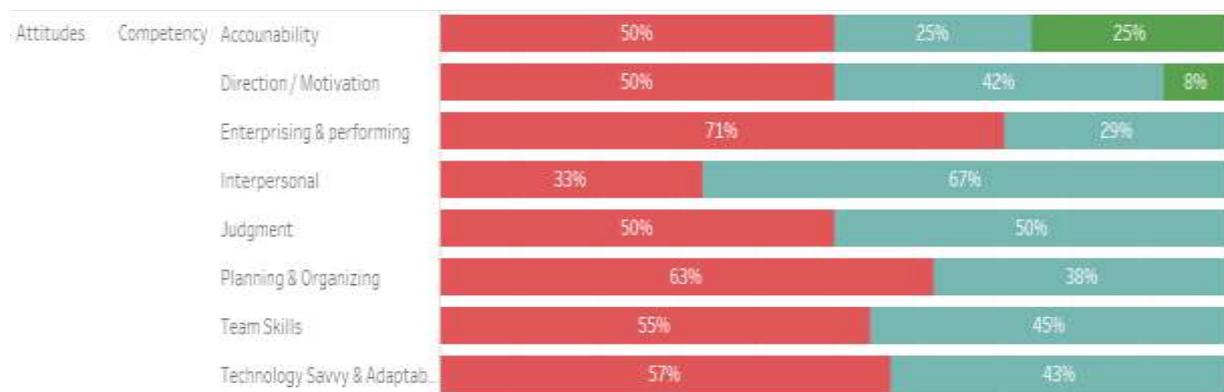
The attitude questions portrayed under Environmental Law sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability,

Direction/Motivation, Enterprising & Performing, Interpersonal, Judgement, Planning & Organization, Team Skills, and Technology Savvy & Adaptability.

General Observations:

- The ‘Accountability’ was evaluated to be highly relevant as it scored a full 100% in comparison with the other elements; the other areas of attitudes were also assigned high relevance as well, ranging from 33% to 75%
- ‘Enterprising and performing’ had the highest moderate relevancy level of 67% out of all other elements of attitudes; the other areas of attitudes were also assigned medium relevance as well, ranging from 25% to 55%
- There were nil responses for low relevance in all the components of attitudes
- A minority of 17% was recorded as not applicable only under ‘Technology savvy and adaptability’.

Competency



General Observations:

- ‘Enterprising and performing’ has the highest moderate level of 71% while rest of the portion is evaluated to be at the fully competent level representing a 29% of the total
- All the elements of attitudes are generally ranked at the moderate level ranging above 30%
- Other is mostly classified at the competent level with ‘Interpersonal’ being the highest, recording a value of 67%
- The expert level of competency were only recorded by ‘accountability’ and ‘direction’ representing 25% and 08% respectively
- There were zero responses recorded for novice and basic level competency.

Competency	
5	Expert
4	Competent
3	Moderate
2	Basic
1	Novice

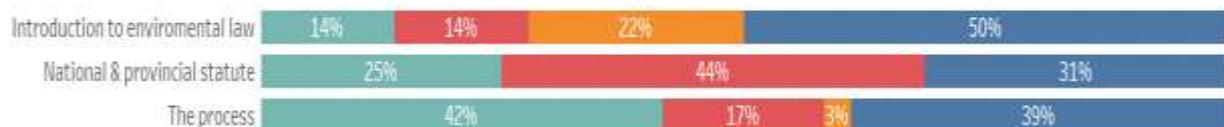
Inferences:

- Accountability was assessed to be highly relevant (100%); whereas, half of the participants fall under the category of moderate competency level
- Direction/Motivation was assessed to be medium or highly relevant (100%); whereas, only 08% individuals are at expert level
- Enterprising & Performing was assessed to be medium or highly relevant (100%); whereas, 71% of the participants are at moderate level
- Interpersonal was assessed to be medium or highly relevant (100%); whereas, 67% of the participants are at fully competent level

- Judgement was assessed to be medium or highly relevant (100%); whereas, their competency level was recorded as a split (50%, 50%) between moderate and fully competent
- Planning & Organization was assessed to be medium or highly relevant (100%); whereas, majority of the participants (63%) fall under the category of moderate competency level
- Team Skills was assessed to be medium or highly relevant (100%); whereas, accumulatively majority fall under the category of either moderate or fully competent leaving on one in expert level
- Technology Savvy & Adaptability was assessed to be of medium relevance (50%); whereas, almost 60% of the participants have ranked their competency level at moderate.

Section C: Training Requirements (Environmental Law)

I. Training - Relevance



General Observations:

- Training on ‘introduction to environmental law’ was ranked highly relevant by the half. High relevance was also anticipated under ‘national and provincial’, and ‘the process’ with 31% and 39% respectively
- Highest low level relevance (44%) is being observed for the components of ‘national & provincial statute’
- 42% of the participants considered components of ‘the process’ to be irrelevant with their jobs
- Lowest figure for medium level relevance (03%) is being observed for the components of ‘the process’

Training Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

II. Training Level

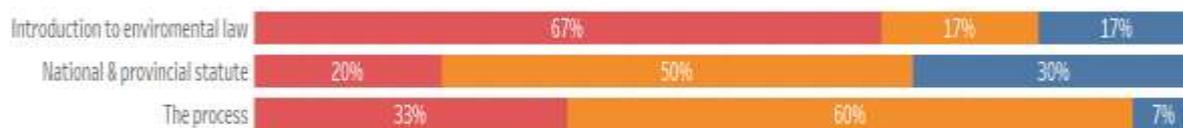


General Observations:

- 43% rated training level at intermediate for ‘introduction to environmental law’ and ‘the process’
- Basic level training is required by majority of the participants (58%) for ‘national and provincial statute’
- Advance level training for all elements were rated between 30% to 45%.

Training Level		
3		Advanced
2		Intermediate
1		Basic

Training Prioritization



General Observations:

- Majority of the participants (67%) rated ‘introduction to environmental law’ as their top priority among the rest
- Majority of the participants (60%) rated ‘the process’ as their medium level priority
- Majority of the participants (50%) rated ‘national & provincial statute’ as their medium level priority
- Ranging from 07% to 30% participants rated low priority for all components.

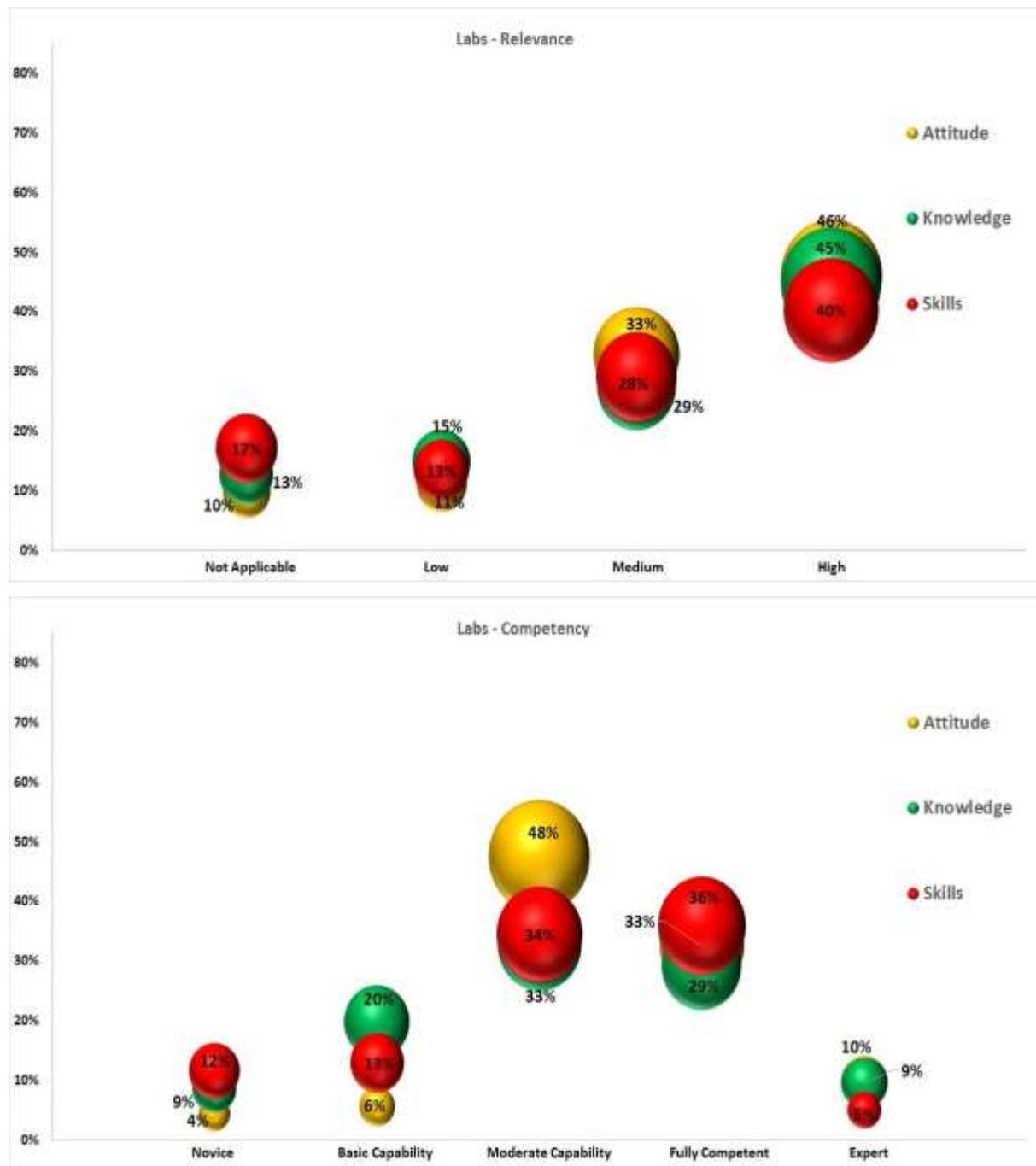
Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Majority of the participants need to be trained at intermediate level in ‘introduction to environmental law’ under top priority (P1)
- Majority of the participants need to be trained at basic level in ‘national & provincial statute’ under moderate priority (P2)
- Only 39% of the participants ranked ‘the process’ to be highly relevant with their training requirements; half of the population need to trained at intermediate level and other half at advance level under moderate priority (P2).

C. Environmental Monitoring Centre (EMC)

1. ENVIRONMENTAL LABORATORIES

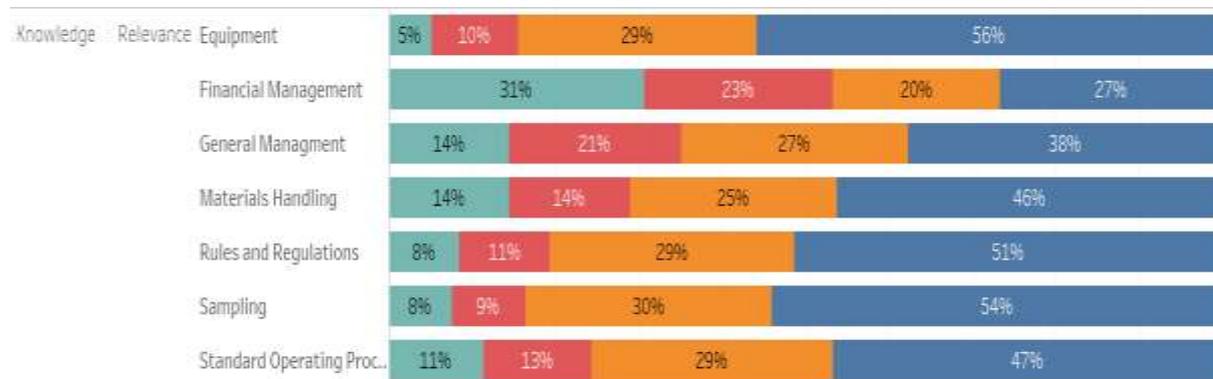


The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Labs relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa

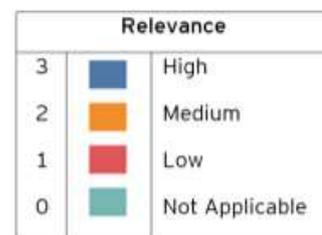
Section B: Gap Analysis (Laboratories)

I. Knowledge

Relevance



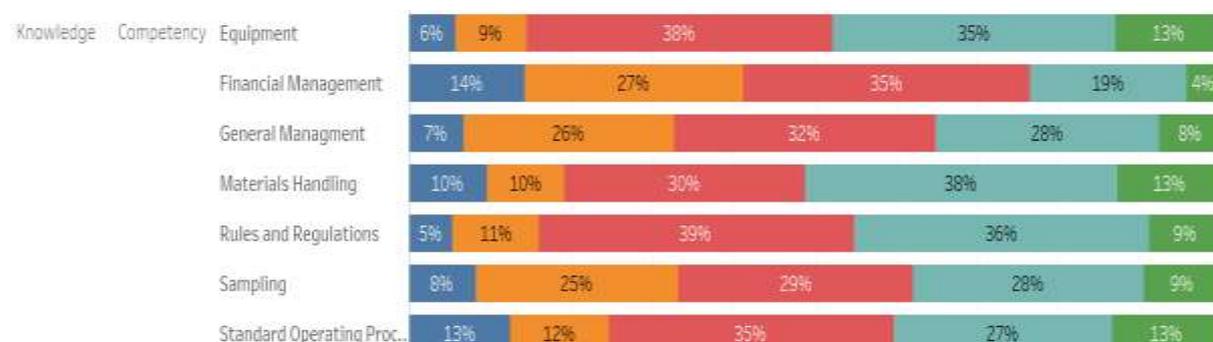
The knowledge questions portrayed under Laboratories sets out the criteria to evaluate the understanding of the respondent against identified components (Equipment, Financial Management, General Management, Material Handling, Rules & Regulations, Sampling, and Standard Operating Procedures).



General Observations:

- Knowledge in ‘equipment’ was recorded at the highest level of relevance (56%); whereas, it had the least (05%) ‘non-applicable’ representation among other elements. High relevancy was also achieved in all other components ranging from 27% to 54%
- Financial management has been an almost equal proportion of high, medium and low responses representing 27%, 20% and 23% respectively. It also has been marked non-applicable by majority of the respondents (31%)
- Responses for medium relevance were ranked between the range of 20% to 30%; medium relevance in areas of ‘equipment’, ‘rules and regulations’, and ‘standard operating procedures’ were recorded at 29%.
- Responses for low relevance were ranked between the range of 09% to 23%.

Competency



General Observations:

- The expert level of competency was achieved by a small number of participants as it ranged from 04% to 13% only. In which 13% was assessed in areas of ‘equipment’, ‘material handling’ and ‘standard operating procedures’

- Fully competent and moderate levels of competency were almost equally distributed among all the components ranging between 19% and 39%
- Highest basic level of competency was ranked at 27% in ‘financial management’; on the other hand, lowest was recorded in ‘equipment’ at 09%
- Novices were recorded in a minimal amount. Its highest (14%) was in ‘financial management’, and the lowest (05%) was in ‘rules and regulations’.

Competency		
5	■	Expert
4	■	Competent
3	■	Moderate
2	■	Basic
1	■	Novice

Inferences:

- More than 80% of the participants have ranked ‘equipment’ to be moderately or highly relevant; whereas, majority of individuals (more than 50%) have ranked their competency level at novice, basic or moderate
- Almost half of the participants consider ‘financial management’ to be highly or of medium relevance; whereas, only 23% individuals are those who have ranked their competency level either at expert or fully competent
- Nearly 40% of the individuals have marked ‘general management’ to be highly relevant; whereas, majority of the participants fall under the category of moderate competency level
- Almost half of the participants ranked ‘material handling’ to be highly relevant; whereas, majority of the individuals (38%) have marked their competency at fully competent
- 80% of the participants ranked ‘rules & regulations’ to be moderate or highly relevant; whereas, more than 50% have ranked their competency level at novice, basic or moderate level
- More than 80% of the individuals have ranked ‘sampling’ to be moderate or highly relevant; whereas only 37% of the respondents have ranked their competency at fully competent or expert level
- More than 75% of the participants have marked ‘standard operating procedures’ highly or moderate relevant; on the other hand majority of the individuals (40%) have ranked their competency level at fully competent or expert.

II. Skills

Relevance



The skill questions portrayed under Labs sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Equipment & Material, Financial Management, General Management, Information Technology (IT), and Planning).

General Observations:

- The majority rated identified components to be highly relevant, except financial management, ranging from 32% to 49%
- All components have been marked moderate and low level relevance ranging from 22% to 33% and 03% to 26% respectively.
- Highest value for medium and low relevance are being considered for ‘general management’ and ‘IT’ respectively
- Financial management is only component being marked ‘not applicable’ (highest) among other components at 30%.

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

Competency



General Observations:

- Half of the participants have marked their competency in ‘equipment & material’ at either fully competent or expert level. Highest level of novice competency is being observed in ‘financial management’
- Majority (42%) of the individuals have rated their competency level at fully competent in ‘general management’
- A considerable small portion of the respondents have marked their competency at basic level ranging from 07% to 19%
- Most of the responses are bifurcated in between fully competent and moderate competency levels ranging from 24% to 42% and 25% to 39% respectively
- Highest level of expert competency level (14%) is being observed in ‘information technology’.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

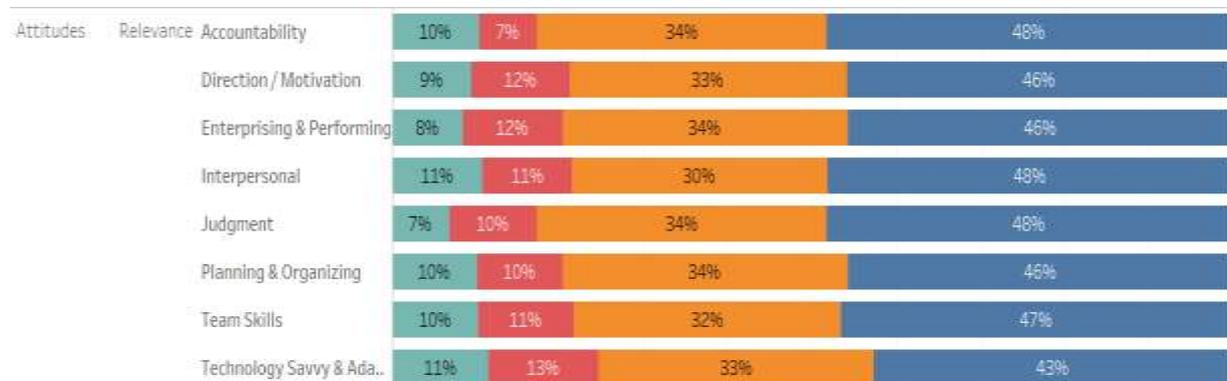
Inferences:

- More than 80% of the participants have ranked ‘equipment & material’ to be moderately or highly relevant; whereas, only half of the participants have ranked their competency level at either fully competent or expert
- More than half of the participants have ranked ‘financial management’ to be moderately or highly relevant; whereas, majority of individuals (46%) have ranked their competency level at either moderate or basic
- Almost 80% of the participants have ranked ‘general management’ to be moderately or highly relevant; whereas, majority of individuals (almost 50%) have ranked their competency level either at moderate or fully competent
- 65% of the participants have ranked ‘IT’ to be moderately or highly relevant; whereas, 32% of the participants have ranked their competency level either at novice or basic

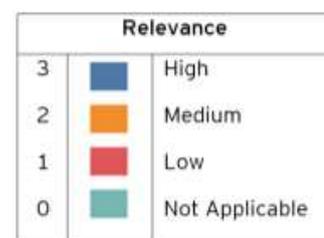
- More than half of the participants have ranked ‘planning’ to be moderately or highly relevant; whereas, 38% of the individuals have ranked their competency level either at novice or basic.

III. Attitudes

Relevance



The attitude questions portrayed under Labs sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgement, Planning & Organization, Team Skills, and Technology Savvy & Adaptability.

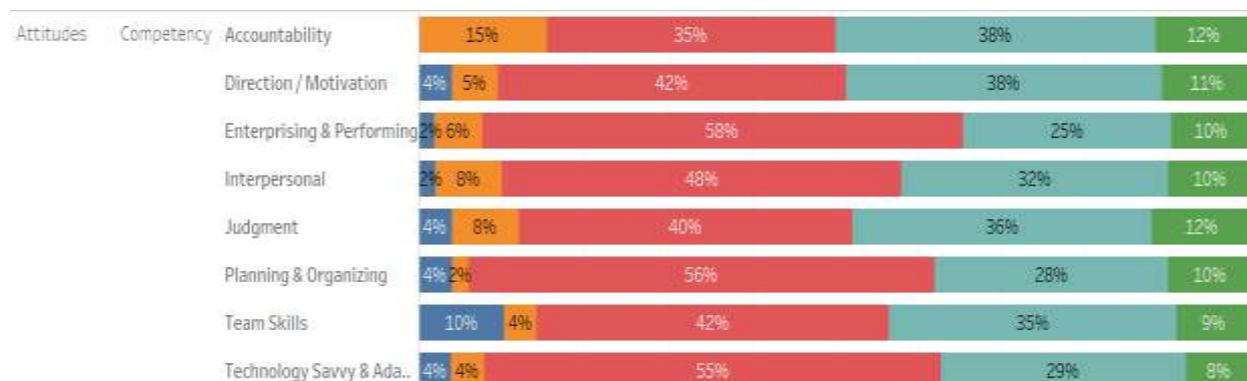


General Observations:

- ‘Accountability’, ‘Interpersonal’, and ‘Judgment’ have scored highest (48%) in category of high relevance among other components
- Medium level of relevance in attitudes were constantly achieved at a moderate level in all the elements ranging from 30% to 34%
- Less than 15% of the employees found the training on attitudes as irrelevant in all the component; a range of 07% to 13% was linked to low relevancy
- Majority of the participants consider all components to be highly relevant with their current role.



Competency



General Observations:

- ‘Enterprising and performing’ has the highest moderate level competency of 58%; in addition, only 02% have ranked their competency at novice

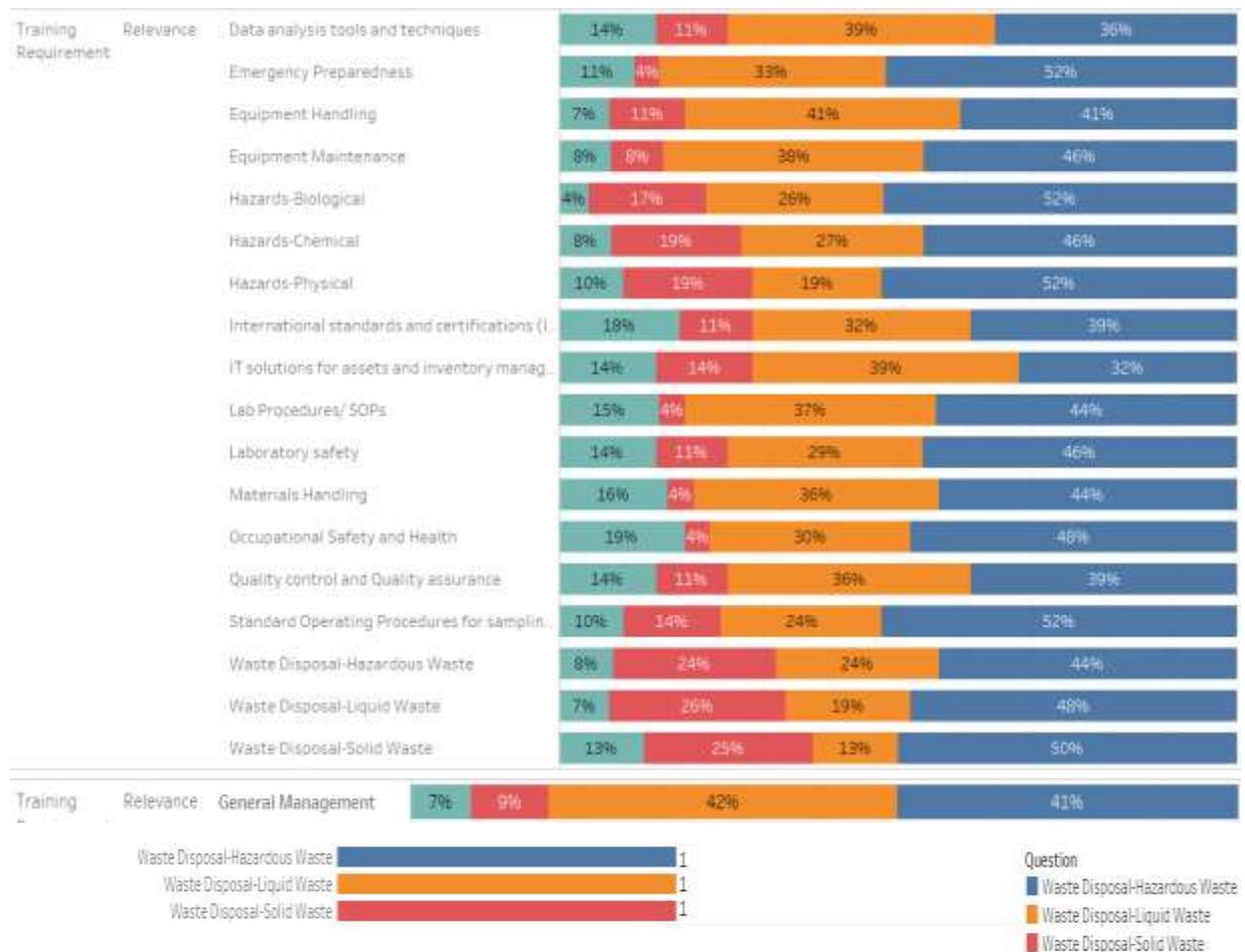
- Majority of the participants fall under the category of moderate level of competency for all components (except 'accountability') ranging from 40% to 58%
- 'Accountability' and 'direction/motivation', are the only two components being marked at fully competent level by majority of the participants (38%)
- The expert and novice level categories are recorded by a nominal amount ranging from 08% to 12% and 02% to 10%.

Inferences:

- The 'accountability' was assessed to be either high or moderately relevant, in that they were taking responsibility for their own actions and decisions. It matched its competency level which was either rated at the expert, moderate or at the most, competent level.
- The 'Direction/motivation' shows insight and the ability to see a problem from a different angle as their skills were rated to be vastly relevant and their competency was at the moderate level too.
- 'Enterprising and performing' majorly ranked its relevance at the moderate level, representing hard working and result oriented employees at the moderate level.
- 'Planning and organizing' and 'team skills' represents enthusiasm and effective working relationship as their skills relevancy is ranked from medium to high, with competency being ranked at the moderate level.

Section C: Training Requirements (Laboratories)

I. Training - Relevance

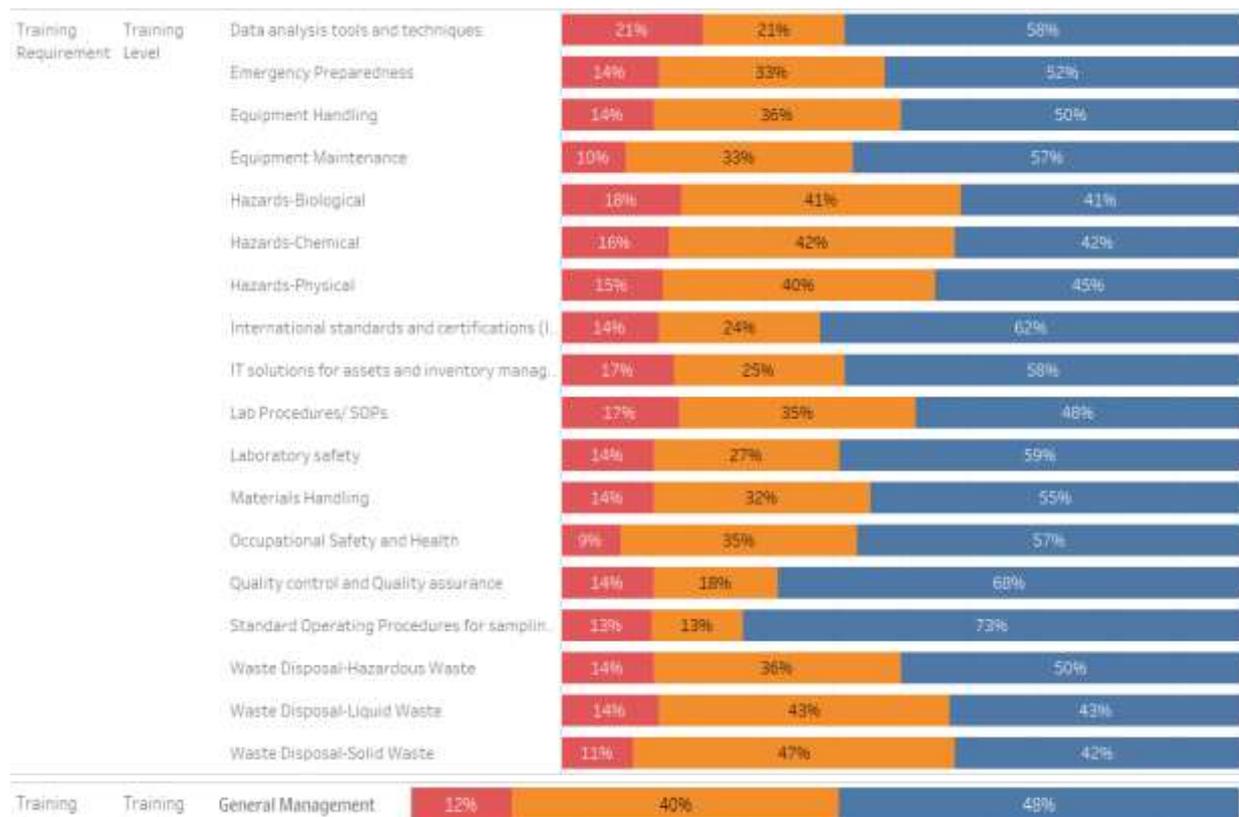


General Observations:

- Majority of the respondents marked all components to be highly or moderate relevance
- A small portion of the participants also rated ‘low relevance’ and ‘not applicable’ ranging from 04% to 26% and 04% to 19% respectively
- Highest relevance (52%) is achieved by four of the training components i.e. standard operating procedures for sampling & testing, hazards-physical, hazards-biological, and emergency preparedness
- Secondly, medium relevance is also being marked for majority of the components ranging from 13% to 42%
- Highest value (19%) for irrelevancy is being achieved by ‘occupational safety & health’
- Only one individual has ranked training relevance for ‘waste disposal’ as self-learning.

Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Green

II. Training Level

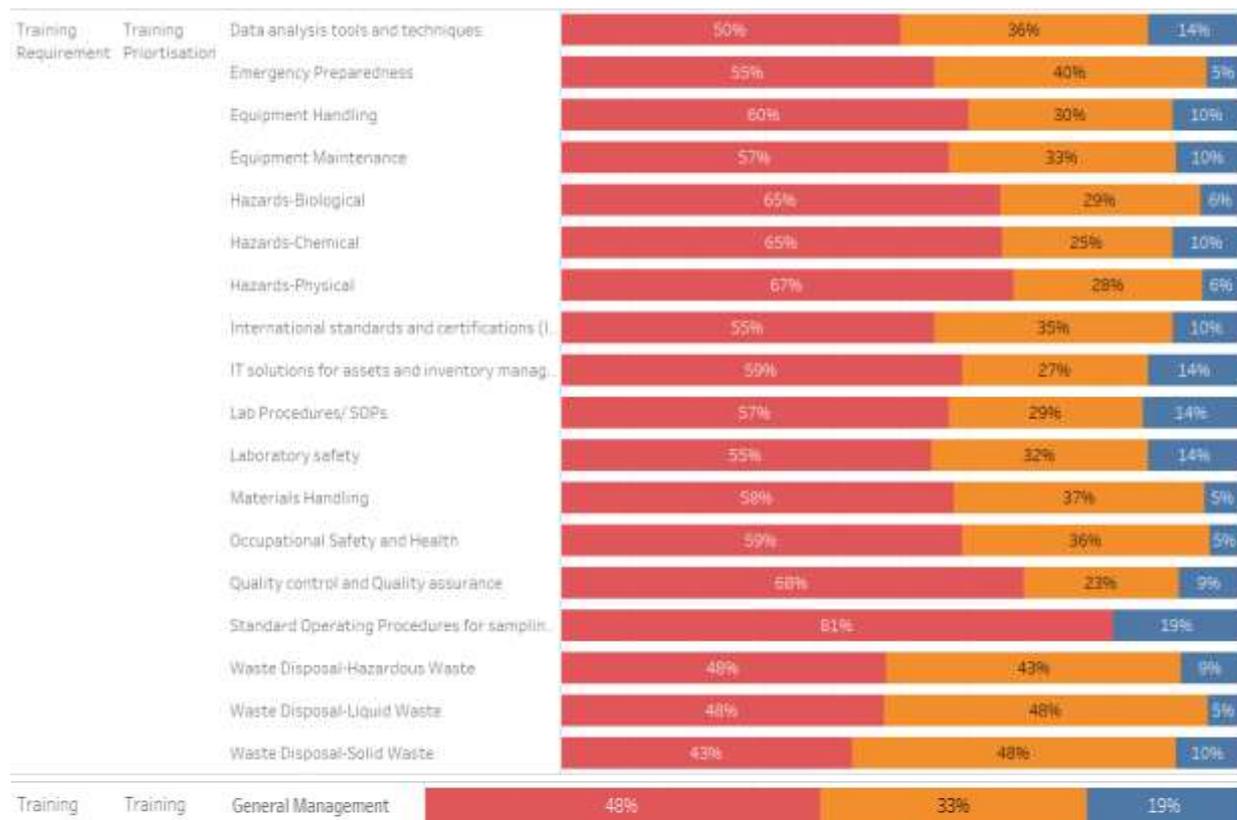


General Observations:

- Majority of the respondents marked training level at either intermediate or advance for all components
- A small portion of the participants also rated ‘basic level’ training for all components ranging from 09% to 18%
- Highest level (73%) in advance training is only achieved by ‘standard operating procedures for sampling & testing’
- Highest level (18%) in basic training is only achieved by ‘hazard-biological’
- Highest level (47%) in intermediate training is only achieved by ‘waste disposal-solid waste’.

Training Level		
3		Advanced
2		Intermediate
1		Basic

III. Training Requirements



General Observations:

- Majority of the respondents ranked ‘top priority’ for all components
- A nominal portion of the participants also rated ‘low priority’ for all components ranging from 05% to 19%
- Highest level (81%) in top training priority is only achieved by ‘standard operating procedures for sampling & testing’
- Highest level (48%) in medium level training priority is achieved by two components i.e. ‘waste disposal-solid waste’ and ‘waste disposal-liquid waste’
- Ranging from 23% to 48% participants rated medium level priority for all components.

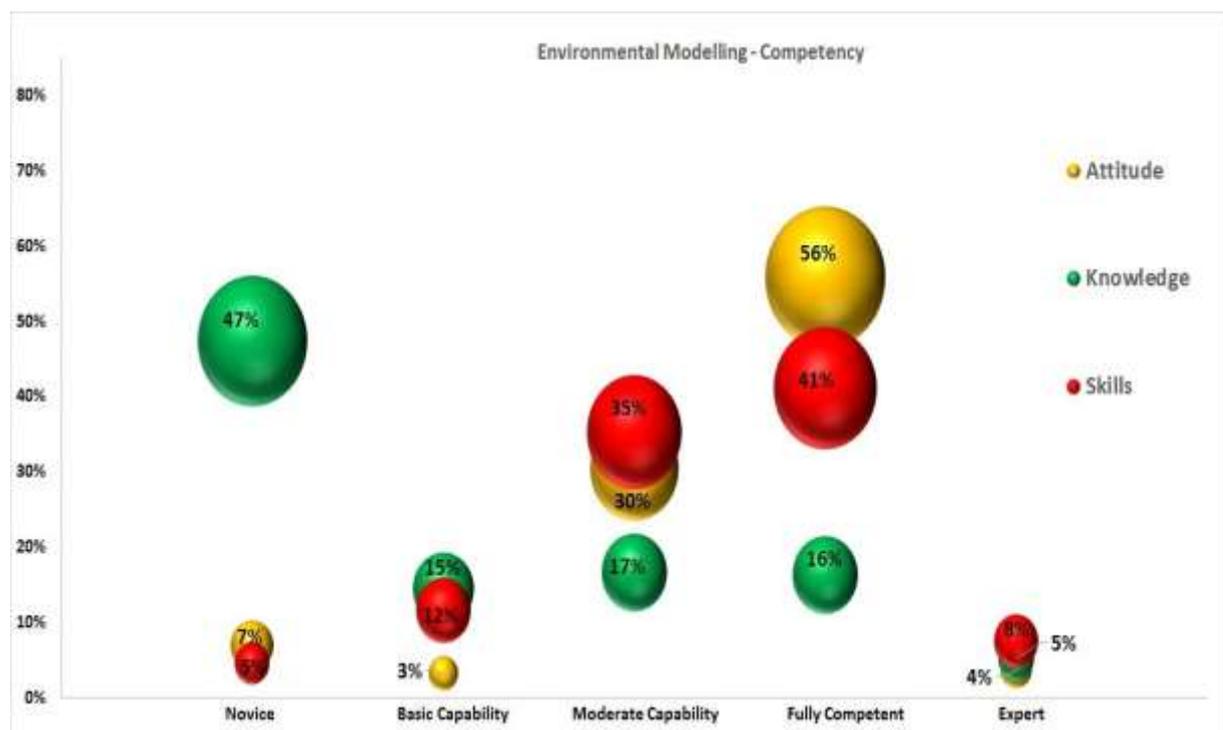
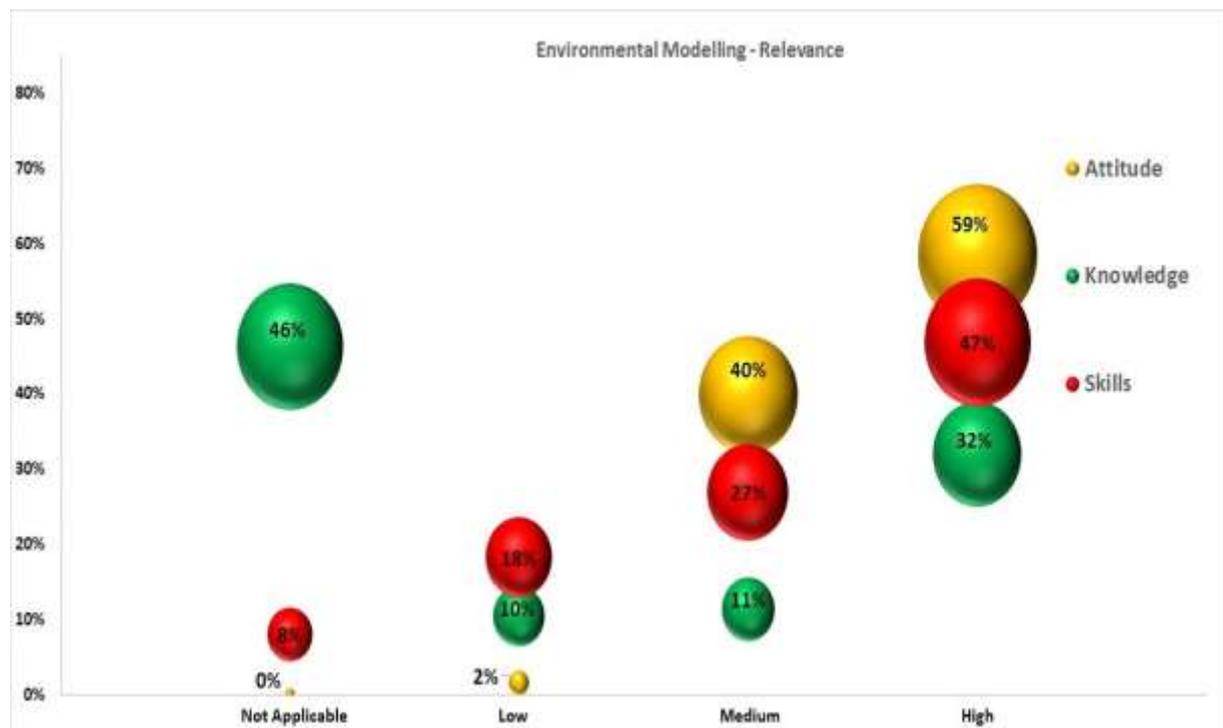
Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- In ‘data analysis tools and techniques’, majority (39%) rated it be of moderate relevance and participants need to be trained at advance level under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘emergency preparedness’ under top priority (P1)
- More than 80% rated ‘equipment handling’ to be of moderate or high relevance and participants need to be trained at advance level under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘equipment maintenance’ under top priority (P1)
- Half of the participants need to be trained at intermediate level in ‘hazards’ under top priority (P1); while the other half need to be trained on the same at advanced level under same priority

- Majority of the participants need to be trained at advance level in ‘international standards and certifications’ under top priority (P1)
- In ‘IT solutions for assets and inventory management’, majority (39%) rated it be of moderate relevance and participants need to be trained at advance level under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘lab procedures/SOPs’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘lab safety’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘material handling’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘occupational safety & health’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘quality control/assurance’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘standard operating procedures for sampling & testing’ under top priority (P1)
- Majority half of the participants need to be trained at intermediate level in ‘waste disposal’; while the other half need to be trained at advanced level. Priority for this component ranges from P2 to P1
- Majority of the participants consider ‘general management’ to be of moderate or high relevance and they require training at advance level under top priority (P1).

2. ENVIRONMENTAL MODELLING



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Environmental Modelling relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

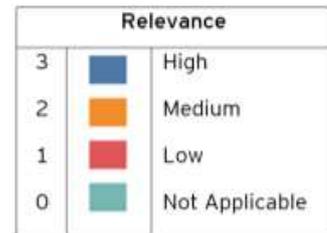
Section B: Gap Analysis (Environmental Modelling)

I. Knowledge

Relevance



The knowledge questions portrayed under Environmental Modelling sets out the criteria to evaluate the understanding of the respondent against identified components (Applicable Laws Regulations and Standards, Dispersion Modelling, Environmental Modelling, Ground Water Modelling, Receptor Modelling and Surface Water Modelling).

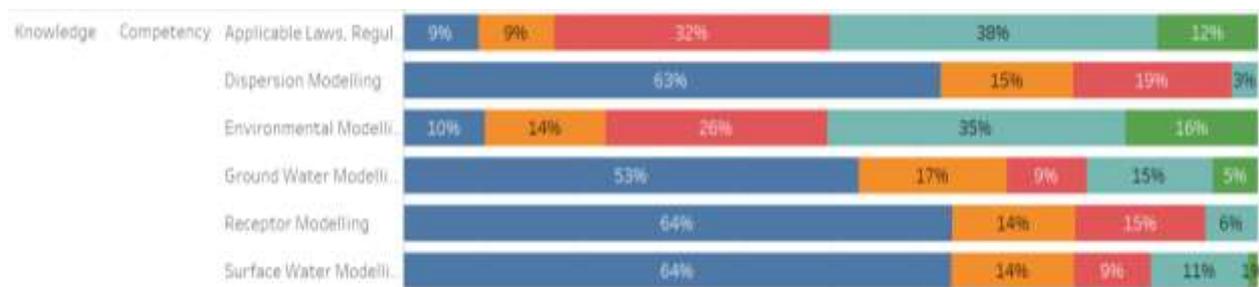


General Observations:

- The majority of the employees referred to the relevance of knowledge as non-applicable for majority of the component; with the highest being recorded at 58% and 60% for ‘Dispersion modelling’ and ‘Surface water modelling’ respectively
- The ‘applicable laws’ were represented by the least number of respondents at non-applicable (09%) level
- The highest level of relevance was recorded at 76% by ‘applicable laws’. It was then scored at 67% by ‘environmental modelling’ and the least relevance were achieved by ‘surface water modelling’ at 14%
- Medium relevance was attained in smaller proportion ranging from 07% to 19% only in all areas
- Low relevancy was accomplished in all the areas with the lowest (03%) in ‘applicable laws’ and highest (22%) being recorded at the ‘groundwater modelling’.



Competency



General Observations:

- Knowledge competency at the novice level was achieved by an immense portion of the respondents with 64% being the uppermost in both ‘receptor modelling’ and ‘surface water modelling’

- ‘Applicable laws’ was ranked the lowest in terms of novice and basic level of competency indicating only 09% of the total
- The basic level was achieved in a smaller number ranging between 14% and 17% in all elements
- The expert knowledge competency was represented by a nominal portion of 1% being the minimum in ‘surface water modelling’ and the maximum (16%) in ‘environmental modelling’
- Moderate level was recorded for a small quota in all the areas of knowledge competency with the highest (32%) for ‘applicable laws’ and the lowest (09%) being in both ‘ground water modelling’ and ‘surface water modelling’
- ‘Applicable laws’ and ‘environmental modelling’ were ranked as the highest fully competent level showcasing 38% and 35% respectively.



Inferences:

- Almost 80% participants ranked ‘applicable laws regulations and standards’ to be highly relevant; whereas, only half of the individuals have ranked their competency at fully competent or expert level
- Nearly 70% ranked ‘environmental modelling’ to be highly relevant; whereas, majority (35%) fall under the category of fully competent
- Range between 50% to 60% respondents marked ‘ground water modelling’, ‘receptor modelling’, ‘surface water modelling’ as irrelevant with their jobs; whereas, majority of the participants fall under the category of novice.

II. Skills

Relevance



The skill questions portrayed under Environmental Modelling sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Analytical skills and Basic IT skills).

General Observations:

- ‘Basic IT skills’ are ranked the highest relevance at 49% and the lowest relevance at 15%
- Both elements scored medium relevance (27%)
- A small portion (08%) rated both elements to be irrelevant with their jobs.

Competency



General Observations:

- Expert competency level was only marked by 16% of the employees under basic IT skills

- The majority ranked themselves at the fully competent level representing the mximums (46% and 36%) in both analytical and basic IT skills respectively
- Modetate level competency ranges from 30% to 40% for both components
- Basic level competency ranges from 09% to 14% for both components
- Novice level competency ranges from 04% to 06% for both components.

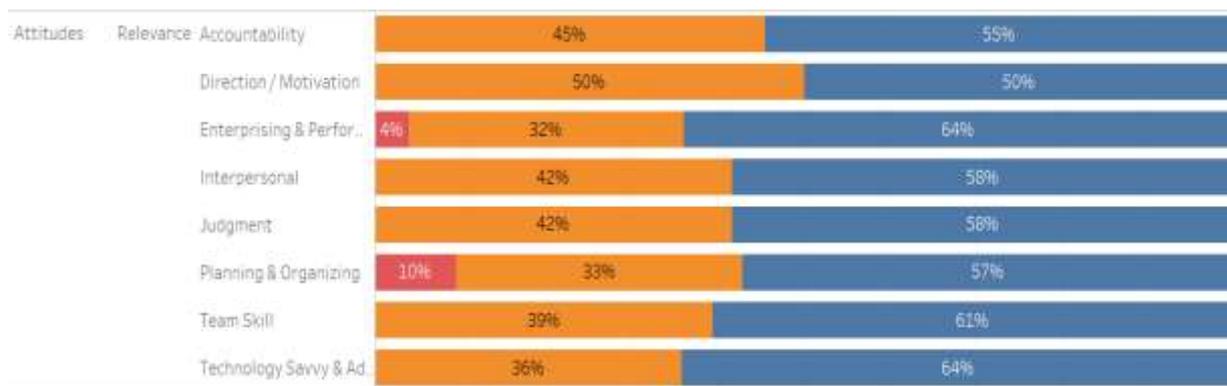
Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- Almost half of the participants ranked ‘analytical skill’ to be highly relevant; whereas, majority (54%) of participants’ competency fall under novice, basic and moderate level
- Almost 80% of the individuals ranked ‘basic IT skills’ to be moderate or highly relevant; whereas around half of the individuals marked their competency level either at fully competent or expert.

III. Attitudes

Relevance



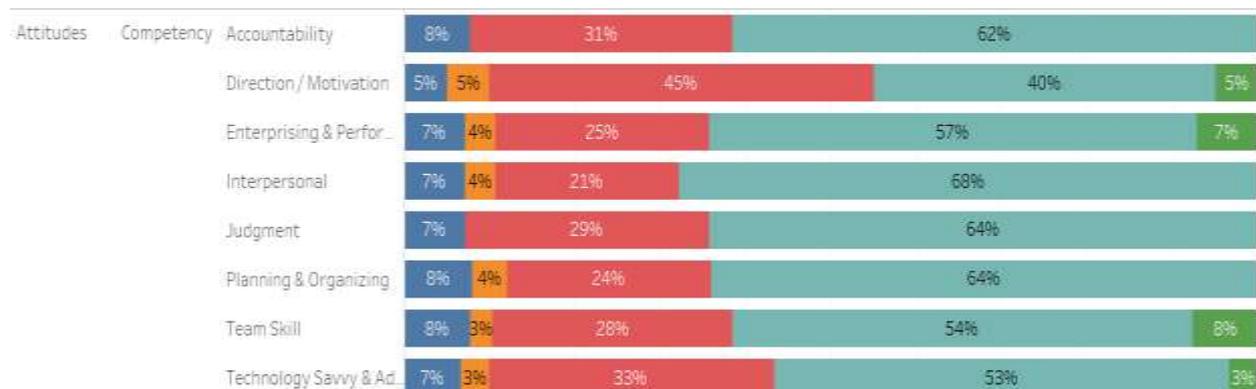
The attitude questions portrayed under Environmental Modelling sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgment, Planning & Organization, Team Skills, and Technology Savvy & Adaptability.

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- More than half of the individuals ranked all components highly relevant (excluding ‘direction/motivation’ ranging from 55% to 64%)
- Direction/Motivation is the only component in which overall response was divided into two streams; 50% rated high relevance while the other half ranked medium relevance
- Modetate level relevance ranges from 32% to 50% for all components; whereas, no one have ranked ‘not applicable’ for any of the component
- Only 04% to 10% of the individuals were of the opinion that ‘enterprising & performing’ and ‘planning & organizing’ are of low relevance.

Competency



General Observations:

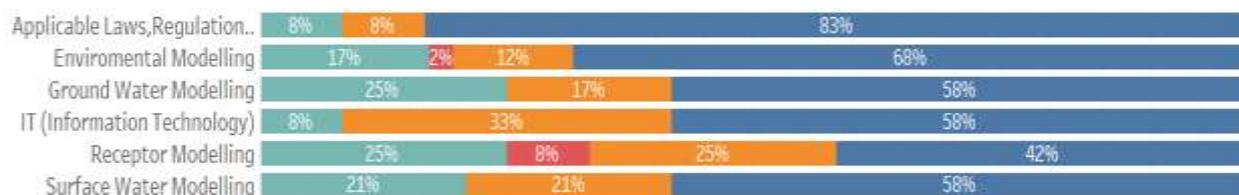
- A minor portion of the analysis were recorded at the expert level of competency, with the highest being recorded at 08% for 'team skills'
- Majority of the respondents have marked their competency level to be at fully competent (ranging from 53% to 68%) for all components excluding 'direction/motivation'. In 'direction/motivation' majority of the respondents fall under the category of moderate level competency
- In 04 out of 08 components, ranging 03% to 05% of the participants have ranked their competency at expert level
- In 06 out of 08 components, ranging 03% to 05% of the participants have ranked their competency at basic level
- Novice competency level has been marked in all components ranging from 05% to 08%.

Inferences:

- Accountability was assessed to be highly or moderate relevant (100%); whereas, almost 40% of the participants fall under the category of either novice or moderate competency level
- Direction/Motivation assessed to be highly or moderate relevant (100%); whereas, half of the participants fall under the category of either basic or moderate competency level
- Enterprising & Performing was assessed to be moderate or highly relevant (96%); whereas, majority of the respondents (57%) have marked their competency to be fully competent
- Interpersonal was assessed to be medium or highly relevant (100%); whereas, majority (68%) fall under the category of fully competent leaving on one in expert level
- Judgement was assessed to be medium or highly relevant (100%); whereas, majority (64%) fall under the category of fully competent leaving on one in expert level
- Planning & Organization was assessed to be medium or highly relevant (90%); whereas, almost 40% of the participants fall under the category of novice, basic and moderate competency level
- Team Skills was assessed to be medium or highly relevant (100%); whereas, majority (more than 80% accumulatively) fall under the category of either moderate or fully competent
- Technology Savvy & Adaptability was assessed to be medium or highly relevant (100%); whereas, 86% of the participants have ranked their competency level either at moderate or fully competent.

Section C: Training Requirements (Environmental Modelling)

I. Training relevance

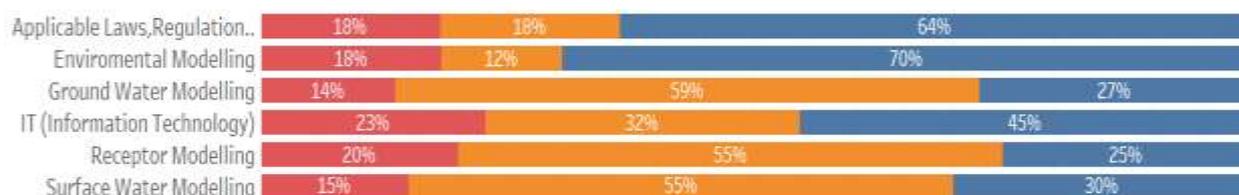


General Observations:

- More than half of the individuals ranked all components highly relevant (excluding ‘receptor modelling’ ranging from 58% to 83%. Followed by rest of the components, receptor modelling is also being ranked highly relevant (42%) by majority of the respondents
- 08% to 25% of the individuals have ranked all components to be not applicable
- Low level relevancy is only being observed in two components ranging from 02% to 08%
- Moderate level relevancy was observed in all of the components ranging from 08% to 33%.

Training Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Green

II. Training Level

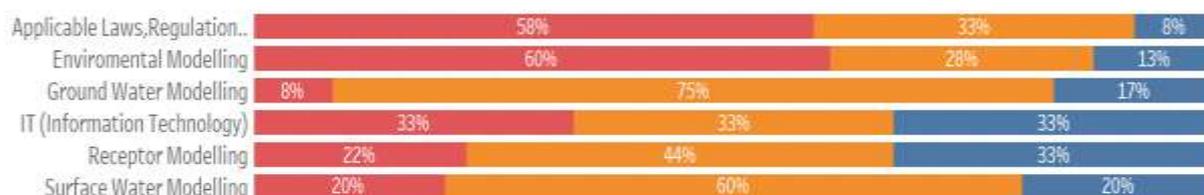


General Observations:

- Majority of the respondents (70%) ranked advance level training for ‘environmental modelling’; whereas on the lowest side, 14% have ranked basic level training for ‘ground water modelling’
- Intermediate level training has been marked by all respondents against all components ranging from 12% to 59%
- Followed by ‘environmental modelling’; advance level training for ‘applicable laws, regulations and standards’ has also been marked by 64% of the respondents
- Majority (59%) have ranked intermediate level training for ‘ground water modelling’.

Training Level		
3	Advanced	Blue
2	Intermediate	Orange
1	Basic	Red

III. Training Prioritization



General Observations:

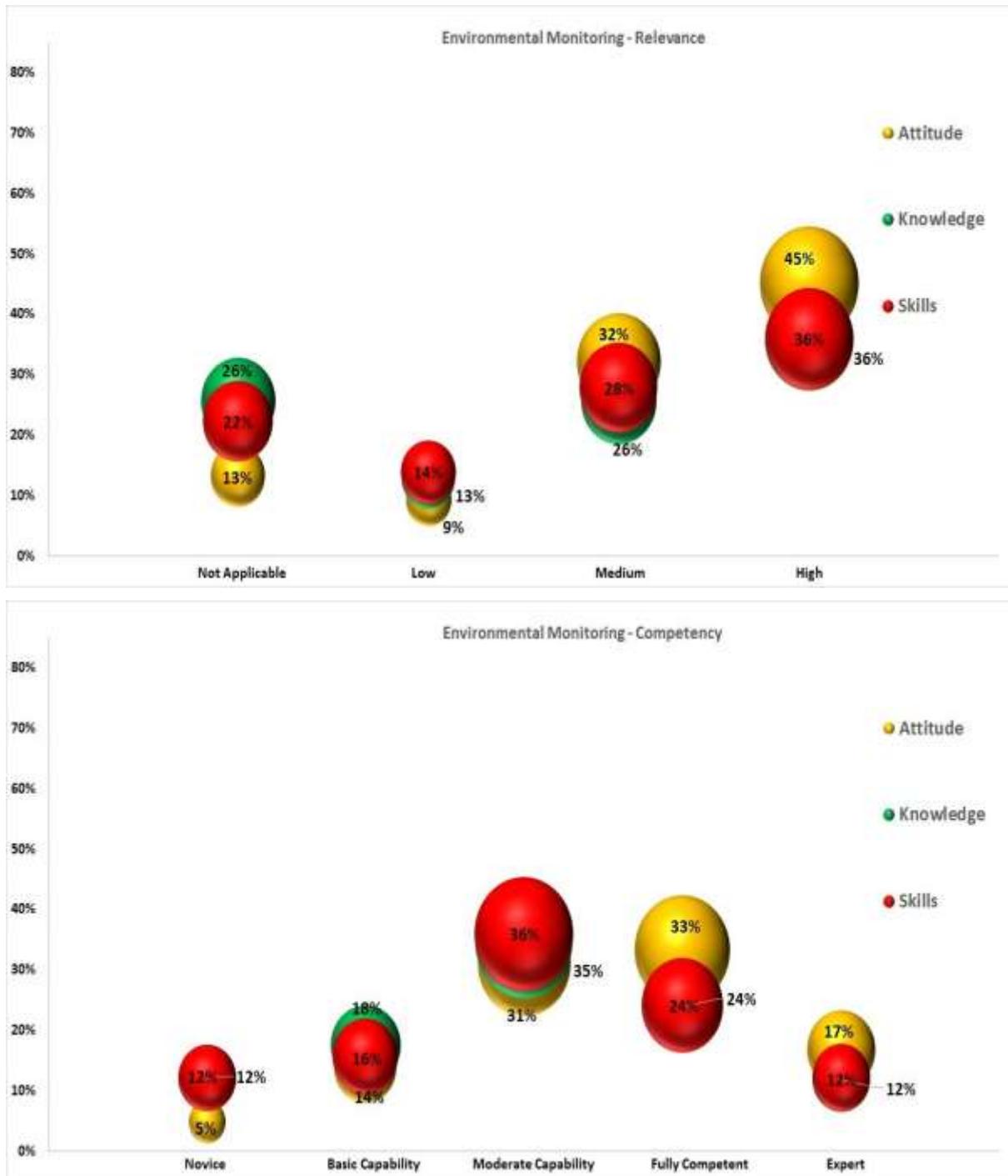
- Majority of the participants (60%) rated ‘environmental modelling’ as their top priority among the rest

- Training in ‘applicable laws, regulations and standards’ has been given second top priority by 58% of the individuals
- Majority of the participants (75%) rated ‘ground water modelling’ as their medium level training priority
- Training in ‘IT’ and ‘Receptor modelling’ have been assigned low training priority by 33% of the participants.

Inferences:

- Majority of the participants need to be trained at advance level in ‘applicable laws, regulations and standards’ under top priority (P1)
- Majority of the participants need to be trained at advance level in ‘environmental modelling’ under top priority (P1)
- Majority of the participants need to be trained at intermediate level in ‘ground water modelling’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in ‘receptor modelling’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in ‘surface water modelling’ under moderate priority (P2)
- Majority of the participants need to be trained at advance level in ‘information technology’; whereas, scores for priority have been split equally among top, moderate and low.

3. ENVIRONMENTAL MONITORING



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Environmental Monitoring relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

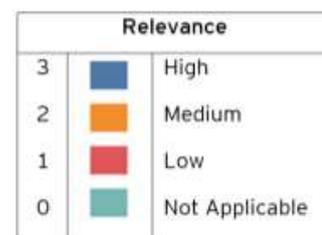
Section B: Gap Analysis (Environmental Monitoring)

I. Knowledge

Relevance



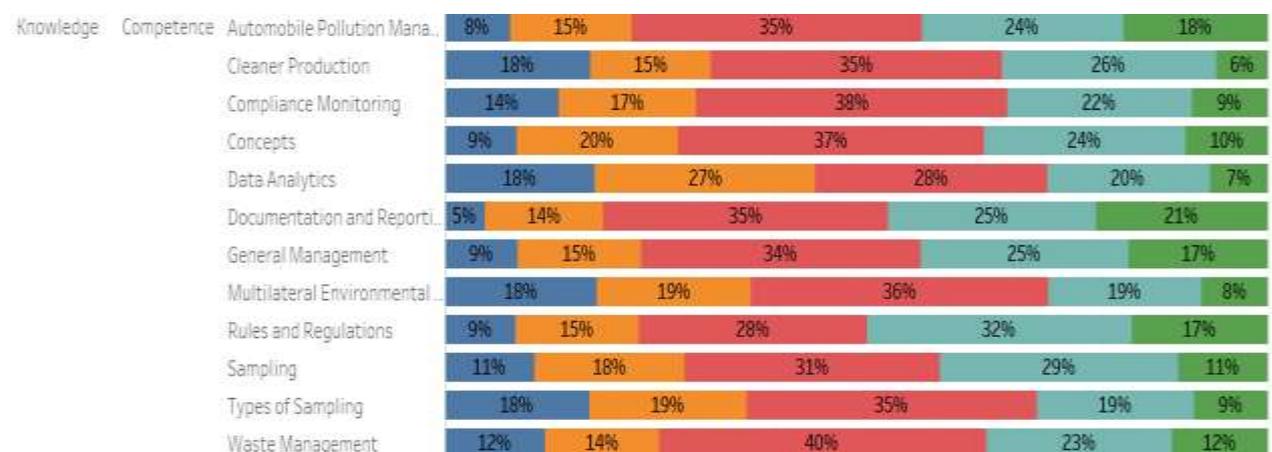
The knowledge questions portrayed under Environmental Monitoring sets out the criteria to evaluate the understanding of the respondent against identified components (Automobile Pollution Management, Cleaner Production, Compliance Monitoring, Concepts, Data Analytics, Documentation and Reporting, General Management, Multilateral Environmental Agreement, Rules and Regulations, Sampling, Types of Sampling and Waste Management)



General Observations:

- More than half (52%) of the respondents chose ‘documentation and writing’ to be a crucial part of monitoring. Whereas, ‘data analytics’ has been ranked lowest at 19%.
- Automobile pollution management, compliance monitoring, general management, rules/regulation and sampling has been marked relatively high (40% to 50%) in comparison with the other components
- Two fifth of the respondents (40%) were of the opinion that types of sampling is irrelevant.
- 32% to 37% of the employees responded that ‘Multilateral Environment Agreement’, ‘Data Analytics’ and ‘Cleaner Production’ have zero relevance to their job

II. Competency



General Observations:

- More than one fifth of the respondents (21%) ranked their ‘documentation and reporting’ skills to be at expert level. Whereas, ‘cleaner production’, ‘data analytics’, ‘multilateral environmental agreement’ and ‘types of sampling’ has been ranked lowest on skill set (novice) with 18%.
- Ranging from 20% to 30% of the employees rated their skill set to be fully competent on ‘automobile pollution management’, ‘cleaner production’, ‘compliance monitoring’, ‘concepts’, ‘data analytics’, ‘documentation and writing’, ‘general management’, ‘sampling’ and ‘waste management’.
- 32% of the employees rated their skills to be fully competent with the understanding of ‘rules and regulations’.
- The lowest minority of respondents that rated their skill set to be at novice level is 5% in context to ‘documentation and reporting’.
- Respondents ranging from 30% to 40% rated their skill set to be at a moderate capability with respect to areas such as ‘automobile pollution management’, ‘cleaner production’, ‘compliance monitoring’, ‘concepts’, ‘documentation and reporting’, ‘general management’, ‘multilateral environmental agreement’, ‘sampling’, ‘types of sampling’ and ‘waste management’.

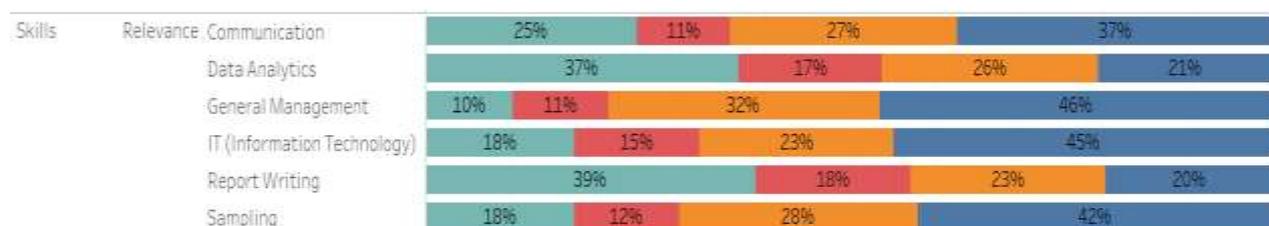
Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- ‘Documentation and reporting’ is the most relevant component of monitoring as per employee’s evaluation which is also in harmony with the raters’ competence.
- Respondents rated ‘sampling’ to be a crucial part of monitoring but scored ‘types of sampling’ to be less or irrelevant with monitoring i-e a contradiction. Hence, employees with expert and full competence level collectively have a pool of 28% - this depicts an alarming situation given the relevance of this component.
- ‘Automobile pollution management’, ‘compliance monitoring’, ‘general management’, ‘rules and regulations’ and ‘sampling’ are being rated highly relevant with respect to monitoring. Considering the statistics, more than 65% employees are expert, fully competent or have moderate capability in this regard.
- Employees believe that components ‘Multilateral Environment Agreement’, ‘Data Analytics’ and ‘Cleaner Production’ are not or less important in relation to their job.
- It is suggested that targeted training interventions are developed to fill knowledge gaps in the understanding of ‘sampling’ and ‘types of sampling’ in order to bridge the two components.

II. Skills

Relevance



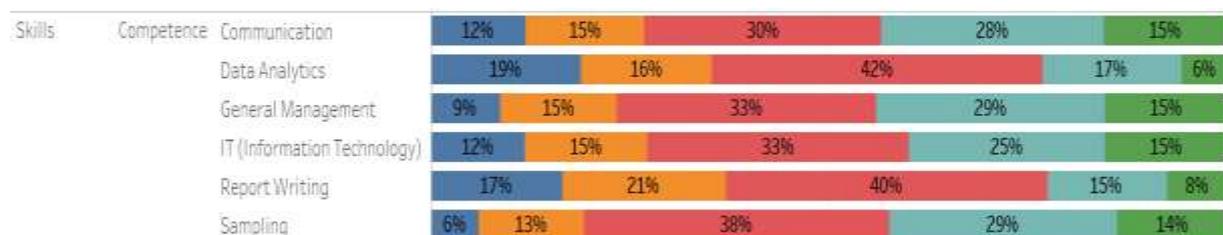
The skills questions portrayed under monitoring sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (Communication, Data Analytics, General Management, IT, Report Writing and Sampling).

Relevance		
3		High
2		Medium
1		Low
0		Not Applicable

General Observations:

- Approx. half of the respondents chose ‘general management’, information technology’ and ‘sampling’ to be highly relevant skill in context to environmental monitoring.
- On a high side, 39% of the employees chose ‘report writing’ to be an irrelevant skill required for the job.
- Ranging from 23% to 32% employees evaluated medium relevance of all the components.

Competency



General Observations:

- Employees rated their skill set competency to be 6% at expert level while 19% evaluated themselves to be at novice stage in ‘data analytics’ component of monitoring.
- 14% respondents recorded their competency to be at expert level with respect to ‘sampling’.
- More than one fourth employees rated fully competent in all the components other than ‘report writing’ and ‘data analytics’.
- Majority of the employees, ranging from 30% to 42%, assessed ‘moderate capability’ competence in all the components.

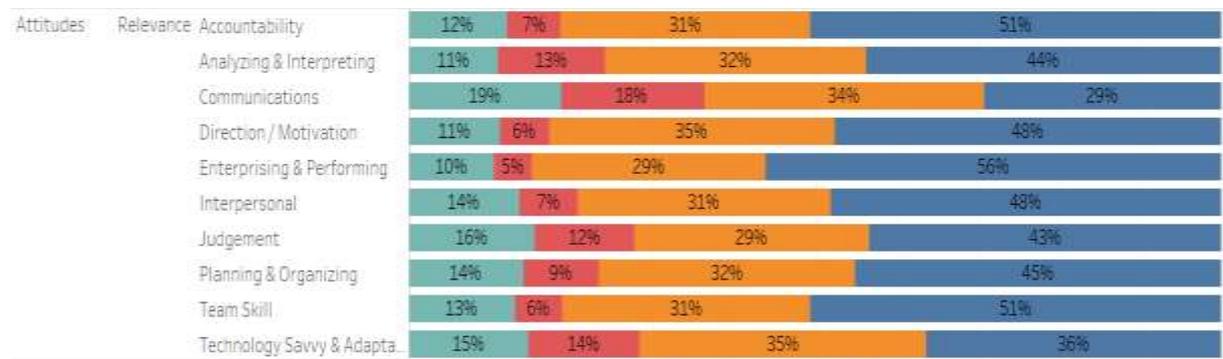
Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

Inferences:

- Skills relevant to perform environmental monitoring are based on the components namely ‘communication’, ‘general management’, ‘information technology’ and ‘sampling’ for which the competency of majority employees is also at par level.
- ‘Communication’, General Management, ‘IT’ and ‘Sampling’ are an important tasks of environmental monitoring therefore it comes as no surprise that these components outsourced all the others with respect to employees being at expert level.
- ‘Information Technology’ has been rated as a must skill to have in order to perform the job effectively and efficiently. Although, the competence statistics show that only 40% of the employees are fully proficient or at expert level, collectively. It is recommended that a training be devised in order for all the employees to acquire this skill set.

III. Attitudes

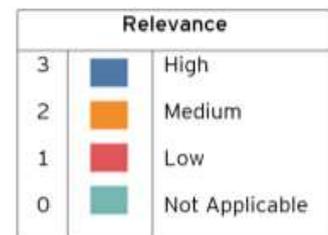
Relevance



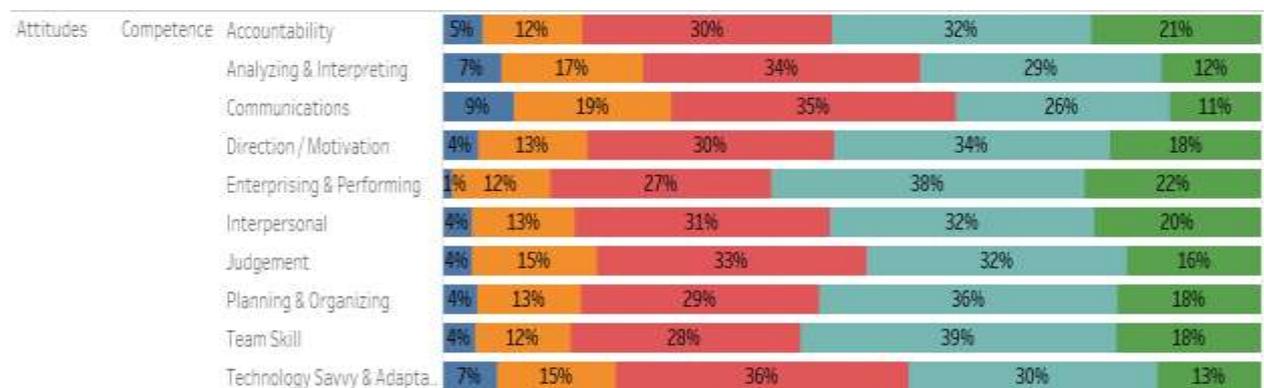
The attitude questions portrayed under Monitoring sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include Accountability & Interpreting, Communications, Direction/Motivation, Enterprising & Performing, Interpersonal, Judgment, Planning & Organizing, Team Skill and Technology Savvy & Adaptability.

General Observations:

- 37% of the population rated ‘communications’ to be either ‘not applicable’ or low on relevance with job.
- 19% and 18% are recorded high in both being not applicable and low in rating under the head ‘communications’.
- More than half (56%) think that ‘enterprising & performing’ has robust relevance with their job.
- A minority of 29% respondents think ‘communications’ to be highly relevant.
- More than 60% employees believe all the elements have high or medium relevance with monitoring.



Competency



General Observations:

- Majority of employees i-e more than 70%, rated their competency to be ‘moderate capability’ or above for all of the components under monitoring
- Employees claimed to be at ‘expert’ proficiency by voting equal to or more than 20% in three elements. ‘Accountabilities’, ‘Enterprising’ and ‘Interpersonal’.

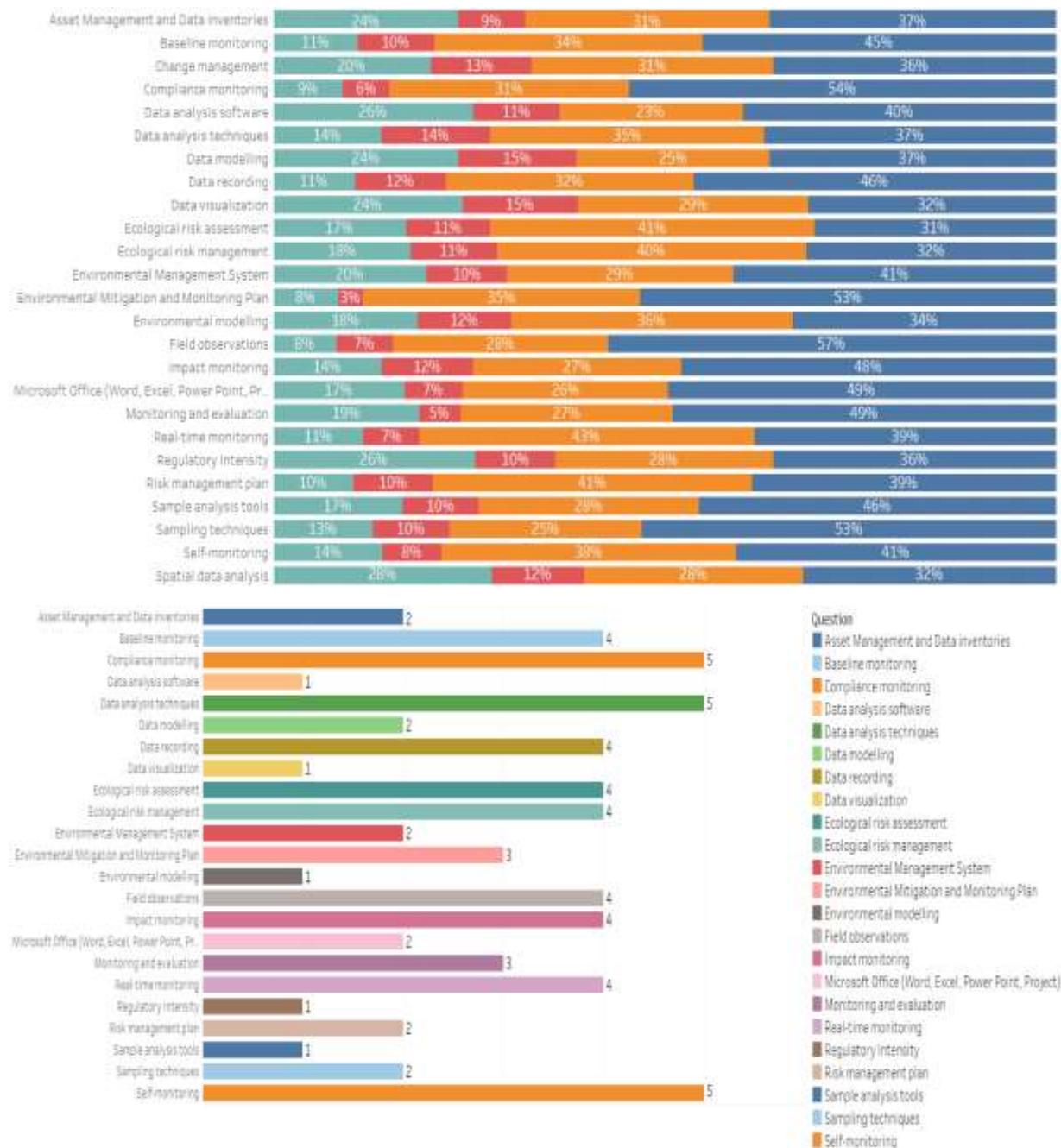
- More than 30% respondents scored to have moderate level capability to perform tasks in 7 elements.
- 22% employees rated their competency to be at expert level for the component 'Enterprising& Performing'.

Inferences:

- An alarming number of employees believe that communications in not relevant to their job. Whereas, a majority of the respondents thought themselves to be enterprising and performing. This suggests that while some of them are indifferent as to what the relevance is of communication with the job, they still thought themselves to be fully confident in their abilities to perform the job.
- 'Analyzing and interpreting' and 'technology savvy & adaptability' has been rated low on relevance and competency suggesting that employees believe that neither the employees believe that they have a direct responsibility in being proactive and/or problem solving. This could result in major problems with respect to employee evolution.
- If the respondents are led to believe that they are more than competent in performing the job without realizing the importance of communication or learning about new technologies, could result in a stunted growth for Environment Protection Department.

Section C: Training Requirements (Environmental Monitoring)

I. Training Relevance



General Observations:

- At minimum, 60% of the employees rated all the components to be ‘medium’ or ‘high’ relevance of training with monitoring.
- ‘Spatial data analysis’ was scored the highest amongst the elements as low to zero relevance with respect to the job performed.
- More than half of the employees rated ‘compliance training’, ‘environmental mitigation and monitoring plan’, ‘field observations’ and ‘sampling techniques’ to be highly relevant with job. While, ‘field observations lead the pack by scoring 57%.

- ‘Data analysis software’, ‘Data analysis techniques’ and ‘data visualization’ are amongst the few components to be scored low or not applicable by less than 40% of the employees.
- 5 employees opted for ‘self-training’ for the components ‘compliance monitoring’, ‘data analysis techniques’ and ‘self-monitoring’. Whereas, 04 opted for ‘baseline training’, ‘data recording’, ‘ecological risk assessment’, ‘ecological risk management’, ‘field observations’, ‘impact monitoring’ and ‘real time monitoring’. ‘Environmental mitigation and monitoring plan’ and ‘monitoring and evaluation’ is chosen by 3 employees for ‘self-training’. While, 02 employees rated self-training for the components ‘asset management and data inventories’, ‘data modeling’, ‘environmental management system’, Microsoft office, risk management plan and sampling techniques’. For the rest of the components, 1 employee opted for self-training.

II. Training Level



General Observations:

- More than two fifth (48%) respondents suggested advanced level trainings in context to ‘change management’. Whereas, 34% assigned basic level training for ‘data modeling’
- Approximately, more than one third of the attendees suggested medium level training in all components
- The lowest minority of respondents (15%) rated basic level training for ‘change management’
- More than one tenth of the employees recommended basic level training for all elements.

Training Level	
3	Advanced
2	Intermediate
1	Basic

III. Training Prioritization



General Observations:

- ‘Sample analysis tools’ and ‘sampling techniques’ were voted the most prioritized elements amongst the rest of the pool (i-e 48% each).
- More than 40% of the respondents prioritized all the elements to be at priority level two except for ‘baseline monitoring’, ‘monitoring and evaluation’ ‘sample analysis tool’ and ‘sampling techniques’.
- Less than one third of the employees lie in the pool of respondents who rated priority level 3 for all the components.

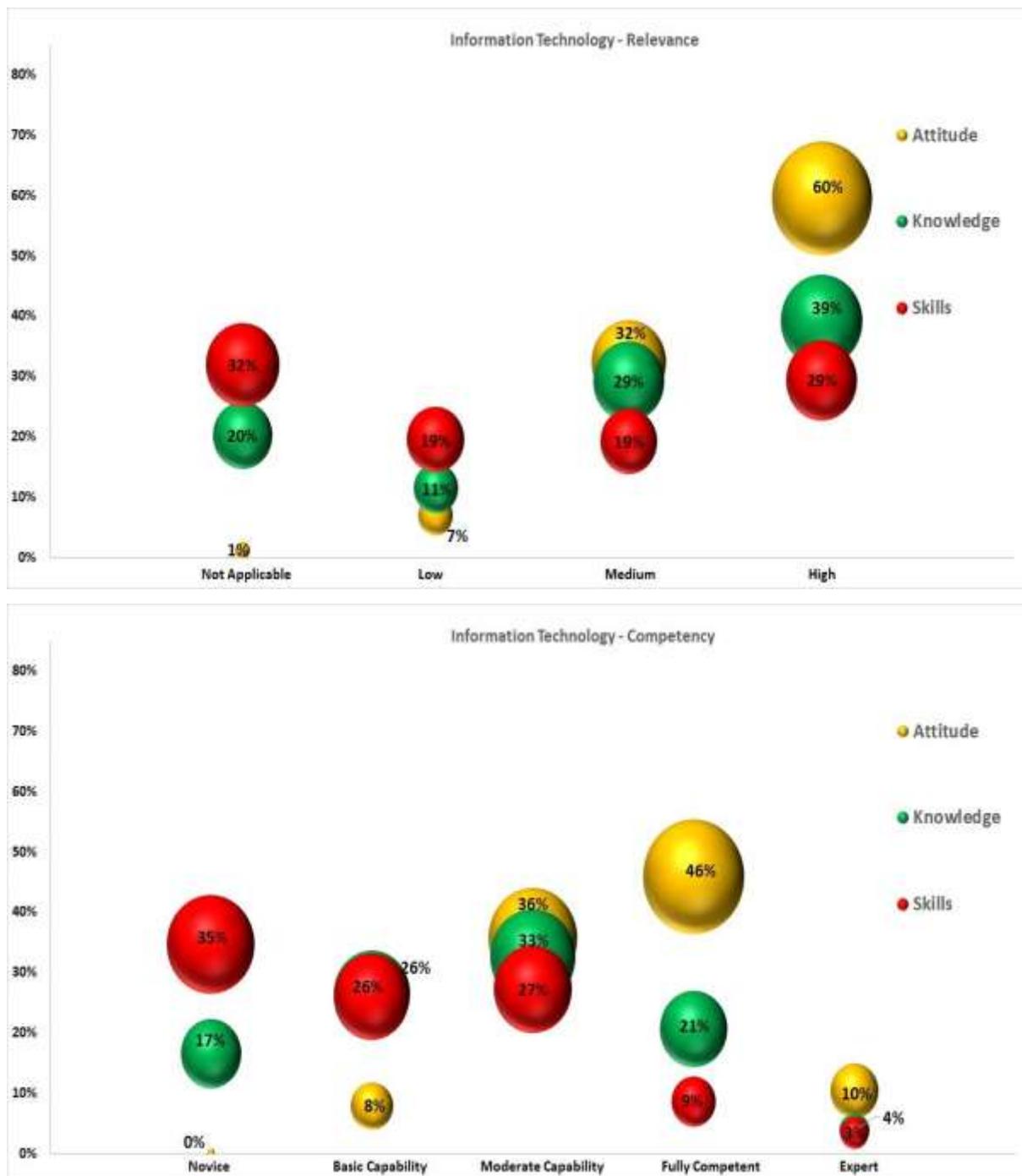
Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

- Employees seem aware of the ever-changing environment hence scoring high in the development of advance level trainings regarding ‘change management’.
- By defining ‘sample analysis tools’ and ‘sampling techniques’ high at priority end suggests the fact that these two elements are the key or fundamental tasks of the respondent’s job.
- 57% of the population rated ‘Field Observations’ as highly relevant whereas 64% of the population rated its training prioritization at either priority 2 or priority 3 while a small percentage (36%) of respondents ranked its priority at level 1 making the case contradictory.
- 31% of the population rated ‘Ecological Risk Assessment’ as highly relevant whereas 82% of the population rated its training prioritization at either priority 1 or priority 2 making the case contradictory.

D. Institute of Environmental Technology and Training (IETT)

1. INFORMATION TECHNOLOGY (IT)



The chart shows overall responses in percentage (%) term for Knowledge, Skills and Attitude (KSA) on overall Information Technology relevance and its current competency level. The size of balloon changes according to number of responses higher the responses; bigger the balloon and vice versa.

Section B: Gap Analysis (Information Technology)

I. Knowledge

Relevance

Knowledge	Relevance	File Management System ICT Component	General Management	IT	Rules and Regulations
		19%	30%	51%	
		6%	39%	54%	
		19%	39%	42%	
		6%	24%	71%	

The knowledge questions portrayed under Information Technology sets out the criteria to evaluate the understanding of the respondent against the identified components (File Management System ICT Component, General Management, IT, Rules and Regulations)

Relevance		
3	High	
2	Medium	
1	Low	
0	Not Applicable	

General Observations:

- Majority of the employees assessed the knowledge relevance at the high level with 'rules and regulations' attaining the highest relevancy of 71%, among all the components of knowledge
- An average number of employees have ranked at the moderate level of relevance ranging over 20%
- 'IT' and 'file management' were represented by 19% at the highest in low relevancy
- The knowledge relevance was not found irrelevant by any of the participant.

Competency

Knowledge	Competency	File Management System ICT Component	General Management	IT	Rules and Regulations
		26%	32%	42%	
		5%	17%	77%	
		29%	47%	24%	
		11%	23%	66%	

General Observations:

- A large portion of the population recorded their knowledge competence at the beginner level under 'rules and regulations' and 'general management' as they signified 66% and 77% respectively
- A minor chunk of the employees graded their knowledge to be at the moderate level in all the components with 'general management' and 'rules and regulations' representing the lowest range, ranking 5% and 11% separately
- A vast majority of employees evaluated 'IT' & 'file management' at the basic competence level
- There were zero responses received at the expert and competent level of competencies.

Competency		
5	Expert	
4	Competent	
3	Moderate	
2	Basic	
1	Novice	

Inferences:

- Almost all the employees rated the relevance of identified components to be either at a high or medium relevance level, while the majority ranked their competence to be at a moderate or basic level
- ‘Rules and Regulations’ was scored as highly relevant. While, their competence was majorly marked as novice or basic level. And there were no findings at the expert level
- ‘General management’ was marked highly relevant by a majority. However, their competence was ranked as novice extensively.

II. Skills

Relevance



The skill questions portrayed under Information Technology sets out the criteria to evaluate the ability of the respondent to perform tasks against identified components (File Management System ICT Component, General Management, IT, Rules and Regulations).

Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

General Observations:

- The majority rated their skills as not applicable to perform the tasks as they represented 32% of the portion.
- A vast majority of the population marked their skills as medium and low both achieving a score of 19%.
- A small portion of employees ranked their skills relevance to be at a high level which constitutes 29% of the employees.

Competency



General Observations:

- The respondents most commonly rated their skills to be at novice level of competence, ranking at 35%
- Only a minority of employees ranked their skills competence to be at competent and expert level comprising a total of 12%
- A vast majority of population assessed their competence to be either basic or moderate which is 26% and 27% respectively.

Competency		
5	Expert	Green
4	Competent	Teal
3	Moderate	Red
2	Basic	Orange
1	Novice	Blue

Inferences:

- Majority of the responses regarding skills relevance were not applicable. Similarly, its competency level was also recorded at novice level scoring 35%
- A minority of respondents marked the skills relevant and their competence to be at expert level while a majority regarded the relevance of skills to be at a basic or moderate level.

III. Attitudes

Relevance



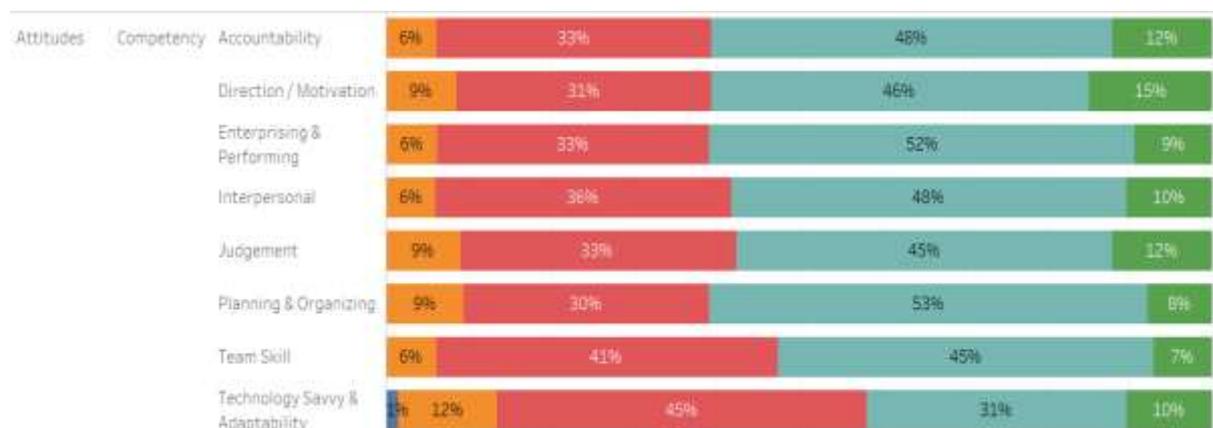
The attitude questions portrayed under Information Technology sets out the criteria to evaluate the internal drivers/behaviors required to perform a task. Components include accountability, direction, enterprising, interpersonal, judgment, planning and organization, team skills, and technology savvy and adaptability.

Relevance		
3	High	Blue
2	Medium	Orange
1	Low	Red
0	Not Applicable	Teal

General Observations:

- The ‘accountability’ was evaluated to be highly relevant as it scored 73% showcasing the right assignment of authority to others for accomplishment of their goals
- The other areas of attitudes were majorly assessed by high relevance as well, ranging from over 57% to 61%
- ‘Judgment’ had the highest moderate relevancy level of 36% out of all the elements of attitudes
- Other areas were covered through moderate relevancy in the attitudes, falling in the range of between 21% and 35%
- The responses for Low relevance ranges from 6% to 8% in all the components of attitudes
- A small minority of 10% was recorded as not applicable under the components of ‘technology savvy and adaptability’, ‘planning & organizing’, ‘enterprising & Performing and ‘direction/Motivation’, being relevant other areas.

Competency



General Observations:

- 'Technology Savvy & Adaptability' has the highest moderate level of 45% while the rest of the major portion is evaluated to be at competent level representing a 31%
- All the elements of attitudes are generally ranked at the moderate and competent level ranging above 30%
- 'Planning & Organizing' is classified at the highest competence level, recording a value of 53%
- The experts were recorded in all components ranging from 7% to 15% respectively
- 'Direction/Motivation' have been assessed with the highest number of expert responses of 15%
- 'Technology savvy & adaptability here was the only response recorded at novice level of competency
- The responses for basic competence level ranges from 6% to 12% in all the components of attitudes.

Competency		
5		Expert
4		Competent
3		Moderate
2		Basic
1		Novice

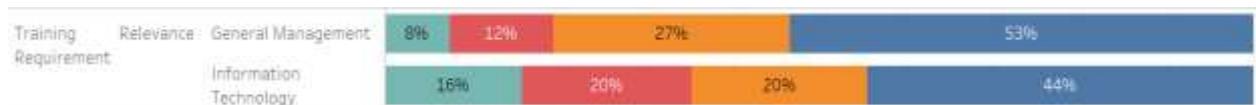
Inferences:

- The 'Direction/motivation' shows insight and the ability to see a problem from a different angle as their skills were rated to be highly relevant and their competency was at competent and expert level
- The 'accountability' was assessed to be highly relevant among all components, in that they were taking responsibility for their own actions and decisions. It matched its competency level which was either rated at the moderate or at the most, competent level
- 'Technology savvy & adaptability' and 'enterprising & performing' were marked as high to moderately relevant. Their competence was mostly ranked at the moderate level too.

Training Level		
3		Advanced
2		Intermediate
1		Basic

Section C: Training Requirements (Information Technology)

I. Training Relevance



General Observations:

- More than 50% of the respondents ranked components of general management as highly relevant
- 44% of the respondents were of the opinion that training relevance of IT is high in nature.

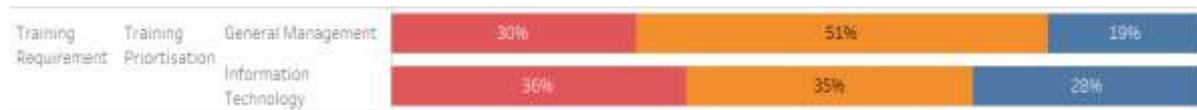
II. Training Level



General Observations:

- Majority of the respondents marked training level for general management and IT at intermediate level with 46% and 43% respectively.

III. Training Prioritization



General Observations:

- More than 50% of the individuals prioritized the training requirement of general management at moderate level
- More than 70% of the respondents prioritized the training requirement of IT at either high or moderate.

Training Prioritization		
3		Priority 3
2		Priority 2
1		Priority 1

Inferences:

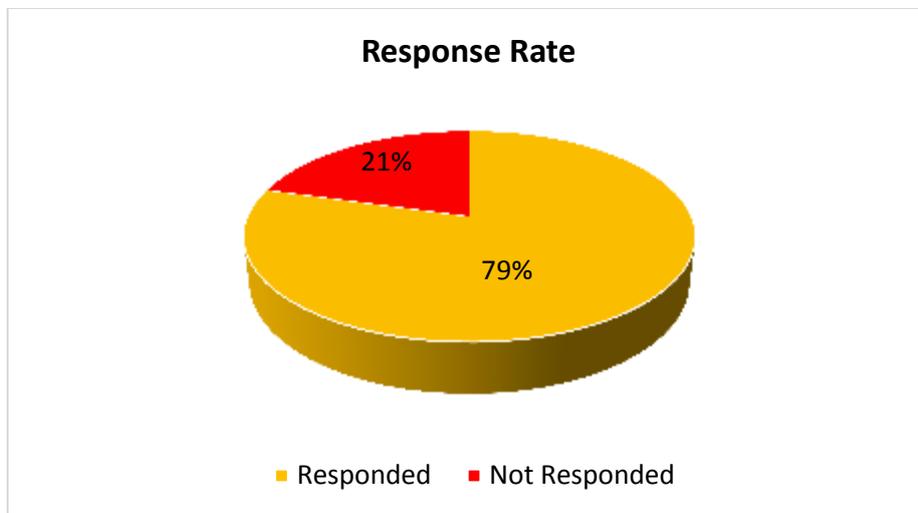
- Majority of the participants need to be trained at intermediate level in ‘general management’ under moderate priority (P2)
- Majority of the participants need to be trained at intermediate level in ‘IT’; statistics showed a marginal difference in prioritization between high (P1) and moderate (P2).

LEARNING STYLES INVENTORY

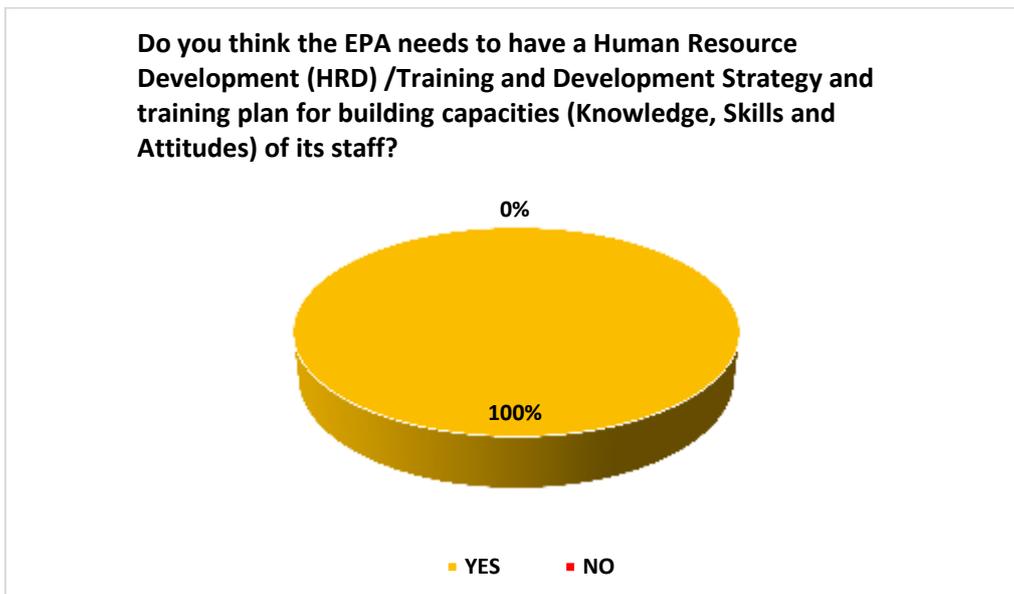
Feedback is a critical component of learning. This section of the questionnaire addressed to all invited EPA employees so that they could express their views on the training delivery methods and their learning style. Therefore to gather additional information on the training delivery and learning style total 6 questions with sub questions were asked.

Questions are based on the need to have a Human Resource Development (HRD) /Training and Development Strategy and training plan, different kind of activities that will help employees to develop professional capacity, best mix of focus between the knowledge, skill and attitude, equal opportunity of training for contract employees, employees training experience and total trainings received and at last to evaluate the appropriateness of different training delivery options.

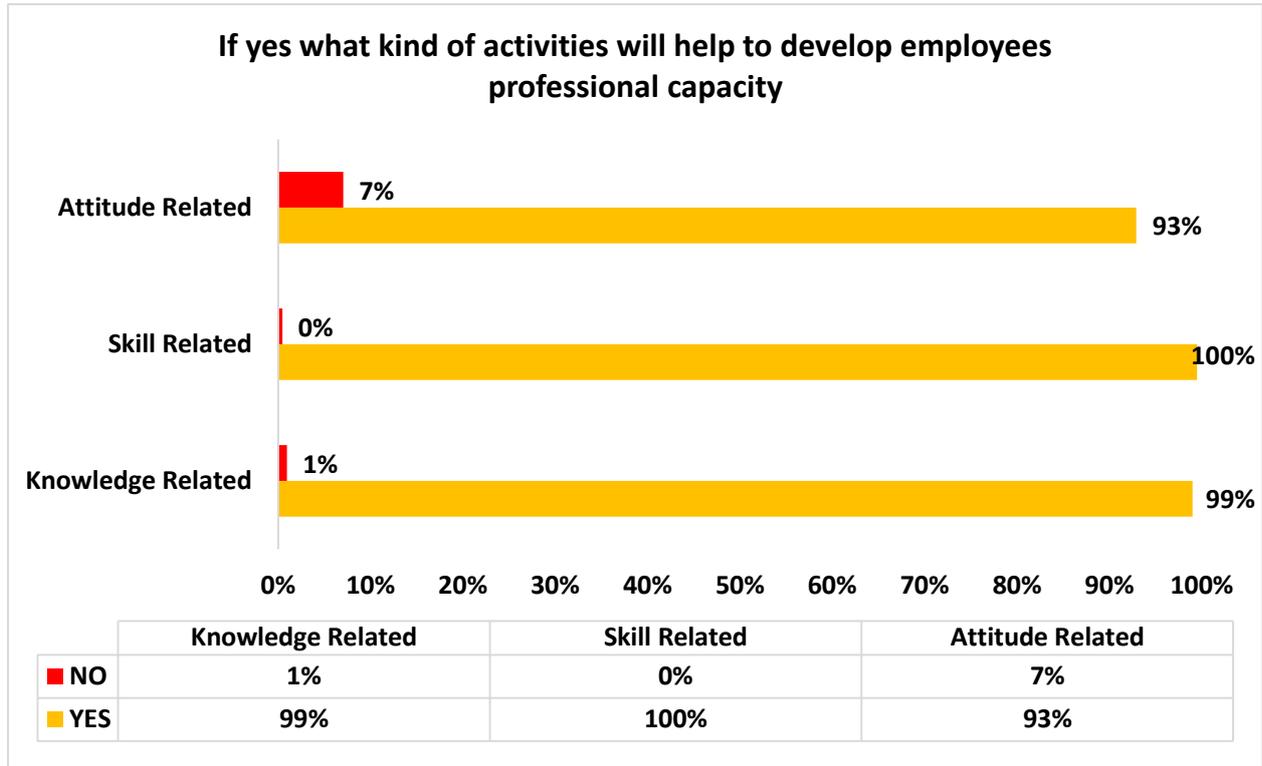
Below are the graphs and observations which elaborate the training learning style and delivery methods;



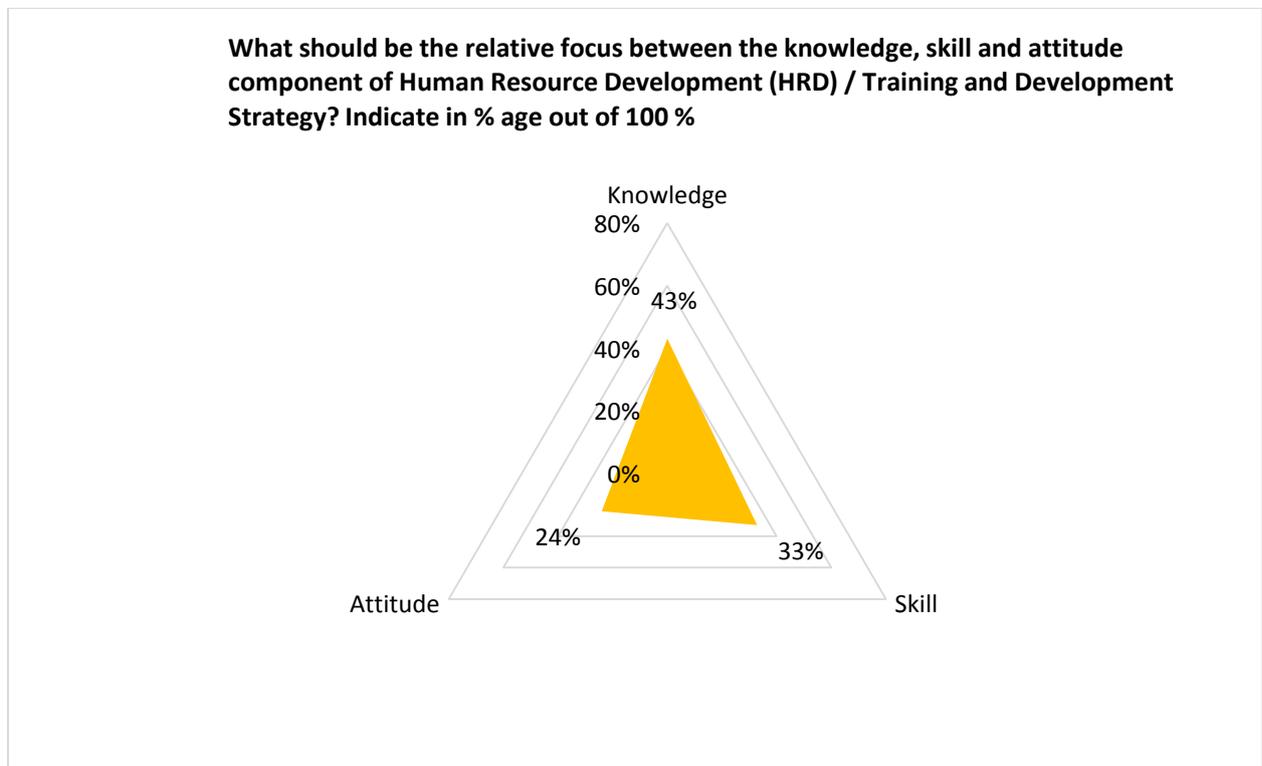
Total 267 employees filled the questionnaires. 212 (79%) responded to need to have a Human Resource Development (HRD) /Training and Development Strategy and training plan for building capacities (Knowledge, Skills and Attitudes) for EPA staff. Rest 21% doesn't responded.



All 212 (100%) voted in the favour of developing HRD and training plan, in an order to build employees capacities in all three areas i.e. knowledge, skills and attitudes.



It's worth mentioning that all employees wants skill related activities to increase their professional capacity, followed by knowledge (99%) and Attitude (93%).

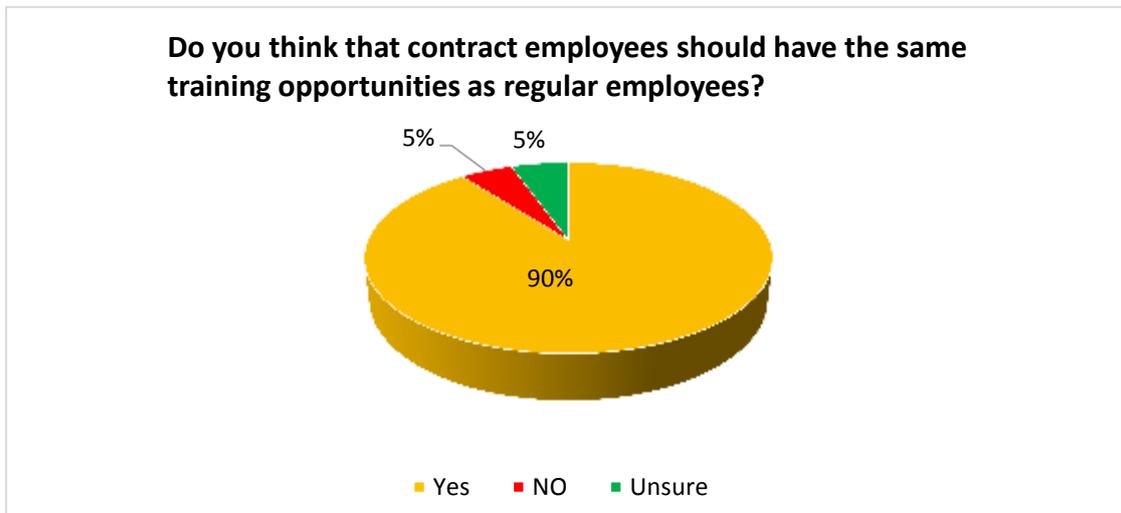


When the employees were asked about the best mix out of 100% for KSA (Knowledge, Skill, Attitude) 43% of the average responses goes to knowledge based HRD / Training development strategy, followed by Skills (33%) and Attitude (24%).

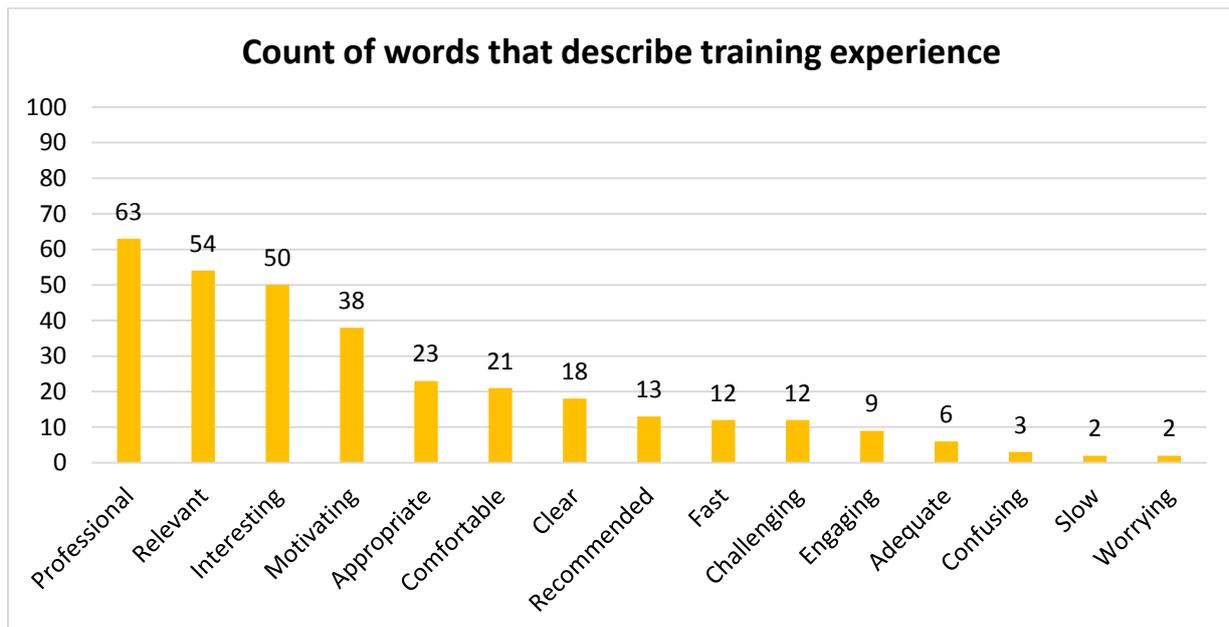
Below is total list of employees count against each different type of KSA mix proposed by them. Highest number of employee count (16) are against the mix Knowledge (60%), Skill (30%) and Attitude (10%).

Knowledge	Skill	Attitude	Count
0%	0%	100%	1
10%	10%	80%	1
15%	35%	40%	1
20%	30%	50%	1
20%	50%	30%	2
20%	60%	20%	3
25%	25%	50%	1
25%	50%	25%	1
25%	55%	20%	1
30%	25%	45%	1
30%	30%	40%	2
30%	40%	30%	4
30%	40%	40%	1
30%	50%	10%	1
30%	50%	20%	7
30%	60%	10%	1
30%	70%	0%	1
33%	33%	33%	1
33%	33%	34%	1
33%	45%	22%	1
34%	33%	33%	4
35%	35%	30%	6
35%	40%	25%	1
35%	50%	15%	3
35%	55%	10%	1
40%	30%	20%	1
40%	30%	30%	12
40%	40%	20%	11
40%	50%	10%	2
40%	60%	0%	1
45%	15%	40%	1
45%	30%	25%	2
45%	35%	20%	1
45%	40%	15%	2
45%	45%	10%	1
46%	20%	34%	1
50%	10%	40%	1
50%	20%	30%	2
50%	25%	25%	13
50%	30%	20%	15
50%	35%	15%	2
50%	40%	10%	10
50%	50%	0%	1
60%	10%	20%	1
60%	20%	20%	3
60%	25%	15%	3
60%	30%	10%	16

65%	20%	10%	1
65%	25%	10%	3
70%	20%	10%	8
70%	25%	5%	6
75%	20%	5%	1
76%	20%	4%	1
80%	10%	10%	2
80%	60%	40%	1
85%	10%	5%	1
100%	0%	0%	1
0%	0%	100%	1
43%	33%	24%	100%
(Average)	(Average)	(Average)	(Average)



Majority (90%) of employees believe that contract employees should have the same training opportunities as of regular employees. Employees believe in equal training opportunity.



The above picture shows that the 63 employees found that the trainings they have received are professional.

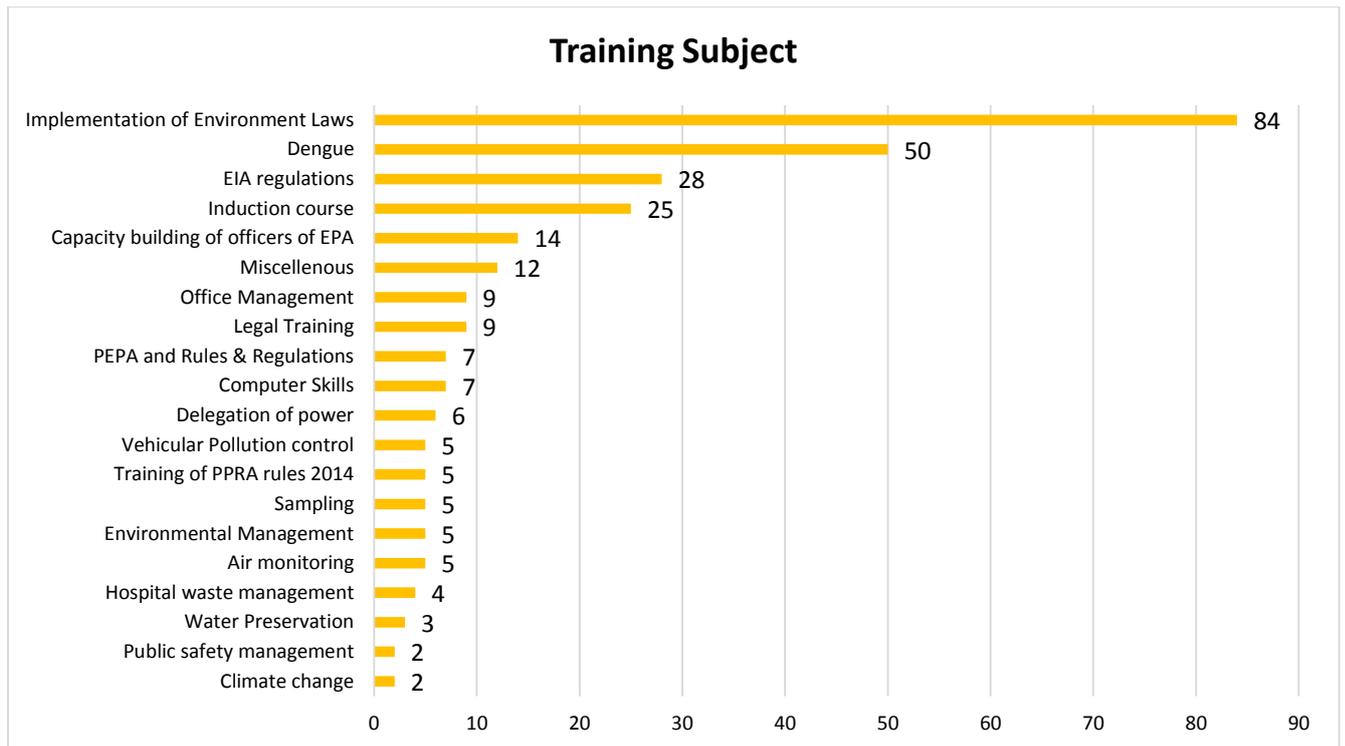
54 employees found trainings relevant and 50 believe that they are interesting.

Only 12 employees found trainings challenging in nature.

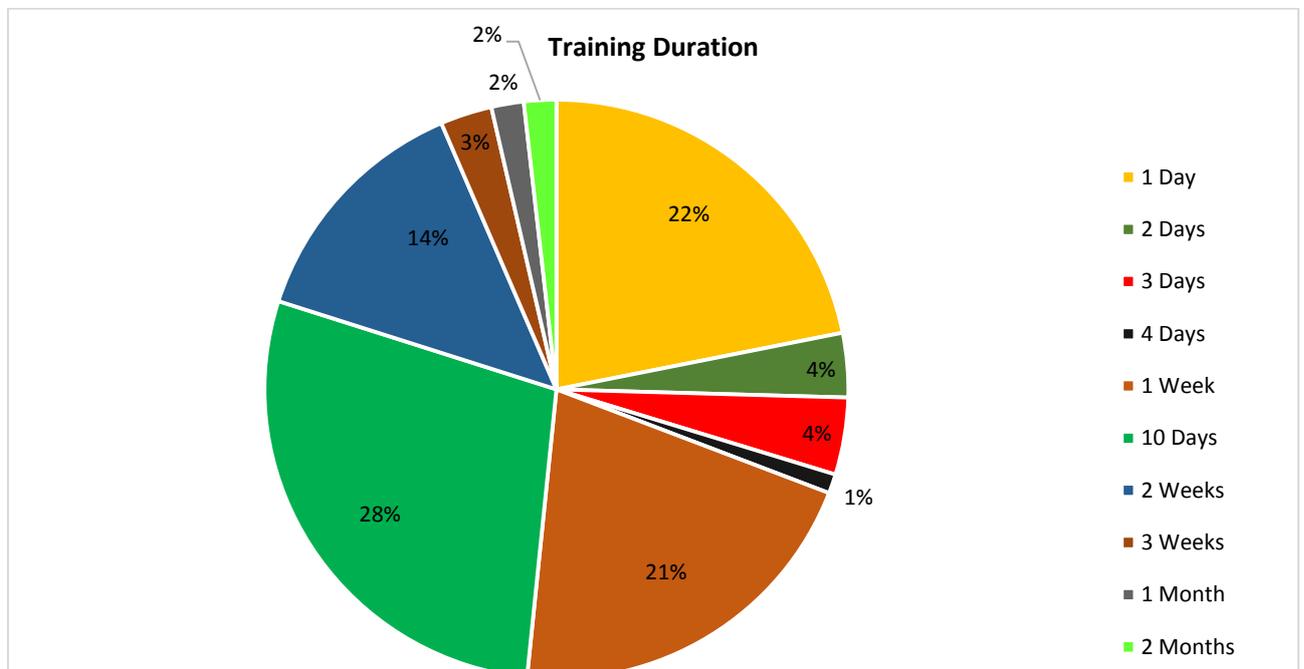
The below chart shows how employees evaluated the appropriateness of different training delivery options for Induction and Regular Training.

Training Delivery Options	Training Delivery Options Detail	Induction			Regular Training		
		Very Useful	Moderately Useful	Not Useful	Very Useful	Moderately Useful	Not Useful
1.0 On- the-job techniques	1.1 Demonstration	72%	28%	1%	63%	37%	1%
	1.2 Coaching	62%	36%	2%	54%	44%	2%
	1.3 Mentoring	53%	44%	3%	45%	52%	3%
	1.4 Job Rotation/Planned Experience	56%	39%	5%	54%	41%	6%
2.0 On-the-job or off-the-job techniques	2.1 Assignments	52%	45%	3%	51%	48%	1%
	2.2 Projects	49%	46%	5%	47%	50%	3%
3.0 Off-the-job techniques	3.1 Lecture	67%	31%	2%	59%	39%	1%
	3.2 Workshops	66%	34%	0%	60%	40%	1%
	3.3 Group Exercises	64%	33%	3%	57%	39%	4%
	3.4 Case Study	64%	33%	3%	58%	40%	3%
	3.5 Role-Playing	56%	41%	3%	48%	50%	2%
	3.6 E-Learning	55%	41%	5%	51%	46%	3%
	3.7 Outdoor Learning	60%	36%	3%	56%	40%	4%

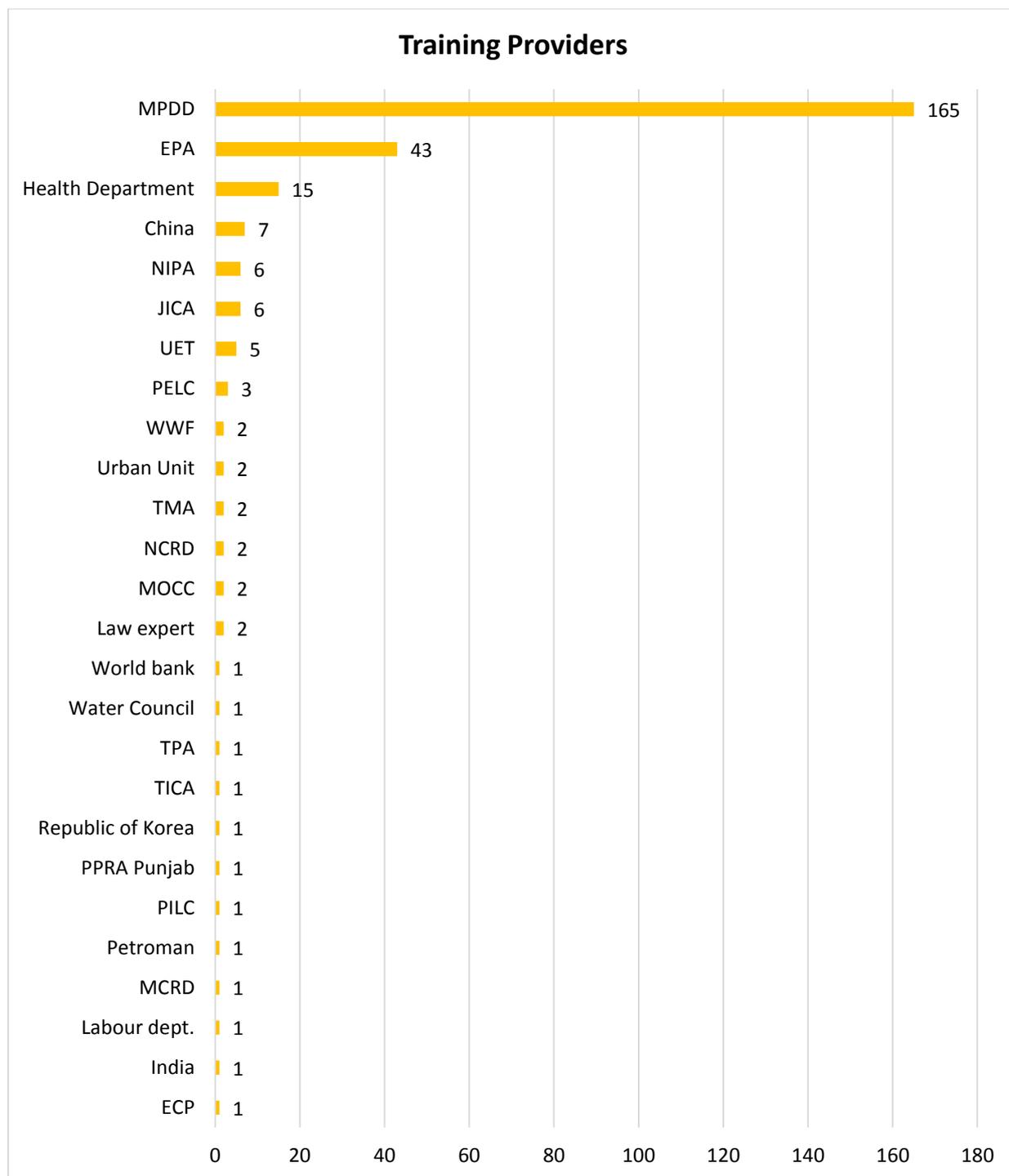
- ❖ For the on job techniques, 72% of the employees for induction found Demonstration as very useful followed by Coaching (62%) and Job rotation (56%). In case of regular training same Demonstration scored the highest at 63%. For both induction and regular training only 1% found Demonstration as not useful.
- ❖ For on-the-job or off-the-job techniques, 52% of the employees for induction found Assignments as very useful followed by Projects (49%). Likewise for regular training 51% employees found Assignment as very useful technique.
- ❖ In case of off-the-job techniques Lecture has scored the highest (67%) responses as a delivery option for induction followed by Workshops (66%), Group Exercises and Case Study both scored same at 64%. In case of regular training 60% of the employees found Workshops as a very useful training delivery option followed by Lecture (59%) and Case Study (58%).
- ❖ Employees were asked to provide brief information regarding training subject, training duration and its organization. Below charts show in detail their training experiences.



Majority of the employees (84) got training on Implementation of Environment laws, followed by Dengue (50) and on EIA regulations (28). It’s worth mentioning that only 2 respondents got trainings on both climate change and public safety management. It’s also has been noted that there are very few trainings based on skills and techniques.



Majority of training laps for 10 Days i.e. 28%, followed by 1 day (22%) and 3 weeks (21%).



MPDD (Management and Professional Development Department) is major training provider of EPA. As per received responses there are total 165 employees who have been trained by MPDD, followed by EPA (43) and Health department (15).

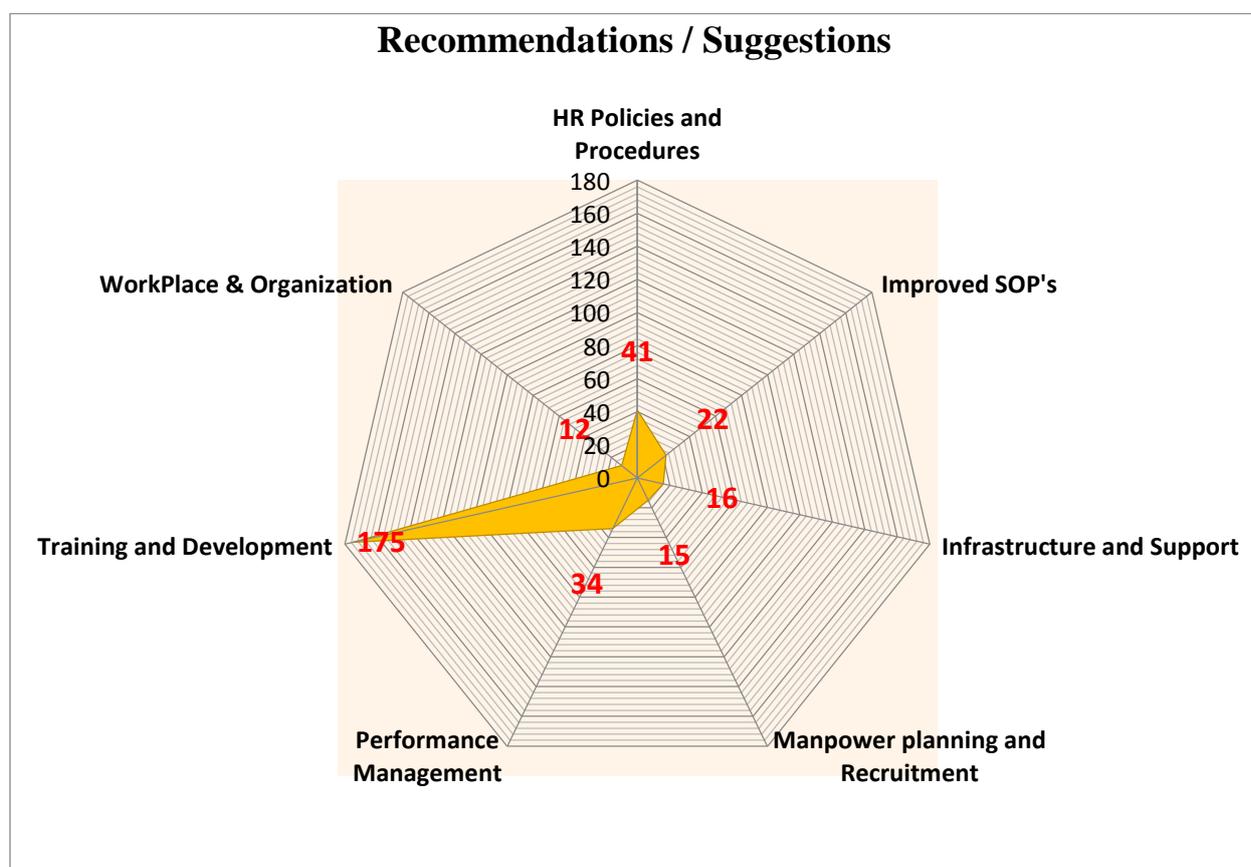
Its' worth mentioning that there are very few international trainings for the staff. Only 7 trainings were received in China, followed by Korea (1) and India (1).

STAKEHOLDERS ISSUES & RECOMMENDATIONS

Urban Unit (UU) and Ernst & Young Ford Rhodes worked in collaboration to conduct this particular session. This was carried out at the start of every TNA session followed by introduction; participants were asked about the key issues and challenges they faced while performing their jobs. Session was carried out by a moderator and a facilitator who was responsible for taking notes.

All notes are compiled, classified and summarised in different broad areas i.e. Training & Development, Manpower Planning & Recruitment, HR policies and procedures, Improved Sop's, Better Workplace and Organization, Performance Management and Infrastructure and support.

In addition to that we have also included recommendation/suggestion as a part of this session and there count is shown in Radar chart form.



Highest number of suggestions have been received under the head of training and development (175), followed by Improved HR policies and procedures (41) and Performance Management (34). Employees believes that there should be proper training and development plan at EPA so that they can work more effectively and efficiently.

I. Training and development

During the workshop conducted, majority had training needs which were to be provided in different areas that includes majorly both legal and technical sides.

Employees demands that induction training must be provided and the existing competency of the workers must be checked against the required competency level. Training programs should be in correlation to the workers roles e.g. IT specialist needs to train according to the laboratory, reporting etc. Training needs to be provided to the field staff first as they lack coordination, and emphasis on

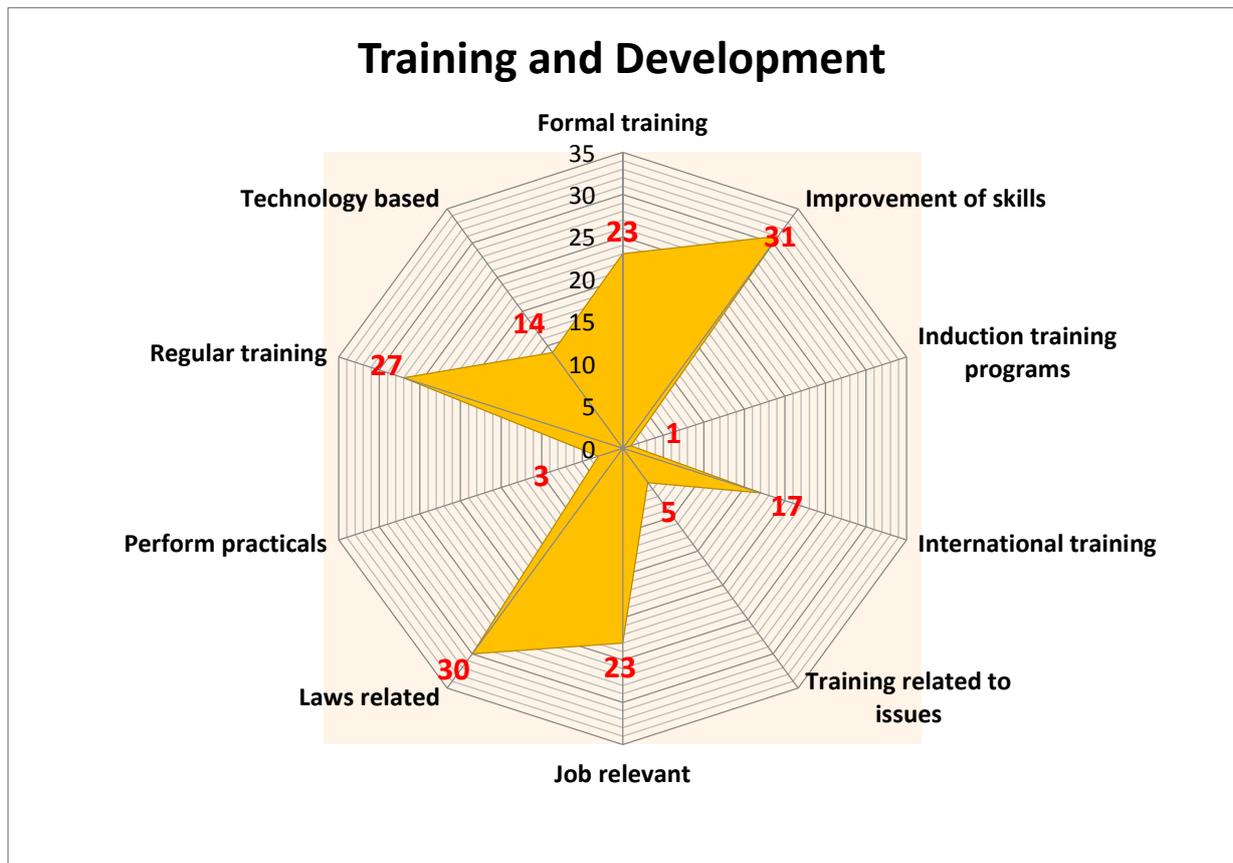
ensuring a clear vision must be stressed as well. Both local and international training programs needs to be initiated which emphasize on the implementation of the relevant Acts.

Many employees raised their concern that the challenges being faced are stretched whereas the capacity is the same, therefore training is essential to increase the performance and delivery of work by the employees through improvement of their skills. Trainings should cater their operational inefficiencies too such as typing and file management. Compulsory training needs to be emphasized in detail as people don't take interest in trainings unless it is linked to their promotion.

- Legal and technical training.
- Induction training
- Local and international training.
- Compulsory training to be emphasized
- Education on laws.
- Training to combat operational issues.
- Improvement of skills.

The employees need to be educated about PEPA (Punjab Environment protection Act) and SMOG as there is lack of awareness regarding the applicable laws. Training on dengue sampling should be given so that identification of pupil etc. can be made easily. Many employees raised their concern that the implementation of training is not very easy as it is only delivered through documentation they also recommended to revise training every half year.

Below radar chart shows the major suggestions given by employees for improving the Training and Development at EPA. Highest number of recommendations are for Improvement of skills (31), followed by law related training (30) and regular training (27).



II. HR policies and procedures

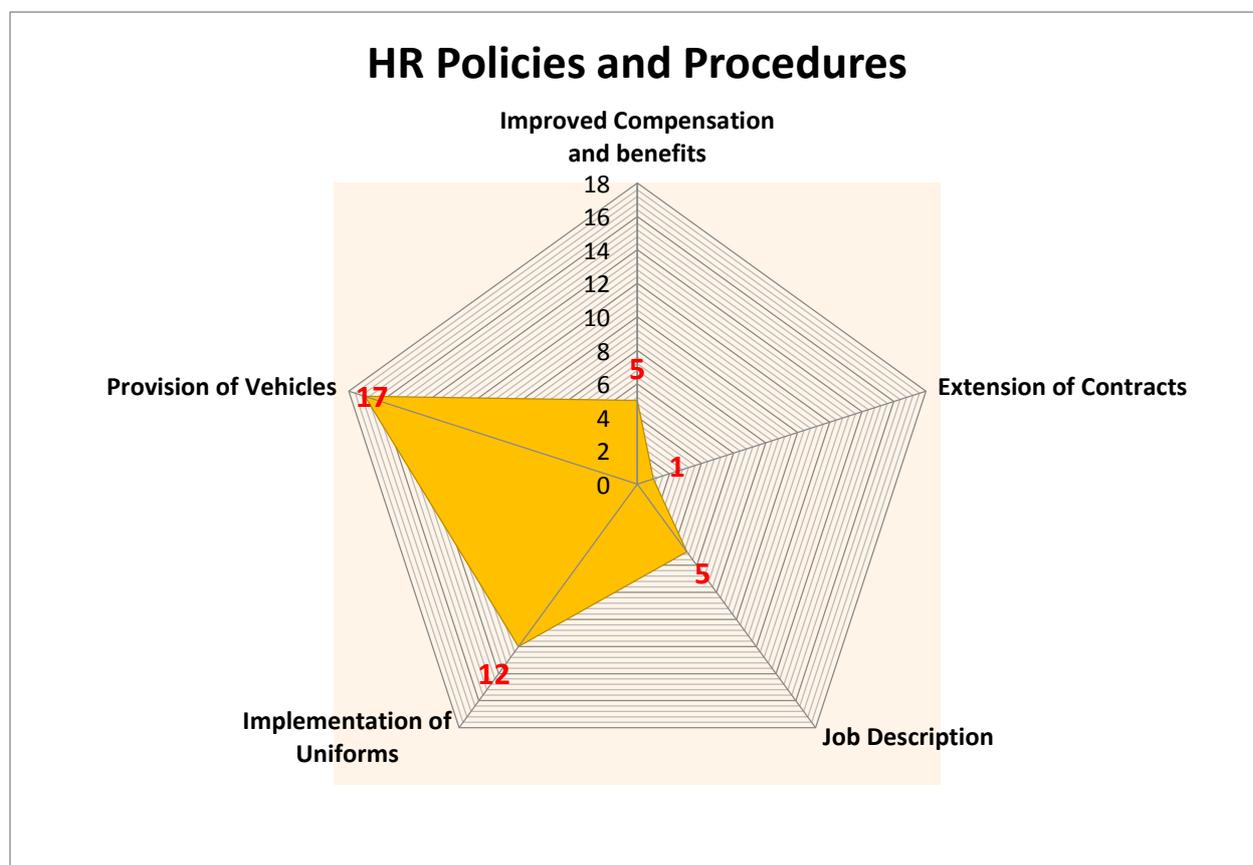
According to the survey conducted, conditions for conduct and discipline should be described as one of the seniors has been alleged of misconduct. There are lengthy complaint procedures and less space for record keeping. Proper authority must be assigned for charging on spot penalties and fines. A special force for traffic challans and traffic related issues should be kept as well.

- Authority for charging penalties.
- Improved JDs.
- Need for uniform
- Proper mode of transportation
- Incentives
- Risk allowances

Most importantly, a dress Code or a uniform needs to be notified by the authority as it was requested popularly. The mode of transportation needs to be changed to a car as it gets difficult to cover long distances on a bike in extreme weather conditions. There are conveyance issues as the ground is located at a distance of 100km from the center point, so fuel and vehicle is required for that purpose. Policies regarding proper mode of transportation should be implemented as the EPA staff are unsatisfied and feel dishonored from travelling in small cars such as Mehran.

The core competencies against positions are not defined properly. It needs to be job specific, for that the job criterion needs to be well-defined and contracts were requested to be extended. Other than this, employees demanded compensation and benefits such as incentives for the field staff to increase their pace of work. Risk allowances should be given to them as well.

Below radar chart shows the major suggestions given by employees for improving the HR policies and procedures at EPA. Highest number of recommendations are for provision of vehicles (17), followed by proper uniform (12) and appropriate job description (5).



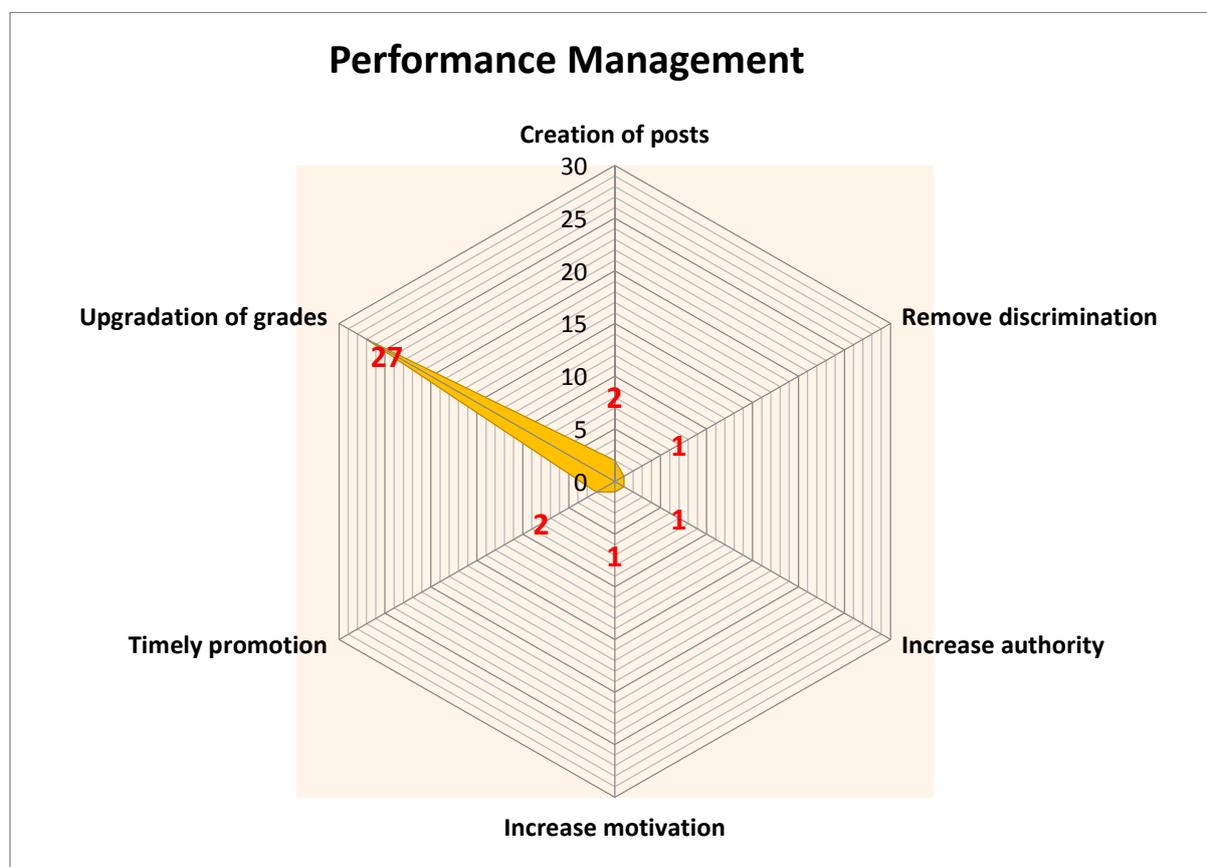
III. Performance Management

We came across many deficiencies which required the service structure should be improved on first basis as there is no equal service structure due to which the workload is higher. The scale upgradation needs to be done in order to improve efficiency especially between the field assistant and inspector.

- Inefficient work distribution.
- Scale up gradation.
- Low budget.
- Lack of resources.
- Demotivation.

It was witnessed that there is multi-dimensional work and staff is short because the budget is low. The main issues are neglected due to lack of resources and the cases are delayed. Challenges are faced from technology transfers as well. There is another concern that the staff has to work late night due to shortage of workers because of which PEQ standards are not met. The workers are demotivated too as there is no appreciation for work done so there are least chances of promotions for them.

Highest (27) number of suggestions are given under the head of upgradation of scale/grades.



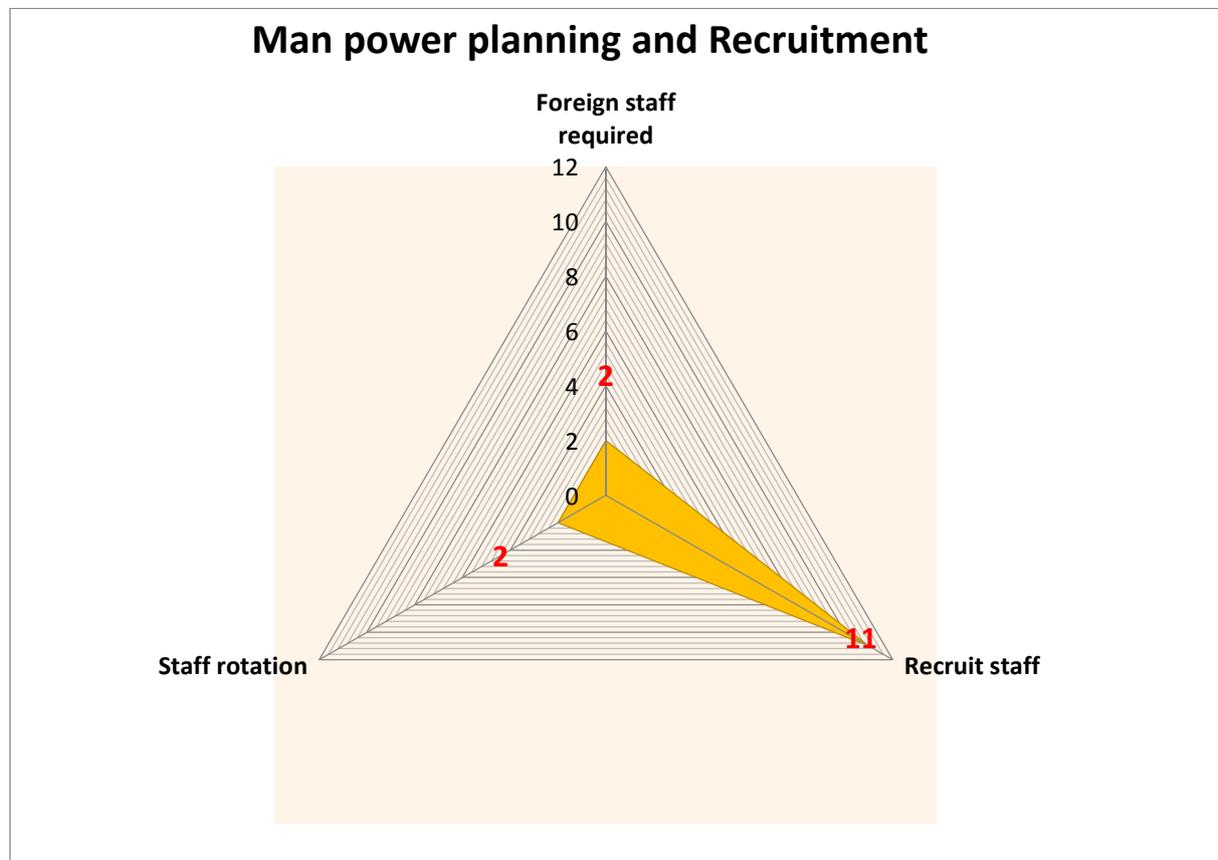
IV. Manpower Planning and Recruitment

There were complaints that no new recruitments are being done and the retirees and deceased are not replaced. The staff needs to be strengthened.

There is shortage of staff to conduct surveys on SMOG pollution and dengue; as they complained that these assignments cannot be conducted on the same day. The assignments appointed per individual are high and there is no

- The number of staff needs to be strengthened.
- Retirees and deceased to be replaced.
- Staff rotation.
- Succession Planning

coordination with the head office. There are other multiple tasks for one individual, therefore each department and person must be specialized so that they can be held accountable for the work performed. Moreover, the existing staff should be adjusted in the new structure and succession planning must be done. New foreign staff must be hired for technical training and work performance should be improved through job rotation.



V. Improved SOPs

SOPs (Standard Operating Procedures) are the documented processes that a company has in place to ensure services are delivered consistently every time. It was observed that all processes must be legally improved. Basic legal understanding must be provided to the personnel as legal method is a more presentable form of method.

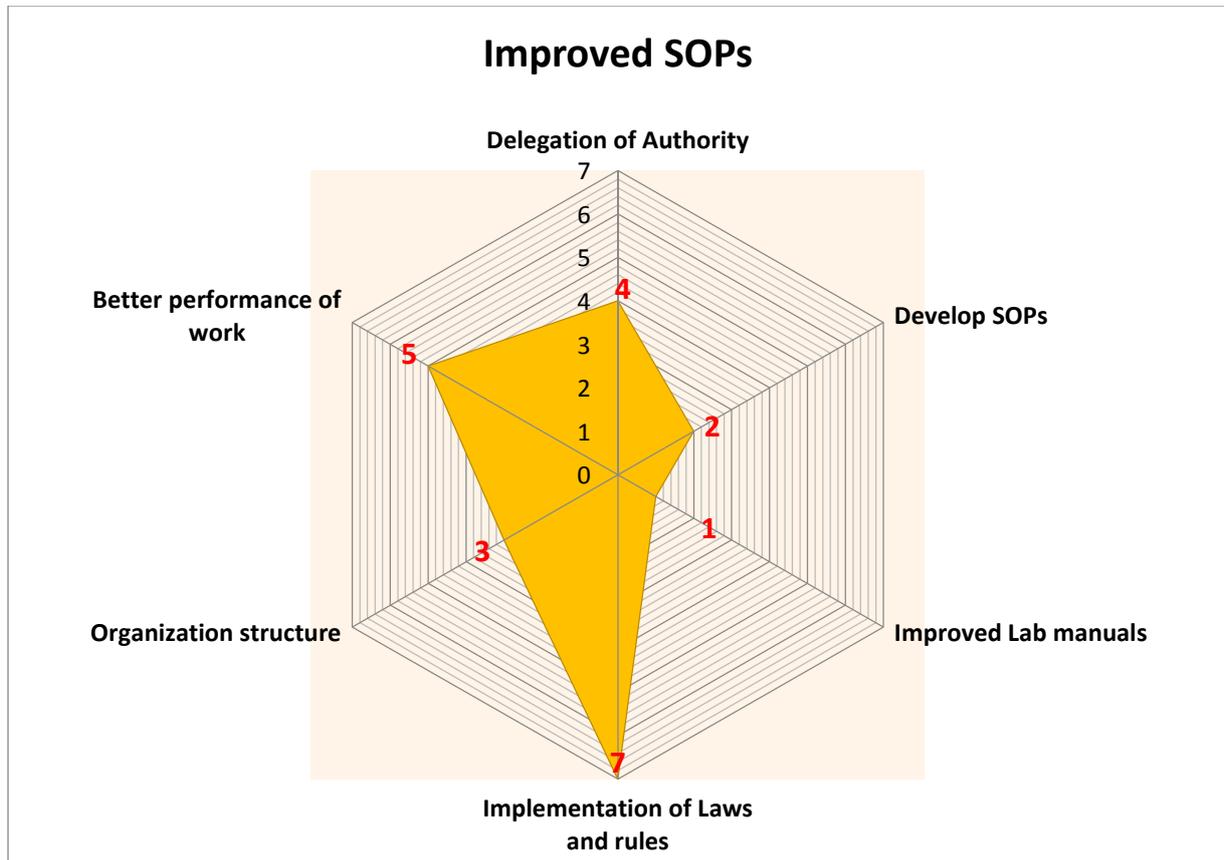
- Develop SOPs
- Delegation of authority
- SIR process is slow and lengthy
- Improved communication between authorities
- Decentralizing the district office

Urgent assignments are always required and the SIR (Sight Inspection Report) process is slow and lengthy. A legal advisor is needed for the timely fulfilment of activities which is presently not possible due to a lot of field work, so there should be legal backings. There is no clarity in orders and execution of work, therefore there is a drastic need for SOPs and policies on continuous training programs are required as there is gap in the system because of which the process has taken years. The staff is missing on the details due to the increased work load and less time is allocated to perform the office and field work. There is no strategy implemented for timely complaint procedure and resources are required at the district office for its improvement. No notices are received from the Head Office so there should be a proper channel of communication.

Recently there are a lot of ambiguities in delegations too. Therefore, decentralization must be done as the workload is more and there are no multiple tiers. There is no segregation of duties and the task is allocated at a very low scale. Although delegation of work has been done at the provincial level, but it still needs to be implemented at the divisional level. The restructuring must be strengthened by decentralizing the district office. Expansion in environmental act is needed at this level too as the environment department is neglected and HR is facing challenges regarding the environment. Consequently HR must be prepared to combat the issues. Due to lack of communication the laws that are implemented are weak, Authority is needed in fields with police assistance.

The headquarters does not interact with the field staff and less time is given to execute the activity (e.g. 11am email- 2pm deliverable). Legal team arguments should come up with more evidence (process, incident). Emails should be encouraged to avoid paper usage to make it more environmental friendly. There are complex issues in HR and service rules. Thus, proper procedures must be made for performance of work and two-way interaction should be adopted so that the sections are in line with the act and the rules and regulations.

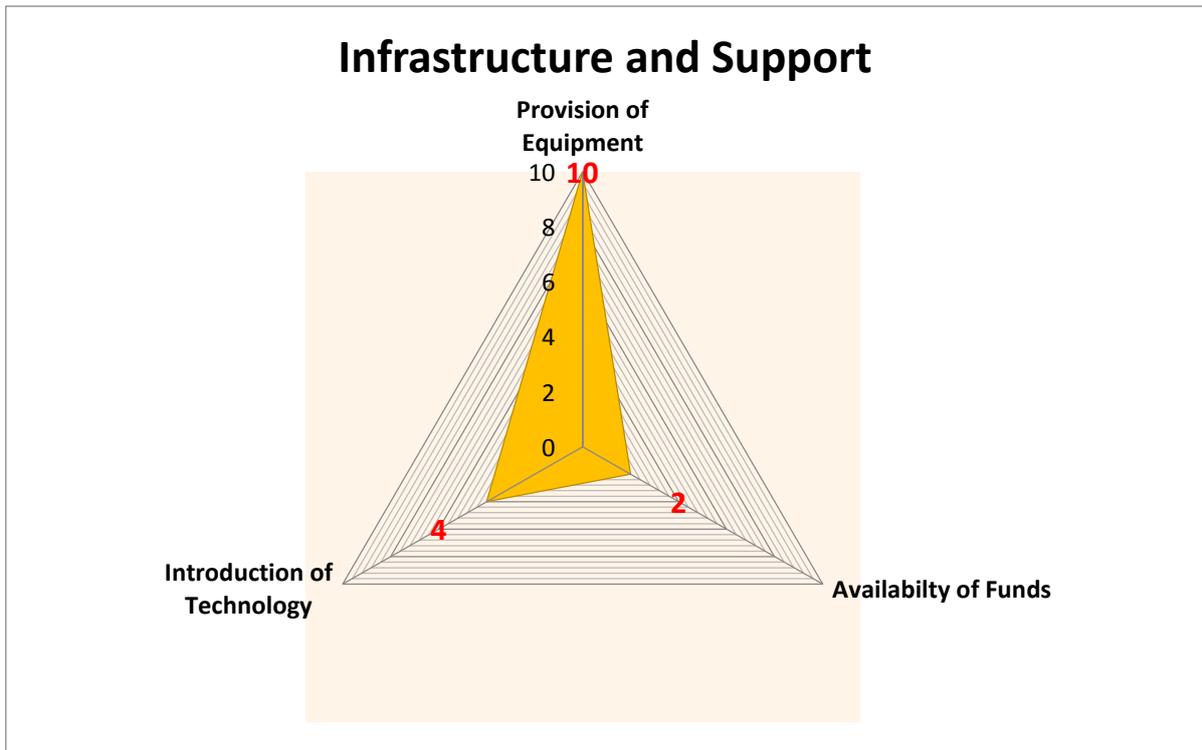
Below radar chart shows the major suggestions given by employees for improving the SOP’s at EPA. Highest number of recommendations are for implementation of laws and rules (7).



VI. Workplace and Organization

There are many problems in this area such as there is unnecessary work and delays from the head office which causes inefficiencies. There are 4-5 units in one room while there should be a separate room for each unit, and more seats in the field.

available in the library. The idea of e-library should be executed. There is a need of IT equipment such as a tab which should be provided to the employees so they have online access.



Section 5
Training Plan

Section 5

Training Plan

INTRODUCTION

The TNA Report evaluates the different Knowledge, Skills and Aptitudes currently available within EPD and EPA. In order to close the gaps, the department and its associated agencies will need to adhere to a training mechanism. A training mechanism has been developed and recommended that can be used by the department and its associated agencies in future.

This appendix will outline the training strategy for the departments and will define the guiding principles and recommended approaches to design, develop, deliver, and evaluate an effective training solution. Consideration will also be given towards making this training mechanism efficient and cost-effective by leveraging existing and proposed materials, processes, systems and tools.

The mechanism that has been developed is based upon a preliminary assessment of the department's (including its agencies) existing training infrastructure, analysis of stakeholder training preferences, identification of impacted directorate processes and training needs (through TNA), and functionality of training tools associated with this implementation.

THE GUIDING PRINCIPLES

Successful training programs need to have a sound set of foundational guiding principles, which should include the following going forward for the department and its associated agencies.

- Collaboration with functional experts and subject matter resources (**SMRs**) for consistency between role requirements and training content. The TNA results have already identified the key areas which require focus, and training plans cannot be developed without engaging with SMRs.
- Development of **tailored i.e. role-based training material** that focuses on the exact requirements of the job description keeping in mind the career progression i.e. the set of knowledge, skills and aptitudes that will need to be developed for the future.
- Develop a training schedule that does not interfere with the day to day operations and allows for the trainees to concentrate and up-skill themselves in a sound environment. This can be done through using **innovative delivery methods** that are interactive and role based. .

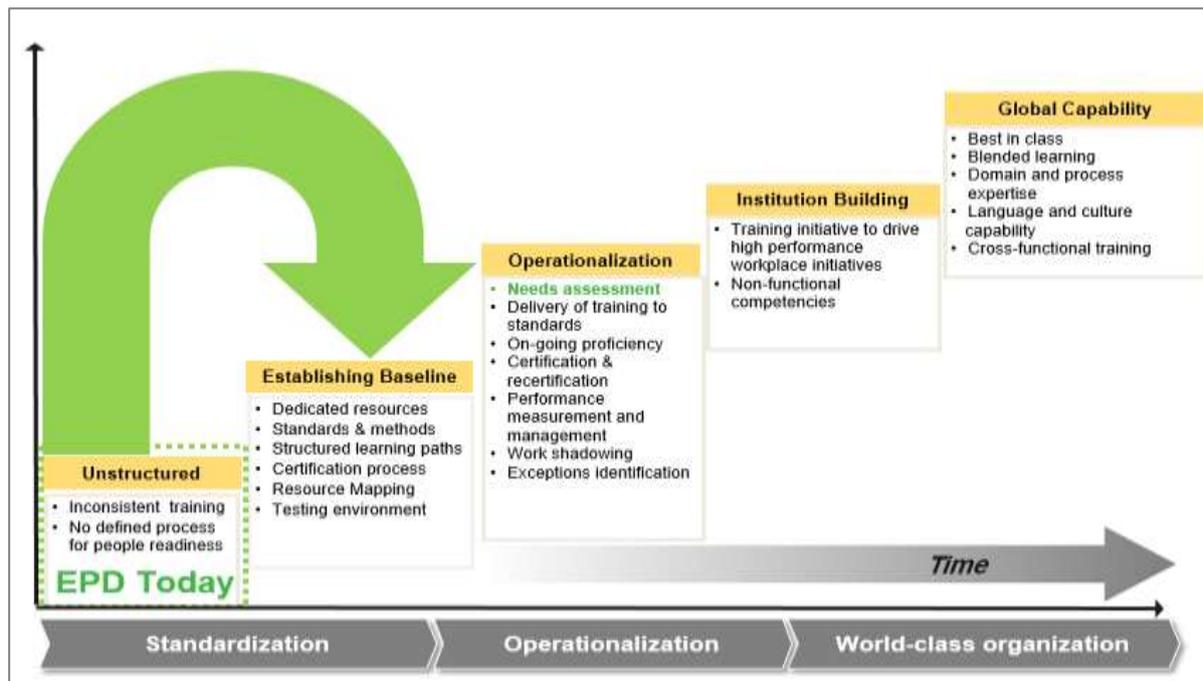
There are several other guiding principles that were considered but these three were identified as the crux for training plans going forward for the department and its associated agencies.

1. Training Vision

Currently there is no structured method of training available at the department and its associated agencies. The journey for the department will start from the very start with an ambitious goal in mind for the medium to long term. The diagram below shows the journey starting from an unstructured level of training to developing a gold standard global level training capability. The journey is not easy but taking the right steps and building on small wins can help the department increase its maturity when it comes to developing training plans and getting these implemented.

EPD and its associated agencies will start by standardizing training before they can reach world class status, over a period of time as shown in the diagram above. The current focus for the department and its associated agencies will be to dedicate resources to training, develop standardized methods and

learning paths, introduce a certification process, map the resource available and test the training plans in a closed environment.

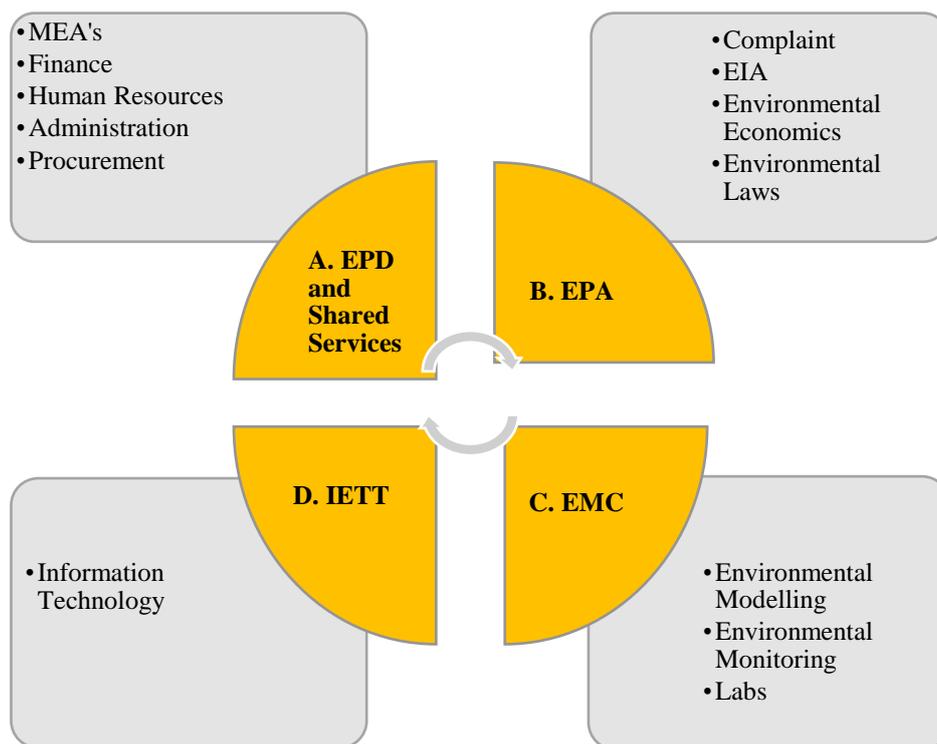


2. Training Approach

The TNA exercise that has been conducted with the staff of the department and its associated agencies was on a thematic bases i.e. focusing on the knowledge for the relevant area of expertise. Although this will form a key part of developing training plans i.e. through the use of SMRs, a comprehensive approach is needed to ensure that the training covers key elements that are required in the modern world. Trainings will occur throughout and beyond transition as required, and end users will receive practical experience and undergo evaluations. As an example below outlines current training topics for SSC transition:

It is recommended that:

- each employee at the department or any of its associated agencies shall go through training cycles at least two times a year
- the trainings shall be delivered in all directorates, divisions and departments of EPD and its associated agencies
- there should be interaction between the different institutions for training purposes
- the training should be a customized mix of
 - Classroom based learning from recognized institutions both foreign and local.
 - On premise instructor led training, the trainers can be trained for this
 - Web based learning
 - Coaching i.e. assigning mentors in the organization for informal training
 - On job training



3. Training Relevance and Prioritization:

As per TNA each of the different thematic areas (thirteen in total) were evaluated for different sub-areas. The exercise was focused on

- Identifying the relevance of training required for a particular sub thematic area
- Followed by the level of training required i.e. basic, intermediate or advanced
- And finally the prioritization of the training required i.e. how quickly should it be imparted.

The table below summarizes the priority areas that need to be addressed for the gaps to be closed. The first training plan that will be developed by the department and its associated agencies will focus on the following areas which have been identified in the tables:

Functional Area		Training Prioritization
Technical	Environmental Impact Assessments	1. EIA of development projects in Urban areas 2. GIS techniques using in EIA 3. PC I, II, III,IV preparation
	Environmental Modelling	1. Introduction to Air Pollution 2. Air Quality modelling 3. Basics of Air Quality
	Environmental Monitoring	1. Sampling techniques 2. Sample analysis tools 3. Baseline monitoring

	Multilateral Environmental Agreements	<ol style="list-style-type: none"> 1. Climate Change 2. Technology Transfer 3. Amendments
	Environmental Regulation (Laws)	<ol style="list-style-type: none"> 1. Bill, Act, Policy, Rules & regulations 2. Climate Change 3. PEPA 1997 (Amended 2012)
	Environmental Complaints	<ol style="list-style-type: none"> 1. Environmental Laws 2. Code of Criminal Procedure 3. Grievance redress Mechanism
	Environmental Economics	<ol style="list-style-type: none"> 1. Best Available Technology 2. Pollution abatement technologies 3. Efficient Waste minimization techniques
	Environmental Laboratories	<ol style="list-style-type: none"> 1. Standard Operating Procedures for sampling and testing 2. Quality control and Quality assurance 3. Hazards –Physical
Support	Information Technology	<ol style="list-style-type: none"> 1. Maps and Spatial Data Analysis 2. Geographic information system 3. Management information System
	Human Resources	<ol style="list-style-type: none"> 1. Recruitment & Selection 2. Training & Development 3. Compliance & Regulatory Requirements
	Procurement	<ol style="list-style-type: none"> 1. Punjab Procurement Rules -PPRA 2014 2. IAS 16-"Propert Plant and Equipment" 3. Conflict Resolution & Mediation
	Finance	<ol style="list-style-type: none"> 1. Record Management 2. Internal Audit & Internal Controls 3. Automated System for Reporting
	Administration	<ol style="list-style-type: none"> 1. Information Technology (IT) 2. MER (Monitoring, Evaluation & Reporting) 3. Third-party Relationship Management

The training listed in the table above will be required on a priority bases in the short term as soon as the department and its associated agencies are reorganized. Long term training will be delivered through the development of training / learning maps.

4. The Use of Training / Learning Maps

Formal learning is fundamental in gaining the skills and knowledge required for achieving the strategic objectives of the organization. This can be done through the development of learning plans for each one of the different directorates within the department of one of its associated agencies. It is recommended that the learning map for the departments shall be provided to every employee at the department and its associated agencies.

The learning maps will chart out the different learning interventions an individual has to undertake during the course of their career. It will take into account the competencies and related proficiency level at which an employee is expected to perform, at different levels. It provides a common language

and guidelines for employees, supervisors and career development to make the right decisions with regard to training and development.

The learning map at the department and its associated agencies will be developed on the principle of structured and reinforced learning. The learning map will:

- Be aligned to the competency framework. As part of the TNA exercise that has been carried out the competencies have been identified.
- Be aligned to the career planning mechanism whereby it will be plotted against the career path of an employee taking into account the varied capabilities required along the way. More details on career planning are available in the restructuring report.
- Offer a mix of generic and specialised learning, i.e. it will include the thematic areas as well as the common elements identified in section 4 above.
- Use multiple learning interventions which are explained in more detailed in section 7 below.
- Include mandatory vs. optional courses. The compulsory elements will focus on job requirements whereas the optional elements will be used to motivate the employees, giving them flexibility to develop themselves.

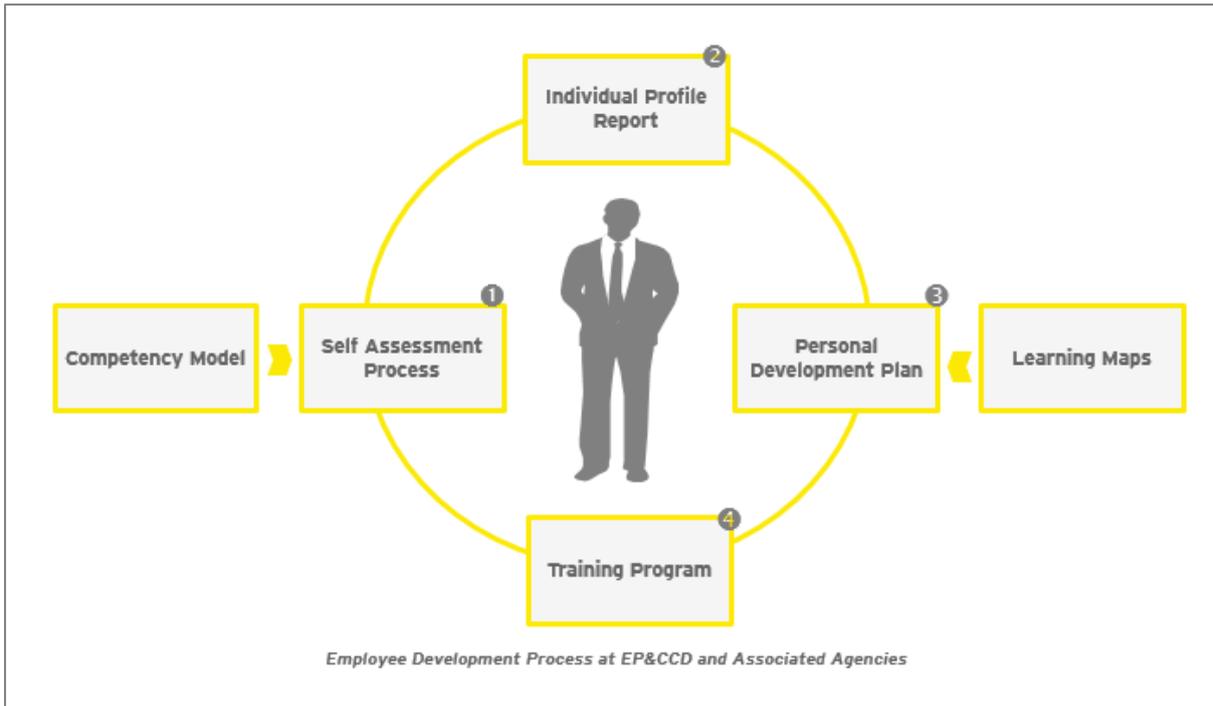
The department currently has a basic employee development process in place which is not helpful for its employees in achieving their potential and meeting their performance goals. The learning maps will serve as a reference for the supervisors and the career development division while developing the Personal Development Plan (PDP) for an employee.

The PDP will identify the gaps in competencies and the associated training required in order to cover the gaps. The learning map will indicate the mandatory and optional learning an employee will need to undertake in order to meet the performance expectations at a given level.

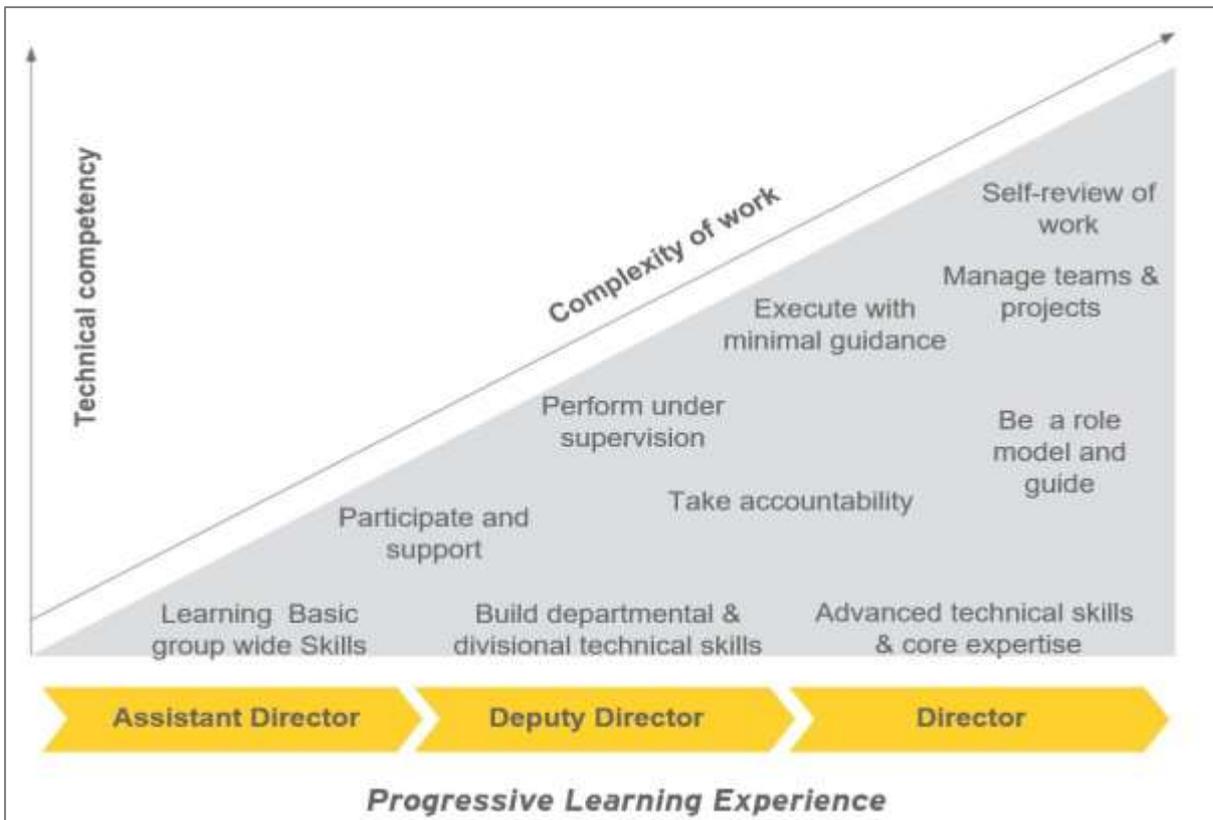
An employees' development at the department is steered by the ACR. The availability of a structured learning plan will allow for better learning and career development opportunities and a benchmark for the ACR process.

The initial focus of the learning maps will be on basic learning followed by subsequent trainings focused on imparting the functional competencies that are required to perform essential duties in one's department and division and address day-to-day challenges one faces as a part of the job.

Learning maps will be a visual representation of the successive learning interventions an employee at the department would undertake throughout his career to enable gradually paced, consistent, and reinforced learning. The competency model has already been developed. Annually the employees will carry out self-assessment against the required competencies followed by the completion of an ACR i.e. an individual profile report. This will be followed by developing / updating the PDP using the learning maps, before tailoring the relevant training program.



The department and its associated agencies in the future will focus on developing competent employees. It is therefore important to have the right blend of learning experiences and opportunities at each step of the career ladder.



5. Training / Learning Methods

As mentioned in the earlier sections the training should be a customized mix of;

- Classroom based learning from recognized institutions both foreign and local.

- On premise instructor led training, the trainers can be trained for this
- Web based learning
- Coaching i.e. assigning mentors in the organization for informal training
- On job training

The training curriculum should incorporate varied delivery methods designed to meet the required outcomes and needs for each end user. Training will also be supplemented by on-going learning activities to augment performance and increase efficiency. Details of each method are as follows:

- **Instructor-Led Training** - For creating an instructor led course at the premises of the department and associated agencies, external instructors will be required. The instructors / institutions providing the instructors will be required to submit materials to IETT (Training Wing). These materials will include the course description, purpose, learning objectives and outline. Only approved trainings will be disseminated to the employees in the proposed training facility. This will be inclusive of presentations, demonstrations and exercises.

In addition to the on premise training, the learning plans will also include recommended courses that are available at local and international universities. This will be classroom based learning from recognized institutions.

Further on premise training can also be provided by selecting individuals and getting them trained to be trainers.

- **Web based learning / virtual training** – For this the training materials will need to be streamlined for proper upload on the systems. A system will need to be developed by the IETT which can be used by the EP&CCD, EPA and EMC. This will also include incorporating evaluation questions in the middle of the modules. This can be used for self-paced learning, where employees can complete trainings in their own time
- **On-the-Job Training** – It is recommended that emphasis is placed on job shadowing as a key element of knowledge transfer/knowledge acquisition. A mapping of the process areas/skills to be transitioned should be done, followed by shadowing with SMRs in a real time environment. Knowledge transfer will be delivered through interactions with supervisors, peers, and experienced employees. It will also include shadowing individuals to understand the intricacies and execution of work activities and reverse job shadowing to evaluate performance.

For each type of training method, actionable points have been identified that can be carried out by IETT. These can be used as the next steps for delivering training plans.

a. Classroom Learning

ACTION ITEM	RESPONSIBILITY
Map the existing courses (in-house or external) to the various learning objectives identified in the learning map. Some of the learning objectives may correspond to more than one existing course, and a note should be made to that effect, wherever the case	IETT (Training)
If none of the existing courses meet all the learning objectives laid out in the learning map, coordinate with reputed training providers to develop customized training programs	IETT (Training)

Prepare the training program as per the defined learning objectives	Training Provider / IETT (Training)
Ensure that the training program meets the learning objectives as per the proficiency requirements laid out in the job matrix. Evaluate the effectiveness of the training program using appropriate methods and tools	HR Department

b. On The Job Training (OJT):

ACTION ITEM	RESPONSIBILITY
Coordinate with the employee's supervisor to identify an appropriate coach (internal or external) to guide the employee during the structured OJT	HR Department
Facilitate the processes of putting down the objectives of the OJT, preparing the reading material for the OJT, and setting expectations from the employee	HR Department
Assign the employee the task and provide the necessary and timely guidance, and feedback	Coach
Debrief the employee and communicate the OJT assessment to the employee's supervisor and career development division	Coach

c. E-Learning

ACTION ITEM	RESPONSIBILITY
All classrooms training to be made available on the e-learning portal currently under development. Until the e-learning portal is functional the training material should be made available in a shared drive	IETT (Training)
Provide the employee post classroom training the link to the shared drive in order to facilitate reinforced learning	IETT (Training) / HR Department
Facilitate the identification and assignment of a vendor to provide the E-learning portal	IETT (Training)
Liaise with the IT Department to ensure availability of the infrastructure to implement E-learning system	IETT (Training) / HR Department / IT Department
E-learning module completion to be reported to the employee supervisor and the career development division	HR Department / IT Department
Update the employees PDP on completion of the E-learning activity	HR Department / IT Department

d. Books

ACTION ITEM	RESPONSIBILITY
Make available all books and periodical that would help in the achievement of the learning objectives, as specified in the learning map in the library	IETT (Training)
Assign a coach and the self-paced learning books to the employee on completion of the classroom training	HR Department
Make presentation on the learning gained through self-paced learning - Books	Employee
Ensure that the employee on completion of the self-paced learning delivers a presentation to his coach and collect feedback from the coach	HR Department
Coach to provide feedback to the employee's supervisor and career development division	Coach
Update the employees PDP on completion of the E-learning activity	HR Department

e. Certification

ACTION ITEM	RESPONSIBILITY
Coordinate with the department managers to identify the high-potential ('promising') employees for certification	IETT (Training) / HR Department
Manage the enrollment of the employee to the certification course	IETT (Training) / HR Department
Identify the certification testing center and identify the training provider for preparatory course	IETT (Training)
Ensure that the employee attends requisite training to prepare for certification	HR Department
Regular follow-up on the progress of the employee and update the PDP on completion of the certification	HR Department

f. Training Facilities / Resource

All trainings across the department and the associated agencies will be the responsibility of Training Directorate of IETT. The Director - Training will have specialist trainers / instructors available for providing the training along with the option of doing this through visiting faculty members. Discussions are underway to house this element of the IETT in a university i.e. fund the initial development of a School of Environment, so that it can be later developed by the relevant university as well after the initial seed funding is provided by the EP&CCD.

More details on IETT can be found in the restructuring report.

6. Training Evaluation Methods

A very important element of training is evaluating its impact and its success. This will be done through several methods which have been summarized in the table below.

Level	Type	Description	Examples of evaluation tools and methods	Relevance and practicability
1	Reaction	How the end user felt about the training or learning experience.	Feedback forms, verbal reactions, post-training surveys, and questionnaires.	Quick and easy to obtain.
2	Learning	Measures the increase in knowledge or capability.	Assessments/tests before and after the training, interviews, and live observations.	Simple to develop for quantifiable skills; Complex learning requires further effort.
3	Behavior	Rests with applied learning and on-the-job performance.	Observation and interview over time are required to assess change, relevance of change, and sustainability of change.	Measurement of behavior change typically requires cooperation of managers.
4	Results	The contribution to the business environment based on end user performance and required metrics.	Measures already in place via systems and reporting.	Process must attribute clear accountabilities that map to the predetermined evaluation metrics.

Another key element of ensuring the success of trainings delivered is through a **quality assurance process**. To ensure quality of the training materials, the learning strategy and course designs should be reviewed by process owners. Additionally, training materials will go through a three-step review process:

- **SMR / Technical Review** – Provides an opportunity for subject matter experts to review small amounts of training materials on a regular basis. SMRs check for the accuracy of business process information and for technical accuracy. This will be carried out by the SMRs available at IETT.
- **Operational Review** – Core operational team members who execute work instructions will review all documentation to verify its accuracy, clarity, and compliance with document standards, establishing that it is in line with practices
- **HR Review** – This will ensure that all elements of the training are covered i.e. IT / system, process, culture and aptitudes in addition to the technical.

The three step process will ensure that the trainings that are developed are of top quality before they are rolled out. This capacity will be built within the IETT with support from the HR Departments in EPD, EPA and EMC.

Section 6
Training Curricula

Capacity Building in Environment Sector

Strengthening Environmental Governance and Monitoring

Curriculum



THE URBAN UNIT
Urban Sector Planning & Management Services East (UPMS) Ltd.
A Public Sector Company.

Section 6

Training Curricula

INTRODUCTION AND BACKGROUND

In recent decades, environmental dilapidation is escalating rapidly as a result of human activities and inadvertent management of the technological development of different areas, resulting in significant impact on the ecosystem. In this regard, EPA Punjab has the responsibility for the enforcement of rules, regulations, and guidelines, including some qualitative and quantitative standards for the discharge of effluents, wastes, air emissions, noise etc. in the form of Punjab Environmental Quality Standards (PEQS). Despite the fact that EPA is building on its success with the environment through available regulations/rules including draft ones along with PEQS – the matter of effective implementation still remains a big challenge.

To cope up with the overreaching issues, the Environmental Protection Department (EPD), Government of Punjab, has engaged the Urban Unit and its partners (EY Ford Rhodes supported by EY France, Saleem Alam & Company and Finnish Consulting Group Asia Pvt. Ltd.) to carry out the institutional restructuring and capacity building of EPA Punjab for effective enforcement of environmental standards in the province. The core objective of the consultancy is to develop an integrated system of environmental governance employing state-of-the-art solutions, including human resource and instruments that meet the present and future challenges of environmental protection, pollution control, sustainable development, and climate change in the province with special emphasis on capacity building of its staff through training need assessment in order to achieve organizational objectives.

This report is a part of overall capacity building activity. Initially, a demand driven process of Training Need Assessment (TNA) was carried to assess the current capacity gaps and skillset requirements keeping in view the organizational change process to future state. The TNA was carried out to ensure that the workforce of EPA and its related agencies have the right mix of KSA (Knowledge, Skill and Attitude) to deliver the desired results. In addition, TNA also acted as a backbone to design the training curriculum based on the findings to ensure that any gaps that could compromise the delivery of job performance are addressed in timely manner. Please refer to TNA report for more details.

OBJECTIVES

This activity is being carried out with a view to propose a training curriculum (based on TNA findings) which will help the EPA and its related agencies to uplift the current skill set in line with the future requirements resulting from the restructuring exercise.

CURRICULUM DESIGN

Findings from TNA played a critical role in designing the training curriculum which can help the EPA and its related agencies to uplift the knowledge, skills and attitudes. The template for training curriculum was designed in consultation with TNA/HR experts and constitutes fifteen parts which are explained below:

1. Subject Details
 - Subject details include the name of the course, unique ID number, unit/credit points, and location.
2. Staff Contact Details

- It includes information regarding representative staff responsible for the course.
- 3. Faculty Description
 - It includes information regarding the master trainers such as their experience, qualification and so on.
- 4. Subject Description
 - It includes a short and pithy statement about the subject matter, approach, breadth of the content and its applicability.
- 5. Subject Requirements
 - It outlines the linkages with other courses and systematic approach to capacity building.
- 6. Targeted Officials
 - It includes target audience for which the course can play a vital role.
- 7. Teaching and Learning Pedagogies
 - It entails information regarding the theory and practices of the teaching that will be considered in the course.
- 8. Learning Objective and Outcomes
 - It enlists the outcomes/objectives that will be achieved through the course.
- 9. Teaching and Learning Methods
 - It includes name of activities (such as lecture, discussion, case study etc.) that will be considered to achieve the learning outcomes and objectives.
- 10. Subject Content
 - Whole course is being divided into multiple themes – starting with the introduction till detailed comprehension of the subject matter.
- 11. Assessments
 - Assessments are divided into two streams of tasks i.e. presence/participation and in-class test. Learning outcomes and weighting criteria have been defined in line with the nature and complexity of the course.
- 12. Attendance Requirements
 - Criteria for attendance have been defined for every course.
- 13. Learning Resources
 - Learning resources entails bucket of online links and physical content available for the reading purposes.
- 14. Feedback/Evaluation by Officials
 - It will include the feedback of the officials, between and at the end of the course. It will help the EPA to address the concerns/issues and evolve the content and teaching methodology in line with the emerging requirements.
- 15. Support for Officials

Environmental Education and Awareness

ENVIRONMENTAL EDUCATION AND AWARENESS

Subject Details

Subject Name	Environmental Education and Awareness
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Environmental education is important to trigger proactive participation of the masses in addressing, debating and protesting on significant environmental issues. The goal of environmental education is to develop a world population that is aware of and concerned about the environment and its associated problems and who has the knowledge, skills, attitudes, motivations and commitment to work individually and collectively towards solution of current environmental problems and prevention of new ones.

Sustenance of “Nature” that is the key to the development of future of mankind. It is the duty and responsibility of each one of us to protect nature. It is here that the understanding of the “Environment” comes in the picture and this course helps to foster this attitude. The degradation of our environment is linked with development process and ignorance of people about retaining the ecological balance. Indeed, no citizen of the earth can afford to remain aloof from the issues related to the environment. It is therefore essential that the study of the environment should be given utmost priority.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Citizen Science (CS)
- Education for Sustainable Development (ESD)
- Climate Change Education (CCE)

Target Officials

- EIA directorate officials (Directors, DD, AD, Inspectors)
- Field officers EPA (AD, DD, Inspectors, Field Assistants)
- Other Government Departments
- Environmental Consultants
- Industries

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

This course aims towards:

- To study the role of Environmental Education and raising of awareness and training in sustenance of nature.
- To study how environmental education and training attempts to create pro-environmental attitude and a behavioural pattern in society that is based on creating sustainable lifestyle.
- Engaging with citizens of all demographics to;
 - Think critically, ethically, and creatively when evaluating environmental issues;
 - Make educated judgments about those environmental issues;
 - Develop skills and a commitment to act independently and collectively to sustain and enhance the environment; and,
 - To enhance their appreciation of the environment; resulting in positive environmental behavioural change (Bamberg & Moeser, 2007; Wals et al., 2014).

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small Group Activities
- Scenarios and Case Studies

*Subject Content***BASIC LEVEL****Awareness-Essential Knowledge about the Environment****Theme 1: Awareness-Essential Knowledge about the Environment**

Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions

This theme will cover following points:

- Introduction about environment
- Types of Environment
- Environmental Ethics
- Environmental Decisions

It should be emphasized that environmental education should be a forward looking and a continuous lifelong process; consider the environment in its totality; follow a problem-solving interdisciplinary approach; and adopt a world outlook with due regard to regional differences. In acquisition and transfer of learning, practical activities and first-hand experience should be given due stress.

Studying this theme on Environmental education would entail the following objectives:

- (a) awareness: to help individuals acquire an awareness and sensitivity to the total environment and its allied problems
- (b) knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of the environment and its associated problems
- (c) attitude: to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection
- (d) skills: to help individuals acquire the skills for identifying and solving environmental problems
- (e) Participation: to provide participants with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.

The following are three common ways to approach environmental education:

Education about the Environment provides learners with practical knowledge about the environment and the impact humans have on it.

Education from the Environment uses the natural environment as a teaching tool – a natural laboratory to provide knowledge and hone the skills to protect it. This component helps develop values and creates positive attitudes.

Education for the Environment develops a consciousness and deep concern about the living environment and promotes responsibility for taking care of and protecting it. The objective of this component is to develop attitudes and levels of understanding, which influences people to take collective action that will positively benefit the Earth.

Activity: Ask trainees what environmental education means to them. Ask the participants to write

their thoughts on cards. After they finish, collect the cards and arrange them on a pin board. Classify them by subject and put similar ideas in groups on the board. (In general, people who hear about environmental education for the first time, share the common misconception that EE means supplying information and knowledge to learners that will help them understand the environment and nature.

INTERMEDIATE LEVEL

Environmental issues and solutions

Theme 1a: Environmental awareness

Basic education about the Environment for instance, the types of environment and creating awareness about ways of protecting the environment. Different modes/ways of creating awareness include but not limited to:

- Establishment of Eco clubs. The responsible agency would be responsible for implementing, supervising and monitoring the programme.
- Seminars/Symposia/Workshops/Conference
- Publication of Resources Material. The objective of the programme is to utilize expertise available with professional societies, voluntary organizations, institutions, etc. for printing and publication of resource material for promoting environmental education and awareness
- Media Action Plan .The objective of this is spreading environmental awareness through various media activities as media can act as a powerful tool in creating awareness
- National Museum of Natural History (NMNH) can be set up to impart non-formal environmental education and conserve the example of flora, fauna and geological feature of the country.
- Organization of “Green Olympiad” (an International Environment Quiz) and celebration of World Wetland Day, Earth Day, Science Day, Conservation Day, World Environment Day

Theme 1b: environmental issues and solutions

Man’s ability to exploit the environment has resulted in modified ecosystems in many parts of the world and has given rise to a number of problems. An environmental crisis may be defined as a situation demanding immediate corrective action if such be possible - to avert deterioration, damage or destruction of the affected system (Strahler and Strahler, 1977). These crises may be local, regional or global.

Environmental problems may be classified in a number of ways

- Nature of consequences - physical, economic and social consequences;
- Geographical scale - global, regional, national and local levels;
- Time-scale - short-term consequences and long-term consequences;
- Stage of development - social, economic and technological systems.

To summarize, this theme will cover following points:

- Environmental problems having physical, economic & social consequences
- Environmental Problems of Pakistan-Comparison with other Developed and Developing

Economies

- Solution of Environmental Problems

Group Activity

- Identify an Environmental Issue
- Discuss the causes and its ramifications and solutions.

Work together towards reaching unique, technologically advanced, effective way to cater to the problem

ADVANCE LEVEL

Creating Awareness and Pathways to collective action

Theme 1: Creating Awareness and Pathways to collective action

This course seeks to instill creative and innovative ideas about spreading awareness for protecting the Environment. New strategies and innovations for environmental education have been developed and applied throughout the region. For example, in Singapore, the Ministry of Environment in 1996 published the 'Fun and Discovery through Environmental Clubs', outlining environmental activities and clubs. Similar publications have been developed in Japan, India and Bangladesh. Collective, social or environmental identity, social norms, political efficacy, and social capital are all pathways leading to collective action to address underlying causes of environmental problems.

This theme will typically include:

- Different models for Environmental Education for instance inter disciplinary (Single subject) Model vs Multi-disciplinary (Infusion Model). Advantages and disadvantages of each model.
- Innovative approaches of spreading awareness with examples of different countries for instance Japan which has various examples of innovative education, public awareness and training activities including, Environmental Counsellor Registration System, the Environmental Activities Evaluation Programme and various campaigns for conservation of natural resources and energy. In addition to these programmes, the "Junior Eco Club programme" supported by the Environment Agency has been a very effective programme
- Different information dissemination methods for instance mass media and scientific publications, electronic media etc and different organizations that are working towards environmental education. Issues and Constraints in Information dissemination should also be considered
- Analysing every method's effectiveness- pros and cons
- Environmental Communication (Print Media, Broadcast Media, Citizen Volunteers, Corporate Sector)
- Identity, Norms, Political efficacy, Social capital

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources**Statutes/Rules/Policies:**

- <http://unesdoc.unesco.org/images/0013/001304/130454eo.pdf>
- <http://www.moef.nic.in/report/0405/Chap-08.pdf>
- Constitution of Pakistan, 1973
- Pakistan's National Conservation Strategy at <http://www.iucn.org/themes/ceesp/publications/art-mono/pak.doc>
- Pakistan Environmental Protection Act, 1997 (PEPA, 1997)
- National Environment Policy 2005 at <http://www.environment.gov.pk/nep/policy.pdf>
- Environmental Tribunal Rules, 1999
- National Water Policy (Draft) at <http://www.waterinfo.net.pk/pdf/NationalWaterPolicy.PDF>
- National Drinking Water Policy (Draft) at http://www.environment.gov.pk/act-rules/D_NATIONAL_DRINKING_WATER_POLICY.pdf
- Revised National Environmental Quality Standards, 1999
- The National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rules, 2001
- The National Environmental Quality Standards (Certificate of Environmental Laboratories) Rules, 2000
- The Pollution Charge for Industry (Calculation and Collection) Rules, 2001
- Pakistan Environmental Protection Agency (Review of IEA/EIA) regulations, 2000
- Guidelines for Public Consultation
- Clean Development Mechanism (CDM) National Operational Strategy
- Provincial Sustainable Development Fund (Procedure) Rules, 2001
- Provincial Sustainable Development Fund (utilization) Rules, 2003
- Hazardous Substance Rules, 2003
- Guidelines for Solid Waste Management at http://www.benfieldhrc.org/disaster_studies/rea/resources/Solid_Waste_Man.pdf
- Hospital Waste Management Rules, 2005 at <http://www.environment.gov.pk/act-rules/rHWMRules2005.PDF>
- National Sanitation Policy at <http://www.environment.gov.pk/SACOSAN-2005/PDF/National%20Sanitation%20Policy.pdf>

- Environment Sample Rules, 2001 at <http://www.environment.gov.pk/act-rules/envsamplrules.pdf>
- The Wild Birds and Animal Protection Act, 1912
- Biodiversity Action Plan for Pakistan, 2000 at <http://www.macp-pk.org/bap.pdf>
- Local Government Ordinance 2001
- The Factories Act, 1934
- Pakistan Penal Code, 1860
- Forests Act, 1927
- Pakistan climate change act 2017.

Feedback/Evaluation by Officials

Support for Official

Multilateral Environmental Agreements (MEAs)

MULTILATERAL ENVIRONMENTAL AGREEMENTS (MEAS)

Subject Details

Subject Name	Multilateral Environmental Agreements (MEAs)
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Environment related challenges and issues of Pakistan are associated primarily with an imbalanced social and economic development in the recent decades. This challenge is further compounded with rapid urbanization due to a shift of population from rural to urban areas. Multilateral Environmental Agreements (MEAs) address the environmental problems, originating from such complex developments and faced by the international community as a whole. MEAs vouch for common responsibility among nations for environmental protection. The ultimate goal for the MEAs is sustainable development across the globe. Most environmental problems have a transboundary nature and often a global scope, and they can only be addressed effectively through international cooperation.

This course on MEAs provides students with guidance on the practical aspects of negotiating, implementing, and enforcing environmental law at the international and national levels.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Environmental management and governance
- Climate Change Mitigation & Adaptation
- Environmental Awareness techniques
- Environmental Law
- Strategic Environmental Assessment
- Energy Resources & Management
- Environmental Economics

Ideally, participants would participate in several of these courses in a systematic approach to capacity building for public sector officials in Punjab.

Target Officials

- Senior public officials at local, district and provincial levels
- Managers responsible for municipal, community, environmental and economic policy, strategy, implementation, and review at sub-national levels of government
- Elected representatives.

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will have:

- Knowhow on the background and objectives of MEAs
- Increased knowledge on the implementation and compliance mechanisms in the MEAs globally and specific to Pakistan
- Enhanced knowledge on how to contribute towards MEAs within their scale (local, regional or provincial)
- Knowledge of methods to influence a change through organizations in the public, private/development sector
- Increased capacity to contribute to an increased capacity building at different scales and sectors

As a result, all the participants are expected to be an active sustainable development agent in their relevant sectors, thus complementing the national regulations and international agreements.

Teaching & Learning Methods

- Presentations

- Class Discussion
- Small Group Activities
- Scenarios & Case Studies

Subject Content

BASIC LEVEL

Theme 1: Introduction to MEAs

This theme covers introduction to MEAs and what motivates people, institutions, and states to comply with and enforce environmental law. After giving a historical perspective of MEAs, basic differences between different MEAs like protocol, treaty and convention, agreements and amendments will be highlighted. A historical perspective to MEAs will help the students get a better idea on the objectives, benefits and drawbacks of complying or, in other cases, not complying with the MEAs. For a better overview, the training will primarily focus on MEAs being ratified by Pakistan bringing in examples from them for specific illustrations. Towards the end of this, trainees would be able to:

- Identify different forms, nature, principles and elements of MEAs
- discuss recent environmental trends and cross-cutting issues, highlighting a range of environmental priorities (including those that are being addressed by MEAs, as well as those not covered by MEAs);
- describe the importance of international environmental law – and MEAs in particular – in responding to environmental challenges;
- identify challenges to effective compliance with and enforcement of MEAs;
- compare the effectiveness and appropriateness of different approaches for promoting compliance with and enforcement of MEAs; and
- describe various factors that promote or deter compliance
- trace the products of MEA negotiation phases, checklists and a typical day at the negotiation venue

INTERMEDIATE LEVEL

Theme 1: Compliance and Enforcement with Pakistan's MEAs

This will aim at training the audience on national and provincial approaches for compliance and enforcement in Pakistan. The module will start with introduction to MEAs to which Pakistan is signatory and the associated roles & responsibilities resulting from such agreements

- national law, institutional arrangements, enforcement, the role of the public, public education and working with the media,
- understand the basic principles, rationale, mechanisms, and approaches for compliance and enforcement at the national level, particularly for implementing MEAs;
- identify the importance of national enforcement to the implementation of an MEA;
- understand the importance for Pakistan of having an environmental enforcement program to enforce MEAs; and
- identify the internal and external factors (including social, cultural, and economic factors) that affect implementation of MEAs in national legislation and determine national/ provincial

enforcement capacity in Pakistan.

ADVANCED LEVEL

Theme 1: Compliance and Enforcement at International Level

This theme focuses on preparing for and participating in negotiation of MEAs, implementation, compliance processes, responses to non-compliance, and synergies and interlinkages. Specifically, it will aim to build on the conceptual understanding of the compliance mechanism, trade-related measures, supportive measures, non-compliance mechanism and dispute settlement mechanisms set in the MEAs. Additionally, it will also touch upon the role & relevance of MEAs in achieving the Sustainable Development Goals along with available indicators, if any. Learning objectives of this theme include:

- discuss how MEAs can help achieve the Sustainable Development Goals (SDGs) on the macro and micro scale;
- comment on the preparations that a State should make in order to participate effectively in negotiations and describe specific ways to prepare for negotiations;
- generally discuss and evaluate negotiations processes;
- compare and contrast signature, ratification, acceptance, approval, and accession to MEAs;
- debate the issue of withdrawal from an MEA; and
- participate in a role-playing exercise on negotiation of an MEA.

Theme 2: Case-studies and emerging trends

The last theme of training will aim at discussion of case studies on MEAs and future directions, while examining key crosscutting themes and emerging trends. Likely focus of this theme would be on the role of different actors, especially the public and NGOs; institutional coordination (both horizontal (between sectors and Ministries) and vertical (between national and sub-national governmental units); synergies and interlinkages; financial arrangements; and leadership and support (political, institutional, social, private sector, etc.) with proven examples from different countries globally.

At the end of the course,

- discuss the key themes that cut across considerations of compliance and enforcement;
- identify emerging trends and explain their significance; and
- debate relative priorities and approaches for improving compliance with and enforcement of MEAs.

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of key Conceptual understanding of the compliance mechanism, trade-related measures, supportive

		measures, non-compliance mechanism and dispute settlement mechanisms set in the MEAs, nationally and internationally
--	--	--

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

INFORMEA - <https://www.informea.org/en/article/introduction-informea>

UNEP, Training Manual on International Environmental Law (2006), available at http://www.unep.org/law/PDF/law_training_Manual.pdf.

Fulfilling environment related international commitments through implementation of multilateral environmental agreements (meas) in Pakistan, available at http://www.sciencevision.org.pk/BackIssues/Vol18/02_Vol18_Fulfilling_Environment_AhmadHussain.pdf

UNEP, *Manual on Compliance with and Enforcement of Multilateral Environmental Agreements* (2006), available at http://www.unep.org/delc/docs/UNEP_Manual.pdf

T. Stephens, *International Courts and Environmental Protection* (Cambridge University Press 2009).

N. Gunningham, "Reconfiguring Environmental Regulation: Next Generation Policy Instruments," in: *Industrial Innovation and Environmental Regulation:*

Developing Workable Solutions (United Nations University, 2007), available at http://www.idrc.ca/en/ev-110171-201-1-DO_TOPIC.html

Multilateral Environmental Agreements (video) <https://www.youtube.com/watch?v=RyotpS1Tk0Q>

U.S. Environmental Protection Agency (EPA), *Principles of Environmental Enforcement* (1992), available at <http://www.inece.org/enforcementprinciples.html>

The World Bank Institute's Environmental Compliance and Enforcement Indicators Project in Latin America, available at <http://www.inece.org/newsletter/10/indicators.html>

Feedback/Evaluation by Officials

--

Support for Official

--

Environmental Modelling

ENVIRONMENTAL MODELLING

Subject Details

Subject Name	Environmental Modelling
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

It is ever more important for us to understand our environment, how human activities may affect it, and how we can reduce the damage. Environmental problems are often complex, having many interacting parts - human activities that release pollutants; transport via air, water or land; chemical transformation; physical and biological effects on ecosystems and human health; and the economy that drives the activities and pays for clean-up. In the recent years, Modelling has been an important component of environmental work. It has helped inform both decisions and policies. Models have improved the understanding of natural systems and how they react to changing conditions, such as exposure to hazardous substances and the temporal and dose effects from the exposure. This curriculum equips students with a well-rounded training in the role, implementation, and application of models in the spectrum of environment.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Environmental management and governance
- Environmental Awareness techniques
- Climate change mitigation & adaptation
- Strategic Environmental Assessment

Ideally, participants would participate in several of these courses in a systematic approach to capacity building for public officials in Punjab.

Target Officials

- EPA directorate officials (Directors, DD, AD, Inspectors)
- IT/Modelling staff of EPA
- Elected representatives

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will be able to:

- Recognize and discuss different model types
- Be familiar with the application of GIS & remote sensing in modelling of different environmental parameters specially air quality, water quality
- Increased knowhow of the available models and best practices globally
- Apply an integrative or systems approach to solving environmental problems.

As a result, all the participants are expected to be active sustainable development agents in their relevant sectors, thus complementing the national regulations and international agreements.

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small group activities

Subject Content**BASIC LEVEL****Theme 1: Introduction to Environmental Modelling**

This basic level theme will provide an overview of the basic terminologies involved in the environmental arena such as pollution, environmental parameters, atmospheric composition etc.

General formulation of mass balances and their applications within environmental modelling will be seen. Since the focus of upcoming themes will be air quality, water quality and groundwater quality, the trainees will get an insight on sources, nature and impacts of the associated contaminants.

It is expected that trainees will tend to view these concepts analytically as they will play a crucial role in the modelling practices. Available models, best practices globally and feasibility of environmental modelling with regard to Pakistan's environment will be studied.

INTERMEDIATE LEVEL

Theme 1: Air Quality Modelling

One of the biggest environmental issues in Pakistan and specifically Punjab is poor air quality. Presently having an unhealthy air quality index, it's about time modelling is incorporated at the decision-making level to trace the exact sources, take preventive and reactive measures, plan the urban development accordingly and even penalize the polluting bodies according to their impacts. Two main types of air quality models are Dispersion and Receptor models. Within these modelling practices, types and applications would be discussed in the 2nd theme. Problems and solutions related to air pollution will be touched holistically. Other models like Plume rise, deposition, particle approach etc will be overviewed generally. Along with providing a basic overview, specific input and output parameters involved in such models will be seen. Specific to Punjab, the participants will be trained on feasibility and application of GIS & remote sensing in dispersion and receptor modelling, so they can implement the skills in their respective positions.

Theme 2: Surface Water Modelling

Already going through a water quality crisis, Punjab is in need of serious reforms in the water sector. This theme will target to give an overview on the basic types and characteristics of the surface water bodies. As a result, participants should be able to differentiate between different water bodies like lakes and impoundments, rivers and streams, estuaries, bays and harbors etc. The concept of dissolved oxygen will be cleared. Problems and solutions related to surface water pollution will be touched holistically. Models being used globally within these surface water bodies will be studied along with the associated inputs and outputs. Surface water problems like Eutrophication have caught widespread attention so its characteristics and models will be given time as well. Towards the end, participants will also gain insight on applications of GIS and Remote sensing in surface water models.

Theme 3: Groundwater Modelling

Apparently invisible, groundwater issues often go unnoticed. This theme will focus on the groundwater occurrence and characteristics and parameters involved in groundwater modelling. Inputs and outputs in available groundwater models will be studied. Likewise, participants will also be introduced to groundwater remediation technologies and their feasibility in Pakistan's scenario. Contaminant transport processes will be studied. Applications of GIS and remote sensing will be analysed to extract the best of groundwater modelling. Eventually, participants should be able to identify ground water problems and suggest solutions accordingly.

ADVANCED LEVEL**Theme 1: Application & Role of Environmental Modelling in EIA and decision making**

Major applications of modeling with reference to EIA shall be discussed include those related to:

- Impact mitigation and control
- public consultation and participation
- monitoring and auditing

Additionally, the potential application of Modelling and its other roles in decision making shall be explored for better:

- ability to perform spatial and temporal analysis;
- clearer presentation of results/output;
- power of models to store, manage & organize complex data;
- integration and manipulation of extracted information from data;
- ease of changing and updating information/data

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	25%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	75%	Demonstrate knowledge and understanding of key Environmental Modelling concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

- EPA's Environmental Modelling training modules <https://www.epa.gov/modeling/environmental-modeling-training-modules>
- Integrated Environmental Modelling: A Tool in Science and Planning <http://www.breiling.org/publ/intmodyohei.pdf>
- Air Pollution Modelling – An Overview <http://home.iitk.ac.in/~anubha/Modeling.pdf>
- Air Quality Dispersion Models: <http://www.fortair.org/wp-content/uploads/2016/05/FAP-Air-Dispersion-Models-final.pdf>
- Application of receptor modelling methods Philip K. Hopke 1 , David D. Cohen Good Practice Guide for Atmospheric Dispersion Modelling https://www.researchgate.net/profile/Gavin_Fisher/publication/283653081Good_Practice_Guide_for_Vehicle_Emissions/links/56ad97a908ae43a3980c8bde/Good-Practice-Guide-for-Vehicle-Emissions.pdf
- A review of surface water quality models – hindawi.com/journals/tswj/2013/231768.pdf
- Water quality models – An overview: http://www.ewra.net/ew/pdf/EW_2012_37_04.pdf
- Fundamentals of Ground- by USEPA: <https://www.epa.gov/sites/production/files/2015->

[06/documents/fund_gw_modeling.pdf](#)

Feedback/Evaluation by Officials

Support for Official

Environmental Law

ENVIRONMENTAL LAW

Subject Details

Subject Name	Environmental Law
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Environmental pollution is a matter of life and death. Humans' survival on this earth depends on their harmony with nature. Rule of law must defend the rule of life, and life will survive only when the biosphere is safe. Environment is now considered the most important global issue and stakeholders, including lawyers around the world are making efforts to help the people to improve the environment and their legal claim over the environment and pollutions.

Environmental law plays a major role in structuring the relationship between human beings and the world around them. Almost every kind of legal practice today touches some aspect of environmental law. The training addresses the principles and rules of International Law relating to the protection of environment and the domestic legislation on environment including the Environmental Act of 1997 amended 2012. In short, it seeks to shed light on the working of government in responding to environmental challenges in the present and future. The course will also help the participants get a better understanding of the concept of sustainable development, climate change and knowledge of Pakistani environmental legislation and jurisprudence.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Environmental management and governance
- Multilateral Environmental agreements
- Environmental Awareness techniques
- Climate change mitigation & adaptation
- Strategic Environmental Assessment
- Energy Resources & Management

Ideally, participants would participate in several of these courses in a systematic approach to capacity building for public officials in Punjab.

Target Officials

- EPA directorate officials (Directors, DD, AD, Inspectors)
- Managers responsible for municipal, community, environmental and economic policy, strategy, implementation and review at sub-national levels of government
- Elected representatives

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will have:

- Knowledge of relevant statutes and regulatory frameworks
- Be familiar with the formulation and implementation of government policies
- Increased knowhow of the MEAs and the associated responsibilities
- Knowledge of environmental and development issues facing Pakistan

As a result, all the participants are expected to be active sustainable development agents in their relevant sectors, thus complementing the national regulations and international agreements.

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small Group Activities
- Scenarios and Case Studies

Subject Content**BASIC LEVEL****Theme 1: Overview of Environment & Law**

A generic overview into environment & law will converge towards international environmental law & policy. Participants will get an insight on the emergence of International environmental practices, thereby being introduced to Multilateral Environmental Agreements (MEAs). Principles and Application of International Environmental Law will be overviewed with reference to major international laws and case studies. Towards the end, Pakistan's stance on MEAs specifically to those it is ratifying will be focused upon.

Theme 2: PEPA – an Overview

PEPA, being a bible to Pakistan's environmental legal framework will be studied in detail in this theme covering information on aspects like Purpose of PEPA, PEPC, principles mentioned in the document and

Any changes after the 18th amendment will be discussed to keep track of them e.g. roles of provincial and federal departments. The extent to which PEPA has incorporated the principles of the Rio Declaration into its local law will be touched upon as well. Trainees should be able understand the role played by the Ministry, Departments and EPAs in the overall implementation of PEPA. Trainees will be given the liberty to critically analyse the effectiveness of PEPA and its institutions. Eventually, they will be prepared enough with an understanding of how PEPA works and rooms for improvement.

INTERMEDIATE LEVEL**Theme 1: Pakistan's Legal & Policy Framework**

Since a majority of training audience will be acting as a stakeholder in their own capacity, Theme 3 will be able to enlighten them with Pakistan's law and policy framework. Substantive Laws such as Punjab Environmental Protection Act, 1997 (Amended 2012) and many others will be covered along with the applicable rules & regulations. Similarly, the draft rules & regulations shall be also be considered in this regard. Questions like "What picture do these document paint? Do you agree with this way the Government has undertaken its responsibility to protect the environment?" will be asked to be answered by the audience? Overview on Judicial Trends & Public Interest Initiatives, public interest litigation will be given. Towards the end of this theme, class will discuss and identify an issue of public importance regarding the environment for which they will all work to prepare a write petition to be submitted to the Lahore High Court with information such as:

- Identification of issue
- Assignment of responsibilities
- Laying out of timeline

Theme 2: PEPA – A deeper dig

PEPA, being a bible to Pakistan's environmental legal framework will be discussed in detail in this theme covering information on aspects like Purpose of PEPA, PEPC, Federal and Provincial EPAs, Tribunal and appeals, Enforcement of international legal obligation, The IEE/EIA process, The Polluter Pays Principle etc. Regarding enforcement, mechanisms for enforcement and the procedure

of enforcement, including the procedure on how to collect samples and pollution charge will be taught.

Any changes after the 18th amendment will be discussed to keep track of the changes e.g. roles of provincial and federal departments. We will discuss how much and to what extent PEPA has incorporated the principles of the Rio Declaration into its local law. Trainees must understand the role played by the Ministry, Departments and EPAs in the overall working of PEPA. Trainees will be given the liberty to critically analyse the effectiveness of PEPA and its institutions. Eventually, they will be prepared enough with an understanding of how PEPA works and rooms for improvement.

ADVANCED LEVEL

Theme 1: International Environmental Law & Policy

A generic overview into environment & law will converge towards international environmental law & policy. Participants will get an insight on the emergence of International environmental practices, thereby being introduced to Multilateral Environmental Agreements (MEAs). Principles and Application of International Environmental Law will be overviewed with reference to major international laws and case studies. Towards the end, Pakistan's stance on MEAs specifically to those it is ratifying will be focused upon.

Theme 2: Climate Change, Sectoral Issues & Way forward

Issues in different sectors like Forests, Wildlife, Water (transboundary and subnational), Air, Urbanization and Waste Management will be highlighted as most of them, if not all of them, may combine and shape environmental laws. Participants will get insight to climate change, being a critical issue on every scale and how it has been incorporated in the environmental laws globally, leading to the importance of integration of climate change into planning processes in Pakistan. Roles of national, sub-national and local institutions in planning for climate change.

Analysis of main elements of a recognized climate change planning methodology and international initiatives which support Pakistan to plan for climate change will be identified along with the current status. A way forward will be designed accordingly keeping in view all the findings throughout the training for effective formulation and implementation of environment's legal framework in Pakistan.

Theme 3: PEPA – Penalties, Enforcement & prosecution

Participants will be enlightened with regard to the enforcement & prosecution procedures of the offences mentioned in PEPA. Moreover, suggestions and any shortfalls in the PEPA shall also be identified that may be considered formally to be incorporated as a legal statute. As most of the cases are dropped at this stage due to proper knowhow and/or documentation, careful consideration shall also be given to build on the participants' knowledge on documentation and implementation of different legal provisions mentioned in PEPA.

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of key Environmental Law concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources**Statutes/Rules/Policies:**

- Constitution of Pakistan, 1973
- Pakistan's National Conservation Strategy at <http://www.iucn.org/themes/ceesp/publications/art-mono/pak.doc>
- Pakistan Environmental Protection Act, 1997 (PEPA, 1997)
- National Environment Policy 2005 at <http://www.environment.gov.pk/nep/policy.pdf>
- Environmental Tribunal Rules, 1999
- National Water Policy (Draft) at <http://www.waterinfo.net.pk/pdf/NationalWaterPolicy.PDF>
- National Drinking Water Policy (Draft) at http://www.environment.gov.pk/act-rules/D_NATIONAL_DRINKING_WATER_POLICY.pdf
- Revised National Environmental Quality Standards, 1999
- The National Environmental Quality Standards (Self-Monitoring and Reporting by Industry) Rules, 2001
- The National Environmental Quality Standards (Certificate of Environmental Laboratories) Rules, 2000
- The Pollution Charge for Industry (Calculation and Collection) Rules, 2001
- Pakistan Environmental Protection Agency (Review of IEA/EIA) regulations, 2000
- Guidelines for Public Consultation
- Clean Development Mechanism (CDM) National Operational Strategy
- Provincial Sustainable Development Fund (Procedure) Rules, 2001
- Provincial Sustainable Development Fund (utilization) Rules, 2003
- Hazardous Substance Rules, 2003
- Guidelines for Solid Waste Management at http://www.benfieldhrc.org/disaster_studies/rea/resources/Solid_Waste_Man.pdf
- Hospital Waste Management Rules, 2005 at <http://www.environment.gov.pk/act-rules/rHWMRules2005.PDF>
- National Sanitation Policy at <http://www.environment.gov.pk/SACOSAN-2005/PDF/National%20Sanitation%20Policy.pdf>
- Environment Sample Rules, 2001 at <http://www.environment.gov.pk/act-rules/envsamprules.pdf>

- The Wild Birds and Animal Protection Act, 1912
- Biodiversity Action Plan for Pakistan, 2000 at <http://www.macp-pk.org/bap.pdf>
- Local Government Ordinance 2001
- The Factories Act, 1934
- Pakistan Penal Code, 1860
- Forests Act, 1927
- Pakistan climate change act 2017

International Treaties:

- Stockholm Declaration, 1972 at <http://www.unngocsd.org/documents/stockholm1972.pdf>
- Rio Declaration, 1992 at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>
- United Nations Framework Convention on Climate Change, 1992 at www.unfccc.int
- Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997 at www.unfccc.int
- Convention on International Trade in Endangered Species (CITES), 1973 at <http://www.cites.org/eng/disc/text.shtml>
- Convention on Biological Diversity, 1992 at <http://www.biodiv.org/convention/default.shtml>
- Biosafety protocol, 2000 at <http://www.biodiv.org/biosafety/protocol.shtml>
- Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES) at <http://www.cites.org/>
- Convention on the Control of Transboundary Movement of Hazardous Waste and Their Disposal, 1989 (Basel) at <http://www.basel.int/text/documents.html>
- General Agreement on Tariffs and Trade at <http://www.wto.org/>
- Agreement on Trade Related Aspects Of Intellectual Property Rights (TRIPS) at <http://www.wto.org/>
- Agreement on the Application of Sanitary and Phytosanitary Measures at <http://www.wto.org/>
- Agreement on Technical Barriers to Trade at <http://www.wto.org/>
- From Rio 1992 to Johannesburg 2002: A Case Study of Implementing Sustainable Development in Pakistan, by Dr. Parvez Hassan and Jawad Hassan
- Pakistan Chapter on Environment Law, by Dr. Parvez Hassan

Feedback/Evaluation by Officials

Support for Official

Climate Change Mitigation and Adaptation

CLIMATE CHANGE MITIGATION AND ADAPTATION

Subject Details

Subject Name	Climate Change Mitigation and Adaptation
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Mitigation refers to the notion of limiting or controlling emissions of greenhouse gases so that the total accumulation is limited and adaptation incorporates making changes in the way we do things to respond to changes in climate. Although mitigation is related to reducing/changing the causes of climate change and adaptation considers the effects of climate change, but both of these strategies are need of the hour, amidst climate change impacts globally and regionally.

While Pakistan's contribution to the global warming is minimal but it is ranked the 7th most vulnerable country to climate change. The discourse on climate change, the impacts, and the need for measures for adaptation in the face of this unprecedented challenge has now been perceived as quite serious issues at different levels in Pakistan. The scientific evidences predict that the extreme weather events will become more frequent because of climate change in the coming years.

At the same time, it is still very difficult for many people not working directly on the subject to understand the basics of climate change. For example, which gases are contributing to the greenhouse gas effect? What temperature change is projected for this century? How does the international climate change negotiation process work? What adaptation and mitigation options are available and how to select the most adequate ones in Punjab?

While the developed countries start revolutionizing their energy usage and resources, developing

countries like Pakistan is still primarily dependant on non-renewable energy resources, eventually contributing towards adverse climate change impacts. Every difficulty presents a multitude of opportunities and hence this difficult time presents complex challenges and unique opportunities for the capacity building of both public and private sector.

The overall objective of this course is to combat the negative impacts of climate change on vulnerable people by increasing knowledge, strengthening institutions, and developing capacity related to climate change at provincial and national level. This shall be achieved through supporting processes of change in organisations responsible for taking national strategies/policies into action on national, provincial, district or local level.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Environmental management and governance
- Multilateral Environmental agreements
- Environmental Awareness techniques
- Environmental Law
- Strategic Environmental Assessment
- Energy Resources & Management
- Environmental Economics

Ideally, participants would participate in several of these courses in a systematic approach to capacity building for public officials in Punjab.

Target Officials

- Senior public officials at local, district and provincial levels
- Managers responsible for municipal, community, environmental and economic policy, strategy, implementation and review at sub-national levels of government
- Elected representatives.

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will have:

- Knowhow on the causes and impacts of climate change
- Raised knowledge on how to take awareness of climate change and its consequences into action on local to national scale,
- Enhanced knowledge on how to react to climate change i.e. mitigation/adaptation within their scale (local, regional or provincial)

- Knowledge of methods to influence a change in their expertise e.g. cleaner energy, environmental friendly technologies, effective governance,
- Increased adaptive capacity of trainees to contribute to an increased adaptive capacity at different scales and sectors.

As a result, all the participants are expected to be active sustainable development agents in their relevant sectors, thus complementing the national regulations and international agreements.

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small Group Activities
- Scenarios and Case Studies

Subject Content

BASIC LEVEL

Theme 1: Introduction to Climate Change

This theme introduces the basics of climate change science giving an overview of concepts such as climate, weather, and the greenhouse gas effect. This insight will eventually lead to the human contribution to climate change and provide an overview of important greenhouse gases and their main sources in Pakistan. After giving a historical perspective and projected future trends and impacts of climate change on surface temperature, precipitation, ocean pH, sea-level and Arctic sea-ice extent, it will conclude by sketching of main sources of scientific climate information, relevant programmes and institutions in Punjab and Pakistan. Towards the end of Theme 1, participants should be able to:

- Explain the basic concepts of climate change science
- Identify the anthropogenic drivers of climate change in Pakistan
- Explain observed and projected trends and impacts in the climate
- Analyse different climate change scenarios, responsible institutions and their implications in Pakistan.

INTERMEDIATE LEVEL

Theme 1: Introduction to national and international legal and policy framework to address Climate Change

Participants will get an insight on focusing on the applicable EPA laws and policies. Pakistan, being a signatory to 15 Multinational environmental agreements (MEAs) is already ratifying with multiple conventions and protocols to address Climate change like UNFCCC, Kyoto Protocol, Paris Agreement etc. Pakistan's status and obligations on the provincial and district level agencies will be addressed. Towards the end of theme 2, participants should be able to:

- Explain the local legal and policy framework in addressing climate change with reference to the Pakistan Climate Change Act 2017 and National Climate Change policy
- Describe the main aims and provisions of the MEAs addressing Climate change. Identify the main obligations of Pakistan as a country and duties of policy makers and governmental representatives in different sectors at different levels
- Explain why and how MEAs are important to developed and developing countries in

addressing climate change

- Analyse the targets and future outcomes, to devise short term and long-term goals at local, regional and national level.

ADVANCED LEVEL

Theme 1: Climate Change Action

When a problem is as globally widespread as Climate change, it's hard to believe how actions of one person can make a difference. This theme will focus on the climate change actions that have been and need to be taken by Pakistan as a country, and/or at provincial or local level. It will specifically categorize these actions under the umbrella of mitigation and adaptation. An overview on political context to greenhouse gas emissions will also be given, as to who the key emitters are and what strategies can be applied to bring down emissions to safe levels. Pakistan's targets and emission level will be discussed, aiming to explore ways to integrate mitigation into development planning, through low emission development strategies. Highlight of the expected outcomes include:

- Importance of adaptation and mitigation in preparing for and coping with climate change
- Roles of national, sub-national and local institutions in climate change action
- Analysis of linkages between climate change adaptation/mitigation and development planning.
- Identify climate change mitigation and adaptation options in Pakistan

Theme 2: Planning for Climate Change

Prevention is always better than cure and therefore planning beforehand would be better than taking any actions later. Some of the key topics addressed during this theme will include:

- Importance of integration of climate change into planning processes in Punjab and Pakistan in planning for climate change
- Analysis of main tools and elements of an effective climate change planning methodology with case studies
- Identify international initiatives and potential partnerships/support that can contribute in climate change planning

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of key Climate Change concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

Key readings include:

- <http://www.worldbank.org/en/topic/climatechange>
- Pakistan Climate Change Policy
http://www.gcisc.org.pk/National_Climate_Change_Policy_2012.pdf
- Pakistan Climate Change Act http://www.na.gov.pk/uploads/documents/1485513841_966.pdf
- Why Pakistan needs a climate change financing network?
- Haycock, K., Cheadle, A. and Spence Bluestone, K. 2012, Strategic thinking: Lessons for leadership from the literature. *Library Leadership and Management*, 26(3/4), pp. 1-23.
- Poister, T.H. 2010, The future of strategic planning in the public sector: Linking strategic management and performance. *Public Administration Review*, December 2010 Special Issue: S246-S254.
- Punjab Local Government Act 2013.
- World Bank, 2016, Pakistan, <http://www.worldbank.org/en/country/pakistan>
- Climate Change Mitigation & Adaptation (Video)
<https://www.youtube.com/watch?v=gDcGzIiVm6U>

Feedback/Evaluation by Officials***Support for Official***

Environmental Monitoring, Laboratories and Reporting

ENVIRONMENTAL MONITORING, LABORATORIES AND REPORTING

Subject Details

Subject Name	Environmental Monitoring, Laboratories and Reporting
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

‘Environmental monitoring’ is a system that consists of measurements, assessments and forecasts concerning the environment and the system of collection, processing and dissemination of environmental information. Good monitoring generates factual data to improve the quality of future evaluation and impact assessment. The course covers ambient air and stack monitoring; drinking water, surface water and waste water monitoring; ecosystem services and biodiversity monitoring; climate gas emissions; solid waste, hazardous waste and Persistent Organic Pollutants (POPs) monitoring as a process that generates evidence of an intervention’s activities and impacts over time in a continuous and systematic way.

‘Reporting’ is transfer of information and data from one entity to another.

Course content is shaped by current needs of EPA staff, industry expectations, regulatory requirements and Punjab’s legislative framework.

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Environmental Modelling
- Best Available Technologies
- Environmental Assessments
- Environmental Monitoring and Management System

Ideally, participants would participate in several of these courses in a systematic approach for their capacity building.

Target Officials

- EPA – Punjab Monitoring and Laboratory Section Staff (Lahore and Regional)
- EPA – Punjab Field Staff
- Public/private environmental laboratories
- Environmental Consultants / Consultancy Firms
- Industries
- Other Allied Sectors

Teaching & Learning Pedagogy

Based on adult education principles:

- The material presented will have immediate usefulness to the learners and relevant to their work.
- The training environment will be welcoming so that learners feel safe to participate.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will be able to:

- Comprehend procedures, methods, theories and techniques monitoring programs for different environments
- Knowledge of environmental management systems
- Produce various worksite reports including inspection forms, spill/incident forms, non-compliance forms, and weekly/monthly reports
- Development of plan aimed at fulfilling current environmental monitoring requirements
- Conduct basic field work and laboratory work following standard protocols
- Effectively use communication equipment, Operate GPS, satellite phones, digital cameras, laptops and other devices
- Ability to interpret monitoring data
- Follow sampling protocols and use monitoring instruments and equipment
- Identify the importance of local knowledge and demonstrate an understanding of how to incorporate local knowledge into environmental monitoring activities
- Identify various species, habitats, salvage techniques and specie protection strategies
- Perform daily safety checks on the worksite and fulfil administrative requirements
- Effectively prevent, respond to and clean up spills on the worksite

- Comply and follow guidelines for health, safety, and environmental requirements
- Identify, understand and interpret relevant statutes, laws, and regulations that relate to the environmental monitoring field.

Teaching & Learning Methods

- Lectures
- Class Discussions
- Small group activities
- Workshops
- Scenarios and case studies
- Laboratory sessions
- Field excursions

Subject Content

BASIC LEVEL

Theme 1: Basic Concepts and Significance of Environmental Monitoring

This course explores several areas within the field of Environmental Monitoring covering both background knowledge necessary for understanding the field and practical field skill. Background knowledge will cover the basic concepts of environmental monitoring, its importance and introduction phases of development and related environmental impacts, and traditional knowledge in relation to environmental systems and monitoring.

Participants will learn through presentation, interactive classroom discussion and videos.

A tentative preliminary list of Environmental Indicators for monitoring is as follows:

- Water
 - discharge of wastewater from industrial sources and municipalities
 - drinking water quality
 - ground water quality
- Air
 - Ambient air
 - Industrial gas emissions
 - Motor vehicle exhaust
- Soil
 - Hazardous waste
- Noise
 - Noise level in residential and sensitive areas

Theme 2: Field Analysis

In this course, participants will learn, through both classroom instruction and hands on field experience, how to plan and prepare for an environmental monitoring field project, including industry standard sampling techniques of soil, water and air. Emphasis will be placed on the importance of quality assurance in order to accurately reflect the risks and uncertainties associated with various industrial, recreational and residential development or land use activities.

Practical skills will be built on the basics learned in the introductory course. Safety in the workplace will be emphasized and students will participate in safety planning and practice for field trips.

Theme 3: Data Collection, Management and Analytics

Environmental laboratory procedures: Health and safety measures in laboratories; personal protective equipment; collection, analysis and effective communication of scientific data using appropriate mathematical calculations, figures and tables; design and usage of experimental procedures and standard operating procedures for sampling and analysis.

Water quality and monitoring: natural water quality and water pollution; physio-chemical and biological water and wastewater quality assessment: standard operating procedures; groundwater quality monitoring

Field and laboratory work: air (ambient, stack) and water (drinking, groundwater) quality monitoring: field measurements. Quality control in a laboratory; advanced environmental analysis techniques like:

- Ambient Air measurement using Air pointers, multiple gas analysers, smoke meter
- Stack Emissions measurement using PM Assembly (RAAS), Air sampler (SIBATA)

Sampling tools and techniques: water, soil (surface, deep, ground) and air sampling tools like bailers, scoops etc., autoclave, standard operating procedures (SOPs) for different samples types; Different types of sampling (grab, composite, random); water and sediment sampling, storage and preservation methods.

Theme 4: Reporting

The participants will be instructed on how to prepare reports for environmental monitoring that effectively present state of the environment for better decision making and future planning. These reports would include measures and levels of air pollutant emissions, water pollution, water levels and risks to protected areas and the health or survival of wildlife species and biodiversity.

INTERMEDIATE LEVEL

Theme 1: Basic Concepts and Significance of Environmental Monitoring

This course explores several areas within the field of Environmental Monitoring covering both background knowledge necessary for understanding the field and practical field skill. Background knowledge will cover the basic concepts of environmental monitoring, its importance and introduction phases of development and related environmental impacts, and traditional knowledge in relation to environmental systems and monitoring.

Participants will learn to consider the environment from an ecosystem perspective, and how changes to one area or organism can lead to effects on others. It provides general concepts of baseline or research monitoring, regulatory or compliance monitoring, real-time monitoring, impact monitoring, self-monitoring, ecological risk assessment, environmental mitigation and monitoring plan, risk management plan, etc.

Participants will learn through presentation, interactive classroom discussion and videos.

A tentative preliminary list of Environmental Indicators for monitoring is as follows:

- Water
 - discharge of wastewater from industrial sources and municipalities
 - non-point load discharges

- drinking water quality
- ground water quality
- Air
 - Ambient air (several parameters, including SO_x, NO_x, VOC, ground level ozone)
 - Industrial gas emissions
 - Motor vehicle exhausts
 - Non-point load source emissions
- Soil
 - Solid waste
 - Recycling/reusing rate
 - Hazardous waste
- Biodiversity
 - the coverage of different types of ecosystems
 - amount and status of endangered species
 - some indicators species for different types of ecosystems
- Natural Resources
 - Forest cover
 - Level of groundwater table
- Noise
 - Noise level in residential and sensitive areas
- Climate
 - Emissions of climate gases (CO₂, N₂O, methane, ODS and F-gases, black carbon)
 - Usage of ozone depleting gases
 - Prevalence of extreme weather conditions

Theme 2: Field Analysis

In this course, participants will learn, through both classroom instruction and hands on field experience, how to plan and prepare for an environmental monitoring field project, including industry standard sampling techniques of soil, water and air. Emphasis will be placed on the importance of quality assurance in order to accurately reflect the risks and uncertainties associated with various industrial, recreational and residential development or land use activities.

Practical skills will be built on the basics learned in the introductory course, focusing on quality of information collection, attention to detail, accuracy, and understanding the context and end use of the data. These skills will be enhanced and practiced while learning specific environmental field sampling techniques that are appropriate to the location and seasonal timing of the course. Safety in the workplace will be emphasized and students will participate in safety planning and practice for field trips.

Theme 3: Data Collection, Management and Analytics

Environmental laboratory procedures: Health and safety measures in laboratories; personal protective equipment; collection, analysis and effective communication of scientific data using appropriate mathematical calculations, figures and tables; design and usage of experimental procedures and standard operating procedures for sampling and analysis.

Water quality and monitoring: natural water quality and water pollution; designing and optimization of water quality monitoring programs; physio-chemical and biological water and wastewater quality assessment: standard operating procedures; groundwater quality monitoring: definitions; locations; frequencies; conservation; treatment and management of wastewater

Field and laboratory work: air (ambient, stack) and water (drinking, groundwater) quality monitoring:

field measurements. Quality control in a laboratory; advanced environmental analysis techniques like:

- Metal analysis using UV-Vis Spectrophotometer
- Ambient Air measurement using Air pointers, multiple gas analysers, smoke meter
- Stack Emissions measurement using PM Assembly (RAAS), Air sampler (SIBATA)

Sampling tools and techniques: water, soil (surface, deep, ground) and air sampling tools like bailers, scoops etc., autoclave, standard operating procedures (SOPs) for different samples types; Different types of sampling (grab, composite, random); water and sediment sampling, storage and preservation methods.

Modelling of environmental systems: Water quality modelling: definitions and concepts; mathematical backgrounds;; GIS model of a river basin; case studies and hands-on computer exercises; Air quality monitoring and modelling: sources and dispersion patterns of air pollutants.

Theme 4: Reporting

They will be instructed on how to prepare reports for environmental monitoring that effectively present state of the environment for better decision making and future planning. These reports would include measures and levels of air pollutant emissions, water pollution, water levels and risks to protected areas and the health or survival of wildlife species and biodiversity. Report content should include; need for systematic follow up, definition and purpose of monitoring, effective data collection and management: baseline data and expected future trends.

ADVANCED LEVEL

Theme 1: Basic Concepts and Significance of Environmental Monitoring

This course explores several areas within the field of Environmental Monitoring covering both background knowledge necessary for understanding the field and practical field skill. Background knowledge will cover the basic concepts of environmental monitoring, its importance and introduction phases of development and related environmental impacts, and traditional knowledge in relation to environmental systems and monitoring.

Participants will learn to consider the environment from an ecosystem perspective, and how changes to one area or organism can lead to effects on others. It provides general concepts of baseline or research monitoring, regulatory or compliance monitoring, real-time monitoring, impact monitoring, self-monitoring, ecological risk assessment, environmental mitigation and monitoring plan, risk management plan, etc.

Participants will explore environmental issues and impacts from a systems perspective, considering the basic science of how things work; types and source of environmental pollutants; the interconnectedness of ecosystem components and their functions, cause and effect, and cumulative effects, with reference to Punjab. They will learn environmental monitoring as an essential tool for determining the impacts of various land and water use activities on ecosystems and can become the basis for decision-making and resolving of land use conflicts.

Participants will learn through presentation, interactive classroom discussion and videos.

A tentative preliminary list of Environmental Indicators for monitoring is as follows:

- Water

- nutrient levels in waterways
- concentrations of toxins in waterways
- discharge of wastewater from industrial sources and municipalities (this includes both the flow and concentration measurements)
- non-point load discharges
- drinking water quality
- ground water quality
- Air
 - Ambient air (several parameters, including SO_x, NO_x, VOC, ground level ozone)
 - Industrial gas emissions (stack flow and concentration measurements and dispersion model results based on them)
 - Motor vehicle exhausts
 - Non-point load source emissions
- Soil
 - Solid waste
 - Recycling/reusing rate
 - Hazardous waste
 - Material efficiency of production
- Biodiversity
 - the coverage of different types of ecosystems
 - amount and status of endangered species
 - some indicators species for different types of ecosystems
 - protected lands by biotope
- Natural Resources
 - Forest cover
 - Level of groundwater table
- Noise
 - Noise level in residential and sensitive areas
- Climate
 - Emissions of climate gases (CO₂, N₂O, methane, ODS and F-gases, black carbon)
 - Usage of ozone depleting gases
 - Prevalence of extreme weather conditions (HAT-days, frequency of floods etc.)
 - UV-B radiation levels.

Theme 2: Field Analysis

In this course, participants will learn, through both classroom instruction and hands on field experience, how to plan and prepare for an environmental monitoring field project, including industry standard sampling techniques of soil, water and air. Emphasis will be placed on the importance of quality assurance in order to accurately reflect the risks and uncertainties associated with various industrial, recreational and residential development or land use activities.

Practical skills will be built on the basics learned in the introductory course, focusing on quality of information collection, attention to detail, accuracy, and understanding the context and end use of the data. These skills will be enhanced and practiced while learning specific environmental field sampling techniques that are appropriate to the location and seasonal timing of the course. Safety in the workplace will be emphasized and students will participate in safety planning and practice for field trips.

Theme 3: Data Collection, Management and Analytics

Environmental laboratory procedures: Health and safety measures in laboratories; personal protective equipment; collection, analysis and effective communication of scientific data using appropriate mathematical calculations, figures and tables; design and usage of experimental procedures and standard operating procedures for sampling and analysis.

Water quality and monitoring: natural water quality and water pollution; designing and optimization of water quality monitoring programs; physio-chemical and biological water and wastewater quality assessment: standard operating procedures; groundwater quality monitoring: definitions; locations; frequencies; conservation; treatment and management of wastewater

Field and laboratory work: air (ambient, stack) and water (drinking, groundwater) quality monitoring: field measurements. Quality control in a laboratory; advanced environmental analysis techniques like:

- Metal analysis using UV-Vis Spectrophotometer, ICP-OES Spectrolube, Atomic Absorption Spectrophotometer (AAS)
- Analysis of Organics using FID/ECD Gas Chromatograph, ovens, muffle furnace, digester
- Ambient Air measurement using Air pointers, multiple gas analysers, smoke meter
- Stack Emissions measurement using PM Assembly (RAAS), Air sampler (SIBATA)

Sampling tools and techniques: water, soil (surface, deep, ground) and air sampling tools like bailers, scoops etc., autoclave, standard operating procedures (SOPs) for different samples types; Different types of sampling (grab, composite, random); water and sediment sampling, storage and preservation methods.

Modelling of environmental systems: Water quality modelling: definitions and concepts; mathematical backgrounds; modelling BOD/DO in a river system; GIS model of a river basin; case studies and hands-on computer exercises; Air quality monitoring and modelling: climate and weather; sources and dispersion patterns of air pollutants; impact and control; air quality standards.

Theme 4: Reporting

They will be instructed on how to prepare reports for environmental monitoring that effectively present state of the environment for better decision making and future planning. These reports would include measures and levels of air pollutant emissions, water pollution, water levels and risks to protected areas and the health or survival of wildlife species and biodiversity. Report content should include; need for systematic follow up, definition and purpose of monitoring, effective data collection and management: baseline data and expected future trends; conclusions and comments.

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

Rice, E. W., & American Public Health Association (Eds.). (2012). Standard methods for the examination of water and wastewater (22. ed). Washington, DC: American Public Health Association.

Feedback/Evaluation by Officials

Support for Official

Solid Waste Management

SOLID WASTE MANAGEMENT

Subject Details

Subject Name	Solid Waste Management
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Increasing population, industrialization, urbanization, economic growth and improved standard of living has resulted increase in solid waste generation. Management of these huge quantities of municipal solid waste has become a serious concern for government departments, environmental protection agencies and regulatory bodies. If the waste is not properly managed, the time is not far when our planet will be filled with waste. Besides, waste contains materials that can be recovered, reused and recycled conserving resources and land required for the disposal.

The solid waste, when not taken care properly becomes the reason of spreading diseases, environmental pollution and occupational hazards. Almost more than 50% of the environmental pollution in Pakistani urban areas can safely be attributed to the inadequate solid waste management practices. Littering of food and other solid waste on the streets, roads, and vacant lots lead to the breeding of rats, with their attendant fleas carrying the germs of disease and the outbreak of plague, as lately happened in India.

Subject Requirements

--

Target Officials

- Solid Waste Management Companies
- Contractors
- Field officers EPA (AD, DD, Inspectors, Field Assistants)
- Other Government Departments
- Industries

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learning to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will be able to:

- Understand the concept of solid waste management.
- Identify process techniques and equipment.
- Designing of Landfill site.
- Know about the special waste and its management.

Teaching & Learning Methods

- Presentations
- Class Discussion
- Small Group Activities
- Scenarios & Case Studies

Subject Content**BASIC LEVEL****Theme 1: Basics of Solid Waste Management**

- Definitions and basic concepts
- Integrated Waste Management
- Sources, the characteristics and the amount of solid waste
- Waste collection
- Transport of waste
- Transfer of waste
- The reduction of waste

<ul style="list-style-type: none"> • Recycling • Composting • Waste disposal • Sanitary landfills • Thermal treatment of waste
Theme 2: Legal framework
<ul style="list-style-type: none"> • Responsibilities in waste management. • National regulations
Theme 3: Municipal solid waste
<ul style="list-style-type: none"> • Status of municipal waste in Pakistan • Assessment of the future status • Assessment of environmental impact of solid waste management • Optimization of solid waste collection by using ArgGIS software

INTERMEDIATE LEVEL

Theme 1: Introduction to Solid Waste Management in Developing Countries
<ul style="list-style-type: none"> • The course begins with an overview of the current waste situation in developing countries • Introduce the Integrated Sustainable Waste Management (ISWM) framework that provides a general overview of SWM systems. • Physical components of a SWM system. • different steps in the municipal solid waste management chain, • The key requirements for an appropriate management as well as the main challenges in developing countries. • Real study case examples will be introduced to support the understanding. • Different stakeholders and their roles and responsibilities will be explained as well as legislative issues and financial mechanisms.
Theme 2: Organic Treatment and Technologies
<ul style="list-style-type: none"> • Basics of two very common organic waste treatment technologies: composting and anaerobic digestion. • Understand the underlying treatment principles and processes, • the key issues in operation and maintenance of such treatment facilities and the benefits of the value products from the treatment.
Theme 3: Assessment and planning methods for solid waste management
<ul style="list-style-type: none"> • Methods on how to integrate organic waste management into the municipal SWM system • Standardized method to evaluate and compare systems with regard to their performance will be presented as well as the relevance of waste management and its impacts on climate change.

ADVANCE LEVEL

Theme 1: Introduction of Solid Waste
<p>US, EPA defines solid waste as, "any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the matter; or anything declared by regulation or by an</p>

environment protection policy to be waste".

It can also be defined as anything non- liquid and non-gaseous in terms of by product that is produced because of any human activity and can produce any detrimental impact on environment. The term solid waste used in this context encompasses the heterogeneous mass discarded by the urban community, as well as more homogeneous accumulations of agricultural, industrial and mineral waste".

This theme will cover following points:

- Impacts of Solid Waste
- Solid Waste Management
- Integrated Solid Waste Management.

Theme 2: Waste Generation, Quantification and Characterization

The term solid waste is all-inclusive and encompasses all sources, types of classifications, compositions and specifications. Hence, Knowledge of the sources and types of solid waste, along with data on the composition and rates of generation, is basic requirement for the design and operation of the functional elements associated with the management of solid waste

This theme will cover following points:

- Sources of Solid Waste Generation
- Types of Solid Waste
- Characterization of Waste
- Quantification of Solid Waste.

Theme 3: Onsite Handling, Storage, Collection & Transportation of Solid Waste

Important element in the solid waste management is the onsite handling, storage and processing. Onsite handling means the activities associated with the handling of solid waste until it is placed in the containers used for its storage before collection. It also includes the moving of loaded containers to the collection point and to return the empty containers after collection to the storage locations. Storage means the temporary storage of waste while awaiting collection. Processing involves grinding, sorting, compaction; shredding, composting and incineration etc. used to (i) reduce the volume (ii) alter the physical form, or (iii) recover usable materials from solid waste. The term "collection" includes not only the gathering or picking up of solid waste from the various sources, but also hauling of these wastes to the disposal site or transfer station and unloading there. Transfer and transport refers to the means, facilities and appurtenances used to affect the transfer of waste from one location to another (usually to more distant location). Typically, the waste from relatively small collection vehicle is transferred to larger vehicle and is transported to distant location for safe disposal or further processing.

This theme will cover following points:

- Onsite Handling
- Onsite Storage
- Phases of Solid waste collection
- Types of Collection systems
- Analysis of Collection Systems

- Design of collection routes
- Transfer Stations
- Need of Transfer Stations
- Types of Transfer Stations
- Methods used to unload waste containers.

Theme 4: Processing Techniques & Equipment

Processing of the solid waste is done to improve the efficiency of the solid waste collection, transportation and disposal. Examples include:

- i. Reduction in storage requirements at high-rise buildings, both incineration and baling are used.
- ii. To reduce transfer and transportation costs.
- iii. Before waste paper is reused, it is usually baled to reduce shipping and storage volume requirements.
- iv. In some cases waste is baled to reduce haul cost to the disposal site.
- v. At disposal site, solid waste is compacted to use the available land effectively.
- vi. Shredding reduces the size of the waste ingredients and improves the bulk density of the waste. In this way, it reduces the land requirements for disposal.

The major component of the solid waste in Pakistan is generally organic in nature. This includes vegetable and fruit peelings, wasted food and garden trimmings. Composting is defined as, “biological decomposition of the biodegradable organic fraction of MSW under controlled conditions to a state sufficiently stable for nuisance-free storage and handling and for safe use in land applications”. The term “controlled conditions” “differentiates the composting process from the simple organic waste decomposition that happens in open dumps and landfills.

This theme will cover following points:

- Processing techniques
- Composting & Compost
- Process description of Composting
- Environmental Aspects of Composting.

Theme 5: Sanitary Land filling

Sanitary Landfill sites meant for Safe disposal of the untreated municipal solid waste, rejected materials coming from the composting facilities, material recovery facilities (MRF) and incineration facilities etc. Rejected or residual materials are those which cannot be recycled.

This theme will cover following points:

- Disposal of Solid waste
- Land filling Methods
- Site Selection criteria for Landfills
- Generation of Land fill gases
- Movement & control of Leachate
- Design of Landfills.

Theme 6: Special Waste Management

In addition to residential and commercial areas, solid waste is also generated from other sources like healthcare facilities; industries, electronic shops, packaging services and slaughter houses. These are termed as special wastes. Handling, collection and disposal of these wastes is sometimes quite different from municipal solid waste This theme will cover following points:

- Health care waste and its management
- Electronic waste and its management
- Slaughterhouse Waste and its management
- Industrial waste and its management.

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

--

Feedback/Evaluation by Officials

--

Support for Official

--

Environmental Audit

ENVIRONMENTAL AUDIT

Subject Details

Subject Name	Environmental Audit
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Environmental audits investigate the current environmental performance of an organization. Audits therefore provide information on the activities at that moment in time. Environmental auditing on its own cannot provide management with the assurance that environmental practices and performance not only have met, but will also continue to meet, legislative requirements and sound corporate policy commitments and expectations.

One role of an environmental audit is to identify areas for improvement, but an audit does not, in itself, provide the means to implement changes. In order to do this, an environmental audit should be set in the framework of an environmental management system.

In order to ensure that employees and any other stakeholders understand the management system, environmental management systems usually rely heavily on documentation. Environmental effects, environmental regulations, objectives and targets, and the procedures are usually all documented.

Subject Requirements

--

Target Officials

- EPA directorate officials (Directors, DD, AD, Inspectors)
- Field officers EPA (AD, DD, Inspectors, Field Assistants)
- Other Government Departments
- Environmental Consultant
- Industries

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learning to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will:

- Understand the concept, context and wider importance of Environmental Audit.
- Be familiar with types of Environmental Audits.
- Know the methodological approach of Environmental Audits.
- Understand the importance of public participation in the EIA process.

Teaching & Learning Methods

- Presentations
- Class Discussion
- Small Group Activities
- Scenarios & Case Studies

Subject Content**BASIC LEVEL****Environmental Auditing and Management**

- How the environmental commitments by industry can be monitored and audited
- How potential environmental impacts are described in Environmental Impact Assessments (EIA)
- How industry controls their environmental impacts through Environmental Management Systems (EMS)
- How environmental management systems are audited
- How waste is generated and controlled
- other environmental management initiatives such as product life cycle analysis and sustainability programmes

INTERMEDIATE LEVEL

Theme 1: Introduction to Environmental Audit

Environmental auditing is a process whereby an organization's environmental performance is tested against its environmental policies and objectives. These policies and objectives need to be clearly defined and documented.

The International Chamber of Commerce (ICC, 1991) defines environmental auditing as: "...A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of contributing to safeguarding the environment by:

- facilitating management control of environmental practices; and
- Assessing compliance with company policies, which would include meeting regulatory requirements..."

This theme will cover following points:

- What is environmental Audit
- Types of Environmental Audit
 - Environmental management Audits
 - Environmental Compliance Audits
 - Environmental Assessment Audits
 - Waste Audits
 - Environmental Due diligence Audits
 - Supplier Audits

Theme 2: Tools And Techniques Used In Auditing

The various tools and techniques would be used for performing environmental auditing. This theme will cover following points:

- Checklists
- Questionnaires (Audit Protocols)
- Questioning
- Observations
- Photographs
- Drill Down Sampling
- Research

Theme 3: Development of Environmental Auditing

For development of environmental audit this is very necessary to know about the actors & their roles & responsibilities. There are many different plans and processes for audits. Different circumstances require different approaches and plan frameworks. This theme will cover following points:

- Roles & responsibilities
 - Lead Auditor
 - Auditor
 - Technical Expert

- Audit Team
- Client
- Auditee
- Process involved within Environmental Audit
 - Clarification of audit scope and brief
 - Pre-audit meeting with auditee
 - Second pre-audit meeting to clarify points and logistics (optional)
 - Audit team meeting (optional)
 - Audit
 - Opening meeting
 - Site tour
 - Questioning, documentation review, consolidation of findings
 - Exit meeting
 - Draft Audit report
 - Final Audit report
 - Audit findings Action Plans
 - Next audit

Theme 4: Environmental Auditing And Decision-Making

The environmental audit assists in the process of testing performance in the environmental arena and is fast becoming an indispensable aid to business decision making. This theme will cover following points:

- Transparency
- Audit report distribution
- Confidentiality
- Participants of stakeholders on Audits
- Audit follow up

ADVANCE LEVEL

Environmental Management Systems

- Overview of an EMS
- Environmental Management Systems
- Introduction to Environmental concepts
- Environmental Aspects
- Auditing concepts, scope, plan, perform, prepare and report an audit
- Environmental Legislation
- Auditing the ISO 14001:2015 standard
- Organizational context
- Leadership and commitment
- Environmental Planning
- Support and Resources
- Operational Planning and Control
- Environmental Performance Evaluation
- Environmental Improvement

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

--

Feedback/Evaluation by Officials

--

Support for Official

--

Environmental Assessment

ENVIRONMENTAL ASSESSMENT

Subject Details

Subject Name	Environmental Assessment
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Environmental Impact Assessment (EIA) is a decision making support instrument which aims at identifying, predicting, evaluating and mitigating the biophysical, social and other relevant environmental effects of development proposals prior to major decisions being taken and commitments being made.

It aims to:

- ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process;
- anticipate and avoid, minimise or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- Promote development that is sustainable, optimising resource use and management opportunities

Environmental Impact Assessment is a rapidly growing field of work and has become a mandatory legal requirement in Punjab. The formalized arrangements for the implementation of an EIA system in Pakistan evolved over a period of twenty years. Environmental Assessment of all development

projects, whether public or private, is a legal requirement under section 12 of the Punjab Environmental Protection Act of 2012. The review of Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations is meant to strengthen and give guidance to existing requirements under section 12 of the Environmental Protection Act. According to Pakistan Environmental Protection Agency Review of IEE/EIA Regulation 2000, the list of projects that require an IEE is presented in Schedule-I whereas the projects for which an EIA is required is presented in Schedule-II.

Subject Requirements

Target Officials

- EIA directorate officials (Directors, DD, AD, Inspectors)
- Field officers EPA (AD, DD, Inspectors, Field Assistants)
- Other Government Departments
- Environmental Consultants
- Industries

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will:

- Understand the concept, historical context and wider importance of EIA.
- Be familiar with Environmental legislation.
- Know the key steps in the EIA process.
- Understand the importance of public participation in the EIA process.
- Gain an overview of methods and instruments that are commonly used to develop an EIA.
- Improve collaborative skills and thus gain skills relevant for collaborative EIA development.
- Assist the Government in building its human resource capacity for EIA and environmental planning, focusing on long-term effects, through self-sustaining training and education programs;
- Strengthen the Government's capacity for quality control of project appraisal and EIA review, especially for large-scale projects

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small Group Activities
- Scenarios and Case Studies

Subject Content**BASIC LEVEL****Environmental Assessment****Theme 1: Environmental Assessments**

- ✚ What is Environmental Assessment?
- ✚ Types of Environmental Assessment
 - Environmental Impact Assessment
 - Social Impact Assessment
 - Environmental & Social Impact assessment
- ✚ Tools and Techniques used for Environmental Assessment
 - Checklists
 - Matrix
- ✚ Examples of Environmental Assessments in Pakistan

INTERMEDIATE LEVEL**Theme 1: Environmental Impact Assessment****Theme 1a: EIA & Decision-Making Theory And Practice**

"Environmental Impact Assessment" means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory and compensatory measures, formulation of environmental management and training plans and monitoring arrangements, and framing of recommendations and such other components as may be prescribed.

The main purpose of EIA, following the US NEPA from 1969, was to support the consideration of the biophysical environment in decision-making for development proposals. EIA is not only a simple environmental protection tool, but an instrument for strengthening environmental management processes. Furthermore, over the past 40 years, EIA has been followed by the development of many other forms of impact assessment, including, for example, health impact assessment, social impact assessment, risk assessment and others. Since the beginning of the 1990s, EIA has also increasingly been used at strategic levels of decision-making. Here, it has become known as Strategic Environmental Assessment (SEA).

This theme will cover following points:

- EIA's role to act as an advocacy instrument in decision-making and recent integration attempts
- Actors interacting in and through EIA
- Decision-making models
- EIA as part of the decision-making process

Theme 1b: Legal Background and Guidance on EIA in Pakistan

Every EIA system is unique and is the result of particular sets of legal, administrative and political circumstances. Subsequently, a few legal, administrative and policy frameworks for EIA will be considered in countries where EIA is formally applied. The existence of formal requirements should mean more than simply mentioning the possibility of applying EIA in a particular system. Legislative or administrative requirements should be in place, clearly explaining when EIA is required and what it should involve.

Theme 1c: Baseline Data Collection and Presentation, Identification of Impacts, Consideration of Alternatives

Baseline data need to allow for a description of a study area in terms of the existing environmental resources and the likely future state. This is the basis for assessing impacts of a planned development. In EIA, baseline data should not just be presented, but the method applied to gather information should be described, including what data sources are used and how. As much as possible, the baseline information should be presented in e.g. tables, figures and maps.

This theme will cover following points:

- Primary & secondary data collection of:
- Role of Alternative in EIA
- Analysis of alternatives

Attributes	Description
Physical Environment	
Meteorology	Wind speed, wind direction, humidity, rainfall, temperature
Hydrology	Water depth, water table, surface water modelling, availability & Quality of water, ground water
Air	Air quality emissions NO _x , Sox, NO, PM
Noise	Noise Pollution
Soil	Soil analysis, soil type
Land use	Topography,
Biological Environment	Floristic & faunal characteristics, dominant & key species, rare, threatened, endemic, protected or listed species, invader & exotic species, seasonal patterns & migration, wildlife
Socio economic	Demographic Economy & labor force, Health facilities & issues, educational facilities, infrastructures, & services, physical or cultural heritage, indigenous people,

Theme 1d: Assessment of Impacts and Mitigation in EIA

Impact Assessment is a means of measuring the effectiveness of organizational activities and judging the significance of changes brought about by those activities. Predicting the magnitude of a development likely impacts and evaluating their significance is core of environmental assessment process. Prediction should be based on the available environmental baseline of the project area. Such predictions are described in quantitative or qualitative terms. Mitigation and compensatory measures in EIA aim at preventing any significant negative impacts from happening. Overall mitigation and compensation potentially enable better protection of environment assets encourage prudent use of natural resources and ecosystems, and so avoiding costly environmental damage. They are important and integral parts of EIA.

This theme will cover following points:

- Characteristics of the potential impact
 - Direct Impact,
 - Cumulative Impacts,
 - Synergistic Impacts,
 - Residual Impacts
- Impact prediction methodologies
- Mitigation and impact management
- Approaches for mitigation of impacts
- Environmental Management Plan (EMP)
- Environmental Monitoring

Theme 1e: Public Participation and Consultation in EIA

Public participation and consultation are key stages in the EIA process. They are important sources of information in EIA for e.g. the identification of impacts, potential mitigation measures and the establishment of alternatives. Participation and consultation make the EIA process open, transparent and robust. Nearly all EIA systems world-wide have provisions for some type of public involvement. Public participation is an interactive and intensive process of engagement, whereas public consultation (or dialogue) is about listening to public concerns. EIA processes often only involve consultation rather than participation. There is some consensus, though, that at a minimum, public involvement should provide an opportunity for those affected by a proposal to express their opinions on the proposal and its impacts. The Pakistan Environmental Protection Act (PEPA) 1997 has been the only environmental legislation of the country. Its Section 12(3) provides for public participation but during the EIA review only. EIA Package 1997 of the Pak-EPA provides separate set of guidelines for public consultation. The guidelines encourage two way flow of information between proponents and stakeholders by stating that “.....proponents should explain their proposals clearly too affected communities, actively listen to the communities” responses, and make prudent changes to the proposal to avoid or mitigate adverse impacts”.

This theme will cover following points:

- Key role of public participation and consultation in the EIA process
- History and rationale of public involvement in EIA
- Participation and consultation techniques and their suitability for different situations

Theme 1f: EIA Reporting and EIA Report Quality Reviews

Report preparation is a key technical stage of the EA process. The EA report represents an important basis for discussing the acceptability of proposed projects. Furthermore, it helps to identify possible amendments and mitigation measures. The EIA report is the main document produced in the EIA process. The EIA report should comprise the identification of significant environmental impacts and how to avoid, mitigate or compensate for them. The EIA report is also the basis for a transparent public participation process. In this context, the report should be subjected to public review, possibly resulting in suggestions on how to amend the proposed project or the EIA itself.

This theme will cover following points:

Focus of an EIA report

- Guidelines for preparing environmental reports of specific sectors
- The importance of EIA quality review
- EIA report quality review packages
- The EIA report in Punjab

Theme 1g: EIA Follow-Up, Monitoring and Auditing; The Role of Environmental and Social Management Plans

Follow-up is an important stage of EIA. It is important in order for EIA to ‘become a true instrument for safeguarding sustainable development. Follow-up can help in managing environmental risk and to learn from past experiences. Without it, it is not possible to identify the environmental performance of a particular project. EIA follow-up can be defined as “The monitoring and evaluation of the impacts of a project or plan (that has been subject to EIA) for management of and communication about the performance of that project or plan”

This theme will cover following points:

- Rationale for Follow up
- Regulations for follow up
- Methods for Follow up
- EIA follow up and challenges

Theme 2: Social Impact Assessment

Theme 2a: What is Social Impact Assessment?

- Principle of SIA
- Key elements of an SIA
- Methodology of data collection and impact analysis
- Identification, prediction and assessment of impacts
- Principals of social impact assessment
- Application of social impact assessment

Theme 2a: Social Impact Assessment process

- Public participation
- Identification of alternatives

- Profile of baseline condition
- Scoping of the impacts
- Identification and analysis of estimated effects
- Prediction and evaluation of responses to impacts
- The indirect and cumulative impacts
- Evaluation of alternatives and impact mitigation
- Monitoring plan

Theme 3 Cumulative Impact Assessment

Theme 3a: What is Cumulative Impact Assessment?

- Process for Implementing a CIA
- Assess Cumulative Impacts
- Assess Significance of Predicted Cumulative Impacts
- Management of Cumulative Impacts – Design and Implementation
- Challenges to Implementation of CIA
- Recommendations

ADVANCE LEVEL

Strategic Environmental Assessment

THEME 1: INTRODUCTION TO STRATEGIC ENVIRONMENTAL ASSESSMENT

- WHY SEA? To maintain environmental quality & natural assets for development
- WHAT is it? “Analytical and participatory approaches that aim to: integrate environmental considerations into policies, plans and programmes and evaluate the inter linkages with economic and social considerations.”
- Comparison between SEA and EIA
- SEA Applications
- SEA Benefits
 - SEA saves Money
 - SEA saves cost
 - SEA improves public trust in the planning and decision- making process
 - SEA improves quality of strategic decision- making
- SEA costs
 - Costs of SEA are marginal
 - Costs of SEA are not static

THEME 2: HOW SEA PERFORMED

-  Institutional Arrangements
 -  Generic forms of SEA of policies, plans and/or programmes
 -  Basic Steps of EIA
- Screening: investigate need (Legislation? Significant negative environment impacts?). Link SEA to PPP process.
- Scoping: defining the boundaries (issues, stakeholders, scope, assumptions – what’s in/out?).

Set Baseline: Document the state of the environment, collect data, analyses baseline trends (“zero-alternative”).

Consultation: meaningful engagement; inform, learn from & consultation with public.

Identify environmental impacts: determine likely (non-marginal) environmental impacts, usually in terms of direction of change rather than firm figures (+/-; large/small?).

Alternatives => Prioritize => Inform/influence Decision: assess development objectives, institutions, actions; influence decisions!

Mitigation & monitoring: Establish an M&E framework; monitor the effects of PPP after their implementation => Ensure mitigation and adequate implementation.

Documenting: producing an SEA-report.

✚ SEA system – functions and actors

✚ Institutional constraints to the effectiveness of the SEA system

THEME3: SEA FOR SOCIO-ECONOMIC DEVELOPMENT PLANNING AND CAN SEA IMPROVE PLANNING OUTCOMES?

✚ Criteria for determining the effectiveness of SEA for planning processes

✚ Techniques, Approaches and Tools for use with SEA for Socio-Economic Planning

- Scenario Development
- Scenario Analysis Useful as a Tool within SEA
- Steps in Scenario Analysis

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject’s key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

Feedback/Evaluation by Officials

Support for Official

Environmental Application of GIS

ENVIRONMENTAL APPLICATION OF GIS

Subject Details

Subject Name	Environmental Applications of GIS
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Geographic information systems technology (GIS) is a powerful data visualization and analysis tool. This course is designed to introduce participants the concepts of geographic information science related to the fields of environmental science, natural resources for the purpose of spatial analysis and geo-visualization of environmental issues.

A large number of environmental management and planning decisions are based on methodologies that utilize the spatial analysis tools provided by conventional GIS technologies.

It aims to:

- To provide a conceptual understanding of the use of GIS in a wide range of environmental issues;
- To become familiar with the use of selected methods of environmental analysis combined with GIS;
- To obtain in-depth knowledge of a particular environmental application through an real datasets
- To practice the use of GIS analysis techniques.

Subject Requirements

This course requires the use of the following software: ArcGIS, Google Earth

This course requires the use of a computer or laptop (i5), ArcGIS runs under Microsoft Windows environment on IBM compatible PCs.

Target Officials

- EIA directorate officials (Directors, DD, AD, Inspectors)
- Field officers EPA (AD, DD, Inspectors, Field Assistants)
- Other Government Departments
- Environmental Consultants
- Industries

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training will be the hands on exercise on GIS soft wares. (ARCGIS, Google Earth etc)

Learning Objectives & Outcomes

On completion of this subject, participants will:

- Understand how GIS can be used to address environmental issues
- Learn how to acquire and prepare data for analysis related to environmental indicator, edit, analyze data, and interpret and map environmental data.
- Use commonly available GIS and remote sensing software (e.g. ArcGIS, Google Earth) to view, assess, and present spatial datasets (e.g. shapefiles, satellite imagery).
- Customize data and perform analysis using ArcGIS.
- Generate presentation-quality maps
- Present results of GIS analysis in a professional format such as maps, tables

Teaching & Learning Methods

- Presentation
- ARCGIS software
- Google Earth
- MS Excel
- Small Group Activities
- Scenarios and Case Studies

Subject Content**Theme 1: Overview of the Software**

An Introduction to software its components and tools will be given to the participants.

This theme will cover following points:

- Overview of ArcCatalog and ArcMap
- Adding environmental data Layers
- Feature Attributes Analysis
- Querying and Selecting Geographic Features
- Editing Features
- Symbolization
- Map layout setting

Theme 2: Baseline data collection and preparation

Baseline data need to allow for a description of a study area in terms of the existing environmental resources and the likely future state. This is the basis for assessing impacts of a planned development. The environmental data sources, formats etc will be introduced and explored.

This theme will cover following points:

- Introduction and Course Navigation
- Introduction to spatial data and software
- Available Satellite/remote sensing data sets and resources
- Download and view some datasets

Theme 3: Introduction to Environmental Baseline Mapping

This theme will cover following points:

- Making shapfiles from Excel data
- Explore USGS DEMS and elevation data
- Exploring spatial data with statistics
- Examples of using GIS to monitor and model pollutions (I): air, water, and groundwater
- Preparing base maps for Air, Water, groundwater etc

This theme will cover the spatial analysis using ARCGIS tools on following environmental indicators:

Indicators	Description
Physical Environment	
Meteorology	Rainfall and temperature mapping
Hydrology	Water depth, ground water quality table, surface water,
Air	Air quality emissions mapping NOx, Sox, NO, PM

Topography	Digital elevation model (DEM) Analysis	
Biological Environment	Mapping of protected areas, forest, biodiversity	
Socio Economic	Population density Mapping, cultural heritage sites	

Theme 4: Environmental Spatial Analysis and Modelling

EIA will be conducted using GIS tools and following spatial analysis tools.

This theme will cover following points:

- Intro to Spatial Analyst Extension
- Intro to 3D Analyst Extension
- Interpolation techniques
- Buffer Analysis

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

--

Feedback/Evaluation by Officials

--

Support for Official

--

Environmental Economics

ENVIRONMENTAL ECONOMICS

Subject Details

Subject Name	Environmental Economics
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

This course introduces EPA and its related agencies the most critical topics in environmental economics today. Economics, the science of how scarce resources are allocated, is at the core of many of our most challenging environmental issues, and therefore vitally important. In a world of increasing scarcity and competing demands, economic analysis can guide public policy to efficient utilization of resources. Market failures are the cause of many of our most serious environmental problems, but can be remedied with economic tools. Getting prices to reflect true costs, providing productive incentive structures, and explicitly valuing environmental amenities are the primary goals. Domestic and international policy implications will also be addressed. Participants will explore the measurement of environmental costs and benefits, the application of cost-benefit analysis to environmental problems, alternative policy instruments for pollution control, and the implications of economic growth and climate change for a sustainable environment in developing countries. Case studies will supplement reading assignments and facilitate discussions centered on the current issues

Subject Requirements

This subject has strong links with several of the other subjects offered, including:

- Citizen Science (CS)
- Economics
- Environmental studies

Target Officials

- EPA officers
- Managers responsible for municipal, community, environmental and economic policy, strategy, implementation and review at sub-national levels of government

Teaching & Learning Pedagogy

- Based on adult education principles:
- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

Through this course, participants will gain a working knowledge and solid understanding of the environmental issues and the economic incentive instruments and valuation methodologies that can be employed to protect, improve or conserve the environment.

Teaching & Learning Methods

- Presentation
- Class Discussions
- Small Group Activities
- Scenarios and Case Studies

Subject Content**Basic Level****Theme 1: Introduction to Environmental Economics and The Economics of Environmental Quality**

A brief Introduction of what entails Environmental Economics. The topics include:

- Environmental systems
- Economic incentives
- Trade-offs- Environment as an economic and social asset
- Social priorities
- Social interventions
- Environmental Standards

Case Study/video:

<https://www.youtube.com/watch?v=VShdCUG3yU>
<https://www.youtube.com/watch?v=SpIxZiBpGU0>

Learners should also be taught the socially optimum level of production and concepts like External cost, Private cost and social costs. Moreover, the other part of the theme aims to create awareness of the potential and current damages being caused/negative consequences of a polluted environment.

- Pollution damages
- Marginal damage functions
- Pollution control
- Abatement costs
- Socially efficient level of emissions and abatement
- Enforcement costs

Case Study/video:

https://www.youtube.com/watch?v=vP3pbh_-pu8

Intermediate level

Theme 1a: Analytical Tools

Participants will be taught concepts which will help them to carry out an analysis and reach conclusions for instance, if an industry needs closure because of the externalities or not. The concepts include:

- Willingness to pay
- Marginal willingness to pay, marginal benefit, marginal cost and demand
- Opportunity cost, private costs, and social costs
- Marginal cost and supply
- Economic efficiency
- Equimarginal principle
- Markets and social efficiency
- External costs: open access resource
- External benefits: public goods
- Market goods versus public goods

Theme 1b: Economic Valuation of Environmental Amenities & Methodologies

Participants will be equipped with how to carry out Cost Benefit Analysis, its implications and significance.

Non-market valuation methodologies employed by economists to measure public goods.

These include

- Contingent Valuation Method (CVM),
- Hedonic Pricing
- Travel Cost Method (TCM)

Case Study/video:

How much is Clean Water Worth?

Nature's sting: The real cost of damaging Planet Earth

The million dollar pond

Advance level

Theme 1: Environmental Policy: Strategies and Analysis

Participants will study a variety of economic instruments which can be used to incentivize or motivate both individuals and industries to do what is in the interest of society at large – to protect rather than degrade the environment, the science of putting proper incentives in place and removing perverse incentives.

The topics include:

- Command and control strategies
- Incentive-based strategies
- Emission charges
- Emission taxes
- Abatement subsidies
- Markets for emissions
- Emissions cap-and-trade

Case study/video:

Coal Fired Power on the Way Out

Carbon Tax or Emissions Cap?

In China A Plan to Turn Rice Credits into Carbon Credits

40 million Acres of Rainforest to the Greenest Bidder

<http://study.com/academy/lesson/incentive-based-regulatory-approaches-environmental-taxes-tradable-permits.html>

Theme 1a: Contemporary Environmental Issues

Participants will study issues of Renewable & Depletable Resources, Water Resources & Water Pollution.

The list includes but not limited to:

- Global climate change
- The social cost of carbon
- International environmental agreements: successes and failures
- Economic development and the environment
- Environmental degradation in developing economies
- Sustainable development
- Environmental policies in developing countries

This will be followed by discussions and brainstorming to create solutions that are practical and could be implemented in the targeted time.

Case study/ video:

President Obama Speaks on Climate Change. The White House, June 25, 2013

<http://www.whitehouse.gov/photos-andvideo/video/2013/06/25/president-obama-speaks-climatechange>

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

1. Field and Field: Chapter 5
2. Cekanavicius, Linas, Daiva Semeniene, Frans Oosterhuis, and Ekko van Ierland. "The Cost of Pollution: Environmental Economics." *Environmental Science: Understanding, Protecting and Managing the Environment in the Baltic Sea Region*. Ed. Lars Rydén, Pawel Migula, and Magnus Andersson. Uppsala: The Baltic University Programme, Uppsala University, 2003. 566-597
3. "The Price of Imagining Arden." *The Economist* 3 Dec. 1994
4. Harris & Roach: Chapter 6
5. Woody, Todd, "Wind VS. Bird" *Forbes* Jan. 16, 2012
6. Field and Field: Chapters 7 and 8
7. Field and Field: Chapters 11, 12, and 13
8. Oates, Wallace E. "From Research to Policy: The case of Environmental Economics." *International Journal of Urban Sciences* 4 (2000): 1-15
9. "Taxes for a Cleaner Planet." *The Economist* 28 Jun. 1997
10. Field and Field: Chapters 18, 19, and 21
11. Chandler, William, Roberto Schaeffer, Zhou Dadi, P. R. Shukla, Fernando Tudela, Ogunlade Davidson, and Sema AlpanAtamer. *Climate Change Mitigation in Developing Countries*. Pew Center on Global Climate Change, 2002.
12. Lall, Heikkila, Brown & Siegfried "Global Crises and Potential Solutions," *Journal of International Affairs* Spring/Summer 2008 Vol. 61 No. 2
13. "How to live with climate change." *The Economist* 27 Jan. 2010

Feedback/Evaluation by Officials

--

Support for Official

--

Human Resource Management

HUMAN RESOURCE MANAGEMENT

Subject Details

Subject Name	Human Resource
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Human Resource Management (HRM) is a comprehensive and coherent approach to the employment and development of people. HRM can be regarded as a philosophy about how people should be managed, which is underpinned by a number of theories relating to the behavior of people and organizations. It is concerned with the contribution it can make to improve organizational effectiveness through people and equally concerned with the ethical dimension – how people should be treated in accordance with a set of moral values.

HRM involves the application of policies and practices in the fields of organization design and development, employee recruitment and selection, learning and development, performance and reward and the provision of services that enhance the well-being of employees. These are based on human resource (HR) strategies that are integrated with one another and are aligned to the business strategy and goals.

Human Resource Management (HRM) is concerned with all aspects of how people are employed and managed in organizations. It covers the activities of strategic HRM, human capital management, knowledge management, corporate social responsibility, organization development, resourcing (workforce planning, recruitment and selection and talent management), learning and development, performance and reward management, employee relations, employee well-being and the provision of employee services.

Aims/goals of HRM are:

- To support the organization in achieving its objectives by developing and implementing

- human resource (HR) strategies that are integrated with the business strategy (strategic HRM)
- To contribute to the development of a high-performance culture.
 - To ensure that the organization has the talented and skilled people and the right mix it needs
 - To create a positive employment relationship between management and employees and a climate of mutual trust
 - To encourage the application of an ethical approach to people management.

The beliefs of HRM included the assumptions that it is the human resource that gives competitive edge, that the aim should be to enhance employee commitment, so that HR decisions are of strategic importance and therefore HR policies should be integrated into the business strategy.

Subject Requirements

Target Officials

- HR directorate (Directors, DD, AD,)
- Senior Public Officials at local ,district and provincial levels of government
- Other Government Departments
- Consultants
- Senior Managers
- Human Resource Officers

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming and respectful so that learners are encouraged to participate, including having confidence to engage in self-reflection.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learnings to their work spheres.

Learning Objectives & Outcomes

On completion of this subject, participants will:

- Expand participants' conceptual understanding of human resource management at the sub-national government level.
- Enable participants to develop the ability to link human resource management with service delivery, that is, with the delivery of public services, and with the principles and practices of public value, local governance, and public organisation and management.
- Provide participants with additional skills and knowledge to be able to plan and operate within a performance measurement and reporting system, which can be applied fairly and uniformly to public service personnel guided by the underlying principles of improving the accountability of the public sector

Teaching & Learning Methods

- Presentation
- Class Discussions
- Group Activities/Group Problem Solving
- Scenarios and Case Study Analysis

- Facilitated Discussions
- Practice performance management sessions

Subject Content

Theme 1: Recruitment & Selection

Recruitment is the process of finding and engaging right mix of people according to the needs of the organization. For recruiting purposes, the profile is extended to include information on terms and conditions (pay, benefits and hours of work); special requirements such as mobility, travelling or unsocial hours; and learning, development and career opportunities.

The stages of recruitment and selection are:

- Defining requirements-(Using AIDA-Attention, Interest, Desire, Action)
- Attracting candidates.
- Sifting applications.
- Interviewing.
- Testing.
- Assessing candidates.
- Obtaining references.
- Checking applications.
- Offering employment
- Following up

The aforementioned stages can be summed in ‘*Recruitment Yield Pyramid*’ (RYP)(fig.1) as follows:

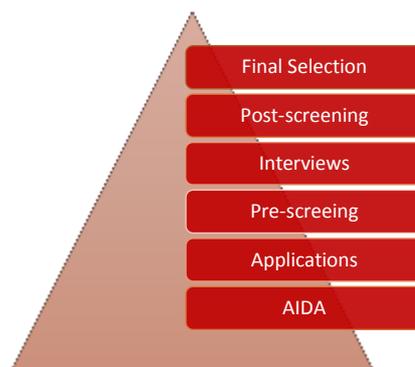


Figure 1: Recruitment Yield Pyramid

The number and categories of people required may be set out in formal workforce plans from which detailed recruitment plans are derived. Requirements are set out in the form of role profiles and person specifications. These provide the information required to post vacancies on the company’s website or the internet, draft advertisements, brief agencies or recruitment consultants and assess candidates by means of interviews and selection tests.

Recruitment or job specification, defines the knowledge, skills and abilities (KSAs) required to carry out the role, the types of behaviour expected from role holders (behavioural competencies) and the education, qualifications, training and experience needed to acquire the necessary KSAs. The specification is set out under the following headings:

- Knowledge – what the individual needs to know to carry out the role.
- Skills and abilities – what the individual has to be able to do to carry out the role.
- Behavioural competencies – the types of behaviour required for successful performance of the role. These should be role-specific, ideally based on an analysis of employees who are carrying out their roles effectively. The behaviours should also be linked to the core values and competency framework of the organization to help in ensuring that candidates will fit and

support the organization's culture.

- Qualifications and training – the professional, technical or academic qualifications required or the training that the candidate should have undertaken.
- Experience – the types of achievements and activities that would be likely to predict success.
- Specific demands – anything that the role holder will be expected to achieve in specified areas, eg develop new markets or products; improve sales, productivity or levels of customer service; introduce new systems or processes
- Special requirements – travelling, unsocial hours, mobility, etc.

The following is an example of the key KSA and competencies parts of a person specification for an HR recruitment adviser.

1. Knowledge of :

- all aspects of recruitment
- sources of recruit
- different media for use in recruiting
- relevant test instruments

2. Skills and abilities in:

- interviewing techniques
- test administration
- role analysis

3. Behavioural competencies:

- able to relate well to others and use interpersonal skills to achieve desired objectives
- able to influence the behaviour and decisions of people on matters concerning recruitment and other HR or individual issues
- able to cope with change, to be flexible and to handle uncertainty
- able to make sense of issues, identify and solve problems and 'think on one's feet'
- focus on achieving result
- able to maintain appropriately directed energy and stamina, to exercise self-control and to learn new behaviours
- able to communicate well, orally and on paper

Other important concepts that shall be covered are as follows:

- Psychological test
- Psychometric test
- Predictive ability
- Assessment Centers
- Role Profile & Person Specification

Theme 2: Job Analysis

The analysis of jobs, roles, and skills and competency modelling are some of the key techniques in human resource management. They provide the information required to produce job descriptions, role profiles, and person and learning specifications. They are of fundamental importance in organization

and job design, recruitment and selection, performance management, learning and development, management development, career management, job evaluation and the design of grade and pay structures and constitute most of the key HRM activities.

Job Description:

A job description defines what job holders are required to do in terms of activities, duties or tasks. A job description is more concerned with tasks than outcomes, and with the duties to be performed than the competencies required to perform them (technical competencies covering knowledge and skills, and behavioral competencies).

Job Analysis:

Job analysis is the process of collecting, analyzing and setting out information about jobs in order to provide the basis for a job description and data for recruitment, training, job evaluation and performance management.

Job analysis concentrates on what job holders do and achieve. It identifies the tasks that job holders undertake and the outcomes and outputs they are expected to produce. Outcomes are the results of performance expressed as something that has been attained, such as a task or a project. Outputs are the results of performance expressed in quantified terms such as sales volume, income generated or units of production.

Job Specification:

A person specification, also known as a job or role specification, defines the knowledge, skills and abilities (KSAs) required to carry out a role and the education, training, qualifications and experience needed to acquire the necessary KSAs. It may also refer specifically to the competencies required for effective job performance.

Job analysis produces the following information about a job:

- Overall purpose – why the job exists and, in essence, what the job holder is expected to contribute.
- Organization – to whom the job holder reports and who reports to the job holder.
- Content – the nature and scope of the job in terms of the tasks and operations to be performed and the duties to be carried out.

If the outcome of the job analysis is to be used for job evaluation purposes, the job will also be analysed in terms of the factors or criteria used in the job evaluation scheme

This theme shall cover the following points:

- Job Analysis methodology and techniques
- Role analysis methodology
- Competency modelling
- Task & Competency Analysis
- Role Analysis

Example of Job Description

Job Title	HR Adviser Recruitment
Reports to:	HR Service Centre Manager
Overall purpose:	To provide recruitment services to line managers for jobs below management level
Main Activities:	<ul style="list-style-type: none"> • Respond promptly to requests from line managers to assist in recruiting staff
	<ul style="list-style-type: none"> • Produce person specifications that clearly indicate

	requirements for recruitment purposes.
	<ul style="list-style-type: none"> • Agree on the use of sources of applicants such as web-based recruitment, agencies or media advertisements that will generate high-calibre candidates at a reasonable cost.
	<ul style="list-style-type: none"> • Brief and liaise with agencies and/or draft advertisements for jobs for approval by line managers and place advertisements or information on vacancies using the media and/or the internet
	<ul style="list-style-type: none"> • Process replies and draw up shortlists that enable a choice to be made between well-qualified candidates
	<ul style="list-style-type: none"> • Conduct preliminary interviews independently or conduct shortlist interviews with line managers that identify candidates who meet the specification.
	<ul style="list-style-type: none"> • Agree offer terms with line manager, take up references and confirm the offer.
	<ul style="list-style-type: none"> • Review and evaluate sources of candidates and analyse recruitment costs.

Theme 3: Training & Development

The theme shall cover the following elements:

- Training Need Assessment
- Training Plans and Budgets
- Competency Frameworks
- Training Evaluations
- Career Planning
- Succession Planning

Training Need Assessment:

The purpose of the TNA is to ensure that the workforce has right mix of KSA (Knowledge, Skill and Attitude) to deliver the desired results in their respective work-streams. It also sets out a training strategy and plan to ensure any gaps that could compromise the delivery of job performance are addressed in timely manner. It is crucial to establish a training system which in turn develops a competent and professional manpower. TNA is used for:

- Analyzing what training needs are vital/prerequisites for effective training programs; simply conducting training for individuals may miss priority needs, or even cover areas that are not essential.
- Identifying a comprehensive list of the required Knowledge, Skills and Attitudes (KSA) needed for each job role/family.
- Enabling the channeling of resources into the areas where they will contribute the most to employee development, enhancing morale and organizational performance.
- Providing a baseline for preparation of a training plan to develop required KSAs and ensure that staff have the best capacity to deliver desired results.
- Enabling the institutional arrangements to ensure the delivery of effective training and maximize use of scarce resources; respond to existing context and needs.

Career Planning:

Career management is about providing the organization with the flow of talent it needs. It is also concerned with the provision of opportunities for people to develop their abilities and their careers in order to satisfy their own aspirations. It integrates the needs of the organization with the needs of the individual. An important part of career management is career planning, which shapes the progression of individuals within an organization in accordance with assessments of organizational needs, defined employee success profiles and the performance, potential and preferences of individual members of the enterprise.

Career management also involves career counselling to help people develop their careers to their advantage as well as that of the organization.

Career planning involves the definition of career paths – the routes people can take to advance their careers within an organization. It uses all the information provided by the organization’s assessments of requirements, the assessments of performance and management succession plans, and translates it into the form of individual career development programmes.

It aims to

- meet the objectives of its talent management policies
- ensure that there is a talent flow that creates and maintains the required talent pool.
- give them the guidance, support and encouragement they need to fulfil their potential and achieve a successful career with the organization in tune with their talents and ambitions
- to provide development opportunities taking into account both organizational needs and employee interests

Succession Planning:

Management succession planning is the process of ensuring that capable managers are available to fill vacant managerial posts. Traditionally it has been regarded as a formal process but it is increasingly becoming the need to develop a pool of talented managers so that a ‘talent on demand’ approach can be adopted.

It ensures:

- there are enough potential successors available
- a supply of people coming through who can take key roles in the longer term
- they have the right skills and competencies for the future

Theme 4: Performance Management

Performance management is a systematic process for improving organizational performance by developing the performance of individuals and teams.

The term ‘Performance’ is defined as behavior that accomplishes results.

The key processes involved during the cycle are concluding performance and development agreements, performance planning, personal development planning, managing performance throughout the year, conducting performance reviews and assessing performance.

Performance management is expected to improve organizational performance generally by creating a performance culture in which the achievement of high performance is a way. More specifically, effective performance management ensures that individual goals are aligned with organizational goals, so that key performance indicators for employees are linked to those of the organization, and the contribution people can make to organizational performance is therefore defined.

Performance management, if carried out properly, can reward people by recognition through feedback, the provision of opportunities to achieve, the scope to develop skills, and guidance on career paths.

Its aims are:

- Getting better results by providing the means for individuals to perform well within an agreed framework of planned goals, standards and competency requirements
- Developing a shared understanding about what is to be achieved and how it is to be achieved.
- Developing the capacity of people to meet and exceed expectations and to achieve their full potential to the benefit of themselves and the organization.
- Clarifying how individuals are expected to contribute to the achievement and desired results
- Providing the basis for personal development
- Developing a performance culture

Performance management provides the basis for self-development but, importantly, it is also about ensuring that the support and guidance people need to develop and improve are readily available.

Performance management can play an important role in rewarding employees by providing them with positive feedback and the recognition of their accomplishments. Primarily it is often seen a developmental process and may therefore be referred to as 'performance and development management'.

Theme 5: Compensation & Benefits

Reward management is concerned with the strategies, policies and practices required to ensure that the value of people and the contribution they make to achieving organizational, departmental and team goals is recognized and rewarded. It is about the design, implementation and maintenance of reward systems that aim to satisfy the needs of both the organization and its stakeholders and to operate fairly, equitably and consistently.

Reward management deals with non-financial rewards such as recognition, learning and development opportunities and increased job responsibility, as well as financial rewards.

Its aims are to:

- Reward people according to the value they create to be recognized and paid in accordance with the degree to which they meet or exceed expectations.
- Support the achievement of business goals by helping to ensure that the organization has the talented and engaged people it needs
- Promote high performance by ensuring that the reward system recognizes and encourages it.
- Support and develop the organization's culture by linking rewards to behaviour that is in line with core values.
- Define the right behaviours and outcomes by defining expectations through performance management and merit pay schemes.

The theme shall cover the following points:

- Reward System & its management
- Financial & Non-Financial Rewards
- Pay determination & Market pricing
- Recognition Schemes

Grade and pay structures should

- Be appropriate to the culture, characteristics and needs of the organization and its employees;
- Enable jobs to be graded appropriately and not be subject to grade drift (unjustified upgrading)
- Be flexible enough to adapt to pressures arising from market rate changes and skill shortages
- Provide scope as required for pay progression
- Clarify reward, lateral development and career opportunities
- Enable the organization to exercise control over the implementation of pay policies and

budgets
Theme 6: Employee Relations
<p>Employee relations are concerned with managing the employment relationship and the psychological contract. They consist of the approaches and methods adopted by employers to deal with employees either collectively through their trade unions or individually. This includes providing employees with a voice and developing communications between them and management.</p> <p>Employee relations cover a wider spectrum of the employment relationship than industrial relations, which are essentially about what goes on between management and trade union representatives and officials, involving collective agreements, collective bargaining and disputes resolution</p> <p>Employee Relations aims to</p> <ul style="list-style-type: none"> • Create a healthy, safe and fulfilling work environment. • Promote the well-being of employees by improving the quality of working life provided for them, enhancing work–life balance and developing family-friendly policies. • Take particular care to minimize the stress to which employees may be subjected. • Provide equal opportunities for all with regard to recruitment and selection, learning and development, talent management, career progression and promotion. • Manage diversity by recognizing the differences between people and ensuring that everyone feels valued and that the talents of all employees will be properly utilized. • Handle disciplinary matters according to the principles of natural justice. • Recognize that people may have legitimate grievances and respond to them promptly, fully and sympathetically. • Not penalizing whistle-blowers who expose wrongdoing.
Theme 7: HR Information Systems:
<p>An HR information system (HRIS) is a computer based information system for managing the administration of HR processes and procedures. ‘e-HRM’ is an alternative term for the use of computer technology within the HR function.</p> <p>Parry and Tyson (2011: 335) defined an HRIS as: ‘A way of implementing HR strategies, policies and practices in organizations through a conscious and directed support of and/or with the full use of web technology-based channels.’ They listed five goals for e-HRM: efficiency, service delivery, strategic orientation, manager empowerment and standardization (ibid: 335).</p> <p>The CIPD (2007) survey established that the top 10 reasons for introducing an HRIS were:</p> <ol style="list-style-type: none"> 1. To improve quality of information available. 2. To reduce administrative burden on the HR department. 3. To improve speed at which information is available. 4. To improve flexibility of information to support business planning 5. To improve services to employees. 6. To produce HR metrics. 7. To aid human capital reporting. 8. To improve productivity. 9. To reduce operational costs. 10. To manage people’s working time more efficiently <p>Following are some of the functions that an HRIS can perform:</p> <ul style="list-style-type: none"> • Absence recording and management • Employee records • Employee surveys • Employee turnover analysis • e-learning

- equal opportunity modelling
- expenses
- HR planning and forecasting
- job evaluation
- knowledge management
- intranet
- manage diversity
- manager and employee self-service
- metrics and human capital reporting
- online recruitment
- online performance management systems and 360-degree feedback
- payroll administration
- pay reviews
- pensions and benefits administration

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

Key readings include:

- Bourgault, J., Charih, M., Maltais, D. and Rouillard, L., 2006, Hypotheses concerning the prevalence of competencies among government executives, according to three organisational variables, *Public Personnel Management*, 35(2): 89-119.
- Government of Punjab, 2015, *Punjab Growth Strategy 2018: Accelerating economic growth and improving social outcomes*. Planning and Development Department, Government of Punjab, Lahore.
- Hays, S.W. and Plagens, G.K., 2002, Human resource management best practices and globalization: The universality of common sense. *Public Organization Review*, 2: 327-348.
- Johnsen, 2005, What does 25 years of experience tell us about the state of performance measurement in public policy and management? *Public Money and Management*, 25(1): 9-17.
- Lodge, M. and Hood, C., 2005, Symposium introduction: Competency and higher civil servants, *Public Management*, 83(4): 779-787.
- Needham, C., Mangan, C. and Dickinson, H., 2014, *The 21st century public service workforce: Eight lessons from the literature*. Economic and Social Research Council, University of Birmingham.
- Punjab Local Government Act 2013.
- World Bank, 2016, *Pakistan*, <http://www.worldbank.org/en/country/pakistan>

Feedback/Evaluation by Officials

--

Support for Official

--

Finance

FINANCE

Environmental Assessment

Subject Details

Subject Name	Finance
Subject Code/Number	
Units/Credit Points	
Location	

Staff Contact Details

Name title	
Email	
Contact number	
Office hours for officials	
Office Location	

Faculty Description

--

Subject Description

Financial Management is the management of funds of an entity in order to achieve the financial objectives that purposes to maximize shareholders' wealth.

It aims to:

- Ensure that enough funding is available at the right time to meet the needs of the organisation for short-, medium- and long-term capital
- Ensure that working capital requirements (i-e requirements for day to day operations) are met.
- Contribute to decisions on the usage of funds raised by analysing financial data to meet the organisation's financial objectives.
- Ensure the various activities of the organisation are in line with organizations long term goals.
- Ensure financial sustainability
- Understand key economic concepts relating to local government expenditure such as economies and diseconomies of scale, cost shifting, rent seeking , taxation exporting, budget constraints

Subject Requirements

Target Officials

- Finance directorate officials (Directors, DD, AD,)
- Senior Public Officials at local ,district and provincial levels of government
- Other Government Departments
- Consultants

Teaching & Learning Pedagogy

Based on adult education principles:

- The training environment will be welcoming so that learners feel safe to participate.
- The material presented will have immediate usefulness to the learners and relevant to their work.
- Training presentation will be engaging and respectful, giving learners the opportunity to share their experiences, grow and develop and apply the learning to their work spheres.
- Engage public officials in the value of learning and to become life-long learners.

Learning Objectives & Outcomes

On completion of this subject, participants will be able to:

- Understand organizations financial operations, including revenues, expenses ,assets, liabilities and equity
- Evaluate time value of money concept and understanding their effect on cash flow
- Get their selves familiar with strategic management decision making and operational problem solving
- Understand and analyse financial statements.
- Learn to use financial information to assist in the management decision making process including the relationship between financial statements, financial ratio analysis, financial statement analysis, and other financial metrics to improve managerial decision making.
- Infer managerial reports to assess and evaluate more informed operational decisions to maximize shareholder wealth, maintain a competitive market position, and ensure a safe working environment.
- Use budgets and financial information for forecasting future economic and financial trends
- Comprehend costing techniques to make pricing, marketing and other operational decisions such as quality control
- Strengthen the Government's capacity for quality control of project appraisal using different costing techniques especially for large-scale projects

Teaching & Learning Methods

- Presentations
- Class Discussion
- Group Activities/Group Problem Solving
- Scenarios & Case Studies
- Facilitated Discussions
- Practice performance management sessions

Subject Content

Theme 1: BASIC UNDERSTANDING OF ACCOUNTING CONCEPTS
--

This theme shall cover the basic accounting concepts/principles of accounting which are mandatory for the study of accounts and finance.

Going Concern Concept

The Going Concern concept of accounting means that business entity is viewed as continuing in operation for the foreseeable future. It is assumed that the entity has neither the intention nor the necessity of liquidation or of curtailing materially the scale of its operations.

Matching Concept

Matching principle requires that expenses incurred by an entity must be charged to the income statement in the accounting period in which the revenue, to those expenses relate.

Matching principle results in more balanced and consistent view of the financial performance hence avoiding misstatements in financial statements.

Prudence Concept/Conservatism Principle

Prudence concept states that uncertainties exist in the preparation of financial information, e.g the collectability of doubtful receivables. These uncertainties are recognized through disclosure and through the application of prudence. Prudence does not however, allow the creation of hidden reserves or excessive provisions, understatement of assets or income or overstatement of liabilities or expenses.

Substance over Form

The principle that transactions and other events are accounted for and presented in accordance with their substance and economic reality and not merely their legal form

For instance, one party may sell an asset to another party and the sales documentation may record that legal ownership has been transferred. However, if agreements exist whereby the party selling the asset continues to enjoy the future economic benefits arising from the asset, then in substance no sale has taken place.

Accrual Accounting and Cash Accounting

Accrual Accounting states that effects of transactions and other events are recognized when they occur (and not as cash or its equivalent is received or paid) and they are recorded in the accounting records and reported in the financial statements of the periods to which they relate.

On the other hand, cash basis of accounting is the method of recording accounting transactions for revenue and expenses only when the cash is received or payments are made.

This theme shall cover following elements:

- Understanding and Application of Applicable IFRS and IAS
- Basic Understanding of Key accounting concepts Assets, Liabilities, Incomes and Expenses
- Basic Understanding of Chart of Accounts
- Classification of accounting entries in books of accounts
- Understanding of Key Financial Statements and notes to financial statements in accordance to IAS 1- “Presentation of Financial Statements” Key Financial Statements are:
 - Statement of Financial Position
 - Statement of Profit and Loss
 - Statement of Changes in Equity
 - Statement of Cash Flows
 - Notes to Financial Statements
 - Types of financial ratios and their interpretation
 - Liquidity Ratios
 - Profitability Ratios
 - Solvency Ratios

Income and Capital Gain Taxes

Income Tax

Income tax is a tax that governments impose on financial income generated by all entities within their jurisdiction. By Law, businesses and individuals must file an income tax return every Year to determine whether they owe any Taxes or are eligible for a tax refund. Income tax is the important source of funds that the government use to fund its activities and serve the public.

Capital Gain tax

Capital gain tax is the government tax on the profit made by selling something you own. A capital gain is calculated by deducting original cost of property from the sale price of the property.

IFRS

International Financial Reporting Standards (IFRS) are set of International Accounting Standards stating how particular types of transactions and events should be reported in Financial Statements. IFRS are issued by International Accounting Standards Board (IASB) and they provide guidance to accountants how to maintain and prepare their accounts.

IAS

International accounting standards were issued by the board of International Accounting Standards Committee (IASC) and endorsed and amended by the international Accounting Standards Board. The purpose of these standards is to ensure that the financial centers of the world which have become more interconnected than ever can use a global financial reporting framework that ensures the effective regulation of financial markets.

Key Financial Statements and notes to financial statements in accordance to IAS 1

“Presentation of Financial Statements

The Complete set of Financial Statements comprised of four basic reports and these four reports are used to give readers an overview about the condition of the business. These reports are:

Statement of Profit and Loss Presents the revenues, expenses and Profit / Loss generated during the reporting period. Statement of profit and Loss presents the operating results of an entity.

Statement of Financial Position is a statement of the assets, liabilities and capital of a business as at a stated date.

Statement of Cash Flows is used to assess the entity's investing, financing and operating activities. They show the entity's ability to produce cash and the needs which utilise those cash flows.

Statement of Changes in Equity presents changes in equity during the reporting period. This report varies as this includes the sale or repurchase of stock, dividend payment and changes caused by reported profits and losses.

The financial statements are used to make economic decisions and the type of economic decisions for which financial statements are likely to be used include the following:

- Decisions to buy, hold or sell equity investments
- Assessment of the entity's ability to pay employees
- Assessment of the security of amounts lent to the entity
- Determination of distributable profits and dividends
- Regulations of the activities of entities

Financial Ratios and Their types

Financial Ratios are important indicators of an entity's performance and financial situation. Financial ratios can be used to analyze trends and compare the entity's financials to those of other companies. Following types of financial ratios are frequently used.

Liquidity Ratios

Profitability Ratios

Investment Ratios

Liquidity Ratios

Liquidity Ratios provide information about a firm's ability to meet its short-term obligations. The idea behind this is that a company should have enough current assets that give a promise of 'cash to come' to meet its future commitments to pay off its current liabilities. Commonly used liquidity Ratios are Current Ratio and Quick Ratio.

Where current ratio is calculated as:

Current Ratio = Current Assets / Current Liabilities

Quick Ratio = Current Assets less Inventory / Current Liabilities.

Profitability Ratios

Profitability ratios are used by companies or businesses as financial metrics to measure and evaluate their ability to generate profits relative to sales, cost and equity during a specific period of time reflecting how well a company utilizes its assets to produce profit and value to shareholders.

Most commonly used profitability ratios are:

- Gross Profit Margin
- Operating Profit Margin
- Return on equity
- Return on Capital Employed

Investment Ratios:

These are the ratios which help equity shareholders and other investors to assess the value and quality of an investment in the shares of a company and are listed as follows:

- Earnings per share
- Dividend per share
- Dividend cover
- P/E ratio
- Dividend yield

Theme 2: Financial Management

Capital Budgeting Process:

The capital budget is prepared to cover a longer period than sales, production and resource budgets. It indicates the expenditure required to cover capital projects already underway and those anticipated in the three- to five-year period (say) of the capital budget. The budget therefore is based on the current production budget, future expected levels of production and the long-term development of the organization, and industry, as a whole.

A typical model for investment decision-making has a number of distinct stages.

- Origination of proposals
- Project screening
- Analysis and acceptance
- Monitoring and review

Financial Analysis:

The financial analysis will involve the application of the organization's preferred investment appraisal techniques .It aims to address:

- What cash flows/profits will arise from the project and when
- Has inflation been considered in the determination of the cash flows
- What are the results of the financial appraisal
- Has any allowance been made for risk and, if so, what was the outcome

Project Appraisal Techniques for the aforementioned financial analysis are as follows:

- Pay Back Period
- Accounting Rate of Return-ARR
- Discounted Cash Flow Technique
- Net Present Value Method-NPV
- Internal Rate of Return Method

Budgeting and Financial Forecasting:

Budgeting and financial forecasting are financial planning techniques that help business personnel in the decision-making process.

Budgeting uses estimation to quantify the expectation of revenues a business wants to achieve for a future period and estimates the amount of revenues and expenses a company may incur over a future period.

Financial forecasting estimates a company's future financial outcomes by examining historical data. It allows management teams to anticipate end results based on historical data. Companies use financial forecasting to determine how they should allocate their budgets for a future period.

It aims to:

- Take management away from its short-term, day to day management of the business and forces it to think longer term
- Point out what aspects of the business produce money and which ones use it, which forces management to consider whether it should drop some parts of the business, or expand in others.
- Evaluate Performance and setting up employee goals for a budgeting period
- Address management of how much amount of cash they need to support the operations. The information is used by the treasurer to plan for the company's funding needs. A proper budget can easily tell management how much cash they needed to invest in fixed assets and working Capital.

The theme shall cover the following points:

- Financial Management Environment
- Financial Markets, money markets and institutions
- Working Capital Management
- Specific Investment Decisions
- Evaluating Project Appraisal Techniques
- Business Finance (Capital Structure)
- Business Valuations & Market Efficiency
- Risk Management

Theme 3: Auditing Assurance and Risk Management

The objective of an audit of financial statements is to enable the auditor to express an opinion on whether the financial statements are prepared, in all material respects, in accordance with an applicable financial reporting framework. Whilst an audit might produce by-products such as advice to the directors on how to run the business, its objective is solely to report to shareholders.

The auditors' report on company financial statements is expressed in terms of truth and fairness. This is generally taken to mean that financial statements:

- Are factual
- Are free from bias
- Reflect the commercial substance of the business's transactions

Preparation of Audit Reports

International Standard on Auditing 705 'Modifications to the opinion in the independent auditor's report' provides guidance on the preparation of two types of Audit Reports.

- Unmodified Audit Report
- Modified Audit Report

Unmodified Audit Report is issued when the Financial Statements give a true and fair view. True and fair view means that Financial Statements are free from material misstatements.

In the Modified Audit Report three types of modified opinion are given.

- Qualified Opinion
- Disclaimer of Opinion
- Adverse of Opinion

Nature of Matter giving rise to the modification	Misstatements Material but not Pervasive	Misstatements Material and Pervasive
Financial statements are materially misstated	Qualified Opinion	Adverse Opinion
Inability to obtain sufficient appropriate audit evidence	Qualified Opinion	Disclaimer of Opinion

An example of an auditor's report on an entity's financial statements is as below. This is an unmodified report (which means the financial statements are true and fair and properly prepared).

INDEPENDENT AUDITOR'S REPORT [Appropriate addressee]

Report on the financial statements :

We have audited the financial statements of ABC company, which comprise the balance sheet* as at 31 December, 20X1, and the income statement*, statement of changes in equity and cash flow statement* for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the financial statements:

Management is responsible for the preparation and fair presentation of these financial statements in accordance with International Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility:

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as

well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion

Opinion:

In our opinion the financial statements present fairly, in all material respects, (or give a true and fair view of) the financial position of ABC Company as at December 31, 20X1, and (of) its financial performance and its cash flows for the year then ended in accordance with International Financial Reporting Standards.

Report on other legal and regulatory requirements:

[Form and content of this section of the auditor's report will vary depending on the nature of the auditor's other reporting responsibilities.]

[Auditor's signature]

[Date of the auditor's report]

[Auditor's address]

*Note: This example of an auditor's report is in accordance with the relevant auditing standard.

Internal Audit:

Internal auditing is an appraisal or monitoring activity established within an entity as a service to the entity. It functions by, amongst other things, examining, evaluating and reporting to management and the directors on the adequacy and effectiveness of components of the accounting and internal control systems

It is a function established by management to assist in corporate governance by assessing internal controls and helping in risk management. It can be a department of employees or can be outsourced to expert service providers.

The advantages of outsourcing the internal audit function include speed, cost and a tailored answer to internal audit requirements. One of the main disadvantages may include threats to independence and objectivity if the external audit service is provided by the same firm.

Internal Audit aims to:

- Monitor the company's overall risk management policy to ensure it operates effectively.
- Monitor the controls implemented to ensure that they continue to operate effectively
- Monitor the overall process and in providing assurance that the systems which the departments have designed meet objectives and operate effectively
- Prevent and detect fraud

Internal audit can be involved in many different assignments as directed by management. These can range from value for money projects to operational assignments looking at specific parts of the business.

The internal auditors' report may take any form as there are no formal reporting requirements for these reports as there are for the external auditor's report.

The theme shall cover the following areas:

- Audit Framework and regulation
- Audit Planning and Documentation
- Risk Assessment
- Audit Procedures and Sampling
- Audit Review and finalization
- Reporting

Theme 4: Cost Accounting

Cost Accounting is the process of determining the costs of products, services or activities.

Types of Cost

The types of costs covered in cost accounting are Fixed Cost, Variable Cost, Overheads, Direct Cost and Indirect Cost.

Direct and Indirect Costs

A direct cost is a cost that can be traced in full to the product, service or department that is being costed. An indirect cost or overhead is a cost that is incurred in the course of making a product, providing a service or running a department, but which cannot be traced directly and in full to the product, service or department.

Fixed Cost

Fixed Cost are expenses that have to be paid by the company, independent of any business activity examples of fixed cost includes depreciation, insurance, rent, interest, salaries and wages.

Variable Cost

Variable Costs are costs that vary with the output. Generally Variable costs increase at a constant rate relative to labor and capital. Variable costs rise as the production increases and they fall as the production decreases.

Overheads

These costs are factory related indirect costs that are incurred when a product is manufactured. In addition to direct material and direct labor, overheads are the indirect costs that are incurred to produce saleable goods. Examples include salaries of factory employees and electricity, gas, water bills and repair parts of manufacturing equipment.

This theme shall cover following costing Techniques

Absorption Costing

Absorption costing is a traditional approach to dealing with overheads, involving three stages:

1. Allocation
2. Apportionment
3. Absorption

Apportionment has two stages, general overhead apportionment and service department cost apportionment. Absorption costing is a method of product costing which aims to include in the total cost of a product (unit, job and so on) an appropriate share of an organization's total overhead, which is generally taken to mean an amount which reflects the amount of time and effort that has gone into producing the product.

Marginal Costing

In marginal costing, inventories are valued at variable production cost whereas in absorption costing they are valued at their full production cost.

Marginal cost is the cost of one unit of a product/service which could be avoided if that unit were not produced/provided. Marginal costing is an alternative to absorption costing. Only variable costs (marginal costs) are charged as a cost of sales. Fixed costs are treated as period costs and are charged

in full against the profit of the period in which they are incurred.

Activity Based Costing

ABC involves the identification of the factors (cost drivers) which cause the costs of an organisation's major activities. Support overheads are charged to products on the basis of their usage of an activity. For costs that vary with production level in the short term, the cost driver will be volume related (labour or machine hours).

Overheads that vary with some other activity (and not volume of production) should be traced to products using transaction-based cost drivers such as production runs or number of orders received.

This theme will cover following points:

- Specialist cost and management accounting techniques
- Decision making techniques
- Risk & Uncertainty
- Budgeting
- Variance Analysis
- Performance measurement & control

Assessments

Assessment Tasks	Weightages (%)	Learning Outcomes
Presence and participation	30%	Demonstrate taking responsibility for own learning and development through active participation in the subject
In-class test	70%	Demonstrate knowledge and understanding of subject's key concepts

Attendance Requirement

- Minimum 90% attendance, which is ascertained by means of a sign-on sheet for every session.

Learning Resources

Feedback/Evaluation by Officials

Support for Official



THE URBAN UNIT

Urban Sector Planning & Management Services Unit (Pvt.) Ltd.

A Public Sector Company.

503 - Shaheen Complex, Edgerton Road, Lahore

Ph: 042 - 99205316 - 22 Fax: 042 - 99205323

E-mail: uspmu@punjab.gov.pk www.irispunjab.gov.pk