CAPACITY BUILDING COMMISSION

ANNUAL CAPACITY BUILDING PLAN
MINISTRY OF PORTS, SHIPPING, AND WATERWAYS

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List of Abbreviations

Abbreviation	Full Form
CBC	Capacity Building Commission
CBP	Capacity Building Plan
CDP	Capacity Development Plan
CEU	Coastal Economic Units
CEZ	Coastal Economic Zones
CSCU	Cabinet Secretariat Coordination Unit
CPT	Chennai Port Trust
DAR&PG	Department of Administrative Reforms and Public Grievances
DGLL	Directorate General of Lighthouses and Lightships
DOPT	Department of Personnel and Training
DPT	Deendayal Port Trust
FAQs	Frequently Asked Questions
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce & Industry
FTO	Flying Training Organization
GT	Gross Tonnage
GoI	Government of India
GST	Goods and Services Tax
HR	Human Resource
HO	Head Office
IWAI	Inland Waterways Authority of India
IWT	Inland Water Transport
IMO	International Maritime Organization
IT	Information Technology
IMDG	International Maritime Dangerous Goods
JNPT	Jawaharlal Nehru Port Trust
JS	Joint Secretary
MIV	Maritime India Vision
MoF	Ministry of Finance
MoPSW	Ministry of Port Shipping and Waterways
MoCA	Ministry of Civil Aviation
MoFPI	Ministry of Food Processing Industries
MNTI	Marine Navigation Training Institute
OLIC	Official Language Implementation Committee

PMHRC	Prime Minister's Public Human Resource Council
NITI Aayog	National Institution for Transforming India
NPCSCB	National Programme for Civil Services Capacity Building
PPP	Public Private Partnership
RTI Act	Right to Information Act
SPV	Special Purpose Vehicle
SEZ	Special Economic Zone
US	Under Secretary
VPT	Visakhapatnam Port Trust

1. Executive Summary

The Mission Karmayogi is a National Programme for Civil Services Capacity Building (NPCSCB) (the “Program”), launched by the Union Cabinet, Government of India in September 2020 which aims at capacity building of the Indian civil servants for the future based on the philosophy of creating an ecosystems of “**competency driven training and human resource management by transitioning from a 'rules-based' system to the 'roles-based' system**”. Under this Program, a Capacity Building Commission (CBC) has been set up for functional supervision of training institutions and is currently conceptualizing and developing Capacity Development Plans (CDP) for the identified pilot Ministries that includes the Ministry of Ports, Shipping and Waterways (MoPSW).

As a step in this direction, multiple interactions have been undertaken with the various divisions of the Ministry and the various undertakings under the Ministry such as the Major Ports, Inland Waterways Authority of India, Directorate General of Shipping and the Directorate General of Lighthouse and Lightships for an understanding of the roles and responsibility of these divisions and the departments of the undertaking of the Ministry. Accordingly, competency, institutional and technological requirements corresponding to the roles and responsibilities of these entities have been identified which will enable them in undertaking these responsibilities efficiently in line with the overall vision of the Ministry.

The competency requirement have been further identified as (i) **Domain competency which is related to knowledge and** expertise related to the sector, division, and the respective focus areas, (ii) **Behavioral competency which is related to** behavior and soft skills and (iii) **Functional competency which is related to** functional aspects of the division such as administration, financial planning, communication, legal, stakeholder management, technological know-how and other such broad areas of expertise.

These requirements not only consider the current roles and responsibilities of the divisions and departments, but also cater to the changing business scenarios of the maritime and inland waterways sectors. Some of the key domain competency requirements of the Divisions and undertakings that have been identified are as follows:

- Shipping Division: As the shipping sector is influenced by international practices, rules and regulations, knowledge of International conventions and norms, maritime law and international practices and best global practices for safe and sustainable recycling of ships are some of the domain competency requirements.
- Ports Division: The business model of the ports is changing, and the competencies required for new business model and approach to business would require domain competency in estate management and monetization, development of port based industrial clusters/ logistics hubs, Ro-Ro operations and management, stakeholder management amongst others.
- Inland Water Transport Division: The Inland Waterway transport sector is a very niche sector and requires specific understanding of basic concepts of inland waterways navigations, terminal operations, river conservancy and management of the same. The waterways also play a key role in inter country transport connectivity and hence knowledge and strategic importance of various regional platforms is also necessary. The Government of India has recent passed the Inland Vessel Act 2021 and it is vital to have understanding of key reforms and its features for effective enforcement.
- Sagarmala & PPP division: The key role of the Division is project monitoring and management and hence some of the key domain competency requirements are project management focused on project monitoring and tracking, project risk identification and mitigation strategies, understanding of PPP Models and contract management and technological trends impacting the strategic work of the Ministry
- Development Division: The key domain competency requirement identified for this division include knowledge on the various regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), port management and operations, procurement management, management of dredging contract and operations, amongst others

- Administrative Division: Considering the nature of division, multiple competencies are required including accounting/cash management, LTA/travel booking/event management, regulations issued by DAR&PG and DOPT, inventory management and management of legal issues and court procedures on behalf of Ministry
- Transport Research Division: This division's primary role is data compilation and reporting in the sector and accordingly, the key domain competency requirements are expertise in data compilation and reporting on various platforms of the Ministry and on technological tools for the same
- Coordination and IPA Division: The key domain competency requirements identified for this Division include knowledge of various IT applications of ports and emerging digital technologies, HR management and labor law related regulations applicable to Port sector as well as project management using technology and relevant IT tools
- Major Ports: The domain competency requirements for Major Ports are multiple considering the various functions it is required to perform. These include knowledge on port automation and digitalization, , global trends in international commerce/trade patterns and its implications for maritime sector, domestic trade flow, macro and micro influence for long term planning of infrastructure, latest technological developments in dredging, pilotage services etc. Also taking into consideration the evolving new business model of ports from leading port development and operations to landlord port model, domain competency is required in new business opportunities such as Ro-Ro operations, multi modal logistics, business development of ports and port based SEZ & Dry Ports as well as be equipped for new responsibilities of strategic pricing of services, estate management, revenue optimization and other related areas specific to port business development and operations that are aligned to the future priorities of landlord port model of management.
- Directorate General of Lighthouses and Lightships: The division needs to be continually updated on the knowledge of advanced digital technologies used in Navigation/ATON/VTS space. Also considering that the many lighthouses are places of tourist attraction and heritage buildings, competency needs to be developed in heritage maintenance and tourism related opportunities
- Directorate General of Shipping: Shipping sector is largely influenced by global practices and regulation hence domain competency is required in global practices/ emerging trends on regulation vessels, operational safety and fitness audit of the vessels, international conventions and maritime law and upcoming trends in unmanned/remote controlled ships/marine drones/ submarine drones and other such emerging technologies, apart from other domain subjects.

The various Divisions and departments need to interact internally within the organization, with other Ministries, State Governments, at international forums as well with a diverse nature of users. Hence **behavioral competency** is required to be enhanced in terms of citizen centric work as well as communication skills, negotiation skills, diplomatic sensitivity, networking, result oriented approach, work ethics and leadership .

The **Institutional and Technological capacity requirements include requirements related to** process improvements, knowledge management and resources planning for increasing efficiency. Some of the issues also include high attrition, shortage of staff, limited development opportunities and the performance appraisal criterion. However, this would require a more in-depth study of the institutions, long term capacity building assessment, technological requirements etc. and hence have not been covered in this section presently.

After assessing the gaps and requirements, appropriate initiatives for capacity building have been identified that are necessary for meeting the overall vision of the Ministry, along with their implementation strategy. These initiatives have been further prioritized on an immediate priority and critical priority taking into consideration the urgency of requirement, time for implementation and costs associated so that maximum impact can be realized in the immediate term. These would form part of the annual CBP.

The immediate priority initiatives are the ones which need to be undertaken promptly. These include immersion programs, upskilling initiatives and behavioral trainings. Some of these initiatives include domain specific modules on overall orientation of the staff to familiarize them with mission and objectives of the Ministry and their respective roles, the different aspects of the maritime sector (ports, shipping, maritime transport, inland waterway

transport, and related regulations), emerging regulation frameworks and global practices in the maritime sector. Subject specific modules have also been proposed considering the emerging role of the divisions and ports that can have an immediate impact on the efficiency of the roles and these include project management and monitoring, business analytics, financial planning and revenue optimization, PPP contract formulation and management and stakeholder management. Additionally a few functional modules have also been proposed to be undertaken on an immediate priority to improve the day to day functioning and these include training modules on manual of office procedure, regulations related to administrative, public grievances and personnel and training, GFR, services rules, etc. Also upskilling and training requirements have been proposed for office tools, drafting notes, response to parliamentary questions and making presentations. Amongst the behavioral training requirement, modules on change management have been proposed.

The critical initiatives include a number of domain specific training modules for enhancing the domain competency of the personnel through induction modules as well as on site trainings for division and role/department. Amongst these the first and foremost includes 'Induction' Modules for all fresh joinees that are specific to the needs of every dept/wing/division providing a 360° view of the work and functions of that department. Other initiatives include training modules on port management and operations, IT tools application in project management, training on geostrategic initiatives, understanding and implementation of on site works such as river conservancy & training, cargo handling operations, pilotage services, multi modal operations, environmental protection, Ro-Ro operations and social engagement with local communities. Functional competencies also require to be upskilled and these include use of technology and day to day functioning, draft and communication skills, managing legal issues, public grievances & RTI applications, accounting, human resource and administrative issues. Training on behavioral competencies have also been proposed including motivational training and work ethics.

In addition to the immediate and critical initiatives, certain institutional and technological requirements have been identified that are common across Ministries. However, such issues may require a further detailed study to develop action plan for their addressal which may entail structural initiatives and can be undertaken as long-term capacity enhancement initiatives. Some of the key requirements identified are related to the performance appraisal methodology in which trainings and certifications for upskilling should be give due consideration, high attrition and shortage of staff for normal functions and specifically for trainings, frequent job rotations that many times lead to loss of institutional knowledge and also does not incentivize the staff to make efforts for enhancing domain competency, increasing requirement for interface management with other Ministries and State Governments, the expected diminishing of certain roles in view of the changing business scenarios specifically at major ports and making the personnel future ready in wake of the institutional and technological changes in the sector. An action plan has been proposed for these requirements which may be taken up for implementation after due study and consultations.

Accordingly, the CBP for the MoPSW can be prepared based on the requirements of domain, functional and behavioral competencies as well and institutional and technological requirements towards meeting the overall objectives of the Ministry

2. Introduction to Mission Karmayogi

Mission Karmayogi[1] was launched by the Union Cabinet in September 2020[2]. It is a National Programme for Civil Services Capacity Building (NPCSCB) (the "Program"), which aims to prepare Indian civil servants for the future by making them more creative, proactive, professional, energetic, transparent and technology enabled. The focus of NPCSCB is on promoting ease of living and ease of doing business, by considerably enhancing the citizen-government interface. The NPCSCB has laid the foundation for capacity building for future generations of the civil servants with key philosophy "**to create an ecosystem of competency driven training and human resource management by transitioning from a 'rules-based' system to the 'roles-based' system**".

NITI Aayog has also highlighted the need for reforms in training of personnel in its report "**India@75**". Additionally, the COVID 19 pandemic has underlined the need for the civil servants to be agile, capable of partnering with diverse stakeholders and to be up to date with new competencies.

The framework for implementation and monitoring of the Program would involve the Prime Minister's Public Human Resource Council (PMHRC) which is the apex body for the Program. Under the apex body, there will be a Cabinet Secretariat Coordination Unit (CSCU) that will monitor the implementation of NPCSCB, align stakeholders and provide mechanism for overseeing Capacity Building Plans (CBPs). A Capacity Building Commission (CBC) has been set up for functional supervision of training institutions and would facilitate in preparation of the annual CBPs and a Special Purpose Vehicle (SPV) has been set up for operating the digital assets created for NPCSCB on behalf of the Government of India (GOI).

The figure below illustrates the details of NPCSCB

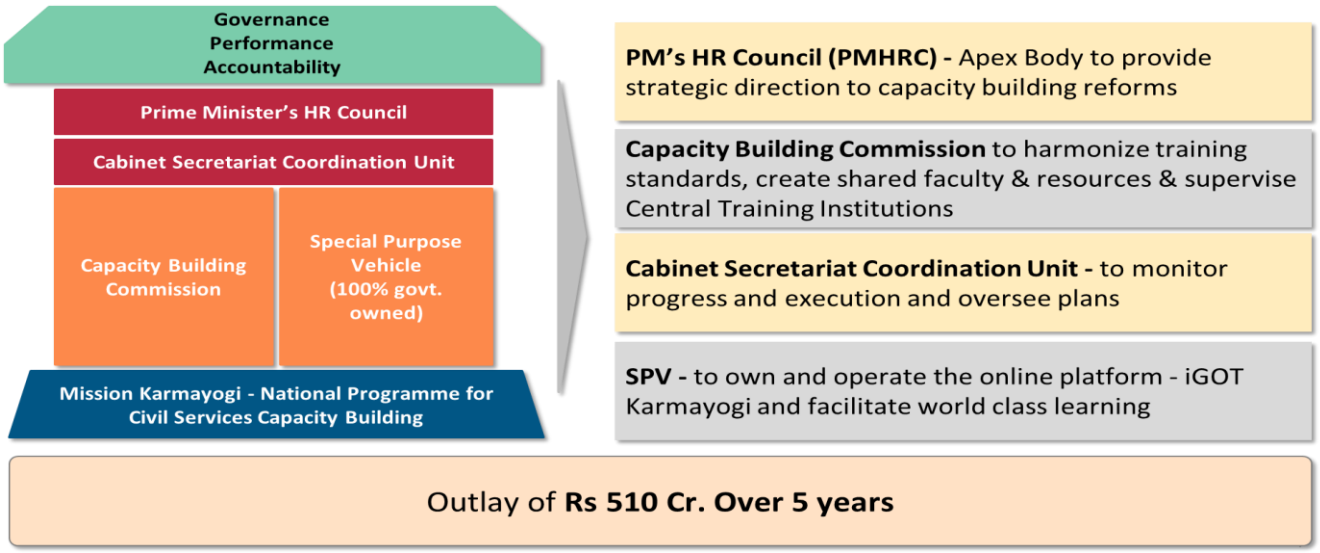

Figure 1 : Details of Mission Karmayogi

The NPCSCB has six (6) key pillars namely: (1) Policy Framework; (2) Institutional Framework; (3) Competency Framework; (4) Digital Learning Framework; (5) Electronic Human Resource Management; and (6) Monitoring and Evaluation Framework, brief information on which is provided in Annex – 1.

[1] Mission Karmayogi, DoPT. Link: https://dopttrg.nic.in/igotmk/NPCSCB.html
[2] Press Information Bureau, GoI link: https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1655663

The mandate of CBC is to:

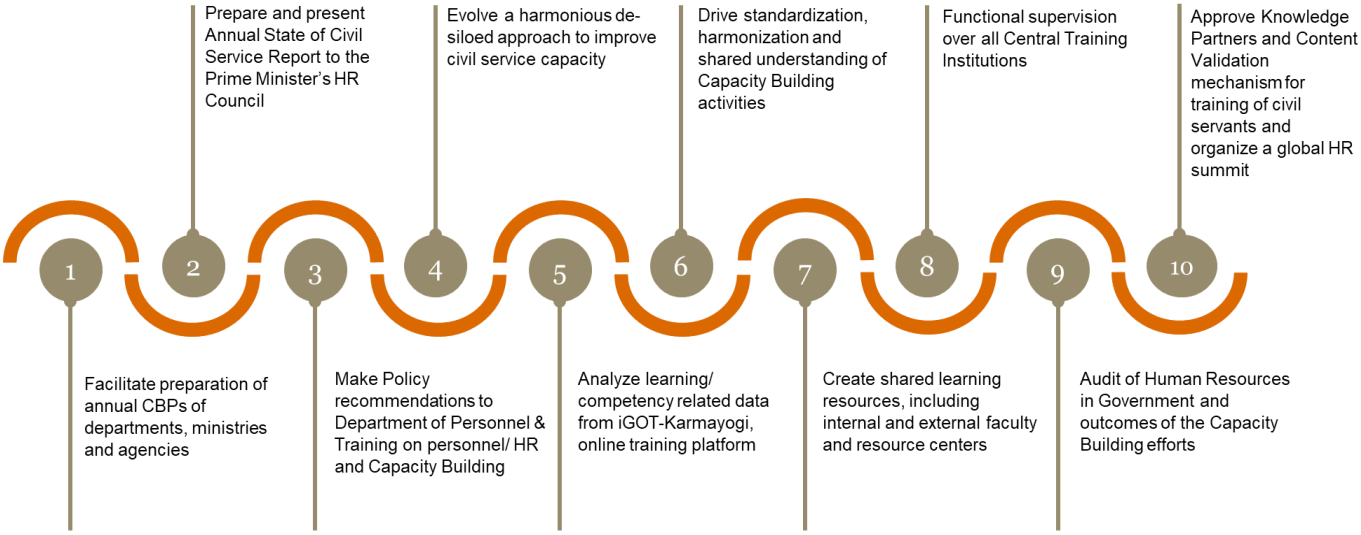

Figure 2 – Mandate of CBC

CBC is currently conceptualizing and developing CDP for pilot Ministries including - Ministry of Civil Aviation (MoCA), Ministry of Food Processing Industries (MoFPI), Ministry of Defence (MoD), Ministry of Labor & Employment (MoL&E), Ministry of Ports, Shipping and Waterways (MoPSW), Ministry of Social Justice and Empowerment and Department of Commerce. As the first step, CBC has been interacting and working along with these Ministries to chart out their goals, identify their competency requirement and preparation of their CDP.

This report provides a broad overview of the vision and the goals of MoPSW. It summarizes the competency requirements of the various divisions of the Ministry, and highlights some of the interventions that can be marshaled in short and medium term.

3. Approach & Methodology

The purpose of this study is to identify the capability gaps and competency requirements in the Ministry of Ports, Shipping and Waterways (hereinafter referred to as the "**Ministry**") and suggest improvement initiatives which shall assist Ministry in realizing its vision & goals in a streamlined manner.

These improvement initiatives would form part of the annual CBP. The plan would help in identification of the key challenges in next one (1) to three (3) years. This section covers the approach undertaken by the team to deliver the CBP.

As part of this study, the team has adopted an agile and consultative approach in defining the broad contours of the CBP. The key steps followed by the team are as follows:

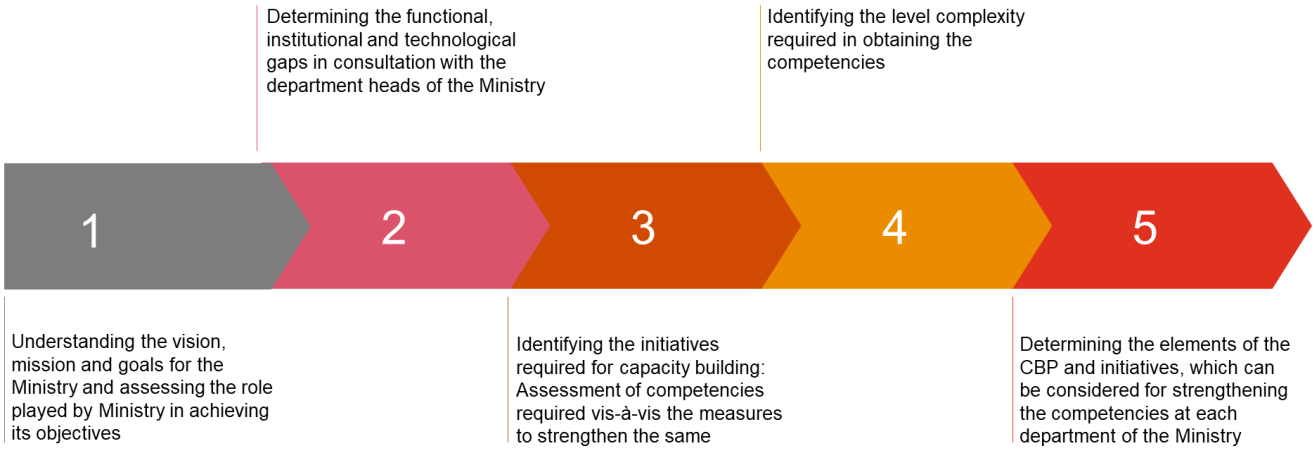

Figure 3 – Key steps in undertaking the study

In the initial stage, secondary research was conducted to understand the Vision, Mission and Goals of the Ministry, subsequently, focused discussions were held with the Joint Secretaries (JS)/ heads of various divisions at the Ministry and its undertakings. The research and discussions assisted in understanding the vision and goals of the Ministry and understand the role of each division within the Ministry.

The current capability gaps (in terms of competency, institutional and technological) were identified along with desired competencies for each division based on the self-assessment of the JS/ heads of divisions at the Ministry and its undertakings.

After assessing the gaps and competency requirements, appropriate initiatives for capacity building were identified along with their level complexity. Lastly, the elements of the CBP were determined for strengthening the competencies of respective divisions in the Ministry.

Table 2.1- Approach to define the broad contours of the CBP

Steps	Details
Step 1: Alignment of objective with the Ministry	Joint meeting was conducted with Secretary & the JS. In the meeting, the mandate & the objectives of the CBC were articulated. It was clarified that the framework of CBC is not limited to training, but also incorporates institutional and systemic capacity development. The expectations of Ministry were also identified from this meeting.

Steps	Details
Step 2: Understanding the role & function of the Ministry	Following the above meeting, team conducted a thorough review of the following areas: • Ministry's mandate, policies, roles, functions, recent developments and trendlines from Ministry's website, portals and documents, web search and study reports • Ministry's key programs, priorities, strategic objectives and goals, emerging trends/ focus areas • National priorities and how Ministry fulfils/ contributes to same
Step 3: Comprehend role & responsibility of each division/ division of the Ministry	The team then further identified the following activities for each division/unit headed by a JS/Additional Secretary (AS): • Areas of responsibility of the division/unit • Emerging trends, government priorities and Ministry's objectives that fell within purview of division/unit • Specific schemes/programmes managed by division/unit
Step 4 – Consultation with the division head/JS	Multiple consultations were conducted with JS, division heads at the Ministry and its undertakings, to understand the following areas: • Entire spectrum of roles and responsibilities, functions and activities undertaken by each unit and the priority and frequency of respective activities • Interrelationships with other units within the Ministry and coordination/ cooperation with government agencies outside the Ministry and the larger set of stakeholders the unit engages with for each functional responsibility • Current and emerging trends and future possibilities and how it could impact the role and functioning of the unit • Understand the broad staffing structure and operational practices adopted by the unit to deliver outputs and outcome Apart from getting a comprehensive understanding of the roles and responsibility of each division, consultations were held with the divisions to understand the: • Current organizational practices and institutional mechanisms to address competency deficits, and ongoing capacity building and training initiatives • Competency gaps as per the experience of the head of the division based on self-assessment • Competency required to execute the critical functions of the division
Step 5 – Situational analysis and key findings	Based on the consultation with the key stakeholders, the team conducted preliminary competency mapping which highlighted competency gaps and skills required in the Ministry The team then identified the key interventions that the Ministry can undertake for the identified gaps which included training courses and other systemic / institutional interventions
Step 6 – Workshop on way forward	Workshops were conducted with relevant stakeholders to discuss key observations & findings, synergies, and commonalities. CBP was prepared based on these discussions.

Based on the above methodology of the study, the broad structure and overview of the following sections of the report is provided below:

Section	Scope Coverage in the Section	
Section 4	**Overview of the Ministry**	This section focuses on the Ministry's Vision, Mission and Goals. It includes various areas of responsibilities of the Ministry's' divisions.
Section 5	**Roles & responsibilities of the divisions and requirements**	This section incorporates division specific mandates and the role these divisions (which includes divisions under the Ministry and its undertakings) play as part of the Ministry to achieve the same. This section also captures the competency, institutional and technological gaps as identified by the various divisions. The assessment of the requirements is based on the deep dive into the Roles and Responsibilities (R&R) of various divisions of the Ministry and its undertaking that have specific focus areas and defined goals that was derived through consultations with these divisions and assists in identification of the critical areas.
Section 6	**Requirements of the divisions**	This section covers the areas of work responsibilities of the divisions and identification of various competencies required to deliver in a streamlined manner. It further categorizes the competencies into a framework as identified by the officials of the respective organization.
Section 7	**Capacity Building Plan**	Initiatives required to address the identified competency gaps have been outlined in this section. Initiatives have been categorized as immediate priority, critical priority and long-term initiatives, depending upon the ease of implementation and dependencies. This section also provides the larger institutional and technological requirements that are common across all Ministries and can be studies further for more structured action.

4. Overview of the Ministry

This section elaborates on the vision and mission of the Ministry. It further describes the organizational structure of the Ministry and the various divisions and undertaking under it and their portfolio consisting of the various sub-sectors.

4.1. Maritime Sector

The country's maritime sector plays a crucial role in its overall trade and growth, with 95% of the country's trade volume and 68% of the trade value being undertaken through maritime transport. India has 12 Major and 200+ Non-Major Ports situated along its 7500 km long coastline and a vast network of navigable waterways. Maritime transport being a critical infrastructure for the social and economic development of a country. Maritime sector in India is divided into 3 major sub-sectors:

I. Ports[3]

In terms of total cargo handling, all the Major Ports and notified non-Major Ports & intermediate ports can handle 2,488 MTPA of cargo as of March 2021. Of this, the cargo handling capacity of the Major Ports was 1,468 MTPA and the capacity of non-Major Ports was 1,002 MTPA. The total cargo handled in Indian ports was 1,250 MTPA in the year 2021, of which the Major Ports handled 672 MTPA and the non-Major Ports collectively handled 577 MTPA. The traffic at Indian ports by 2025 is expected to be 2500 MTPA and the sector aims to increase its ports capacity to more than 3300 MTPA.

Figure 4 – Major and Non-Major Ports

II. Shipping[4]

The total Indian shipping tonnage in the year 2021 was 19.4 million DWT that includes a diverse range of carriers such as oil tankers, dry bulk carriers, container vessels, chemical tankers, LPG/LNG carriers, passenger vessel and coastal carriers. The Indian ship building industry, with production of over 3,00,000+ Gross Tonnage (GT) in early 2000s was ranked amongst top 10 in the World. However, due to the impact of the global downturn in the shipbuilding industry, India's share in the global markets has declined to less than 1% and the country currently has 28 shipyards.

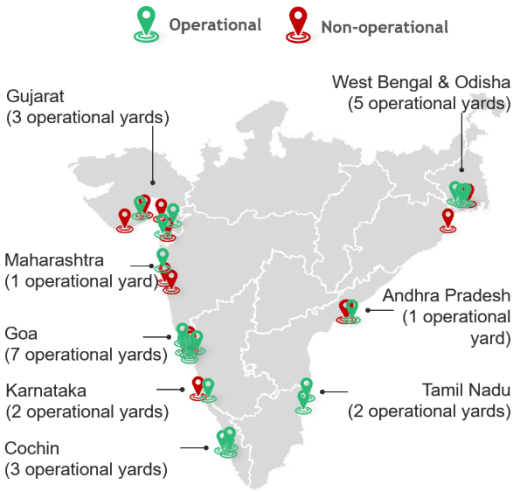

Figure 5 – Operational and Nonoperational yards

[3] MoPSW website - https://shipmin.gov.in/
[4] MoPSW Annua report 2020-2021

III. Waterways[5]

With 14,500 km of navigable waterways, India is endowed with various navigable Inland Water Transport (IWT) options that comprise rivers, canals, backwaters, creeks, and tidal inlets. Recognizing the untapped potential of waterways, the Inland Waterways Authority of India (IWAI) was incorporated in 1986 for development and regulation of inland waterways for shipping and navigation. From only 5 waterways recognized as National Waterways (NWs) up to 2015, the GoI notified 106 additional waterways as NWs in 2016 requiring significant capacity augmentation of the sector. The total cargo volume transported through inland waterways in India has grown at a CAGR of 19% over the last five years and was 76.65 million tons in the year 2021 resulting in growth in the modal share of freight movement to 2%.

Figure 6 – Key National Waterways of India

To further boost performance and productivity of the Maritime sector, the Ministry has formulated an extensive exercise to define the Maritime India Vision (MIV) 2030 after extensive consultations with public and private stakeholders.

MIV 2030 aims for accelerated growth of India's maritime sector in the next decade and bring it to the forefront of the global maritime sector. The MIV 2030 has identified 150+ initiatives across ports, shipping & waterways sub-sectors spread across 10 key themes which will work towards making Indian Maritime sector globally competitive. The 10 themes [6]of MIV 2030 are as follows (refer Annexure 2 for detailed themes)

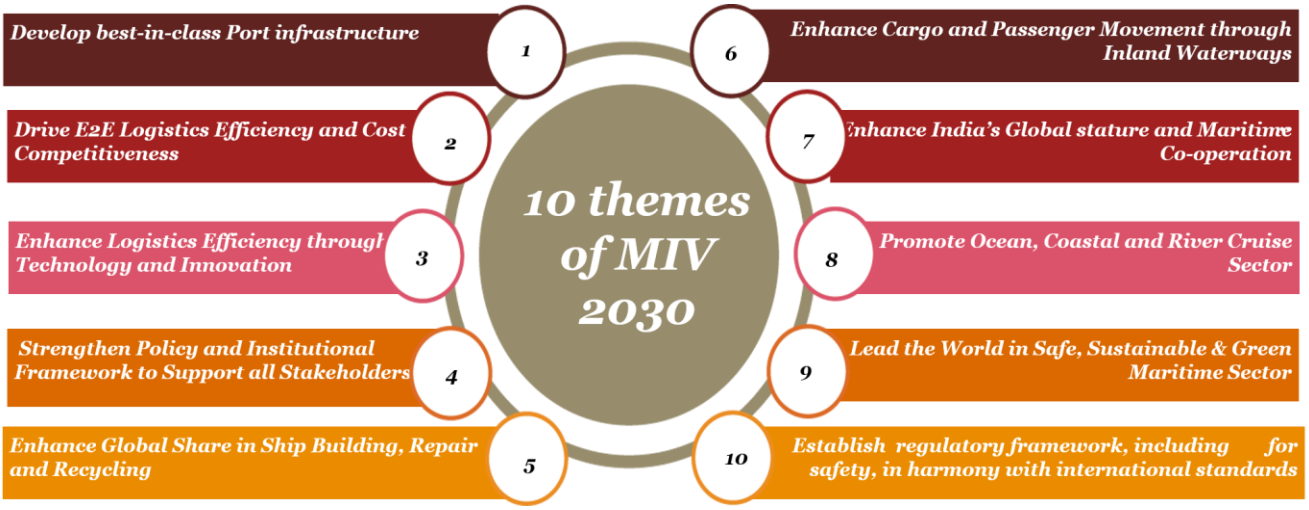

Figure 7 – Ten themes of MIV 2030

MIV 2030 envisions an overall investment of INR 3,00,000 – 3,50,000 crores across ports, shipping, and inland waterways categories. This vision roadmap is estimated to help unlock INR 20,000+ Cr worth of potential annual revenue for Indian Ports. Further, it is expected to create an additional ~20,00,000+ jobs (direct and non-direct) in the Indian maritime sector.

The KPIs for the Ministry under the MIV 2030 are as follows

[5] IWAI website - https://iwai.nic.in/
[6] MIV 2030

Table 2.2 - KPIs for the Ministry under the MIV 2030

S.No	Key performance Indicator	Current (2020)	Target for 2030
1	Major Ports with >300 MTPA cargo handling capacity	-	3
2	% Indian cargo transshipment handled by Indian ports	25%	>75%
3	% of cargo handled at Major Ports by PPP/ other operators	51%	>85%
4	Average vessel turnaround time (containers)	25 hours	<20 hours
5	Average container dwell time	55 hours	<40 hours
6	Average ship daily output (gross tonnage)	16,500	>30,000
7	Global ranking in ship building and ship repair	20+	Top 10
8	Global ranking in ship recycling	2	1
9	Annual cruise passengers	4,68,000	>15,00,000
10	% share of Indian seafarers across globe	12%	>20%
11	% share of renewable energy at Major Ports	<10%	>60%

4.2. Vision of the Ministry

The Ministry oversees the development of Ports, Shipping and Waterways sectors in India which includes shipbuilding and ship-repair, Major Ports, national waterways, and Inland Water Transport (IWT).

The Ministry has achieved significant progress by making improvements in multiple areas such as:

- Improving the efficiency of Major Ports
- Policy initiatives & reforms to support trade & ease of doing business
- Provision of multi-modal services for facilitating logistics movement across the country through inland waterways
- Expansion in shipbuilding & recycling activities and various measures to attract flagging of vessels in India in accordance with the MIV 2030 targets

The Ministry has also been entrusted with the responsibility to formulating policies & programmes on these subjects and oversees implementation including administration of various Acts.

Table 2.3 – Various Acts administered by the Ministry

The Coasting vessels Act, 1838	The Indian Maritime University Act, 2008
The Indian Bills of Lading Act 1856	The Dock Workers (Regulation of Employment) (Inapplicability to Major Ports) Act, 1997

The Coasting vessels Act, 1838	The Indian Maritime University Act, 2008
The Northern India Canal and Drainage Act, 1873	The Northern Indian Ferries Act, 1878
The Inland Vessels Act, 1917	The Indian Ports Act, 1908
The Obstructions in Fairways Act, 1881	The Indian Carriage of Goods by Sea Act, 1925
The Dock Workers (Regulation of Employment) Act, 1948	The Light House Act, 1927
The Merchant Shipping Act, 1958	The Calcutta Port (Pilotage) Act, 1948
The Seamen's Provident Fund Act, 1966	The Inland Waterways Authority of India Act, 1985
The Multimodal Transportation of Goods Act, 1993	The National Waterways Act, 2016
The Suppression of Unlawful Acts Against Safety of Maritime Navigation and Fixed Platforms on Continental Shelf Act, 2002	The Hooghly Docking and Engineering Company Limited (Acquisition and Transfer of Undertakings) Act, 1984
The Recycling of Ships Act, 2019	The Admiralty (Jurisdiction and Settlement of Maritime Claims) Act, 2017

4.3. Organizational Structure of Ministry

The Ministry comprises of thirteen divisions[7] for the administration of its overall objectives and functions. Each division manages a specific portfolio broadly covering general administration, human resource, drafting of policies for ports, shipping & waterways and other allied services. The responsibilities of key eight divisions of the Ministry are provided below:

[7] MoPSW website- https://shipmin.gov.in/divisions

Figure 8 – Key divisions of the Ministry

The responsibilities of the other five divisions have been attached in Annexure 02 for reference.

The Ministry also has various entities under its purview that include Subordinate offices, Autonomous bodies, Societies / associations, Public Sector Undertakings (PSUs) each of them having a specific role which are jointly / independently administered by the key divisions. The figure below shows the functional structure of the Ministry

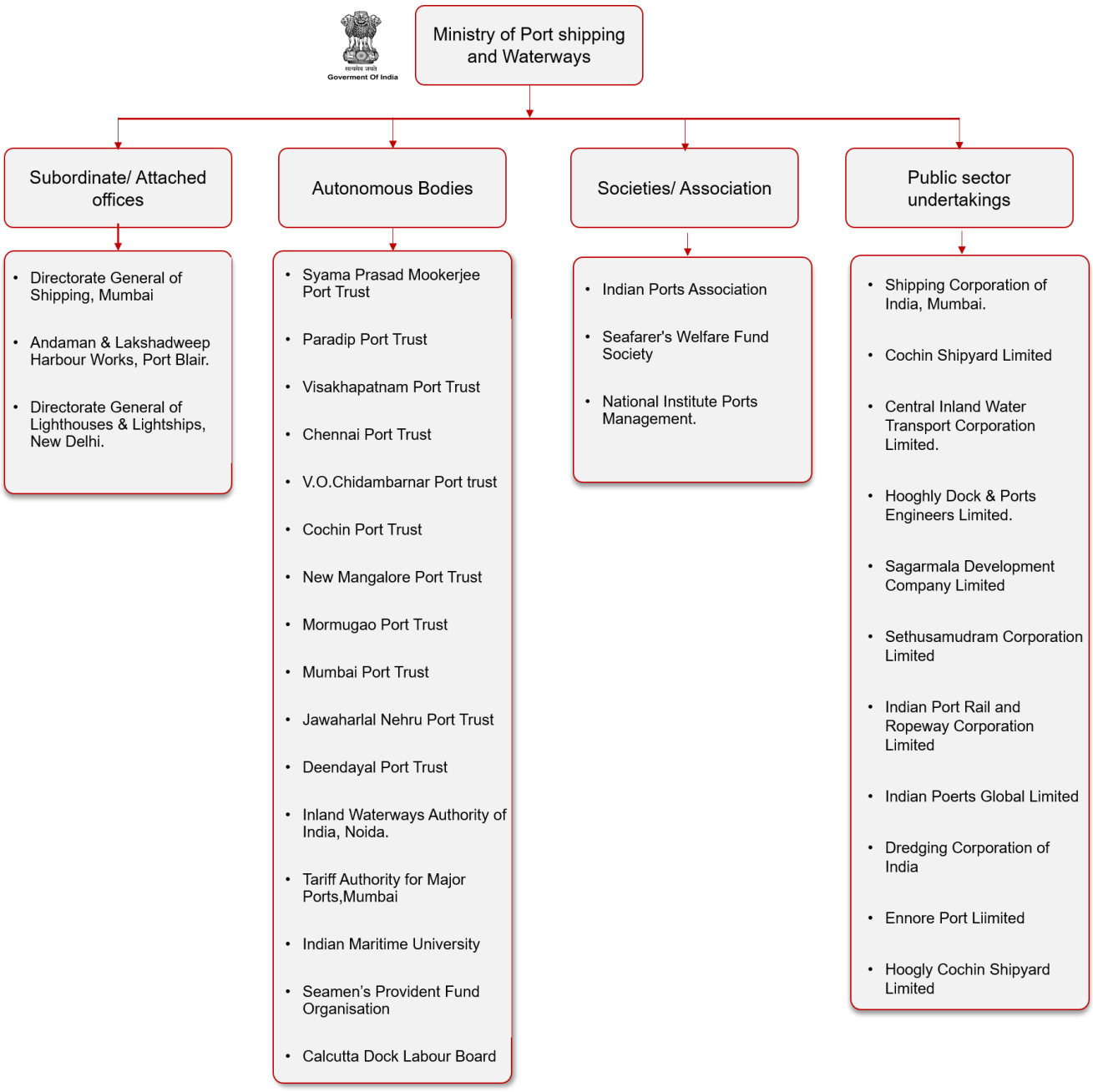

Figure 9 – Organization chart of Ministry

5. Roles & responsibilities of the divisions and requirements

This section captures the roles and responsibilities of the various divisions and undertakings of the Ministry and also identifies the various requirements of these divisions / undertaking that are necessary for them in imparting their responsibilities and in line with the overall vision of the Ministry. This has been done predominantly based on the interactions undertaken with the Joint Secretaries/ heads of the respective divisions / departments of the undertakings of the Ministry

During the consultations with the respective divisions and departments it was observed that since the maritime sector is quite dynamic in nature, there is continuous development in technology, process optimization, operating business models, maritime norms, environmental norms etc. These developments are driven by domestic requirements as well as international practices and stipulations. Therefore, in order for the Ministry to be able to performs its role effectively and meet the objectives, the development of capacity and capability by identifying and meeting the following requirements of its divisions / undertakings, is imperative.

i) **Competency Requirements**: With emerging technologies, new business models and disruptive forces, the nature of skills required to cater to the demanding needs of the sector have evolved significantly over the years and it is important to ensure that the Ministry has such skills.

   The requirements can be in the form of new skills requirements or upgradation of current skill levels in line with the emerging technologies and global scenarios and these have been identified for each division / department.

   In addition to this, there are requirements that are common across most of the divisions that contribute towards a better understanding of the division/department, the role of the individual, the tools for discharge of tasks, official procedures, rules, law and also soft skills. The specific content may vary from entity to entity, however, the need for capacity building in these areas are mostly common across all divisions/departments and have been mentioned subsequently in this section.

ii) **Institutional Requirements:** The various divisions and undertakings under the Ministry have an organization structure and institutional infrastructure that has evolved organically over the years. Therefore, there may be instances where are constraints, capacity or otherwise, to be able to meet the changing demands of the sector. Such requirements have been identified and addressed to enable the Ministry to impart is responsibilities efficiently and effectively, in the following section.

   In addition to the above, there are requirements in terms of training modules and tools that are common across all divisions / departments have also been identified and addressed in subsequent sections on competency mapping as well as capacity building plan.

iii) **Technological Requirements:** There have been significant technological advancements on port operations, port management, port administration, navigation, communications etc. It is important that the divisions/departments have the necessary technological tools and techniques for its efficient functioning. Some of the basic tools and technology requirements are common across all divisions and departments. However, some very domain specific requirements have also been identified that would require interventions.

It is to be noted that the identification of actual gaps / level of interventions can only be determined based on a dedicated gap assessment exercise, which would include detailed interactions with the resources across levels and assessment of the existing competencies, study of the existing training programs, etc. Hence, for the purposes of this study, the observations based on the discussions with the JS / Department heads have been considered to identify the current gap areas.

5.1. Shipping Division

The shipping division is headed by Shri Vikram Singh (Joint Secretary). It plays a crucial role in the transport sector of India's economy, providing an essential means of transport for crude oil, petroleum products and other cargos. Approximately 95% of the country's trade by volume is moved through maritime transport. The Shipping division formulates policies and programmes for shipping, marine development, administration and training, ship building, ship repair and ship breaking industry. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.1 – Role of Shipping Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri Vikram Singh (Joint Secretary)	Shipbuilding, Ship Repair and Ship Breaking	Increase capacity and accelerate the construction and repairs of Vessels in India	• General management and administration of division • Overall administration and strategic aspects of shipbuilding, ship repair and shipbreaking including PSU Shipyards • Development of the Indian Shipping Sector including SCI • Regulation of the Merchant Marine sector and coordination with DG Shipping • Development of human resource /Skill development by providing regular trainings and capacity building programs including IMU. • Overall administration, coordination and oversee strategic aspects of merchant shipping and shipping operations • Explore and identify potential sea routes for trade • Vigilance/Security
	Marine Development	Strengthening and promoting the Indian maritime sector in a competitive framework	
	Marine Administration	Dealing with executive matters timely	
	Marine General	Economical and environment friendly mode of transport	
	Marine Training	Development of Human resource	

During the discussions with the JS and the Ministry, the following requirements were identified:

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Certain basic skills such as data research & analysis, presentation, drafting of official communication, interpersonal communication skills, document and precis writing, MS Office applications etc. are required for performing day-to-day functions. While some of these skills may enhance with experience and practice, it is important to lay the foundations specifically for the new entrants and officers at lower level to increase their efficiency

ii) Knowledge of general laws and procedures related to the division and its functions, their relevant and applicability to the respective areas of function of the division is also important to be able to undertake tasks related to regulation and administration of the sector.

iii) Understanding of the various rules, laws, acts related to shipping and the skill of preparation of cabinet notes, response to RTIs and RFIs, response to queries/request for information related to the Ministry's domain or its many initiatives that are outside of the standard government OM/drafts.
iv) As part of its general management and administration role, there is a requirement for skills in effectively engaging with the various stakeholder engagement of the division, communication and information gathering, information management, reporting and monitoring and tools for the same.
v) Due to the unique nature of the maritime sector, it is important that the personnel are well versed with the sector and the basic shipping port operations key terminology and functions therein to be able to develop regulations, stakeholder communications, preparation of responses etc. An AV toolkit, update from time to time, supplemented with site visits could greatly enhance the understanding of the personnel of the sector and familiarisation with the nature of operations.
vi) The Indian maritime sector also needs to conform to the provisions of the international conventions to which it is party to such as MARPOL, SOLAS etc. With increased focus on reduction of emissions from vessels, restriction on the type of bunker fuel usage, stricter norms related to ballast etc., skills upgradation is required for various subjects under environmental and pollution management to remain abreast with international development and to be able to upgrade domestic regulation in line with them
vii) During the COVID-19 pandemic in the last two years, there were many unprecedented situations in terms quarantine protocol for crew, vessel, onboarding crew, in case of detection of affected person on board and emergency response under such situations. This gap of responding to emergency situations was experienced and there is a requirement to building capacity in people trained in responding to emergency situations, developing protocols and implementation frameworks

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) Knowledge management has become of the critical requirement of the division in terms of development of secure databases for filing electronic version of different categories of documents SOP for submission of all documents by all officers/staff generating and managing documents to these databases, organized by broad subject matter, for proper record keeping and to be able to retrieve the necessary information as and when required
ii) The career progression of the personnel should allow them to develop specialisations in a specific subject that can ultimately benefit the division/Ministry. This could be done promoting the practice of deploying/deputing individuals within the related Ministries only such as Ministries related to transport infrastructure so that they can develop a better understanding of various components of logistics as well as their challenges and bring key learning from other transport sectors.
iii) A digital glossary as a ready reference documents for the divisions would also be a helpful guide in this aspect
iv) An orientation training module along with refresher courses may be to provide familiarisation and understanding of the functions of the Ministry, roles and overall understanding of the sector as mentioned above

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) Knowledge management tools for retaining institutional memory

5.2. Ports Division

The Ports Division is headed by Shri Vikram Singh (Joint Secretary) and is responsible for the development of 12 Major Ports along with 200 non-Major Ports with the objective to provide necessary and adequate cargo handling capacity to meet India's trade requirements. The division also focuses on improving the operational efficiencies through mechanization, digitization and process optimization / simplification. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.2 – Role of Ports Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Divisions
Shri. Vikram Singh (JS Ports)	Ports Infrastructure	Developing world class ports Infrastructure	• General Management and Administration of the division • Administration/Coordination for Major Ports and their Port Trusts, overall regulation of Major Ports • Developing 'Smart Ports' to improve Ease of Doing Business • Institutional, regulatory, and legislative reforms for ports • Promote mechanization, digitization, and process simplification. • Administration of the Marine State Development Council (MSDC), coordination with states and Minor ports • Regulatory management of Major Ports, including TAMP • Port Human Resources/Labour Management (PHRD) • Overall management of Andaman Lakshadweep Harbour Works (AHLW) • Management of Issues related to Chartering of Ships • Built sustainable model and reduce water and energy consumptions - Make ports ore green and sustainable – reduction in Co2 • Provide a regulator for structured and sustainable growth in port sector
	Reducing cost of doing business	Efficient logistics and transportation	
	Industrialization	Development of CEZ's and CEU's	

During the discussions with the JS and the Ministry, the following requirements were pointed out for strengthening the Ports division capabilities. Many on these requirements are similar to the requirements identified for the Shipping Division but have been mentioned specifically in relevance to the Port division

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Basic skills such as data research & analysis, presentation, drafting of official communication, interpersonal communication skills, document and precis writing, MS Office applications etc. that are required for performing day-to-day functions.
ii) Knowledge of general laws and procedures related to the division and its functions, their relevant and applicability to the respective areas of function of the division is also important to be able to undertake tasks related to regulation and administration of the sector.

iii) Understanding of the various rules, laws, acts related to shipping and the skill of preparation of cabinet notes, response to RTIs and RFIs, response to queries/request for information related to the Ministry's domain or its many initiatives that are outside of the standard government OM/drafts.
iv) As part of its general management and administration role, there is a requirement for skills in effectively engaging with the various stakeholder engagement of the division, communication and information gathering, information management, reporting and monitoring and tools for the same.
v) Due to the unique nature of the maritime sector, it is important that the personnel are well versed with the sector and the basic port operations key terminology such as port infrastructure components (berth, dock, terminal, yard), multimodal operations, port traffic management, fairway and dredging etc, to be able to develop regulations, stakeholder communications, preparation of responses etc. An AV toolkit, update from time to time, supplemented with site visits could greatly enhance the understanding of the personnel of the sector and familiarisation with the nature of operations.
vi) During the COVID-19 pandemic in the last two years, there were many unprecedented situations in terms quarantine protocol for handling of vessels, crew and cargo, isolation, testing and clearance, tracking, vessel, cargo clearance and evacuation etc. and emergency response under such situations. This gap of responding to emergency situations was experienced and there is a requirement to building capacity in people trained in responding to emergency situations, developing protocols and implementation frameworks

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) Knowledge management has become of the critical requirement of the division in terms of development of secure databases for filing electronic version of different categories of documents SOP for submission of all documents by all officers/staff generating and managing documents to these databases, organized by broad subject matter, for proper record keeping and to be able to retrieve the necessary information as and when required
ii) The career progression of the personnel should allow them to develop specialisations in a specific subject that can ultimately benefit the division/Ministry. This could be done by promoting the practice of deploying/deputing individuals within the related Ministries only such as Ministries related to transport infrastructure so that they can develop a better understanding of various components of logistics as well as their challenges and bring key learning from other transport sectors.
iii) A digital glossary as a ready reference documents for the division would also be a helpful guide in this aspect
iv) An orientation training module along with refresher courses may be to provide familiarisation and understanding of the functions of the Ministry, roles and overall understanding of the sector as mentioned above

Technological Requirements

Some of the key subjects where there is requirement of technological interventions in the division, are

i) Knowledge management tools for retaining institutional memory

5.3. Inland Water Transport Division (IWT)

The IWT Division is headed by Senior Economic Advisor, who is supported by Director (IWT), two Under Secretaries and IWT Section. It is responsible for development, management, implementation of capacity building and institutional strengthening initiatives in the National Waterways (NWs). The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.3 - Role of Inland Water Transport Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri Arvind Chaudhary (Economic Advisor)	Development of new domestic Inland waterways	Identifying and developing technically and economically viable domestic Inland waterways	• Development, management, implementation of capacity building and institutional strengthening initiatives in the National Waterways • Commercial, Strategic and Technical aspects of IWT, including dredging and environmental factors • Sectoral data management and analysis • Assessment and finalization of Port Tariffs based on data analysis and established administrative procedure, Accounting, and financial reporting practices • General Administration, Budgeting, RTI, Accounting, Audit
	Management of existing National Waterways	Regulation and maintenance of existing National Waterways	
	Capacity building & institutional strengthening initiatives	Strengthening & capacity building training and practices	

During the discussions with the Economic Advisor and the Ministry, the following requirements were pointed out for strengthening the IWT division's capabilities

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of notes and presentations, e-office etc. are required

iii) The personnel need to be well versed with the key terminology and operations related to inland waterway transport sector such as understanding of fairway, draft, dredging, channel requirements and terminologies such as right of way, berth, terminal, weir, dam etc.

iv) Inland waterways acts are a vibrant mode of regional connectivity specific for the landlocked countries f Nepal and Bhutan. Additionally, they also provide a complementary mode of transportation for cargos from north east region of the country, to the gateway ports and the mainland via the rivers through Bangladesh. India has also contributed to the development of the Kaladan-Sitwe corridor connecting India and Myanmar which can also provide coastal connectivity linking to Thailand. The development of these regional connectivity corridors under the purview of BBIN, BIMSTEC and Act East policy of India

requires a comprehensive understanding of the trade, legislative and regulatory ecosystem of the region as well as its relevance in preparation of any protocol negotiations and agreements. Therefore, there is a requirement for development of competency in this area in understanding the objective of the various corridors institutions as well as role of inland waterways therein

v) The regulation and administration of national waterways is under the purview of the Ministry and one of the key aspects related to this is safe navigation. The new Inland Vessel Act 2021 was passed August 2021 replacing the previous Inland Vessels Act of 1917. In order to ensure effective implementation and monitoring of the same, it is important for the personnel to be familiarized with the provisions of the Act, key reforms undertaken and implications therein for effective regulation of the sector

vi) As steps towards enhancing the cargo movement and facilitating new cargo on the national waterways, the Ministry is looking to promote movement of LPG through national waterways and in this regard had also executed MOUs with industry stakeholders. However, LPG is a hazardous cargo and would require an understanding of cargo handling vessel operations and risk management for safe and secure operations. Therefore, there is a requirement to develop competencies in this aspect to ensure proper regulation for safety and security of the cargo as well as its operations

vii) The development, maintenance & regulation of National Waterways (NWs) for shipping and navigation purpose is under the purview of the Ministry and the provision and regulation of the ferry services remain and is under the under the purview of the Authorities of State Government. Therefore, it is important for the personnel to understand the distinction between the matters under state jurisdiction/central government responsibilities/responsible ministries and departments/applicable laws and regulations

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities, structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/ Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)

Technological Requirements

Some of the key subjects where there is requirement of technological interventions in the division, are

i) Updating technology of reporting tools and leveraging various databases for better access to information and reporting

5.4. Sagarmala & PPP Division

The Sagarmala & PPP division is headed by Shri Bhushan Kumar (Joint Secretary). The Sagarmala programme aims at comprehensive development of India's coastline and maritime sector port-led development in the country. The vision of Sagarmala programme is to reduce logistics cost, developing & integrating ports for ease of doing business and economic growth. The division is also responsible for the monitoring of PPP projects. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.4 – Role of Sagarmala & PPP Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri. Bhushan Kumar (Joint Secretary)	Port Modernization & New Port Development	To increase cargo handling capacity and efficiency of Indian ports	• General Admin and Management of the division • Monitoring Implementation of Sagarmala initiatives (port connectivity, port led industrialization, coastal community development, promotion of coastal shipping) • Indian Port Rail & Ropeway Corporation Ltd (IPRCL) • PPP of MoPSW (contracting and contract monitoring, implementation monitoring, addressing concessionaire concerns) • Contracting/Contract Management • Managing Concessionaire concerns • Project monitoring and management • Stakeholder management and engagement • Drafting/Noting/Information Processing and Management/Coordination
	Port Connectivity Enhancement	Provide enhanced connectivity between the ports and the domestic production/consumption centers.	
	Port-linked Industrialization	Setup Coastal Economic Zones, Coastal Economic Units, Port-Linked Industrial & Maritime Clusters	
	Coastal Community Development	Impacting community lives by providing growth opportunities	
	Promotion of Coastal Shipping & Inland Waterways in India	Promoting coastal shipping as a mode of freight transportation.	

During the discussions with the JS, the following requirements were pointed for strengthening the division's capabilities

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Keeping in view that the division is responsible for the monitoring of more than 574 projects under the Sagarmala programme, requirement of project management for monitoring and tracking of these projects is vital to this division. These project management skills should entail project evaluation (technical /financial /commercial), monitoring of project milestones monitoring and associated KPIs, identification of key bottlenecks and mitigation strategies for the same and analysis of financial and operational parameters during evaluation as well as subsequent management across all projects

ii) In line with the focus of the Ministry to enhance private sector participation in the sector, a significant number of project are being and proposed to be implemented on public private participation (PPP) basis. Therefore, the PPP Cell under the division requires to be strengthen with capability to understand the multiple models of PPP, key provisions of the concession agreement and interpretation, key obligations of the parties, to be able to address concessionaire queries and any contractual issues related to the same. issues. Specific skills are required in contract formulation, management and monitoring of these specific nature of contracts

iii) The personnel need to be well versed with the key terminology and operations related to port sector development and operations such as key terms of berth/dock/crane/terminal/yard, draft, dredging etc; multimodal operations; cargo related process; operations of CFS and Extended Port Gate; traffic management; Port Control System etc.
iv) There is also a requirement for skill development of senior officers focusing on regulatory framework in maritime sector (for e.g., fundamentals of IMO regulations, Environmental laws)
v) Development of competencies in emerging technological trends impacting the strategic work of the Ministry (for e.g., automation of ports, new trends in draft management, big data analytics for port management etc.)
vi) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of notes and presentations, e-office etc. are required

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities, structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)
ii) The division is responsible for management of multiple PPP contracts and addressing various issue, many of which may be comments. Therefore, an electronic database of FAQs/Issues raised by stakeholders and mitigation strategies for the same can be developed that could help officers respond to and resolve issues of repetitive nature expeditiously
iii) Structured career development and growth plan for personnel as per qualification and performance should be prepared.
iv) Due to frequent transfers and rotation of personnel between various Ministries, the personnel do not have any specific incentive or motivation to invest time and effort in development domains specific expertise. Therefore, in order to provide the personnel with opportunities to enhance specialized skills / domain expertise, the deployment of the personnel may be within the similar Ministries such as those related to transportation.
v) The promotion and career development goals and their annual Performance Appraisal (APAR) may have a specific parameter on the trainings undertaken and hence the personnel will be incentivized to undertake take relevant courses/modules
vi) Due credit should be given to personnel exhibiting excellence in work, through development of domain specific expertise and should be result in out of turn promotions
vii) As mentioned for some of the divisions, knowledge management has become of the critical requirement of this division too. Skills development is requirement to enable development of secure databases for filing electronic version of different categories of documents SOP for submission of all documents by all officers/staff generating and managing documents to these databases, organized by broad subject matter, for proper record keeping and to be able to retrieve the necessary information as and when required

Technological Requirements

Some of the key subjects where there is requirement of technological interventions in the division, are

i) Data management through technological solutions

5.5. Development Division

The Development Division is headed by Shri H N Aswath (Development Advisor Ports). The Development Wing deals with the subjects of port development and provides technical advice on matters relating to the development of Major Port projects, Inland waterways project, Sagarmala projects, Andaman & Lakshadweep Harbor works and the dredging corporation of India. The Development Division also renders technical advice to other Ministries in the case of fishing harbors and Minor Ports. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.5 - Role of Development Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri. H N Aswath (Development Advisor Ports)	Development of Ports	Provide advice for integrated development of all divisions	• Providing technical advice on matters relating to the development of Major Port Projects, Inland waterways project, Sagarmala projects, Andaman & Lakshadweep Harbour Works (ALHW) and the Dredging Corporation of India, etc. • Providing technical advice to Ministries in the case of Fishing Harbors, Maritime State Governments regarding minor ports

During the discussions with the Development Advisor Ports, the following requirements were pointed out for strengthening of the Division

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

iii) Taking into consideration the role of the division, it is important that the personnel have the requisite competency in technical standards and management of dredging operations specifically familiarization of EU/Japanese/US manuals and standards (dredging guidelines/technical details), procurement of dredgers (technical assessment/monitoring/KPIs for operation and maintenance), project management structuring/implementation/monitoring), specific to dredging

iv) There is a requirement for understanding of Port Management and Operational Evaluation including KPIs to assess port development needs, bid process management and procurement process for Port Development project, Scheduling and Congestion management

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) A digital glossary as a ready reference documents for the division would also be a helpful guide in this aspect
ii) An orientation training module along with refresher courses may be to provide familiarisation and understanding of the functions of the Ministry, roles and overall understanding of the sector as mentioned above
iii) Enhance qualification requirements for PHRD such as PG Diploma in Human Resources (HR) Management/MBA in HR for all HR related functions in MoPSW and associated agencies and institutions for better capacity building, HR planning and bringing in best practices
iv) Capacity augmentation of Indian Maritime University (IMU) to deliver on short-term domain specific coursework (physical, online, and AV course material)
v) HR policies and career development could be linked to performance and specific weightage may be given to training undertaken and certifications obtained

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) Enhance use of technological solution for capability enhancement

5.6. Administration Division

The Administration Division is headed by (Joint Secretary) who is assisted by Deputy and Under Secretary. The division implements all administrative orders issued by Department of Personnel & Training, Department of Pension & Pensioners Welfare, Ministry of finance, Union Public Service Commission, Central Information Commission, Central Vigilance Commission etc. It also handles the internal complaints on sexual/ gender-based harassment. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.6 - Role of Administration Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri Lucas L Kamsuan (Joint Secretary)	Administrative matters of The Ministry	Promote fair and efficient work environment	• General Administration and Oversight and management of the division • Budgeting and Cash Management/HR/Parliament Question and Procedure/Event Management Director General Lighthouse and Lightships • Director General Lighthouses and Lightships • Cash Management/Accounting • Procurement/General Admin/Event Management • Parliament Questions Basic drafting/noting. Coordination with other wings of Ministry for the same

During the discussions with the JS, the following requirements were pointed out for strengthening the Division's capabilities and functioning:

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.
ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required
iii) Competency development in Efficient use of GEM for procurement and developing SOPs to address issues/challenges faced using GEM
iv) Competency development in efficient management of stationery/furniture (could be a sub-module in Procurement)
v) Developing expertise in fundamentals of undertaking a good APAR and SOP for implementing effective competency mapping
vi) Developing expertise in Basic Accounting/Cash Management
vii) Developing expertise in Best Practices and SOPs in LTA/Travel Booking/Event Management

viii) Skills development in management of legal issues and court procedure on behalf of Ministry/managing lawyers working on behalf of Ministry

ix) Skill development of senior officers (S/AS/JS/D) in

- Regulatory framework in maritime space (for e.g., fundamentals of IMO regulations, Environmental laws)
- Technological trends impacting the strategic work of the Ministry (for e.g., automation of ports, new trends in draft management, big data analytics for port management etc.)

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) A digital glossary as a ready reference documents for the division would also be a helpful guide in this aspect

ii) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities, structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/ Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)

Technological Requirements

Some of the key subjects where there is requirement of technological interventions in the division, are

i) Management of data through technological solutions

ii) Since one of the key functions of the division is coordination and collation of response to Parliament Questions, a searchable digital database of previous Parliamentary Q&A, and FAQs with automatic reminder to official whose response is being waited upon to draft response to Parliament Question etc. will be helpful in efficient and timely discharge of the function

iii) Tool for maintaining database of past requests/requirements of stationery/furniture/equipment and of O/M contracts to allow better planning and procurement practices

5.7. Transport Research Division

The Transport Research Division is headed by Shri Sunil Kumar (Advisor). The Transport Research Wing collects, compiles, and circulates time series data on Ports, Shipping, Ship Building and Ship Repairing and IWT. It is also responsible to carry out research and support various wings of the Ministry and assist in development of policies. The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.7 - Role of Transport Research Division

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri. Sunil Kumar Singh (Advisor)	Collection, compilation, and circulation of data	Capture and Monitor consistency of performance	• Responsible for collecting, compiling and disseminating time series data on Ports, Shipping, Ship Building and Ship Repairing and Inland Water Transport. • Analyze Port capacity, utilization, and financial performance • Collate and maintain latest developments and use of technology and publish them in reports • Collate and maintain data of shipping traffic, number of inland waterways, cargo movements • Based on the collected data, further help plan and implement policies in line to achieve mission and vision of the ministry
	Statistical data used for development of Policies	Set realistic development goals	

During the discussions with the Advisor, the following requirements were pointed out for strengthening the capabilities and functioning of the Division

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities, structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/ Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) For the purposes of the Transport Research division, that is aligned with the IWT division there is a requirement for
   - Ensuring adequate functionalities exist in under-development NMP (MoPSW) and ULIP (Logistics Division, DPIIT) to implement regular and automated reporting of shipping, port operations, throughput, productivity and other data parameters
   - Leveraging common pool of data analysts available with affiliated institutes/academies and with CTFL (Logistics Division, DPIIT) in order to expand the scope, quality and periodicity of reportage

5.8. Coordination and IPA Division

The division is headed by Shri Arvind Chaudhary (Economic Advisor) and supported by Under Secretary. It is responsible for coordination and information management within the divisions. The table below provides goals of the division in each of these areas along with its role in accomplishing its functions.

Table 5.8 - Role of Coordination and IPA

Division Head	Area of focus	Vision/goal of the Division	Role of the Division
Shri Arvind Chaudhary (Economic Advisor)	Communication and Inter-division Coordination	Ensure smooth and effective coordination among divisions	• Responsible for general administration and coordination, information management for Strategic initiatives including Indian Ports Association interventions in automation for ports and HRM • Drafting and documentation, effective inter-division coordination and communication, liaison with IPA related work

During the discussion with Advisor, it was found that the strengthening the division's capabilities on following fronts may enhance its functioning

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Project and Risk management (Structuring, Evaluation, Implementation, Monitoring KPIs, Typical challenges etc.)
ii) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.
iii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required
iv) Skills development in IT applications of ports and emerging digital technologies (given IPA mandate for Port Digitalization of Major Ports)
v) PRHS being one of the roles of IPA, there is a requirement to enhanced capabilities in HR Management with specific focus on wage negotiation (including Productivity Linked Reward scheme), labour law related regulations applicable to Port sector
vi) There is a requirement for enhancement of skills development in project management (structuring, evaluation, implementation, monitoring KPIs,etc.) using technology and relevant IT tools

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) Motivational training and team building among the employees
ii) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities,

structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) Performance Monitoring Toolkit' for use by officers, customized for on job performance monitoring of various officers

5.9. Major Ports

India has 12 Major Ports and 200 non-Major Ports in the country. While the Major Ports are under the administrative control of Ministry of Shipping, the non-Major Ports are under the jurisdiction of respective State Maritime Boards/ State Government. The Ports Wing is primarily responsible for the development of 12 Major Ports with the objective to provide necessary and adequate cargo handling capacity to meet India's EXIM trade. These Major Ports are governed under the Major Port Trusts Act, 1963.

Of the 12 Major Ports, 11 Major Ports (namely Deendayal Port, Mumbai Port JNPT Port, Mormugao Port, Mangalore Port, Cochin Port, V.O. Chidambarnar Port, Chennai Port, Vishakhapatnam Port, Paradip Port and Kolkata Port) are governed by the Major Port Trusts Act, 1963. The Kamarajar Port at Ennore was incorporated under the Companies Act 1956.

However, in February 2021, the Major Ports Authority Bill 2020 has been passed and it replaces the Major Port Trusts Act, 1963. The Bill aims at reorienting the governance model in central ports to landlord port model in line with the successful global practice and providing greater autonomy in decision- and professionalize their governance by setting up boards.

The Bill provides for the creation of a Board of Major Port Authority for each Major Port. These Boards will replace the existing Port Trusts. The Bill provides the Major Ports with greater autonomy in its development, business operations and financial management. The Bill allows the Board to use its property, assets and funds as deemed fit for the development of the Major Port. Under the Bill, the Board or committees appointed by the Board will determine these tariff which was earlier under the purview of The Authority for Major Ports (TAMP). To meet its capital and working expenditure requirements, the Board may raise loans, subject to meeting certain criteria. The Bill also provides that the Board may use its funds for providing social benefits. The Bill defines PPP projects as projects taken up through a concession contract by the Board and for which the Board may fix the tariff for the initial bidding purposes. [8]

In view of this landmark development the areas of focus, roles and function of the various port and their respective departments are expected to see a transformation in terms of some functions gradually diminsh (terminal operations, yard operations, land management etc.) with the increase in participation of the private sector and also new roles and responsibilities are likely to emerge such as PPP project development, land monetization, tariff pricing etc.

In view of the above detailed discussions were held with the heads of various department at the ports of Kandla Port, JNPT Port, Chennai Port and Vishakhapatnam Port

The table below provides focus area wise departments at a Major Port along with their respective role in accomplishing their functions. It may be noted that some of these may undergo further transformation as the port gradually move away from the landlord port model.

Table 5.9 – Role of departments in Major Ports

Department	Role of Department
Traffic Department	• To manage the Terminal operations (ensuring speedy loading and unloading of containers, receipt, stacking, and disposal of containers at the yard) • Management of Export and Import of cargo • Resolution of cargo related disputes • Coordination with other terminals for effective implementation of ITRHO to improve turn-around time of mixed rakes

[8] Source: https://www.pib.gov.in

Department	Role of Department
	• Co-ordination with external agencies such as CONCOR, regional railways, other rail operators, other terminal s at the port for smooth operations • Compliance with Dock safety Regulations and all related correspondence • Preparation of yearly budget for the department
Port Planning & Development	• Preparation of master plan for the port • Planning of development for Ports • Undertake feasibility studies, hydraulic model studies etc. as required for development plan of Ports
Marine Department	• Manage marine operations ensuring conservancy and safe pilotage of all vessels in the port water, and ensuring the availability of port crafts and tugs • Management of marine conservancy, pollution control, combating oil spills, Management of firefighting system in the port area and safety aspect of the harbour, equipment & personnel. • Maintenance of depth of the channel by dredging including operation and maintenance of dredgers owned by the Port • Maintenance of navigational aids • monitor the movement of all vessels from anchorage point to the berth and back. It communicates with ships calling the port and hence play critical role in safe navigation and subsequently during vessel operations. • Ensuring that all relevant laws are compiled by ships and other port users in the Port limits • Ensuring the safety of the vessels in the port • Ensuring port crafts are operated and maintained by contractors in accordance with tender document / Agreements • Maintenance of communication, navigational aids and VTMS • Acquisition of port crafts, preparing tenders, finalizing them and inspecting the crafts under construction • Proper monitoring, capturing, and reporting of safety and environmental incidents related to port crafts and mooring crews • Conducting hydrographic surveys • Ensure availability of floating crafts/crew for operations, maintenance of Deck tugs and launches, maintenance of navigational aids, Pollution control and combating oil spill.
Civil Engineering department	• Construction and maintenance of infrastructure including Berths, Shore protection, Breakwaters, Capital dredging, Roads and Pavements, Hard surfacing of cargo stacking areas, Railway lines, crane tracks etc., Bridges and culverts. Drainage works, Office buildings, warehouses, sheds, Conveyor supporting structures, Surge bins, Junction houses, Environmental works and monitoring of the environment. Estate Management, Quarters for port Officers and employees, Hospital and dispensary buildings, Water supply and storage systems etc. • Preparation of proposals, finalize tender documents, evaluate bids, award of contract, monitoring and contract management of construction works as well as PPP projects during construction and operation phase • Dredging operations for maintaining the requisite depths in the navigational area of the port • Co-ordination with other Development Authorities, Co-ordination for rail and road infrastructure support to the Port
Mechanical & Electrical Engineering Department	• Acquisition of port mechanical and electrical equipment including acquiring equipment on lease/own basis • Plan maintenance requirements for equipment owned by the port, ensure adherence to plan and inspect the maintenance work done to ensure the quality of the work done and conduct preventive maintenance of equipment • Finalizing of all maintenance-related contracts • Installation, implementation, and execution of maintenance software

Department	Role of Department
	• Liaison with outside agencies for major repairs of cargo handling and other major equipment/parts • Periodical calibration of measuring, inspection & testing equipment under utilization • Ensuring minimum downtime of equipment due to breakdown • Settlement of insurance claims arising due to the accidents by the Port owned equipment
Finance Department	• Raising container bills and collection of amounts in the revenue section • Raising of estate rentals related bills and collection • Processing of bills for any port-related activity • Settlement of claims • Processing salaries and other employee expenditures. • Allocating the annual budget • Internal audits of departments • Insurance-related activities
Administration Department	• The department looks into the overall administrative roles at the Port which include ○ Managing Transport Services ○ Guest House Management ○ Co-ordination and managing hospitality during Visit of VIPs ○ Co-ordination with CISF. ○ Conducting Official Functions ○ Industrial Relations ○ Welfare & Training ○ Public grievances ○ Liaison with Central/State Govt. ○ Coordination with other departments ○ Hospital • Administration reports compilation • Arrangement of official functions • Responsible for maintenance of discipline and settlement of grievances of Personnel sub-section • Responsible for procurement of books, periodicals, and newspapers for library
Vigilance Department	• Vigilance Corner CVC plays a pivotal role in uprooting and eradicating corruption among the Government Machineries • Vigilance Department serves as Central Agency & is assertive for the integrity and efficiency in the organization
Medical department	• Responds to job-related medical emergencies and provides onsite treatment to sick or injured workers • Recommends additional or specialized medical treatment when necessary • Promote and maintain health and wellness of workers • Identify hazardous workplace and recommend ways to reduce and prevent hazardous exposures on the job • Conduct training for first aid, safety, CPR, and health programs • Prepare accident reports and workers compensation reports • Maintain industrial safety and medical best practices.

During the discussion with respective department heads at these ports, it was found that the strengthening the certain capabilities and development of new competencies on following fronts would be required to enhance the efficiency of functioning of the Port as well has make them future ready

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Enhancing skills for the efficient discharge of functions requiring
   - Skill development in automation in cargo handling and stevedoring operations
   - Skill development in project management of projects under construction as well and PPP projects
   - Skill development in understanding of PPP models, formulation of PPP projects, contracting monitoring and contract management of PPP projects
   - Skill development on new developments in vessel technology and design for container, bulk and liquid cargo
   - Skill development in updation and management of National Marine Portal (NMP)
   - Skill development in port automation technology and digitalization and their global trends
   - Skill development in liquid bulk management and mechanization of break bulk operations
   - Skill development and adaption of best global practices in maintenance/repair of port related equipment and inventory management, formulation of SOPs
   - Skill development in Multi-Modal Logistics Operations considering that the cargo at the port arrives by sea, rail and road and it is important to handling evacuation effectively to enhance the overall throughput of the port
   - Skill development and familiarization with latest technology on Environmental aspects of Ports including energy efficiency, pollution control and concept of green ports
   - Skill development to technical officers in latest technological developments in dredging
   - Skill development by introduction of training/module in Business development of SEZ & Dry Ports

ii) Development of new competencies to cater to the changing business scenarios and new roles requiring
   - As the port move away from role of landlord port to the role of an administrative and regulatory board, one of its key functions would be estate management as the ports are in possession of large parcels of land / real estate, estate development and monetization which will require new competencies.
   - The Ports may also consider development of port based industrial clusters/ logistics hubs as part of the overall port ecosystem to facilitate traffic for the port and cargo evacuation. Specific competencies in understanding business model, strategy and development of these assets would be required.
   - Many of ports have been mandated with the development of infrastructure and its operation for Ro-Ro operations. For many Port this is a new subject and hence would require development of competency would need to be developed on the overall subject of Ro-Ro operation including vessel requirements, berthing design and planning requirements, ro-ro operations, SOPs and safety protocols etc.
   - As the role of the Ports transforms, they also need to consider long term sustainable planning and to be able to consolidate their hinterland as well as create new opportunities. In this regard they would need to have competencies in understanding various traffic trends, global trends in international commerce/trade patterns and its implications for maritime sector, domestic macro and micro influencers, industrial development and trade patterns and trade priorities and to be able to influence Port led growth and industrialization.
   - The Ports also have the new role of fixing of tariffs for: (i) services that will be performed at ports, (ii) the access to and usage of the port assets, and (iii) different classes of goods and vessels, which was earlier under the purview of TAMP. Hence new competencies will be required in setting of tariffs, strategic pricing and revenue optimization from port operations and the Port is not likely to undertake cargo handing operations directly.
   - Ship building and Ship repair works have usually been out of the purview of many ports while some port such as the Mumbai Port have dockyards for such services. Other Ports may need to develop these competencies to be able to provide services to the increasing vessel traffic and to be able to diversify in the long term.

- With increasing use of technology in various functions and specifically the dependence of cargo operations on technology, it is important to develop specific competencies in IT Security and SOPs in case of issues of data breach
- With greater autonomy on financial management, power to raise finances etc., competencies would need to be developed in financial planning, raise finances, debt syndications, developing long term investment plan for ports etc.
- As a port authority, the provision of electricity supply to the various concessionaire and operators at the port will be the responsibility of the Ports and this requires a deep understanding of the regulatory laws and guidelines for procurement of electricity and new competency in this aspect would also need to be development for soma ports and upskilling in others

iii) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

iv) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) Knowledge management has become of the critical requirement of the division in terms of development of secure databases for filing electronic version of different categories of documents SOP for submission of all documents by all officers/staff generating and managing documents to these databases, organized by broad subject matter, for proper record keeping and to be able to retrieve the necessary information as and when required

ii) Hiring of new staff has not be done at the Port in the last 10-15 years. The port increasingly have to rely on contractual staff which is very difficult to retain resulting in high attrition, frequent vacant position and disruption of services or over burdening of the few. Detailed requirement assessment and institution strengthening plan / capacity building plan need to be developed across departments

iii) Requirement of a dedicated faculty for trainings. Presently trainings are mostly provided by the current operational staff causing disruption of work and inadequate training due to paucity of time availability from duties of the designated role

iv) New roles and positions in the organization structure for handling matter related to changing technology, priorities, operational and business needs

v) Module for ICU Experience and pandemic related emergency response and this requirement was specifically brought out in the wake of the pandemic

vi) It is difficult to retain Pilots due the significant disparity in pay scales of the port and the private sector

vii) Requirement for a 'Centre for Excellence' for Pilot training, including training for tug-boat operators

viii) Training/Module in organization leadership, behavioral change and communication skills

ix) There is also a need for a career development and growth plan for DGS personnel as per qualifications and skill set with well-defined roles and responsibilities of each position and their KPIs to enable objective performance appraisals

x) Development of E database for organized documentation in different categories and SOPs for documentation management

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in Piloting operations

ii) Online short interactive module for introduction to hygiene/self-care/ preventive care can help in creating awareness and preparedness in case of pandemics

5.10. Inland Waterways Authority of India (IWAI)

Inland Waterways Authority of India (IWAI) is the statutory authority in charge of the national waterways in India. The Authority primarily undertakes projects for development and maintenance of IWT infrastructure on national waterways through grant received from Ministry of Shipping. IWAI has set its vision to develop a self-sustainable, economical, safe & environment-friendly mode of transport

The IWAI is headed by Chairman, Shri Sanjay Bandopadhyaya. The table below provides information on the key departments of IWAI the roles of each department.

Table 5.10 – Role of departments in IWAI

Department	Role of the Department
Traffic and Logistics	• Commercial, Strategic and Technical aspects of IWT • Explore opportunities related to cruise tourism • Sectoral data management and analysis • Development of protocols and SOPs on Inland Waterways transit and trade • MoUs and interstate agreements for trade and transportation • Conducting traffic studies on National Waterways
Technical (Civil & Mechanical)	• Development, management, implementation of capacity building and institutional strengthening initiatives in the National Waterways • Development and maintenance of infrastructure such as navigation aids and terminal facilities • Fairway development and maintenance activities including dredging and bandalling • River conservancy works • Management and Maintenance of Vessels and Equipment in IWAI • Developing SOPs for operations, maintenance and repairs of boats, dredgers, etc.
Finance	• Settlement of claims • Processing salaries and other employee expenditures • Allocating the annual budget • Internal audits of departments • Insurance-related activities • Processing pension and medical reimbursements for retied employees
Administration (IT, Legal, Medical and Language)	• IT department provides assistance to all departments in maintaining the information system and monitoring activities of IWAI • IT department plans, operates and supports the IT infrastructure, meets up technical requirements and minimize costs, enabling employees to carry out their official works efficiently and securely • To encourage and promote implementation of Hindi language for departmental works • Management of legal issues and court procedures of IWAI • Providing medical assistance to employees and empanelment of hospitals with IWAI
Hydrography	• Measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, • Prediction of change in rivers, oceans coastal areas for purpose of safety of navigation and in support of all other marine activities • Conducting hydrographical measurements including tidal, current and wave information. • Introduction with latest technology for surveys, LAD's

Department	Role of the Department
	• Providing assistance for dredging operations, dredging volume calculation and channel designing, laying out of navigation buoys and River Information System.

During the discussions with the departmental heads of IWAI, the following requirements were pointed out for strengthening the IWT division's capabilities

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) Inland waterways acts are a vibrant mode of regional connectivity specific for the landlocked countries f Nepal and Bhutan. Additionally, they also provide a complementary mode of transportation for cargos from north east region of the country, to the gateway ports and the mainland via the rivers through Bangladesh. India has also contributed to the development of the Kaladan-Sitwe corridor connecting India and Myanmar which can also provide coastal connectivity linking to Thailand. The development of these regional connectivity corridors under the purview of BBIN, BIMSTEC and Act East policy of India requires a comprehensive understanding of the trade, legislative and regulatory ecosystem of the region as well as its relevance in preparation of any protocol negotiations and agreements. Therefore, there is a requirement for development of competency in this area in understanding the objective of the various corridors institutions as well as role of inland waterways therein

ii) Maintenance of channel in the national waterways is a constant challenge due to the nature of the Indian rivers that change course every season and have significant siltation issues. Therefore, development of skills in various studies and technologies for the maintenance of draft or dredging works is a key requirement

iii) Similarly, skills development of the technical office in river conservancy, river training (focused on siltation management), riverbank management /mitigation of impact from vessel operations on riverbank is also required

iv) The draft availability in National Waterways mostly varies between 1-3 m and these necessitates the requirement of very specific vessels that can play in shallow draft, have easy maneuverability along the various river bends and also have and economical tonnage carrying capacity. Therefore, skills development in inland vessel design is necessary

v) As mentioned above due to the varying nature of Indian rivers, technical competency in understanding of Indian River Morphology and River behavior in various seasons is required

vi) With increasing focus on private sector participation in the sector for development and operations of the infrastructure, skill development in understanding of PPP model, project formulation, contract documentation, monitoring and contract management of PPP contracts are required

vii) Skill development in project management for the multiple infrastructure projects and program under execution and proposed to be implemented

viii) In order to enhance the utilization of the national waterways, skill development in business development for enhancing cargo movements, logistics management and its KPIs and commercial pricing strategy is required

ix) With increasing use of technology in navigation skill upgradation is required on advanced IT/digital applications on IoT, GPS/Navigation, cargo tracking and security and Terminal Operation Systems

x) Skill development in Project Finance is also required for financial planning of multi later funded project and to be able to raise finances subsequently for self-sustainability in the long run

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) There is also a need for a career development and growth plan for DGS personnel as per qualifications and skill set with well-defined roles and responsibilities of each position and their KPIs to enable objective performance appraisals
ii) Rationalization of pay for technical functions related to engineering roles
iii) Developing a 'Centre for Excellence' for IWT aspects for consistent research & development and imparting training in this sector
iv) A specific orientation module for the familiarization with the role and multiple functions of IWAI, the strategic importance of these functions and the roles and responsibility of the department

Technological Requirements

Some of the key subjects where there is requirement of technological interventions in the division, are

i) Updating technology of reporting tools and leveraging various databases for better access to information and reporting
ii) Development of AV and digital tools specifically for IWT training needs and online support

5.11. Directorate General of Lighthouses and Lightships (DGLL)

The Directorate General of Lighthouses and Lightships is a subordinate office under the MoPSW. The Directorate General of Lighthouses and Lightships establishes and maintains Aids to Marine Navigation, along the coastline of India as per Lighthouse Act, 1927. According to the SOLAS (Safety of Life at Sea) 1974, Chapter V published by the IMO (International maritime Organization), the Contracting Governments to:

i) Provide appropriate Aids to Navigation
ii) Take into account international recommendations and guidelines
iii) Arrange for information on Aids to navigation to be made available

The Directorate has provided aids to marine navigation that can be categorized as visual and radio Aids. The visual aids include lighthouses, light vessels, buoys and beacons. The radio aids include DGPS, RACONs etc. The Directorate has entered into the provide Vessel Traffic Service. For the purpose of control of jurisdiction, the aids to marine navigation are categorized as General Aids and Local Aids. The upkeep and maintenance of general aids to marine navigation is the responsibility of the Directorate as per the LH Act 1927. The upkeep and maintenance of local aids is the responsibility of various Maritime State Government organizations like Ports, State Maritime Boards etc. However, the Directorates extend technical support for maintenance of the local lights. In case the local lights are not maintained to the international standard due to financial constraints and lack of proper technical personnel, the Directorate on acceptance of the local bodies also takes over those local lights for upkeep and maintenance.

For the purposes of and overall administrative control the entire coastline of India, it has been divided into Nine Districts, each having its respective regional headquarter at Gandhidham, Jamnagar, Mumbai, Goa, Cochin, Chennai, Visakhapatnam, Kolkata and Port Blair**.**

The DGLL is headed by Director General and is supported by Dy. Director General (HO). The Dy. Director General (Mumbai) is supported by regional Directors of Mumbai, Vizag, and Chennai and Dy. Director General (Kolkata) is supported by regional Directors of Kolkata, Port Blair and Cochin. The Dy. Director General (VTS Gandhidham) is supported by regional Director of Jamnagar. Additionally, the organization has Dy. Director General (AIS) and Admin Officer for respective departments.

The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.11 - Role of DGLL

Division Head	Area of focus	Role of the Department
Shri N. Muruganandam (Director General)	Provide safe and secure navigation in the Indian waters	• Providing radio and visual Aids to Marine navigation along the Indian coast • Providing Vessel Traffic Service • Maintenance of the General Aids • Revenue generation by providing Aids • Develop and promote Tourism • Ensure availability of information on Aids and navigation • Comply with international recommendations and guidelines by IMO

During the discussions with the Department heads at DGLL, the following requirements were pointed out for strengthening the capabilities of DGLL

Competency Requirements

Some of the key subjects where there is requirement of competency upgradation or new competencies are

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

iii) For the purposes of efficient discharge of functions skill upgradation of administrative staff for proficiency in financial management including accounts & taxation and administrative management is required

iv) In line with the emerging technology and best practices skills upgradation is required in advanced IT/digital applications specifically upcoming domains such as Cybersecurity and Navigation/ATON/VTS field

v) With career progression and taking up of new leadership roles, specific upskilling of senior officers on behavioral aspects, mentoring, human resources management and project management is required

vi) Skill upgradation of Station-In-Charge in communications and public relations, stakeholder management and local community engagement is also necessary as these officials are located at far off sites and are solely responsible for engagement with the locals at various levels and hence should have these skills to help them manage diverse communications

vii) With the development of new business models for DGLL, new competencies and skills upgradation is required in the fields of

- Since most of the lighthouses are significantly old structure or heritage buildings, specifically skills are required in the maintenance of these structure
- Best practices in lighthouse management with a focus on tourism and tourism related activities for revenue generation
- Community engagement to enhance cultural engagement with the local communities and create awareness of the heritage of the lighthouse and a bond with the local communities

Institutional Requirements

Some of the key subjects where there is an institutional gap are

i) A specific 'Orientation' Module may be developed for all staff joining the Ministry to impart comprehensive understanding of the areas of focus of the Ministry along with role and responsibilities, structure and working of the Ministry, role of Ministry in national programs (Atmanirbhar/PM Gati Shakti/ Act East etc.) and information on Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.)

ii) A specific orientation module for the familiarization with the role and multiple functions of DGLL and the strategic importance of these functions

iii) It is observed that the Marine Navigation Training Institute (MNTI- Kolkata) has limited capacity in terms of infrastructure for training. Currently it can accommodate only 20 persons at a time. Additional facilities such as additional simulators, online interactive audio-visual modules and improved facilities for training are also required, however there is limited scope of expansion as the institute is located within the premises of the Kolkata Port. Alternate location or a supplementary arrangement with Kolkata Port Trust may be required to augment the training infrastructure and facilities

iv) MNTI also does not have a dedicated faculty for training and as of now the current staff of makes time out or if normal responsibilities and imparts trainings. Since the staff of DGLL is already limited, making additional time for training is either difficult or impacts their other functions adversely. Hence the facility should have dedicated administrative and training staff and retired DGLL personnel could also be considered for this role

v) It also needs to be noted that faculty (trainers) need to be trained periodically as well. DGLL serves a domain with rapidly changing technology, and needs its trainers (i.e., its faculty) to be periodically get updated in new technologies and processes. This can only happen efficiently if there is a core faculty that can be regularly updated, and who in turn have the mandate to train rest of the DGLL staff.

vi) There is a need to adaption of latest technology for training purposes

vii) Strategic tie ups / partnerships with knowledge centers in India and overseas could be done for key areas such as Underwater Domain Awareness (UDA) and comprehensive VTS to ensure knowledge transfer as per updated and best practices

viii) Hardship allowance and motivational trainings for personnel working at remote/challenging locations can be considered to motivate them for such tough locations

ix) The direct recruitment of Junior Civil Engineers should be permissible as these are the frontline staff of DGLL specifically for activities such as development/maintenance of ATONs. Currently these functions are identified as non-core and outsourced which can result in loss of accountability/quality control. Frequent rotation of the staff and change in personnel for these positions results in loss of learning and domain knowledge and the direct recruitment Junior Civil Engineer for these positions can be considered.

x) Augment capacity with by supplementing the permanent core faculty with
   - Retired DGLL staff as trainers,
   - Serving officers joining as trainers for online modules (easier than getting them on site and in location for long periods of time) and
   - Develop interactive Audio-Visual Modules/Simulations where the instructor is located remotely to mimic a more 'hands on' practical experience for online courses

5.12. Directorate General of Shipping (DGS)

The Directorate General of Shipping deals with implementation of shipping policy and legislation to ensure the safety of life and ships, prevention of marine pollution, promotion of maritime education and training in co-ordination with the IMO, regulation of employment and welfare, development of coastal shipping and capacity augmentation of shipping tonnage. The objectives and areas of focus of DGS are

- Matters affecting Merchant Shipping & navigation and administration of the Merchant Shipping Law.
- Measures to ensure safety of life and ships at sea;
- Development of Indian Shipping;
- International Conventions relating to Maritime matters;
- Provision of facilities for training of Officers and ratings for Merchant Navy;
- Regulation of Employment of Seamen and their welfare;
- Development of Sailing Vessel Industry and
- Regulation of Ocean freight rates in overseas trades.

DGS is headed by Shri Amitabh Kumar (Director General) and is supported by the following staff across its four wings[9] namely Administrative Wing, Nautical Wing, Engineering Wing and Naval Architecture Wing

The figure below shows the organization structure of DGS

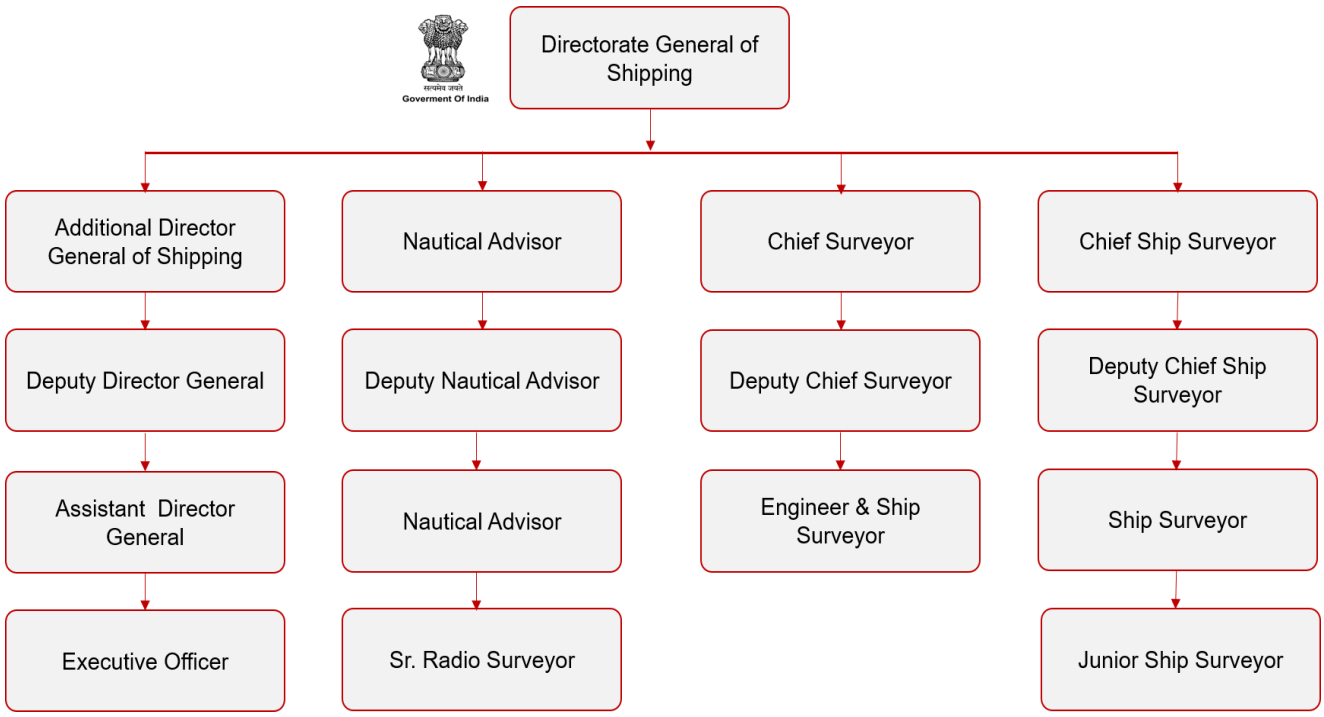

Figure 10 - Organization structure of DGS

[9]DGS website - https://www.dgshipping.gov.in/

DGS also has four Autonomous bodies & Allied Offices which are

i) **Seamen Employment office (SEO)** – The Seamen Employment Offices are established to regulate the employment of seamen. The SEO is headed by the Director and supported by the Dy. Director, Asstt. Director and other staff. SEO are currently established in Mumbai, Kolkata and Chennai

ii) **Regional Office (Sails)** –The RO (Sails) regulates standardization of trade by securing cargo and elimination of mal practices, registration of Sailing Vessels, issuance/renewal of identity cards to sailing vessels crew, repatriation of stranded crew in other countries due to sailing vessel casualties etc. The office is headed by the Regional Officer (Sails) and assisted by the supporting staff and functions under the administrative control of the respective MMD (HQ).

iii) **Government Shipping Offices** – The Government Shipping Office are responsible for monitoring the engagement and discharge of seafarers, treatment and welfare of distressed seamen, settlement of disputes between the seafarers and their employers, issue of continuous discharge certificates (CDC), registration of indenture of cadets engaged by shipping companies and issue of inward/outward clearance to ships at the respective ports
The Govt. Shipping Office is headed by the Shipping Master who is supported by Dy. Shipping Master, Asstt. Shipping Master, and other supporting staff.

iv) **Seamen Welfare Offices** - The Seamens Welfare Office undertakes the liaison work between the Indian seamen and the officials of the country, provide assistance in case of distress and provides recreational facilities to the seamen. This office is headed by the SWO under the administrative control of MMD, Chennai.

The table below provides goals of the division in each of these areas along with its role in accomplishing these goals.

Table 5.12 – Role of DGS

Wing	Area of focus	Role of the Department
DGS	Implementation of shipping policies and legislation	• Regulation of matters affecting Merchant Shipping & navigation, MTO, and administration of the Merchant Shipping Law • Regulation as per international conventions to which India is party to (MARPOL, SOLAS)
	Ensure the safety of life and ships	• Undertake measures to ensure safety of life and ships at sea
	Prevention of marine pollution	• International Conventions relating to Maritime matters such as the IMO Regulations
	Promotion of maritime education and training	• Provision of facilities for training of Officers and ratings for Merchant Navy;
	Generation and regulation of employment and welfare	• Regulation of Employment of Seamen and their welfare
	Development of coastal shipping and capacity augmentation of shipping tonnage.	• Regulation of Ocean freight rates in overseas trades • Development of Indian Shipping tonnage • Development of Sailing Vessel Industry

During the discussions with the department heads at DGS, the following requirements were pointed out for strengthening the capabilities of DGS

Competency Requirements

Some of the key subjects where skill upgradation is required, are as follows:

i) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications, e-office etc. that are required for performing day-to-day functions.

ii) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

iii) It is very important for DGS personnel to be apprised of the latest technologies and best practices globally as well as upskills of the existing personnel. In this regard the following competency development requirements have been identified

- Awareness of latest technologies and applications for long range tracking/monitoring of ships (as per requirement for Sagar Manthan project)
- Best global practices, methodologies, and technology/engineering solutions for safe and sustainable recycling of ships
- Awareness on major Shipping and Maritime Acts and best practices in Compliance of Laws based on comparative analysis
- Awareness in legislative and regulatory developments worldwide for transparency and eliminating unfair trade practices
- Capacity building in adaption of SOPs for handling International Maritime Dangerous Goods (IMDG) Cargo with linkage to Port run programs on DG/Hazardous and consider development of a comprehensive standardized programs with specific modules for on-ground handling entities, and for regulators that focuses on readiness and compliance appraisal
- Introduction to “Hybrid” ships using alternative fuel system including best global practices/ emerging trends on regulation vessels, operational safety and fitness audit of the vessels
- Awareness and competency in /assessment methodologies/on the MARPOL (prevention of air pollution from ships) and adoption of the same

iv) Provide an understanding of the comparative analysis of major Shipping and Maritime related acts in the important economies worldwide and best practices and methodologies for rulemaking and developing procedures for compliance from laws

Institutional Requirements

Some of the key subjects where there is an institutional gap in the division, are

i) Hiring of technically competent staff for managing emerging technologies

ii) An 'Orientation' Module for all joinees that provides 360’ detailed understanding the role of DGS, functionality of all the departments including current and future challenges and overall understanding of the shipping sector

iii) As identified for other divisions, similarly basic skills development and upgradation requirements are identified in understanding of the regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) and Department of Personnel and Training (DOPT), Service Rules, General Financial Rules (GFR), rules related submission of cabinet notes and drafting techniques for different categories official communications, presentations, interpersonal communication skills, MS Office applications etc. that are required for performing day-to-day functions.

iv) As in the case of previous division, basic skills development and upgradation in office procedures, rules, understanding of the role, preparation of cabinet notes, data analysis and presentation, e-office etc. are required

v) There is a requirement for comprehensive SOPs, training/module that cater to the FAL Convention new/modified requirements in view of response and management of emerging situations on account of the pandemic, crew change protocol etc. for the well-being of the officers and crew. Joint Workshops on this subject with other key stakeholders (PHOs, Immigration) can be arranged to ensure effective implementation and cooperation amongst teams

vi) There is also a need for a career development and growth plan for DGS personnel as per qualifications and skill set with well-defined roles and responsibilities of each position and their KPIs to enable objective performance appraisals

vii) Development of toolkit to enable on-demand learning/refresher training on all applicable laws that are applicable to Indian Maritime domain

viii) Development of framework for examination and use of technology for conducting online examinations

Technological Requirements

Some of the key subjects where there is requirement of Technological interventions in the division, are

i) Requirement for Unmanned/remote controlled ships/marine drones/submarine drones including adoption of best global practices/ emerging trends on regulation vessels, operational safety and fitness audit of the vessels

ii) Toolkit to enable on-demand learning/refresher on all applicable Indian laws that applies to the maritime domain, and associated international laws/treaties/protocols

6. Requirements of the divisions

This section provides the key work areas for the Ministry and the required competencies for efficient and smooth execution of all the areas of its work responsibility.

Competencies required at an organization level can be typically classified into three categories:

- **Domain competency:** This includes competencies required to build understanding and expertise related to the sector, division, and the respective focus areas
- **Behavioral competency:** This includes competencies related to behavior and soft skills such as negotiation skills, self-motivation, interpersonal skills, etc. One of the important competencies under this segment is the citizen centricity/ stakeholder focus capability.
- **Functional competency:** This includes competencies related to the functional aspects of the division such as science of policy designing and implementation, project management, financial planning, etc. and most importantly, technological know-how
- **Institutional and Technological capacity:** These include the capacities required to be developed or augmented in terms of process improvements, knowledge management and resources planning for increasing efficiency. Some of the issues also include high attrition, shortage of staff, limited development opportunities and the performance appraisal criterion. However, this would require a more in-depth study of the institutions, long term capacity building assessment, technological requirements etc. and hence have not been covered in this section presently

These competencies include combination of theoretical and practical knowledge, cognitive skills, adoption of technology and automation, values, and behavior to improve performance. Based on the goal and focus areas of each division, competency needs of the Ministry have been identified. These competency requirement ranges from the art of drafting policy, sectoral knowledge to skills related to networking & negotiation and customer-centric capabilities. The table below illustrates the competency requirement in different divisions of the Ministry.

Table 6.1 – Competency requirements of the Divisions

#	Areas of work responsibility		Competency Requirements
1)	**Domain Competency**	Shipping Division	• International conventions and norms • Maritime law and international practices • Ro-Ro operations and management • Ship building and Ship repair trainings and workshops • Best global practices, methodologies, and technology/engineering solutions for safe and sustainable recycling of ships
		Ports Division	• Estate management and monetization in view of ports shifting to landlord-based model and development of port based industrial clusters/ logistics hubs • Ro-Ro operations and management • Stakeholder management • Cargo operations and management
		Inland Water Transport Division (IWT)	• Understanding of basic concepts of Fairway, Draft, Dredging, Channel and terminologies such as Right of way, Berth, Terminal, Weir, Dam etc. • IWT role in BBIN, BIMSTEC, Act East etc. • Inland Vessel Act 2021 with and understanding of key reforms, critical features and its implications

#	Areas of work responsibility		Competency Requirements
			• River conservancy, river training (focused on siltation management), riverbank management /mitigation of impact from vessel operations on riverbank • Latest technological developments in dredging and channel maintenance • Inland waterway transport vessel design and requirements • Indian river morphology and river behavior • Fairway and Navigational infrastructure development management and maintenance • IWT Terminal Operations and Management • Equipment operations • PPP Models, formulation, contracts, monitoring and contract management of PPP contracts • Project management • Business development and commercial aspects of Inland Waterways • Advanced IT/digital applications on IoT, GPS/Navigation, cargo tracking and security and Terminal Operation Systems • Logistics Management and commercial pricing strategy including Logistics business KPIs • Project Finance
		Sagarmala & PPP division	• Project management focused on monitoring and tracking of Projects • Project Risk identification and Mitigation strategies • PPP Models, formulation, contracts, monitoring and contract management of PPP contracts • Understanding of Ports terminology Berth/Dock/Crane/ Terminal/Yard, draft, dredging etc. • Regulatory framework in maritime space (for e.g., fundamentals of IMO regulations, Environmental laws) • Technological trends impacting the strategic work of the Ministry (for e.g., automation of ports, new trends in draft management, big data analytics for port management etc.
		Development Division	• Regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) &Department of Personnel and Training (DOPT) • Port management and operations including Tender and Procurement management • Procurement of dredging contractors, manuals including dredging guidelines and management of dredging operations
		Administration Division	• Accounting/Cash Management • LTA/Travel Booking/Event Management • Regulations issued by DAR&PG and DOPT • Office inventory management • Management of Legal issues and court procedures on behalf of Ministry • Inventory and procurement management of stationery/furniture/equipment and of O/M contracts

#	Areas of work responsibility		Competency Requirements
		Transport Research Division	• Data compilation and reporting on NMP (MoPSW) and ULIP (Logistics Division, DPIIT) of shipping, port operations, throughput, productivity and other data parameters • Regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) &Department of Personnel and Training (DOPT)
		Coordination and IPA Division	• IT applications of ports and emerging digital technologies (given IPA mandate for Port Digitalization of Major Ports) • HR Management with specific focus on wage negotiation (including Productivity Linked Reward scheme), labor law related regulations applicable to Port sector • Project management (structuring, evaluation, implementation, monitoring KPIs, etc.) using technology and relevant IT tools
		Major Ports	• Estate management and Estate development & Monetization • Project management • PPP Models, formulation, contracts, monitoring and contract management of PPP contracts • Ro-Ro operations and management • Ro-Ro vessel design and operational requirements • Automation in cargo handling and stevedoring operations • Port automation and digitalization global trends • Developments in container design and cargo handling on container, bulk and liquid cargo • Global trends in international commerce/trade patterns and its implications for maritime sector • Global trade patterns and domestic trade flow, macro and micro influence for long term planning of infrastructure • Setting of tariffs and strategic pricing • Revenue Optimization from Port Operations • Financial planning and management • Multi-Modal Logistics Operations • Procurement of Electricity and regulatory laws • Ship building and Ship repair • Adaption of best global practices in maintenance/repair of Port related • Latest technological developments in capital and maintenance dredging • Business development of ports and port based SEZ & Dry Ports
		Directorate General of Lighthouses and Lightships	• Advanced digital technologies used in Navigation/ATON/VTS space • Heritage maintenance and Tourism related opportunities

#	Areas of work responsibility		Competency Requirements
		Directorate General of Shipping	• Global practices/ emerging trends on regulation vessels, operational safety and fitness audit of the vessels • International conventions and maritime law • Handling IMDG Cargo • Unmanned/remote controlled ships/marine drones/ submarine drones including best global practices/ emerging trends on regulation vessels, operational safety and fitness audit of the vessels
2)	**Behavioral competency**	Coordinate and control private operators/ service providers	• Negotiation skills • Communication skills • Interpersonal skills • Diplomatic sensitivity • Networking • Result oriented approach • Work ethics • Behavioral and motivational training to align with departmental goals • Leadership module for senior officers including behavioral aspects and Human Resource Management
		Coordinate with other ministries and parliament	
		Negotiate with foreign governments and agencies	
		Smooth grievance redressal for citizens; Marketing and branding	
		Develop focus areas to match the latest global standards	
		Team development and management	
		Citizen centric work	• Smooth grievance redressal for citizens; Marketing and branding • Module on social engagement with local community/CSR • Port contribution to local education and health • Port contribution to skill development and employability • Effective civic management of port authority areas in partnership with municipal authorities • Port response to support local community during natural emergencies • Leveraging Port as a means of tourism development/citizen recreation
3)	Functional competency	Data management	• Digital documentation handling – know how to review and various compliance requirements • Digitalization of Ministry's data • Efficient E-File management system
		Procurement and Contract management	• Formulation and tracking of contracts • Efficient use of GEM for procurement and developing SOPs to address issues/challenges faced using GEM

#	Areas of work responsibility		Competency Requirements
		Administration	• Regulations issued by Department of Administrative Reforms and Public Grievances (DAR&PG) &Department of Personnel and Training (DOPT) • Development of E database for organized documentation in different categories and SOPs for documentation management
		Drafting and presentation skills	• Basic drafting skills for response to RTIs, RFI's • Better drafting skills for preparation of Cabinet notes • Basic computer skills such as MS word, excel, power point including presentation skills)
		Automation and Process Efficiency	• Introduce latest technology to make system efficient • Sector related systems such as IPCS Platform etc. • Training on technology-based tools/ software • Automation in cargo handling and stevedoring operations • Familiarization with port automation, digitalization and global trends
		Finance	• Capacity building and Trainings of experts on the following subjects ○ Knowledge and adoption of GFR rules and regulations ○ Financial planning/ Budget management ○ Modules providing knowledge of Taxation system of GoI ○ Strategic & Analytical thinking ○ Training in cost analysis ○ Module on Financial management including accounts and Taxation • Long term Investment plan for Ports
		Legal	• International practices for formation and compliance of Laws • Legislative and regulatory developments worldwide for transparency and eliminating unfair trade practices

7. Capacity Building Plan

The previous section identified the competencies which are required to strengthen the effective functioning of the Ministry. This section covers the elements of capacity building plan and initiatives, which can be considered for strengthening the various competencies of the divisions under the Ministry.

7.1. Capacity Building Initiatives

Based on the ease of implementation (ease of modifying existing programs to specific needs, cost and time requirements), stakeholder buy-in, etc., the competency related initiatives have been categorized into **immediate priority initiatives and critical initiatives.** Additionally, certain requirements have been identified that are common across Ministries and are necessary for meeting the overall objective of the Program and these have been categorized under institutional and technological requirements that also need immediate resolution.

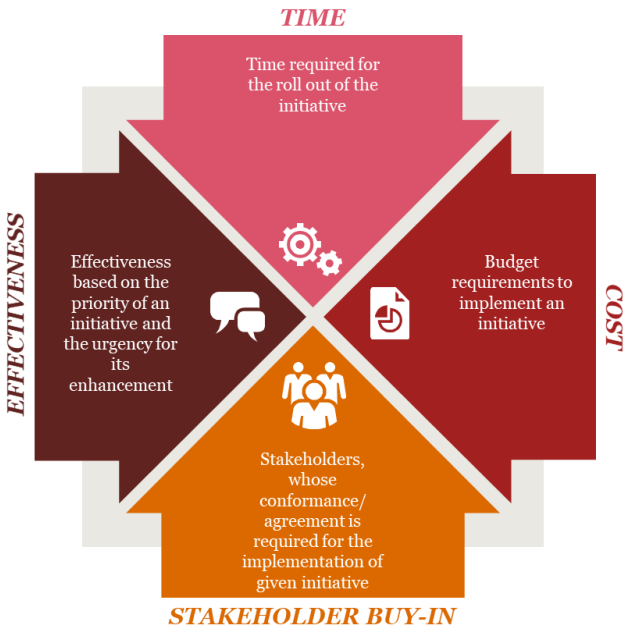

Figure 11 - Key considerations for identification of initiatives in short - medium term

Immediate priority initiatives are those that can be implemented on an immediate basis for high impact and can resolve many key concerns without requiring enormous budget and planning. The **critical initiatives** are also very important to be undertaken that can be operationalized in a very short span of time to address the critical competency development / upgradation requirement on a priority.

With respect to the **long-term capacity enhancement initiatives,** these can be undertaken in the medium term based on the outcome of the in-depth study and assessment of larger institutional and technological issues that can be common across the Ministries. These assessment would need to be a continuous and iterative process and the initiatives recommended may be required to be updated / modified from time to time with customization at a division / department / specific level. The benefit of such capacity building planning is that it would build expertise in the divisions/departments and better align them with the organizational goals/ objectives.

However, based on the preliminary assessment, Government may undertake and implement the immediate priority initiatives, and critical initiatives followed by long-term capacity enhancement initiatives.

Certain key issues have been identified by the various Divisions and other undertakings of MoPSW that are also common across the various other Ministries with whom consultations have been undertaken under the NPCSCB. However, such issues may require a further detailed study to develop action plan for their addressal that can be in the as institutional capacity building plans.

7.1.1. Immediate Priority Initiatives

The **Immediate priority initiatives** have been identified in this section based on the domain, functional and behavioral competency requirements identified in section 4 and 5, along with the implementation strategy and these can be to be taken up on an urgent basis for high impact.

I. Domain specific competencies development

- **Immersion programs** that exposes the staff to various divisions / departments of the Ministry and provides them a broad overview of the work undertaken by each division along with providing them with new skills / upskilling with skills to be able to discharge their responsibilities efficiently in view of the changing business scenarios and technologies.

II. Functional competencies development

- A formal upskilling process related to the functional aspects of the role such as stakeholder engagements that activity has multiple impacts hence very vital for the Ministry and to ensure that the objectives are met. Upskilling on the administrative functions for each role

III. Behavioral competencies development

- Training on ethics, work values, leadership and motivation

The table below provides the description of the various **immediate priority initiatives** along with the key target staff for these training with content and the implementation strategy

Table 7.1 – List of Immediate priority initiatives to be undertaken on an immediate basis

#	Competency	Initiative Description	Staff	Implementation Strategy
1)	Functional	Training Module(s) for Familiarization with/refresher course covering: a. Manual of Office Procedure b. Regulations Issued by Department of Administrative Reforms and Public Grievances (DAR&PG) c. Regulations Issued by Department of Personnel and Training (DOPT) d. Service Rules e. General Financial Rules (GFR) f. Rules related Submission of Cabinet Note g. Basic Drafting Techniques for different categories official communication	All ASO/SO/DS in Ministry All equivalent secretarial and admin staff in Ports/Agencies	**ISTM Plus:** Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content. Interactive module to include application of these rules to MoPSW specific situations

#	Competency	Initiative Description	Staff	Implementation Strategy
2)	Domain	Orientation' Module for all new joinees to the Ministry	All Officials in the Ministry including Major Ports and agencies	**To be developed by MoPSW:** This should be a domain specific orientation and/or familiarization specific content relevant to the domain of the Ministry. It can be an **o**nline module to be interactive with audio-visual experiential content wherever required. Module to include a. 360^{o} understanding of the Ministry work, role and responsibilities b. Structure and working of the Ministry c. The Ministry's role in big national programs (Atmanirbhar/PM Gati Shakti/Act East etc.) d. The Ministry's flagship projects (Sagarmala, MIV 2030, JVM etc.) The modules can be customized for different levels if needed/desired (i.e., S/AS/JS level, Director/DS level etc.) In the longer division specific induction modules, specialized to the domain of the respective divisions, and dealing in greater depth with these domains, will have to be developed. These will be supplemented by immersion programs to familiarise officers of the unit with actual working at the ground level.
3)	Functional	Explanation on different aspects of ports, shipping, and maritime transport, operations, and regulations. Introduction to all relevant terms used in Ports, Shipping Operations and Logistics Management, Maritime Transport. Maritime Regulations and all other technical terms useful for the MoPSW, Ports and Agencies.	Accessible to all officers and staff in the Ministry/Ports/Agencies This would be especially useful for admin and non-technical officers and staff in Ministry/Ports/Agencies, improving their appreciation of the sector they are working in, and helping improve their processing, drafting, and reporting. It would also allow cross-functional understanding and appreciation Once developed, this would remain as an institutional asset for the Ministry	**To be developed by MoPSW** A consultant with experience in AV and digital content to be hired (MoPSW can look to multilaterals like ADB or World Bank that specialize in such interventions for further guidance). The content of the films and **digital glossary** to be verified by independent domain experts. Clicking on the glossary would link to both a textual explanation, but also an interactive digital content providing visual explanations. Such visual explanations to include short relevant segments of the films on different topics

#	Competency	Initiative Description	Staff	Implementation Strategy
				Key definitions to be covered under the digital glossary are provided in Annexure 5
4)	Domain	Specialized 'familiarization' modules fresher senior officers (S/AS/JS/D) focusing on domain specific issues such as: a. Emerging regulatory frameworks in maritime space (for e.g., fundamentals of IMO regulations, Environmental laws) b. Emerging tech trends impacting the strategic work of the Ministry (for e.g., automation of ports, new trends in draft management, big data analytics for port management etc.) c. Geo-strategic issues related to India's competitiveness including trade and connectivity.	AS/JS/Director in the Ministry Head/Dy, Head of Agencies Chairman/Dy. Chairman in Ports	**Domain specific orientation and/or familiarization specific content to be developed by MoPSW** Online module to be interactive with audio-visual experiential content wherever required. Consultant support to include integrating learnings from leading global centers of excellence in this domain, for e.g., Kuhne University
5)	Functional	Drafting and Written Communication a. Document summary and precis writing b. Advanced skills in using MS Office applications c Power Point Presentation- including tables/graphs/figures etc. d. Detailed SOPs on drafting of Cabinet Notes, Notifications, Circulars, Public Notice, Press Releases etc.	All Officials	**ISTM:** Appropriate coursework should be available in ISTM.
6)	Domain	Training on the following with specific reference to PPP a. Interpretation of Contracts b. Contract Management c. Contract Formulation d. Contract Monitoring	JS/Director/DS/US/SO in Sagarmala and Ports Division of the Ministry All Senior Management in Ports All officers in Port Marine, Traffic, Civil, and Finance Departments Relevant Officers in IWAI	**ISTM Plus:** MoPSW to explore options for an appropriate course that may exist in the ISTM system. However, course material in the ISTM would not be comprehensive and most certainly not include issues specific to Ports and Shipping related PPP. Available ISTM course material to be upgraded in collaboration with FCO, UK, IIM-A or other relevant institutions. IMU can play the anchor role in developing this upgraded curriculum, and integrate practical case study example to illustrate issues in PPP contracts and their management specific to ports and shipping sector
7)	Domain	Project Management Monitoring and Implementation a. Project evaluation (tech/financial/commercial) b. Project Milestone monitoring and associated KPIs	JS/Director/DS/US in Sagarmala and Ports Divisions, and Development Wing of the Ministry All Senior Management in Ports All officers in Port Marine, Traffic,	- Same as above -

#	Competency	Initiative Description	Staff	Implementation Strategy
		c. Identification of Project bottlenecks and mitigation strategies d. Introduction to project evaluation/management analytics (financial/operational)	Civil, and Finance Departments Relevant Officers in IWAI	
8)	Functional	Stakeholder engagement and communication with focus on requesting information and following up Creating shared information and document management	All Officials	**ISTM:** ISTM to have a comprehensive module on this subject considering the pervasiveness of this function. If an appropriate module does not exist, MoPSW Capacity Building Cell should work closely with CBC and ISTM to develop one A short module on: • Stakeholder engagement and communication • Requesting and collating of information from stakeholders, and following up • Information and policy dissemination • Creating shared information and document management (Google Docs for e.g.)
9)	Domain	Revenue Optimization from Port Operations, focusing on a. Estate business b. Cargo business c. Vessel d. Other revenue streams	All officers in Finance Department of Ports Chair/Dy. Chair and all HoD/Dy. HoD in Ports JS/Director/DS in Ports and Sagarmala Division of Ministry	**To be developed by MoPSW** MoPSW to develop comprehensive curriculum drawing from global centers of excellence such as University of Rotterdam, Kuhne University or STC Netherlands. IMU can serve as the nodal entity for coordinating the curriculum development, supported by consultants. Once the modules are developed, IMU can roll out the course that include interactive scenario building and problem solving using actual practical situations. This is a critical area given transition to Landlord model of Port management
10)	Domain	Introductory and Advanced Module on Financial Planning and Development of Port Business, including a. Strategic Pricing/Costing b. Developing Long Term Investment Plan for Ports	All officers of Admin/Traffic/Finance Department of Ports Chair and Dy. Chair of Ports Relevant officers by nomination in IWAI Relevant officers by nomination by DGS	**To be developed by MoPSW** MoPSW to develop comprehensive curriculum drawing from global centers of excellence such as University of Rotterdam, Kuhne University or STC Netherlands. IMU could serve as the nodal entity for coordinating the curriculum development, supported by consultants. Once the

#	Competency	Initiative Description	Staff	Implementation Strategy
				modules are developed, IMU could roll out the course that should include case studies, scenario building and problem solving. Pricing and costing sub-modules should include 'live gaming' methodologies requiring participants to react to simulated situations of actual competition scenarios. This is a critical area given transition to Landlord model of Port management as mentioned earlier.
11)	Domain	Global Best Practices and Standards for Dredging a. Innovations and new approaches b. Dredging Project Management Best Practices c. Procurement of Dredging Equipment/Dredging Contracts d. Familiarization of EU/Japanese/US manuals and standards	All officers of Dredging Corporation of India All DS/JS/Director level officers that have an operational/oversight or monitoring role for dredging operations (in Ports wing/Sagarmala) All relevant officers in the Ports (Marine Department) All relevant officers in IWAI managing operations/procurement/oversight for dredging	**To be developed by MoPSW** A comprehensive online course to be developed on dredging, with separate modules on technology, project management, procurement, standards etc. NTPCWC (IIT Chennai) can be the nodal institution that is assigned the task of developing this curriculum, in partnership with global centers of excellence such TU Delft. In addition, Indian centers of excellence such as Maritime Research Centre, Pune, can also be integrated in the curriculum development to incorporate niche elements such as Underwater Domain Awareness (UDA)
12)	Behavioral	Module focusing on change management and behavioral change aspects to make officials ready for this transition: a. Proper course on organizational leadership b. Ease of Doing Business for Port users with the objective of Customer satisfaction c. Stakeholder engagement and effective communication to port's customers d. Marketing It is important to note that with the loss of monopoly of Major Ports (rise of large minor ports) and with the landlord model coming into play (TAMP no longer the tariff setting authority), Major Ports would be responsible for competition management as a critical task. These skills would be key to meet that mandate	Focus on Grade 1 and 2, starting with officers who will be taking over the leadership roles at major ports 2 to 3 years down the line to prepare them for this transition	**To be developed by MoPSW** It is recommended that this course, incorporating the behavioral aspects of leadership needs to be a comprehensive residential one, on the model of what is available in Mussoorie for senior officials. This course should be viewed as one that is creating the next-gen leadership cadre for India's Major Ports, that are strategic assets for the GoI With that context a long-term agreement to develop this course specifically for Major Ports can be put in place, drawing best in class faculty from IIMs and global centers of excellence like Kuhne University. Capacity Building team in MoPSW can work with

#	Competency	Initiative Description	Staff	Implementation Strategy
				advisors drawn from senior faculty in IIMs etc. to develop this course
13)	Domain	Modules on: a. Estate Management b. Estate Development and Monetization (in addition, the Modules on Project Management and PPP would also be relevant)	JS/Director/DS/US in Sagarmala Division and Ports Division All officers in the Civil Engineering, Admin and Finance Department in Ports, and all HoDs Relevant officers in IWAI and DGLL	**ISTM Plus:** Given the criticality of this subject to overall GoI system given the focus on asset monetization, ISTM to develop a comprehensive course on this subject. IMU, in consultation with domain experts, to also develop an interactive case studies and scenario building exercises using examples specific to MoPSW domain. This could be offered independently or together with Modules on Project Management and PPP .This is a critical area given transition to Landlord model of Port management as mentioned earlier. It is recommended that global best practice and top domain experts are included to develop modules for all ports. Institutes like Kuhne, and immersion with estate business teams in major global ports like Singapore (Temasek), Hamburg, Antwerp etc. are explored
14)	Domain	**Advanced Course on Business Analytics and Maritime Economy, with specific modules on:** a. Global trends in international commerce/trade patterns and its implications for maritime sector b. Recent industrial development patterns in India and trade lane priorities c. Business development and marketing for Port services d. Fundamentals of Port led growth and industrialization e. Forecasting and analytical techniques for Port and Maritime business	Class 1 officers in Traffic (Class 2 officers optional)	**To be developed by MoPSW** MoPSW to develop comprehensive curriculum drawing from global centers of excellence such as University of Rotterdam, Kuhne University or STC Netherlands. IMU can serve as the nodal entity for coordinating the curriculum development, supported by consultants. Once the modules are developed, IMU can roll out the course that include interactive scenario building and problem solving using actual practical situations**.** This is a critical area given transition to Landlord model of Port management As Major ports compete with private minor ports, and seek to attract cargo from regional hubs outside India to improve the frequency of port of call through increased predictable cargo demand due to cargo agglomeration,

#	Competency	Initiative Description	Staff	Implementation Strategy
				the business development perspective for port management must be a critical priority

7.1.2. Critical Initiatives

The **critical initiatives,** competency wise, for operationalization in a very short span of time have been identified in this section.

I. Domain specific competencies development

- **Induction training programs** to provide new joinees (even if transferred within the same Ministry to a different section) with a broad overview of the work undertaken by each Unit/Section, and particular responsibilities to be undertaken
- **On-site training programs** to enable practical and on-ground understanding of technical matters/ latest developments in the concerned focus areas. For instance, organizing a workshop at an aircraft manufacturer's unit to understand the safety and technical aspects associated with an aircraft.

However, it is important to note all the training programs need to be continually updated and kept abreast with the latest technology and best practices for which a systematic approach if required for the capacity augmentation of the institutions providing training as well. One such example is illustrated bellow in Box 1

Box 1: Capacity Augmentation for National Technology Centre for Ports, Waterways & Coasts (NTCPWC)

Capacity Augmentation of NTCPWC
The National Technology Centre for Ports, Waterways & Coasts (NTCPWC) has been envisioned as the centre for technological innovations and evolution of new ideas and breakthroughs for the port and maritime sector. It works as the technology arm of MoPWS and provides the needful technological support to ports, IWAI and other institutions. NTCPWC gives effective solutions to an extensive range of problems being faced in the industry through scientific support and also providing valuable education, applied research and technology transfer in maritime transportation at the local, regional, national and International levels. This Centre was set up as an incubation centre at the Indian Institute of Technology Madras (IITM), Chennai during 2018 and expanded its activities both in research and development of a new campus at Thaiyur, Kelambakkam, Chennai. *(source: NTCPWC Website)* As providing valuable education, applied research and technology transfer in maritime transportation are some of the key roles of NTPCWC, therefor in order to be abreast with sector practices and technology, it requires 1. A system for continuous learning on technical aspects 2. A formal mechanism to convert experiential learning into effective learning material, and ensuring that there are mechanisms for institutional memory of such actual operational experience to be maintained

In order to meet the above two key requirements, it is proposed that

- A virtual network of experts is developed combining local technical experts at various centres of excellence in this domain, i.e., IITs/NITs, PSU Shipyards, and selected current and former employees of IWAI / Ports who have shown exceptional aptitude in various aspects of IWT / Port operations/management. Managing and codifying relevant knowledge, and converting this into learning modules would be the core responsibility of this 'center of excellence'

- Effective problem identification and design that is effective for Indian hydrographic and bathymetric conditions of the coastline and specifically the inland waters, would depend customization of local knowledge and amalgamation of expertise of different domains that can be institutionalized under NTCPWC.

- **As an illustrative example:**

  IWAI staff managing river training and dredging operations would be able to identify operational factors as to why imported dredgers are not performing optimally in Indian conditions and this knowledge.

  Based on this operational feedback, PSU Shipyards ship-design experts (say from Garden Reach), and naval architect department in IIT-Kharagpur can provide customization in dredger design or alternative dredging systems, that can then be adopted. All of this learning and implementation would be codified for future use and can be institutionalized by NTCPWC.

This example provided a good illustration of why such a network of learning connecting practioners, design/engineers, and academic experts are critical, and underlines the need for developing this **'Network of Excellence'**

- **Project management program** that strengthens the capacities of staff in various aspects of managing schemes, particularly in areas such as monitoring, budget management, effective implementation, project marketing, etc.
- **Policy designing and development**
- **Business Case tools** – Divisions require deep understanding of strategic, economic, financial, commercial and management aspects for formulating a comprehensive business case for schemes and programs formulated by it. Advanced level trainings to decision-makers could be beneficial.
- Development of **case studies/ use cases-based approach** to enable learning/ understanding of various technologies

  Additionally, domain specific initiatives may also be required for the enhancing capacity of critical domains and also to ensure the development of resources pipeline for such critical domains. Once such example for capacity augmentation in pilotage services of provided in Box 2 below

Box 2: Capacity Augmentation for Pilotage Services for Vishakhapatnam Port Trust

Capacity Augmentation for Pilotage Services
Pilotage services is a critical and challenging function of all Major Ports as it required managing the navigation of the large vessels through the port's channel, inner harbour, berth de-berthing and turning of vessels. For this purpose, the Pilots need extensive training in the port specific bathymetric and navigational conditions before being allowed to independently handle the vessels, specifically large vessels for navigation within the port limits. Hence the pilotage services at the Major Ports requires highly skilled pilots who have gained experience on the port premises, which usually takes a significant time. Thus, it is important for the Major Ports to retain these pilots.

However, the Major Ports face high attrition rate of the pilots to private sector that offer better remuneration to the pilots and career development opportunities.

This high attrition of pilots has multiple adverse impacts such as shortage of available staff, delay in vessel operations, decrease in the port throughput, increase in demurrage costs to vessels and decrease in traffic and its competitiveness.

The proposed actions for mitigating the shortage of pilots at Major Ports are:

- Development of a 'Centre for Excellence' (CoE) for Pilot training, including training for tug-boat operators could be considered by MoPSW. This CoE would continue to provide a steady stream of Pilots and skilled tug-boat operators. Given the high level of employability of such persons globally, this could be a joint effort with MoSDE. NTPCWC (IIT Chennai) already has facilities, and further upgradation of the same could be considered

- Adoption of technology solutions that lead to greater automation and thereby reduce complexity in piloting operations. MoPSW can consider sensor-based solutions that provide greater ease in operations for pilots and decrease overall time for port entry/exit and berthing/unberthing of vessels in India's Major ports, thereby increasing productivity as well as safety

- MoPSW to also reconsider the renumeration of the Pilots by taking the renumeration offered to Pilots at large non major ports in India and major regional ports outside India as a benchmark as these port would also be be competing for the same skill sets and manpower

- It is suggested that NTPCWC (IIT Chennai) invests further in creating a Center of Excellence in this domain with adequate investment in an advanced Simulator. The Advanced Simulator Technology that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing the Pilots with port specific conditions

- An advanced system that integrates VTS, IoT, GPS, and UDA framework (ref. Commander Arnab Das, MEPC 76/INF.32 IMO and MRC) can be considered for the Major Ports as a strategic medium-term investment that will add value to improving vessel management, environmental monitoring and security aspects for the ports

II. Functional competencies development

- A formal upskilling process related to the functional aspects of the role such as administration, accounting, standard operating procedures, stakeholder management, legal aspects and communication management in order to increase the overall efficiency of the personnel to meet the objectives of the Ministry.

- **Additionally, IT enabled systems** can be developed for transparent communication and leverage institutional knowledge and learning as enumeration in the Box 3 below

Box 3: Leveraging technology for Institutional capacity building

Development of IT Enabled Systems

- **Decision support systems (DSS):** A dedicated DSS, that is integrated across all the schemes and programs of the Ministry, with advanced big data analytics and AI capabilities and alert systems that can go beyond mere data entry to situation analysis including automated monitoring and alerts systems with different interfaces for decision makers and field/operational staff, would greatly improve operational efficiencies and support evidence-based policy making.

- **Development of institutional memory/ data repository systems** to enable to data management and analysis, which would help in efficient knowledge management, effective policy designing, process efficiency, preparing responses for Parliamentary/ public meetings, marketing initiatives, trends analysis.

III. Behavioral competencies development:

- Inculcate output-driven attitude in the employees. Work responsibilities linked to measurable goals for performance evaluation and appraisals
- Orientation training program to inculcate necessary behavioral/ individual skills

The table below provides the description of the various **critical initiatives** along with the key target staff for these training with content and the implementation strategy

7.2 List of critical initiatives to be undertaken in a short span of time

#	Competency	Initiative Description	Staff	Implementation Strategy
1)	Domain	Online 'Induction' Modules for all fresh joinees that are specific to the needs of every dept/wing/division providing a 360º view of the work and functions of that department. Separate Modules each for: a. A module each for Port, Shipping, Admin, Development, and Sagarmala Dept/Wing of the Ministry b. One module for Major Ports c. One module for IWAI d One module for DGS e. One module for DGLL	All new joinees in a new dept/wing of the Ministry/Ports/Agencies	**To be developed by MoPSW** Curriculum development based on comprehensive feedback from the officers of the respective dept/wing/ division with the support of an consultant. Online module to be interactive with audio-visual experiential content wherever required. Field visits and 'situational role play' and problem solving using actual past scenarios to be incorporated
2)	Domain	IT Project Management (Structuring, Evaluation, Implementation, Monitoring KPIs, Typical challenges etc.).	Advisor/US in Coordination wing of Ministry	**ISTM Plus**: ISTM to develop appropriate module with MoPSW specific content in terms of practical example/case studies that can be created as a supporting module by IMU/NTPCWC (IIT Chennai)
3)	Domain	**IWT and Geostrategic Implications:** IWT role in BBIN, BIMSTEC, Act East etc. (strategy role of IWT in the region).	All officers of IWAI Relevant AS/JS/Director/DS in Ministry Optional for interested officers in Ports/Agencies	**Domain Specific Familiarization to be developed by MoPSW** Short AV module explaining and online content to be developed by consultant. Consultant to work with senior IWAI officers to finalize content, with inputs from relevant institutions like IDSA, Naval War College, Goa etc. This module can also be used as an additional sub-component of the 'general Orientation' for all freshers for interested officers outside IWT wing
4)	Domain	Technical Modules on: a. River Conservancy b. River Training	Relevant officers of IWAI	**To be developed by MoPSW** Curriculum development and training could be undertaken by

#	Competency	Initiative Description	Staff	Implementation Strategy
		c. River Bank Management/Mitigation of impact from vessel operations on River bank d. Technological Developments in Dredging/New Dredging techniques suitable to Indian riverine conditions e. Vessel design		NTPCWC (IIT Chennai). Global best practices can be drawn from institutions like STC Netherlands Such modules would require regular updation to reflect changes in tech. and these should make use of global best practices/tech. The training modules to ensure that traditional indigenous methods of river conservancy/training are looked into
5)	Domain	**Environmental Protection specific to IWT** a. Bank and floodplain protection and management b. Riverine ecosystem management c. Management of waterways through protected areas d. Applicable environmental laws and regulations	Relevant Officers of IWAI	**To be developed by MoPSW** Online content to be developed by consultant with the support of domain experts drawn from relevant institutes e.g., STC Netherlands and relevant experts in the NTPCWC (IIT Chennai)
6)	Domain	Regulatory aspects on IWT with a special focus on **Inland Vessel Act 2021,** focusing on key reforms and critical features of the act and its implications	Detailed module for all Senior officers Summary module for all clerical and administrative staff (SO/ASO equivalent)	**To be developed by MoPSW** Curriculum development to be undertaken by Centre for Trade and Investment Law (CTIL), or any other GoI law institution. Interactive FAQ based module to be developed by ISTM since this would be useful to other government entities outside IWAI and MoPSW
7)	Domain	**Business development and effective commercial management of IW operations**	Chair/Dy. Chair in IWAI All HoD/Dy. HoD in IWAI All Regional Directors in IWAI All Traffic and Commercial officers in IWAI	**To be developed by MoPSW** Module to adopt case study approach learning from successful examples in China/SE Asia and also highlight general business management as applicable to logistics business. Combine learnings from Multi-Modal operations and overall freight business development to be included to ensure that IW operations are not seen in isolation, but part of overall logistics/freight business Purely theoretical approach using Business School faculty to be shunned in favor of an approach that combines practical knowledge, with academic learnings from domain-oriented business faculty, if possible, from global centers of excellence such as Kuhne University, STC Netherlands, or institutions in South Korea, and US
8)	Domain	Safety/Security of LPG vessels and vessels carrying Dangerous Goods	Relevant officers of IWAI Relevant officers of Ports	**Domain Specific Familiarization to be developed by MoPSW** Online content to be developed by consultant in consultation with domain experts. Existing modules being offered by Major Ports on these subjects can be used as baseline for further development of curriculum and increased

#	Competency	Initiative Description	Staff	Implementation Strategy
				intractability based on practical operational examples
9)	Domain	Port Management and Operational Evaluation a. Introduction to Port Operational KPIs to assess port development needs b. Tender management/Procurement for Port Development project	All officers of the Port Development Wing in the Ministry DS/Director/JS/US in Sagarmala Division of the Ministry All HoDs/Dy. HoDs in Ports Officers of the Port Civil/Mechanical/Marine Departments	**To be developed by MoPSW** Such courses were available at the Port Management Institutes which have now been subsumed into IMU. But IMU no longer offers these courses. IMU can re-initiate such courses with an upgraded curriculum. Curriculum upgradation can be done in cooperation with global centers of excellence such as TU Delft
10)	Domain	**Electricity Distribution** a. Procurement b. Legal and regulatory management	All officers in Electrical and relevant officers in Admin and Estate department of Ports	Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content on relevant provision of law and rule & regulation for procurement and liaison of utilities with local authorities, stakeholder management and legal issues. This can be developed as a sub-module of other modules on legal matters and procurement and can be coordinated through IMU or other MoPSW institutions
11)	Domain	Environmental Aspects of Port Ops/Management. Focus on: a. Environmental footprint of Ports b. Best practices in energy efficiency practices in port ops c. Pollution control and management best practices and tech d. Concept of a 'Green' Port e. Other relevant topics	All officers in Civil/Mech/Marine Departments of Ports Chair/Dy. Chair Ports JS/Director/DS/US in Ports Division of the Ministry	**To be developed by ISTM** Course curriculum development and roll-out of this module can be done jointly between JNPT-Antwerp Port Training and Consultancy Foundation and NTPCWC (IIT Chennai)**.** NTPCWC (IIT Chennai) to be able to source global best practices and expertise through its network
12)	Domain	Social Engagement with Local Community/CSR Focus on Best Practices and Ideas globally on the aspects below: a. Port/Facility contribution to local education and health b. Port/Facility contribution to skill development and employability c. Effective civic management of port authority areas in partnership with municipal authorities d. Port/Facility response to support local community during natural emergencies e. Leveraging Port/Lighthouse/Terminal as a means of tourism development/citizen recreation f. Other relevant areas as identified	Chair/Dy. Chair in Ports All HoD/Dy. HoD in Ports JS/Director/DS in Ports Division of the Ministry	**ISTM Plus:** Develop course that combines the general principles of CSR and community engagement with specific aspects applicable to Ports and other facilities managed by MoPSW. These include lighthouses, inland water terminals and locks or extended port gates managed by MoPSW. Recommendation is that as general aspects of CSR/Community development is an area of common interest across infrastructure related ministries and departments in GoI, ISTM to develop a comprehensive general course. IMU can work with its global networks and MoU knowledge partners to identify course material and trainers on this topic and develop the MoPSW specific modules on this subject
13)	Domain	Specialized Technical Modules on RoRo, to include:	Relevant Officers in Engineering/Marine and	**To be developed by MoPSW** MoPSW to develop comprehensive

#	Competency	Initiative Description	Staff	Implementation Strategy
		a. Familiarization with RoRo Ops (online gaming style features would add value) b. Technical module on RoRo infrastructure development (both seaside infrastructure like jetty/floating pontoon, and landside RoRo handling/parking) c. RoRo vessel design and fitness parameters- international standards and assessment techniques d. Automation in RoRo Operations e. Repair and Maintenance of RoRo Operations	Traffic Departments in Ports All Regional Directors in IWAI, and other relevant officers Engineers and Surveyors in DGS Optional for Officers in Shipping Division of the Ministry	curriculum drawing from global centers of excellence such as Kuhne University **or** STC Netherlands. JNPT-Antwerp Port Training and Consultancy Foundation could serve as the nodal entity for coordinating the curriculum development, supported by consultants. Once the modules are developed, JNPT-Antwerp Port Training and Consultancy Foundation could roll out a combination of online and practical training
14)	Domain	Operations and Business Development of RoRo a. RoRo Operations Management-International Best Practices b. RoRo Commercial Principles and Business Development	Relevant Officers in Engineering/Marine and Traffic Departments in Ports All Regional Directors in IWAI, and other relevant officers Optional for Officers in Shipping Division of the Ministry	- Same as above -
15)	Domain	**Multi-Modal Logistics Operations** a. Commercial Operations and Business Development b. Management of Multi-Modal logistics services	All officers of Traffic and Admin Department of Ports Chair and Dy. Chair in Ports Relevant officers from IWAI by nomination JS/Director/DS/ in Ports, Shipping and Sagarmala Division of the Ministry	**To be developed by MoPSW** Increasingly, ports are offering end-to-end services in partnership with logistics supply providers. Understanding of such end-to-end multimodal services are critical for port business development teams as the transit to a Landlord model Develop online interactive sessions with business development teams that are engaged developing markets for service multiple services offerings such multi-modal service at major global ports (for e.g., Rotterdam, Long Beach, Busan etc.). Such real experiences can be a part of this training module, or can consider partnering with major logistics centers of excellence, such as the Kuhne Logistics University
16)	Domain	SOPs and Best practices for a. Maintenance/Repair of Port related equipment b. Material/inventory management	Officers and Staff of Mechanical Engineering Department	**To be developed by MoPSW** Curriculum and training program for all ports could be designed on the subject by JNPT-Antwerp Port Training and Consultancy Foundation
17)	Domain	**Development and Management SEZ/Dry Ports** a. Business Development for SEZ/Dry ports b. Value-added services c. Regulatory management	All officers in Traffic and relevant officers in Admin department of Ports Traffic and commercial officers of IWAI	**To be developed by MoPSW** Capacity building team in MoPSW can reach out to partners like the Singapore government (and Temasek) to develop customized modules on the subject that can be delivered in partnership with IMU acting as an anchor
18)	Domain	**Heritage Management** Several lighthouses and older ports have heritage structure	Relevant officers in DGLL including lighthouse station	**ISTM** Given that heritage management is required across several ministries

#	Competency	Initiative Description	Staff	Implementation Strategy
		or old aesthetic buildings (not officially heritage). These represent potential real estate development opportunities focusing on recreation and commercial uses.	in-charge Relevant officers in Ports	and departments such as Railways, India Post, and some large PSUs that own heritage real estate, ISTM should develop a comprehensive course for this with help of institutions like INTACH. Special issues related to maintenance and development of sea-facing or river-bank old structures could be incorporated using relevant expertise. Also, MoPSW can look to entering into MoUs with port cities like Hamburg, Amsterdam, or London that have done an excellent job in monetizing their heritage assets
19)	Domain	FAL Convention new/modified requirements due to Pandemic, w.r.t. crew change.	All officers of DGS Admin and Nautical departments Marine and Admin Departments and PHO officers in Ports	**To be developed by MoPSW** Comprehensive SOPs and associated Training and Familiarization module that caters to the FAL Convention new/modified requirements due to Pandemic, w.r.t. crew change. Joint Workshops on this topic with other key stakeholders (PHOs, Immigration) to ensure effective implementation and cooperation amongst teams Global expertise and training material to be identified by the Ministry in consultation with IMO
20)	Domain	**Advanced Interactive Digital Modules for Cargo Management/ Stevedoring/ Port Ops** a. Automation in Cargo handling and Stevedoring Operations b. Familiarization with Port Automation and Digitalization Global Trends c. PCS 1x and National Marine Portal (NMP)-Interactive Module allowing participants to use the system and its applications d. Digital Transactions and Exchange of Shipping and Trade Documents and Use of Blockchain Applications	All HoDs and Dy, HoDs in Ports Relevant Officers in Traffic/Finance/Admin and IT Departments in Ports IWAI officers on nomination basis Optional for Officers in Ports/Shipping/Sagarnala Division of the Ministry Relevant officers of IPA	**To be developed by MoPSW** MoPSW to develop comprehensive curriculum drawing from global centers of excellence such as Kuhne University or STC Netherlands. JNPT-Antwerp Port Training and Consultancy Foundation could serve as the nodal entity for coordinating the curriculum development, supported by consultants. Once the modules are developed, JNPT-Antwerp Port Training and Consultancy Foundation could roll out a combination of online and practical training
21)	Domain	**Introduction to Advanced Cargo Handling and Management with focus on:** a. Introduction to Mechanized/Automated Dry Bulk Handling and its Management Principles b. Advances in Liquid Bulk management c. Mechanization of Break Bulk Operations d. New developments in Container Design/Containerized	All officers of Marine, Engineering and Traffic Department of Ports Optional for Admin and Finance Departments of Ports Relevant officers by nomination from IWAI Relevant officers of IPA JS/Director/DS in Ports and Sagarmala Divisions in the Ministry	**To be developed by MoPSW** Different Indian ports (both major and private) are adopting automation/mechanization. Some regional ports like Singapore, Port Klang, Dubai, and Busan represent advanced levels of automation. Therefore, immersion programs (4-6 weeks working alongside relevant teams in these ports) could be explored through MoUs with these automated ports. JNPT-Antwerp Port Training and Consultancy Foundation/Other MoPSW institutions could develop the

#	Competency	Initiative Description	Staff	Implementation Strategy
		solutions for bulk and liquid cargo e. The concept of 'Physical Internet' f. Introduction to adoption of advanced sensors/IoT/ for detection of fires/other hazardous incidents due to compromise in DG/HG g. Introduction to use of new technologies including robotics in control and mitigation of fire and other incidents arising from compromise of DG/HG cargo		relevant partnerships to achieve this. The training module to be developed with a focus on audio-visual features and gaming techniques that allow 'virtual' operational experience. It is important to note that adoption of such technologies in the port operations, while representing a significant short-term capex, will increase productivity and safety while reducing overall operational costs in the longer-run.
22)	Domain	**Shipbuilding/Ship Repair, with focus on** a. Technical Aspects b. Contract management for Repair/Ship Building Operations. c. International Best Practices for Managing Drydocks/Shipyards d. Other relevant modules in this domain as suggested by experts	Officers of Marine and Engineering Department in Ports Optional for officers in Traffic and Admin Departments in Ports Relevant officers by nomination from IWAI JS/Director/DS in Shipping and Sagarmala Division of Ministry Senior Management/Others by nomination from PSU Shipyards	**To be developed by MoPSW** Repairs/Building represent a value-add to the overall port business and source of revenue. This should be perceived as an investment in overall port business development strategy JNPT-Antwerp Port Training and Consultancy Foundation to be tasked with developing a curriculum drawing on global best practices.
23)	Domain	Safe and environmentally sustainable recycling of ships	All officers in Nautical and Engineering Departments of DGS, and all senior management of DGS JS/Director/DS in Shipping Division of the Ministry	**To be developed by MoPSW** Course can be developed and implemented by NTPCWC (IIT Chennai), in consultation with Indian Register of Shipping and Basel Convention Secretariat. These institutions can also provide support in identifying appropriate experts to help develop best in class curriculum and act as faculty This course will support developing capacity needed for enforcement and administrative management of Recycling of Ships Act, 2019
24)	Domain	Familiarization module on unmanned ships/marine drones/submarine drones.	All officers in Nautical and Engineering Departments of DGS, and all senior management of DGS JS/Director/DS in Shipping Division of the Ministry	**To be developed by MoPSW** Module to include global best practices/emerging trends on regulation of such vessels, including their operational safety and fitness audit, and applicable standards that inform the same Course can be developed and implemented by NTPCWC (IIT Chennai), in consultation with IIT Department of Naval Architecture in Kharagpur. Focus to be to identify appropriate experts in India and abroad to help develop best in class curriculum and act as faculty With the help of this course, emerging technology, will proliferate quickly, and hence DGS and Ministry needs to ramp up knowhow and capacity in this area
25)	Domain	Familiarization module on 'hybrid' ships (using alternative	All officers in Nautical and Engineering Departments	**To be developed by MoPSW** Course can be developed and

#	Competency	Initiative Description	Staff	Implementation Strategy
		fuels (LNG) or combination of fossil fuel with wind or solar energy, or hydrogen fuel). Module to include global best practices/emerging trends on regulation of such vessels, including their operational safety and fitness audit, and applicable standards that inform the same	of DGS, and all senior management of DGS JS/Director/DS in Shipping Division of the Ministry	implemented by NTPCWC (IIT Chennai), in consultation with IIT Department of Naval Architecture in Kharagpur. Focus should be to identify appropriate experts in India and abroad to help develop best in class curriculum and act as faculty Emerging technology, will proliferate quickly, and DGS and Ministry needs to ramp up knowhow and capacity in this area
26)	Domain	Familiarization/assessment methodologies/ for MARPOL Annex VI (Prevention of Air Pollution from Ships)	All officers in Nautical and Engineering Departments of DGS, and all senior management of DGS JS/Director/DS in Shipping Division of the Ministry	**To be developed by MoPSW** Domain specific orientation and/or familiarization specific content to be developed. Online module can be developed and should be interactive with audio-visual experiential content wherever required. Consultant support to include integrating learnings from leading experts at IMU and global centers of excellence in this domain, for e.g., Kuhne University can help enhance capacity in this domain
27)	Domain	Modules on: a. Comparative analysis of major Shipping and Maritime related acts in the important economies worldwide b. Best practices and methodologies for rulemaking and developing procedures for compliance from laws c. Toolkit to enable on-demand learning/refresher on all applicable Indian laws that applies to the maritime domain, and associated international laws/treaties/protocols	Relevant officers of DGS Admin and Nautical departments Marine Departments in Ports	**To be developed by MoPSW** The module can be developed together by NLSIU or CTFL in partnership with IMU
28)	Domain	Legislative and regulatory developments worldwide	Relevant officers of DGS Admin and Nautical departments	**To be developed by MoPSW** Workshop can be conducted on the legislative and regulatory developments (specially in US, UK, Australia and Canada) to bring greater transparency and eliminate unfair trade practices in the shipping industry and maritime services. This can be organized jointly by IMU and CTFL
29)	Domain	Familiarization with technologies and applications for long range tracking/monitoring of ships (as per requirement for Sagar Manthan project)	DGS Nautical Branch (detailed module) and DGS Senior management (introductory module) IWAI by nomination DGLL by nomination	**To be developed by MoPSW** A course can be developed and implemented by NTPCWC (IIT Chennai), drawing on expertise from Indian Navy and global centers of excellence in France, UK, and USA
30)	Functional	Stakeholder management for DGLL as lighthouses for an integral part of the local monuments attracting locals as well as tourists a. Communication and Public Relations	Relevant officers in DGLL including lighthouse station in-charge	This training module needs to reflect the broad frontline function of this Station in charge role, including responsibility for being the DGLL face with the local community. It can be a sub-module of to the training on Social Engagement with Local Community/CSR.

#	Competency	Initiative Description	Staff	Implementation Strategy
		b. Stakeholder Engagement c. Social Responsibility		Considering the critical nature of activities of engaging with the local communities, it would need to include behavioral aspects of communication as well as social engagement. If an appropriate module does not exist, MoPSW Capacity Building Cell should work closely with CBC and ISTM to develop one
31)	Functional	**D**rafting of Parliamentary Question Responses and SOPs of Information Gathering for such Questions	ASO/SO/US across Ministry Depts	**ISTM:** Existing online modules available in ISTM to be adopted
32)	Functional	Induction program on e-filing and information management Program to also focus on: a, SOPs in efficient digital storage of information b. Creating long-term institutional memory of all information generated, and its easy access by those who need such information c. Creating standardized digital directories of files and reports that are searchable	All Director/Deputy Secretary rank officers in Ministry and their equivalent in Ports and Agencies All Administrative Staff in Ministry, Ports, and Agencies (ASO/SO/US ranks in Ministry and their equivalents in Ports and Agencies)	**ISTM Plus:** While ISTM has basic modules on e-filing, the subject coverage is far more expansive. Additional curriculum can be developed in collaboration with domain experts in this field identified by IIMs or Institute of Company Secretaries of India (since e-filing and e-knowledge management for institutional memory also has governance and regulatory implications in some cases), with IMU acting as the nodal entity to collate this expertise and develop appropriate modules
33)	Functional	Developing basic desktop research and draft short responses/note/reports on different topics	Such a module to help develop skills for ASO/SO/US undertake basic desktop background research AND draft short responses/note/reports is critical. Otherwise, there is an overdependence on consultants for such activities	**ISTM:**ISTM should have a comprehensive module on this given the pervasiveness of this function. If an appropriate module does not exist, MoPSW Capacity Building Cell to work closely with CBC and ISTM to develop one
34)	Functional	Introduction to Hygiene/Self-care/ and basic emergency response SOPs for pandemic	All Staff in Ports	**ISTM:** Given the relevance of this topic, ISTM should have ready training resources on this subject that can be in the form of an online short interactive module
35)	Functional	Fundamentals of a good APAR	AS/JS/DS in all Ministry Dept HoDs/Dy. HoDs/All other officers in Ports and Agencies that review staff performance	**ISTM Plus:** Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content. MoPSW specific content provide relevant KPIs/criteria which would be particularly useful for Ports and Agencies where review of specific technical and domain specific functions are required. Consultant can be engaged for this purpose
36)	Functional	Module on examination for best practices (examination framework and assessment), as well as adoption of remote examination (given post pandemic priorities) where this is possible	Relevant officers of DGS Admin department	**ISTM Plus:** Given wide certification/examination assessment functions across the GoI ecosystem, such a course would of great usefulness. Sector specific nuances and practical challenges can be collated from officers with past experience and can be converted into interaction case studies.

#	Competency	Initiative Description	Staff	Implementation Strategy
				MoPSW could draw on existing expertise UPSC, AICTE or UGC DGS is responsible for (conducting and assessment) of examinations for related to seafarers/mariners. Many of the examinations represent continued learning/mandatory refresher aspects
37)	Functional	IT Skill Upgradation a. IT Op/Maintenance Contracts b. Managing Outsourced IT Services c. IT Security/SOP in case of issues of data breach	Relevant officers in IT/Admin dept in Ports	**ISTM Plus:** Given this requirement is across Ministries, ISTM to develop appropriate module.
38)	Functional	Management of legal issues and court procedure on behalf of Ministry, including managing lawyers working on behalf of Ministry	Relevant D/DS/US in Ministry Relevant Dy. HoD/Senior officers in Ports and Agencies	**ISTM Plus:** Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content. Interactive module to include working through real examples of legal issues specific to MoPSW, challenges in court procedure, coordination with lawyers Sub-modules focusing on specific areas relevant for a) Ministry, b) Ports, c) DGS, and d) IWAI/DGLL also to be developed with support of consultants. NLSIU can be a preferred partner, and this can be coordinated through IMU or other MoPSW institutions
39)	Functional	Management of Arbitration process	Relevant D/DS/US in Ministry Relevant Dy. HoD/Senior officers in Ports and Agencies	**ISTM Plus (IF Module exists in ISTM)** Existing ISTM modules to be upgraded (or new ones developed if none exist) to be customized with additional MoPSW specific content. Interactive module to include working through real examples of arbitration process specific to MoPSW, challenges in court procedure, coordination with lawyers, and ' mock' arbitration procedures for practical exposure to these processes Sub-modules focusing on specific areas relevant for a) Ministry, b) Ports, c) DGS, and d) IWAI/DGLL to also be developed with support of consultants. NLSIU can be a preferred partner, and this can be coordinated through IMU or other MoPSW institutions
40)	Functional	Understanding of Witness reports in Vigilance cases: Terminology and Concepts	All relevant DS/US/S	**ISTM Plus:** ISTM to develop a course on this subject given its relevance across Government system and multiple Ministries. However, MoPSW specific terminology/case studies for illustration can be an added module developed by IMU with the help of a committee of retired officers in the Ministry who have dealt with these subjects, drawing upon their experience

#	Competency	Initiative Description	Staff	Implementation Strategy
41)	Functional	Drafting response to RTI queries a. Understanding the purpose of RTI legislation, and its role in ensuring transparency b. Rights of stakeholders to that information c. Appropriate structure and rationale of response	All SO/US/DS in Ministry, and their equivalents in Ports and Agencies	**ISTM:** ISTM should have a comprehensive module on this given the pervasiveness of this functions. If an appropriate module does not exist, MoPSW Capacity Building Cell should work closely with CBC and ISTM to develop one
42)	Functional	Familiarization with physical visits to actual facilities like Ports, Terminals, Vessels, Shipyards etc.	For all officers, but especially for roles that are least likely to have any exposure to physical sites and facilities. This includes ASO/SO/US/DS in Ministry and agencies like DGLL and DGS	**To be developed by MoPSW** Complement the Orientation Module and Audio-Visual/Digital Interactive Familiarization with Physical visits to actual facilities like Ports, Terminals, Vessels, Shipyards etc. Physical visits can be complemented with short-term workplace immersion An annual calendar of such physical visits and short-term immersion programs to be developed by the Capacity Building Cell within MoPSW, and monitored for effective utilization across functions JNPT-Antwerp Port Training and Consultancy Foundation could support the design and roll-out of such visits and immersion programs
43)	Functional	Familiarization with IWT operations, technical and regulatory aspects and updated practices	All staff at IWAI and relevant officers at the Ministry	**Capacity building of NINI** to enable it to develop curriculum and AV and digital tools for IWT training needs and support online roll-out of training
44)	Domain	ICU Experience and Pandemic related Emergency Response	PHO officers	**To be developed by MoPSW** Tie-up with relevant Medical Colleges with an affiliated hospital is recommended for an 'immersion' exercise allowing practical experience and exposure to ICU protocols and medical procedures. To be coordinated with AIIMS or other prominent government medical institutions
45)	Domain	Continuous learning on Tax implications for Ports	Officers of the Finance Department in Ports	**ISTM Plus**: Short online modules providing annual updates with illustrative examples applicable to ports. Existing ISTM courses on tax that need to further be enriched with Port specific learnings. Consultant can be engaged by MoPSW to bring such specific content and regularly update
46)	Functional	Efficient use of GEM for procurement, including developing an SOP for MoPSW specific issues/requirements	ASO/SO/US across Ministry Depts Equivalent admin support roles in Ports/Agencies	**ISTM Plus:** Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content, with mock procurement exercises online with support of consultant
47)	Domain	Basic Accounting/Cash Management	ASO/SO/ across Ministry Depts Equivalent roles in Ports/Agencies	**ISTM:** Existing online modules available in ISTM to be adopted
48)	Domain	Training Module on Best Practices and SOPs in LTA/Travel Booking/Event Management	ASO/SO in Admin Dept of Ministry Equivalent staff in Admin Dept of Ports/Agencies	**ISTM:** Existing online modules available in ISTM to be adopted

#	Competency	Initiative Description	Staff	Implementation Strategy
49)	Domain	Module Legal Issues related to Labor and HR focusing on: a. Typical case types b. Legal phraseology c. Applicable laws	Relevant D/DS/US in Ministry Relevant officers in IPA Relevant Dy. HoD/Senior officers in Ports and Agencies	**ISTM Plus**: Existing ISTM modules to be upgraded to be customized with additional MoPSW specific content. Interactive module to include real examples of legal issues specific to HRD issues in MoPSW, challenges in court procedure, coordination with lawyers
50)	Domain	HR Management, including a. Wage negotiations b. Productivity Labor Scheme c. Applicable labor regulation	Relevant JS/Director/DS in Admin Wing of Ministry Relevant officers in IPA Relevant officers in PHRD in the Ports Relevant officers in Admin Dept of DGS and IWAI	**ISTM Plus:** Given that this requirement exists across Ministries, ISTM to develop appropriate module. MoPSW specific content needs to be developed to supplement the ISTM material. This would include special modules on port labor law, case studies of previous challenges and learnings etc from Chennai center of excellence
51)	Functional	Special modules for: a. Management of stationery/furniture other minor procurement b. Management of Outsourced Services for Transport (vehicles) and Other Port related equipment, and their maintenance c. Efficient Management SOPs for the same	ASO/SO/US across Ministry Depts Equivalent admin support roles in Ports/Agencies	Should be a sub-module of GEM Procurement course as mentioned in the row (b) (19) above
52)	Behavioral	Motivational Training: Commitment to work ethics and self-motivation to perform	All officers/staff	**ISTM Plus/Independent Sourcing** this through experts on various subject
53)	Behavioral	Hard Station Posting-Training: Hardship location posting could have an impact on the emotional well-being and motivation of the individual. Special modules focusing on motivational aspects to cope with such postings need to be developed	Relevant officers of DGLL and IWAI	**ISTM:** Given that several arms of GoI require officers and staff to be posted at difficult locations this would be a useful module for ISTM to develop. It is recommended that CBC team in MoPSW takes this up with ISTM

7.1.3. Long-term capacity enhancement initiatives

Certain key issues that have been identified by the various Divisions and other undertakings of MoPSW as well across the other Ministries with whom consultations have been undertaken under the NPCSCB. These issues are related to attrition, shortage of staff, limited development opportunities and the performance appraisal criterion, inter/intra ministerial coordination etc. However, such issues may require a further detailed study to develop action plan for their addressal that can be in the as institutional capacity building plans.

For example, one such issue commonly identified issue is the lack of adequate trainers for providing domain specific training as briefly elaborated in the **Box 4** below.

Box 4 : Engagement of retired or existing employees of the Ministry to conduct Domain training

Engagement of retired or existing employees of the Ministry to conduct Domain training
There has been a restriction of hiring of on roll staff which has led to severe manpower shortage. The existing staff currently provides training to the other personnel in addition to their assigned functions and responsibilities. Given the critical nature of day-to-day port operations management, sparing officers for training presents a big challenge as it adversely impact the day-to-day functions
Retired employees/ senior employees would have relevant and experiential learnings which would help in establishing a direct connect with the staff and likely to be more impactful Appropriate mechanism needs to be developed for the selection of suitable employees for conducting training sessions across various competency categories

Some such key issues requirements have been listed in the Table below with the recommended action that has been derived from the discussions with the diverse stakeholders. However, considering the nature of these issues, further in-depth study may be required to develop an implementation strategy for the same

Table 7.3 – List of issues requiring Institutional and Technological interventions

#	Institutional Issues and Technological Requirements	Proposed Action
1)	Parliamentary questions often have queries on a different aspects of a matter that can only be replied to by subject matter Departments or Ministries. However, the Ministry/Department to whom the first part of the question is addressed, ends up having the primary responsibility of responding all queries even though these may not be relevant to it	Segregation of Parliamentary questions should be done based on the subject matter and allocated to the responsible subject matter Ministry/Department instead of holding the Ministry/Dept, to which only first part of the question is applicable, responsible for responding to the entire query.
2)	The personal development in terms of training undertaken, certifications, upskilling etc are not evaluated and given due credit as part of performance appraisal for promotion and career growth	This would require a systematic change in the manner in which the Annual Appraisal is done and consider due weightage be aloocated to the learning and certification outcomes in the Annual Performance Appraisal report (APAR) and link these to promotion and career growth
3)	The personnel do not have any motivation or incentive for taking the initiative for undertaking learning/certifications for upskilling themselves or acquire new skills.	In addition to assigning weightage to certifications and learnings as mentioned above, a scheme can be launched for awarding cash rewards to the personnel for learning/certifications undertaken by them. The scope and coverage of this scheme can be prepared based on the outcome of these learning/certifications, impact on performance and improved efficiency in discharge of responsibility or capacity to undertake additional responsibility
4)	The job rotation of the personnel between Ministries at short intervals leaves the personnel with little incentive to invest in skills development and upgradation as they are aware that their tenure at the position is short-term	It is proposed that a) ASO/SO/US are given the opportunity to develop specialization in domain verticals, i.e., for 'Infrastructure Sectoral Ministries', 'Social Sectoral Ministries', 'Economic and Economic Sectoral Ministries' and their job rotation is within their specialization verticals such as with different Infrastructure Sectoral Ministries for instance b) The during the process of promotion and setting career development goals, and as mentioned above, the APAR, due consideration is given to training and certifications requirements. The personnel shall then be incentivized to actually take courses/modules as they are made available by the Ministry. c) Excellence in work, which would intrinsically involve being able to acquire domain specific expertise in

#	Institutional Issues and Technological Requirements	Proposed Action
		order to perform duties effectively, should be considered for out of turn promotions
5)	Due to the changing business model of the Major Ports from being responsible for infrastructure development and operations to landlord model, it is expected that certain roles such as those related to traffic and operations may diminish or become redundant.	As the Marine/Traffic team requirements reduce due to transition to landlord model, officers in these departments should be able to transit to commerce/admin related roles for which there would be more requirement. Developing Training Programs for such lateral shift need to be considered to facilitate their transition to evolving responsibilities of the ports such as commercial and port administration roles
6)	There is an overlap between qualification and experiential criteria of hydrography and engineering roles specifically in IWT. However, the current organizational structure of these institutions prevents lateral movement of personnel between the departments. Since hydrography and engineering roles are governed by separate recruitment rules, it prevents lateral shifts, thereby impeding promotional opportunities leading to low morale of the personnel It also prevents development competencies of different technical/operational experience across different wings of IWAI. Such cross-functional competency is essential for a 'whole of organization approach' in IWAI.	Administrative changes to allow lateral shift needs to be implemented in the absence of which, the lack of growth opportunities and effective silo like organizational structure will adversely impact morale of the personnel and adversely impact the ability to leverage a 'whole of organization' approach in IWAI
7)	There is change in the finance function in ports due to dual impact of technology as well as due to organizational/ institutional changes. a) Institutional Change: With the implementation of the Major Ports Authority Act, as major ports graduate to a full landlord model, the tariff and services pricing would be required to be managed by respective Major Ports and not TAMP. This means that the finance department of the Major Ports would have to support in port management with much more analytical and strategic inputs and insights on price discovery, financial sustainability. The previously functions of mostly clerical/book-keeping, record keeping roles would become less relevant b) Technological Change: With the roll-out of National Maritime Portal, much of the economic and transactional data will be auto captured and will not require manual data entry. Similarly, a lot of basic book-keeping/invoicing functions would be become automated. This would be a clear departure from the previously more clerical functions These changes will result in change in the profile of people and functions required for undertaking these functions which would be much more analytical and strategic, and not clerical or merely transactional. Therefore, relevant upskilling and capabilities need to be developed in the port's organization	Relevant upgradation of skill and competencies need to be developed. This can be achieved by capacity building of the existing staff of the ports such a Grade 3 staff and Grade 2 staff in for finance function can be undertaken in the medium-term.

#	Institutional Issues and Technological Requirements	Proposed Action
8)	The institutions are facing shortage of full time employees(FTE) that leads to dependence on outsourced staff which itself results in the following challenges a. Constant deployment of new staff due to high attrition of outsourced staff. This means constant pressure on training new staff and familiarizing them with Ports IT related needs b. Digital security is a concern. While antecedents are checked, given the constant churn and new people coming in, the risk increases. Also, outsourced staff is less accountable than Port FTEs	The recruitment policy may be reconsidered for capacity augmentation of the institutions along with career development / progression plan for the existing staff
9)	The regulations regarding the coastal shipping, port traffic management, vessels and inland waterways that are under the purview of the Ministry have many interfaces with the State Maritime Boards and Inland Waterways Transport (IWT) departments and there is a need to a formal frameworks for coordination and information exchange	The coordination and engagement with State Maritime Boards and respective IWT departments can improve significantly by formulation of standard operating procedure for periodic engagement and through some of the following recommended methods: a. Single Point of Contact to be nominated b. Regular Online meetings be schedule c. Online Message board for updated information exchange
10)	Many states do not have a dedicated inland waterway transport department and the capacity of the State Administrations responsible for IWT is not sufficient to be able to effectively undertake the development and operations in their sector and a safe and efficient manner. They are also not well versed with the technological updates and practices	The capacity building for State Administrations responsible for IWT is an essential requirement as there is increasing focus on IWT as road and rail modes are increasingly under stress. The capacity building can commence with the following key States a. Odisha b. NER States c. Bihar d. Uttar Pradesh e. Kerala f. West Bengal g. Goa h. Maharashtra i. Gujarat

Annexure 1 – National Programme for Civil Services Capacity Building – Six Pillars

1.1. Policy Framework

A competency-based HR policy requires assignment of right person to the right role at the right time. NPCSCB aims to create a robust policy framework towards implementation of such an HR policy in the Government. The policy framework will also enable adoption of modern technological tools such as a digital platform, artificial Intelligence, machine learning and data analytics for monitoring and evaluation of the entire Programme especially quality of the learning content, assessment of user feedback and competency assessment.

Key principles of the proposed policy framework are:

- To complement Physical Capacity Building with an Online Training framework
- Focus on 'On-Site learning' to complement 'Off-Site learning' whereby the civil servant learns in her job environment and only higher order learning is delivered through training institutions
- To create an ecosystem of shared training infrastructure including teaching material and personnel
- To harmonize the functioning of all civil services training institutions (such as Central Training Institutions etc.) and enable them to partner with domestic and global institutions
- To calibrate all civil service tasks to a Framework of Roles, Activities and Competencies including skills (hereinafter referred to as FRACs)
- To partner with all content creators including in-house sources, as well as the private sector to build a content marketplace on iGOT-Karmayogi
- To make available to all civil servants, agnostic to their geographical location and their position in the hierarchy, an opportunity to access training content in Hindi, English and other Indian languages.
- To enable the individual learners to follow self-decided as well as mandated learning paths
- To make Mid-Career Training Programme (MCTP)mandatory for all services including horizontal and combined programs amongst services

1.2. Institutional Framework

The NPCSCB will have the following institutional framework

I. **Prime Minister's Public Human Resource Council** (PMHRC) - A Council comprising of eminent public HR practitioners, thinkers, global thought leaders and representatives of the Indian political leadership under the Chair of the Prime Minister of India, is conceived to be the apex body for driving and providing strategic direction to civil services reforms and capacity building. It will identify areas for policy intervention and approve the National Capacity Building Plan.

II. **Cabinet Secretariat Coordination Unit** - A coordination unit under the Chairmanship of the Cabinet Secretary will monitor the implementation of the NPCSCB. It will align all stakeholders and provide mechanism for overseeing capacity building plans.

III. **Civil Service Capacity Building Commission** - The Civil Service Capacity Building Commission is at the heart of the NPCSCB. It will coordinate the preparation of annual capacity building plans, monitor, and evaluate their implementation and functionally supervise the training institutions (CIA's etc.) for the purpose of creation of shared resources ecosystem. The Secretariat of the Commission will be headed by an officer

in the grade of Joint Secretary (Designated as Secretary to the Commission) to Government of India. The functions of Capacity Building Commission

The mandate of the Capacity Building Commission (CBC) is to:

- Facilitate preparation of Annual Capacity Building Plans of divisions, ministries and agencies
- Prepare and present Annual State of Civil Service Report to the Prime Minister's HR Council
- Make Policy recommendations to Department of Personnel & Training on personnel/ HR and Capacity Building
- Evolve a harmonious de-siloed approach to improve civil service capacity
- Analyze learning/ competency related data from iGOT-Karmayogi, online training platform
- Drive standardization, harmonization, and shared understanding of Capacity Building activities
- Create shared learning resources, including internal and external faculty and resource centers
- Functional supervision over all Central Training Institutions
- Audit of Human Resources in Government and outcomes of the Capacity Building efforts
- Approve Knowledge Partners and Content Validation mechanism for training of civil servants

IV. **Special Purpose Vehicle (SPV)-** A not-for-profit company, under the administrative control of DoPT will be incorporated as a 100% government owned entity for owning, managing, maintaining, and improving the digital assets, i.e., iGOT-Karmayogi- the digital/ e-learning platform, including the IPR of all software, content, process etc. on behalf of Government. The SPV will have the responsibility to create and operationalize the content marketplace and continuously evaluate its utilization. The functions of the SPV are given in para 8.3.

V. **A Programme Management Unit** (PMU) is being set up in DoP&T to interface with support agencies. It will provide program management and support services to the division for rolling out and managing different aspects of NPCSCB.

1.3. Competency Framework

The exercise for defining the Framework for Roles, Activities, and Competencies including skills (FRACs) will be carried out by each Ministry/Department/Organization of Union Government and integrated with the iGOT-Karmayogi Platform. FRACs exercise will define the roles, activities and competencies required at each position in the government Thereafter, work-allocation, notifications of vacancies etc. will be done through the iGOT-Karmayogi platform following the FRACs model. Further, content appropriate to the FRACs model will be provided by participating organizations on the 70:20:10 rule (an indicative 70% training online, 20% on-the-job and 10% physical).

1.4. Digital Learning Framework iGOT-Karmayogi (Integrated Government Online Training Platform)

NPCSCB Digital learning framework consists of

- An online learning platform, iGOT-Karmayogi, will be developed as an integral part of the Digital India stack for capacity building of all government employees. It will provide anytime-anywhere-any device learning to train about 2.0 crores users which was hitherto not achievable through traditional measures.
- Content Curation: The platform is envisioned to evolve into a vibrant and world class marketplace for content modelled on FRACs, supported by a robust e-learning content industry. The content can be curated by individual government ministries or organizations in-house or through knowledge partners. Carefully crafted and vetted content from best-in-class institutions, universities, private content providers and individual resources will be made available as training modules.
- A Special Purpose Vehicle (SPV) in the form of a not-for-profit company will be incorporated as a 100% government owned entity for owning, managing, maintaining and improving the digital / e-learning platform, including the IPR of all software, content, process etc. on behalf of Government A mandatory subscription-based revenue model from all stakeholders has been designed to partly fund the program. DoP&T will fix

and convey the annual subscription fee to all the Ministries and Organizations. For the year 2020-21, it is proposed to be a sum of Rs.431 per employee, which will be paid by the concerned ministry or department

1.5. The electronic Human Resource Management System (eHRMS)

To facilitate digital working environment in Central Government, an electronic Human Resources Management System (e-HRMS) has been introduced in all the Departments. This will help Government to digitally manage the service matters of officials leading to reduction in transaction time and cost, availability of digital records, dashboards for MIS, real time monitoring of manpower deployment as well as serving as a productivity enhancement tool amongst others. The e-HRMS will be integrated with the iGOT-Karmayogi platform.

1.6. The Monitoring and Evaluation Framework

The performance of all users of the iGOT-Karmayogi platform will be monitored and evaluated on Key Performance Indicators (KPIs). This will include the individual learner, the supervisor, the organization, the peer group, the content provider, the content creator, and the technology service providers etc. A Dashboard and an Annual State of the Civil Services Report will capture the KPIs for all divisions, organizations and agencies of the government and document the outcomes of current initiatives, the targets against goals (including key KPIs from the iGOT-Karmayogi dashboard) along with the roadmap for future Public HR management and capacity building

Annexure 2 – Non-Key divisions of Ministry

The Ministry comprises of thirteen divisions for the administration of its overall objectives and functions. The responsibilities of key eight divisions of the Ministry have been provided in Section3 and those of the remaining non key divisions is provided hereunder

Table 0.1 Responsibilities of Non-Key Division

Division	Responsibilities
Official Language Division	The official language section/ Hindi section has been established in the Ministry for implementation of the official language policy of the Union Government. Presently it is under the administrative control of Joint Secretary (Shipping/OL), assisted by Assistant Director. Two committees have been formed for implementation of Hindi i.e. Official Language Implementation Committee (OLIC) and Hindi Salahakar Samiti. Hindi workshops are periodically organized in the Ministry to encourage officials to do their official work in Hindi.
PHRD Division	Port Human Resource Division (PHRD) is responsible for matters related to the establishment and personnel related matter of all Major Ports along with the labor issues, administrative matter of officers and employees, framing of services regulations, pensionary matters, voluntary retirement schemes and productivity linked reward scheme in the Major Ports. Pay and wage revisions of the major ports officers and employees is also done by PHRD.
International cooperation Division	International Cooperation Division of the Ministry is responsible for matters related to maritime engagements with foreign maritime nations, including signing of Agreements/ MoU for bilateral cooperation in the Maritime sector, conducting periodic meetings and negotiations with ASEAN, EU, BIMSTEC and EFTA for Maritime Transport Agreements. The division also compiles inputs on issues related to shipping sector for meetings with foreign countries at Ministry of External Affairs and Ministry of Commerce and Industry.
Finance Division	Finance Division tenders advise on policy matters involving government expenditure, duly factoring in the sectoral priorities/ goals/ objectives and also keeping in view all facets of expenditure management and financial prudence within the overall macro-framework laid down by Ministry of Finance, Govt. of India. The Finance division is headed by Deputy Secretary (DS) who is supported by Under Secretary and Sectional Officer.
Accounts Division	The payment, budget, accounting, cash management and internal audit functions of the Ministry is managed by the Accounts division. The function of organization includes accounting and budgeting. The division is also involved in preparation of the grants relating to the Demands of the Ministry and preparation of the performance budget. It further coordinates for the preparation of replies to the observations of the Comptroller and Auditor General of India (C&AG), the Public Accounts Committee (PAC) and the Inspection reports.

Annexure 3 – MIV themes

The MIV 2030 has identified 150+ initiatives across ports, shipping & waterways sub-sectors spread across following 10 key themes which will work towards growing the Indian maritime sector and make it globally competitive:

I. **Develop best-in-class Port infrastructure -** The twelve (12) Major Indian Ports handle nearly 54 per cent of the total cargo in India and have witnessed around ~4% CAGR growth over last 5 years. As the global shipping market is evolving constantly, there is a need for India to upgrade its port infrastructure to increase its market share. In this theme, MIV has identified key interventions across four (4) key areas i.e., brownfield capacity augmentation; developing world-class Mega Ports; development of transshipment hub in Southern India; and infrastructure modernization.

II. **Drive E2E Logistics Efficiency and Cost Competitiveness -** The MIV targets to reduce the logistics cost in India and increase the efficiency of ports to make India globally competitive. The MIV focuses on mechanization and adoption of new technologies for Ports, better evacuation, cost reduction in operations, coastal shipping promotion and Port land industrialization.

III. **Enhance Logistics Efficiency through Technology and Innovation -** The MIV aims for ease in doing business by enhancing efficiency by creating National Logistics Portal (Marine), digitalization of Maritime processes across stakeholders, Digital-led smart ports, and system-driven port performance monitoring.

IV. **Strengthen Policy and Institutional Framework to Support all Stakeholders** – The MIV aims for overall sustainable growth of the sector by improving governance mechanisms, amendments in existing legislatures, strengthening MCA, promoting PPP, and providing fiscal support and financial resilience.

V. **Enhance Global Share in Ship Building, Repair and Recycling –** The India market share in this category is less than 1% which results in huge growth potential in ship building. MIV 2030 has identified domestic demand channelization for ship building; development of common platforms for ancillary and marine design ecosystem; creation of ship repair clusters; and, promoting waste to wealth through increased scrap usage in Steel industry as key factors to enhance the country's market share.

VI. **Enhance Cargo and Passenger Movement through Inland Waterways – The** MIV has identified huge potential in inland waterways as they are highly economical and an eco-friendly mode of transport. MIV encourages to enhance passenger and cargo movement including terminal infrastructure and fairway development, fiscal and regulatory policies to encourage IW vessel operators and cargo owners and promotion of Ro-Ro and ferry services in India.

VII. **Promote Ocean, Coastal and River Cruise Sector -** The cruise industry in India has grown over 35% in the last 3 years. MIV aims at attractive and stable policy framework to attract global players to India. MIV estimates over eight times growth in next decade with focus on the development of infrastructure to unlock the demand. MIV encourages development of terminals, theme-based coastal and island circuits; cruise training academies island ecosystem development and operationalization of ferry and river cruise terminals on National Waterways.

VIII. **Enhance India's Global stature and Maritime Co-operation -** India's trade with the BIMSTEC nations has grown at more than 10 % annually however, the geographical proximity and maritime connectivity offer even higher potential for collaboration.

India is taking up multiple efforts to develop and strengthen connectivity (ferry, cruise, cargo) with neighboring countries such as Bangladesh, Sri Lanka, Maldives. MIV recommends more collaboration with advanced maritime countries like UK, US, Netherlands, etc.

IX. **Lead the World in Safe, Sustainable & Green Maritime Sector -** India has set target to achieve 40% national energy through renewable sources by 2030. India's Ports have aligned with International Marine Organization's Sustainable development goals. MIV focuses on increasing usage of renewable energy,

reducing air emissions, optimizing water usage, improving solid waste management, Zero accident safety program, and centralized monitoring system identified to further bolster India towards leading the world in Safe, Sustainable and Green ports.

X. **Become Top Seafaring Nation with World Class Education, Research & Training –** MIV focuses on promoting Research & innovation, enhancement of Education & Training, development of conducive ecosystem for seafarers and port led capability development.

Annexure 4 – Gaps identified, and capacity building initiatives for respective divisions / undertakings

Details of the competency gaps identified for each division of the Ministry, Directorate General Shipping. Directorate General Lighthouse, Inland Waterways Authority of India, JNPT Port, Vishakhapatnam Port, Chennai port and Deendayal Port are provided herein

1.1. Shipping Division

Table 0.1 - Shipping Division Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic soft skills for day-to-day functions	Providing basic training on document writing along with training in MS-tools like PowerPoint, Excel focused on data representation (graphs, bar charts figures etc.)
2	Basic drafting techniques for official communication & rules related to cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
3	Training Module(s) for familiarization with basic role of Ministry and different functions including knowledge of office procedure manuals	A basic toolkit for familiarization with concepts for all employees which provides basic information on working of Ports, Berth/Dock/Crane/Terminal/Yard, draft, dredging etc., Multi-modal operations in ports and port traffic management.
4	Estate management	Modules on • Estate management, Estate development & monetization and Modules on Project management and PPP. • Dedicated team for Estate management and monetization needs to be deployed
5	Knowledge of general legal procedures	Training Module for management of legal issues and court procedures and lawyers working for the Ministry
6	General Finance Rules, introductory and advanced module on financial planning and development of port business	Training module for management of financial issues and understanding the general financial rules of the Ministry including strategic pricing/costing and developing long term investment plan for ports
7	Ro-Ro operations and management	Specialized technical modules on Ro- Ro which includes: • Familiarization with Ro-Ro operations • Technical module on Ro-Ro infrastructure development (both offshore and onshore) • Ro-Ro vessel design and fitness parameters-international standards and assessment techniques • Automation in Ro-Ro operations

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Repair and Maintenance of Ro-Ro operations • Modules related to Operations and business development of Ro-Ro • Ro-Ro Operations Management-International Best Practices
8	Cargo operations and management	Advanced interactive digital Modules for cargo management including: • Automation in cargo handling and stevedoring operations • Familiarization with port automation and digitalization global trends • Introduction to mechanized/automated dry bulk handling and its management principles • New developments in container design/containerized solutions for bulk and liquid cargo • Introduction to use of new technologies including robotics in control and mitigation of fire and other incidents arising from compromise of DG/HG cargo • Digital transactions, exchange of shipping and trade documents and use of blockchain applications • PCS 1x and National Marine Portal (NMP)-Interactive Module allowing participants to use the system and its applications
9	Business analytics and Maritime economy	Advanced course on business analytics and Maritime economy, with specific modules on: • Global trends in international commerce/trade patterns and its implications for maritime sector • Recent industrial development patterns in India and trade lane priorities • Business development and marketing for Port services • Fundamentals of Port led growth and industrialization • Forecasting and analytical techniques for Port and Maritime business
10	Ship building and Ship repair	Modules on Shipbuilding/Ship Repair which includes: • Technical aspects and contract management for repair/ship building operations • International best practices for managing drydocks/shipyards • Other relevant modules in this domain as suggested by experts
11	Management of IT Operations	Modules and knowledge of • Contract management of outsourced works • IT Security/SOP in case of issues of data breach
12	Health & Hygiene	• Module for ICU Experience and pandemic related emergency response • Online short interactive module for Introduction to hygiene/self-care/ and basic emergency response SOPs for pandemic

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
13	Environmental & Pollution knowledge	Module for Civil/Mech/Marine Officers on Environmental Aspects of • Environmental footprint of Ports • Best practices in energy efficiency • Best practices for pollution control • Concept of a 'Green' Ports
15	Social engagement and best practices adopted globally	Module to focus on Best Practices and Ideas globally on the aspects below • Module on Social Engagement with Local Community/CSR • Port contribution to local education and health • Port contribution to skill development and employability • Effective civic management of port authority areas in partnership with municipal authorities • Port response to support local community during natural emergencies • Leveraging Port as a means of tourism development/citizen recreation
16	Mandatory courses for level transitions	Special modules for officers undergoing level transition to fully familiarize them with changed expectations, roles, and duties. Such modules would have to be customized to specific roles/departments and respective hierarchies and would best be delivered by experienced former officers who have lived and worked in these roles, in combination with faculty who are experienced in the overall domain of level transition management
17	Developing a 'Centre for Excellence' for Pilot training, including training for tug-boat operators could be considered by the Ministry.	It is suggested that a National Centre of Excellence in this area is developed with adequate investment in Simulator. Advanced Simulator Tech that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing pilots with specific conditions.
18	Port Logistics	• Advanced Module on Logistics Business/Multi-modal Operations • Logistics Management and end to end cargo solution • Commercial pricing strategies and business development • Logistics Operations costing and associated pricing decisions • Logistics business client expectations and KPI • Contracts in logistics business

Table 0.2 - Shipping Division Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Manpower shortage and high attrition rate	Appropriate recruitment of the staff as required

S. No	Gap Identified	Institutional Solution Suggested
4	Dedicated FTEs with combined expertise in Environmental Management and Port Domain Awareness	Alternative solution could be to develop a core permanent team of consultants with such expertise at Ministry/IPA that can service the needs of all Major Ports
5	Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in piloting operations	Advanced system that integrates VTS, IoT, GPS, and UDA framework to be considered for Indian Major Ports as a strategic medium-term investment that adds value to improving vessel management, environmental monitoring, and security aspects for the port
6	PHO and medical services are under stress due to outsourcing of doctors and nurses, and high constant attrition and change of such staff	Need for improved models for contracting of medical staff and developing long-term institutional arrangement with reputed hospitals in port vicinity to leverage support medical staff
7	Module for ICU Experience and Pandemic related emergency response	Tie-up with relevant Medical College with affiliated hospital is recommended for an 'immersion' exercise allowing practical experience and exposure to ICU protocols and medical procedures
8	Need for continuous learning on Tax implications for Ports	Short online modules providing updates of Taxes with illustrative examples applicable to ports for class 1 and 2 finance officers which is applicable to all ports
9	Pay scales for technical functions related to engineering roles	Recommendation is to address this anomaly in pay scales
10	Dedicated faculty for trainings - All training is provided by the current operational staff	Trainings should be provided by dedicated staff (retired officers can be also included) and the faculty (trainers) shall also be trained periodically.

Table 0.3 – Shipping Division Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Data management through technological solutions	Development of secure databases for filing electronic version of different categories of documents, organized by broad subject matter
		SOP for submission of all documents by all officers/staff generating and managing documents to these databases for proper record keeping
		Developing a 'Search' application for this database for easy retrieval of relevant documents later

1.2. Ports Division

Table 0.4 Ports Division Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic soft skills for day-to-day functions	Providing basic training on document writing along with training in MS-tools like PowerPoint, Excel focused on data representation (graphs, bar charts figures etc.)
2	Basic drafting techniques for official communication & rules related to cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
3	Training Module(s) for familiarization with basic role of Ministry and different functions including knowledge of office procedure manuals	A basic toolkit for familiarization with concepts for all employees which provides basic information on working of Ports, Berth/Dock/Crane/Terminal/Yard, draft, dredging etc., Multi-modal operations in ports and port traffic management.
4	Estate management	Modules on • Estate management, Estate development & monetization and Modules on Project management and PPP. • Dedicated team for Estate management and monetization needs to be deployed
5	Knowledge of general legal procedures	Training Module for management of legal issues and court procedures and lawyers working for the Ministry
6	General Finance Rules, introductory and advanced module on financial planning and development of port business	Training module for management of financial issues and understanding the general financial rules of the Ministry including strategic pricing/costing and developing long term investment plan for ports
7	Ro-Ro operations and management	Specialized technical modules on Ro- Ro which includes: • Familiarization with Ro-Ro operations • Technical module on Ro-Ro infrastructure development (both offshore and onshore) • Ro-Ro vessel design and fitness parameters-international standards and assessment techniques • Automation in Ro-Ro operations • Repair and Maintenance of Ro-Ro operations • Modules related to Operations and business development of Ro-Ro • Ro-Ro Operations Management-International Best Practices
8	Cargo operations and management	Advanced interactive digital Modules for cargo management including: • Automation in cargo handling and stevedoring operations • Familiarization with port automation and digitalization global trends • Introduction to mechanized/automated dry bulk handling and its management principles • New developments in container design/containerized solutions for bulk and liquid cargo

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Introduction to use of new technologies including robotics in control and mitigation of fire and other incidents arising from compromise of DG/HG cargo • Digital transactions, exchange of shipping and trade documents and use of blockchain applications • PCS 1x and National Marine Portal (NMP)-Interactive Module allowing participants to use the system and its applications
9	Business analytics and Maritime economy	Advanced course on business analytics and Maritime economy, with specific modules on: • Global trends in international commerce/trade patterns and its implications for maritime sector • Recent industrial development patterns in India and trade lane priorities • Business development and marketing for Port services • Fundamentals of Port led growth and industrialization • Forecasting and analytical techniques for Port and Maritime business
10	Ship building and Ship repair	Modules on Shipbuilding/Ship Repair which includes: • Technical aspects and contract management for repair/ship building operations • International best practices for managing drydocks/shipyards • Other relevant modules in this domain as suggested by experts
11	Management of IT Operations	Modules and knowledge of • Contract management of outsourced works • IT Security/SOP in case of issues of data breach
12	Health & Hygiene	• Module for ICU Experience and pandemic related emergency response • Online short interactive module for Introduction to hygiene/self-care/ and basic emergency response SOPs for pandemic
13	Environmental & Pollution knowledge	Module for Civil/Mech/Marine Officers on Environmental Aspects of • Environmental footprint of Ports • Best practices in energy efficiency • Best practices for pollution control • Concept of a 'Green' Ports

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
15	Social engagement and best practices adopted globally	Module to focus on Best Practices and Ideas globally on the aspects below • Module on Social Engagement with Local Community/CSR • Port contribution to local education and health • Port contribution to skill development and employability • Effective civic management of port authority areas in partnership with municipal authorities • Port response to support local community during natural emergencies • Leveraging Port as a means of tourism development/citizen recreation
16	Mandatory courses for level transitions	Special modules for officers undergoing level transition to fully familiarize them with changed expectations, roles, and duties. Such modules would have to be customized to specific roles/departments and respective hierarchies and would best be delivered by experienced former officers who have lived and worked in these roles, in combination with faculty who are experienced in the overall domain of level transition management
17	Developing a 'Centre for Excellence' for Pilot training, including training for tug-boat operators could be considered by the Ministry.	It is suggested that a National Centre of Excellence in this area is developed with adequate investment in Simulator. Advanced Simulator Tech that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing pilots with specific conditions.
18	Port Logistics	Advanced Module on • Logistics Business/Multi-modal Operations • Logistics Management and end to end cargo solution • Commercial pricing strategies and business development • Logistics Operations costing and associated pricing decisions • Logistics business client expectations and KPI • Contracts in logistics business

Table 0.5 Ports Division Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
4	Dedicated FTEs with combined expertise in Environmental Management and Port Domain Awareness	Alternative solution could be to develop a core permanent team of consultants with such expertise at Ministry/IPA that can service the needs of all Major Ports
5	Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in piloting operations	Advanced system that integrates VTS, IoT, GPS, and UDA framework to be considered for Indian Major Ports as a strategic medium-term investment that adds value to improving vessel management, environmental monitoring, and security aspects for the port

S. No	Gap Identified	Institutional Solution Suggested
6	PHO and medical services are under stress due to outsourcing of doctors and nurses, and high constant attrition and change of such staff	Need for improved models for contracting of medical staff and developing long-term institutional arrangement with reputed hospitals in port vicinity to leverage support medical staff
7	Module for ICU Experience and Pandemic related emergency response	Tie-up with relevant Medical College with affiliated hospital is recommended for an 'immersion' exercise allowing practical experience and exposure to ICU protocols and medical procedures
8	Need for continuous learning on Tax implications for Ports	Short online modules providing updates of Taxes with illustrative examples applicable to ports for class 1 and 2 finance officers which is applicable to all ports
9	Pay scales for technical functions related to engineering roles	Recommendation is to address this anomaly in pay scales
10	Dedicated faculty for trainings - All training is provided by the current operational staff	Trainings should be provided by dedicated staff (retired officers can be also included) and the faculty (trainers) shall also be trained periodically.

Table 0.6 Ports Division Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Data management through technological solutions	Development of secure databases for filing electronic version of different categories of documents, organized by broad subject matter
		SOP for submission of all documents by all officers/staff generating and managing documents to these databases for proper record keeping
		Developing a 'Search' application for this database for easy retrieval of relevant documents later

1.3. Inland Water Transport Division (IWT)

Table 0.7 IWT Division Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Soft skills for day-to-day activities	Toolkit focused on basic document writing, MS word and PowerPoint skills
2	General Finance rules, introductory and advanced module on financial planning and development of port business	Training module for management of financial issues and understanding the general financial rules of the ministry including strategic pricing/costing and developing long term investment plan for ports
3	Knowledge of Legal laws and regulations	Introductory Online course on Regulatory aspects of IWT: Matters under state jurisdiction/central government which include responsibilities of ministries and departmental laws and regulations
4	Office Manuals and procedures	Training Module for familiarization with office procedure manual and induction courses of IWT divisions giving basic knowledge of basic concepts like dredging, Fairway, draft, channel, terminal, berth etc.
5	Orientation module for freshers	Develop an online 'Orientation' Module for all freshers in the Ministry that would include 360' understanding of the Ministry work, role and responsibilities, structure and working of the Ministry, role of Ministry in national and flagship programs like Atmanirbhar/PM Gati Shakti/Act East, Sagarmala, MIV 2030, JVM etc.
6	HSE training	Training modules on safety/security of LPG vessels

Table 0.8 IWT Division Competency Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Use of technological solutions for regional connectivity through IWT	Use of audio-visual tools (digital videos) to explain role of IWT in BBIN, BIMSTEC and Act East.

1.4. Sagarmala and PPP Division

Table 0.9 - Sagarmala & PPP Division, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Knowledge of PPP contracts and monitoring	Training Module that focuses on PPP Contracts and includes management formulation and monitoring of the contracts
2	Knowledge of Project management and Risk management	Training Module focusing on Project evaluation, milestones monitoring and KPI's, identifying bottlenecks and risk mitigation strategies
3	Soft skills for day-to-day activities	Toolkit focused on basic document writing, MS word and PowerPoint skills
4	Awareness of Ministry's functions and operations	Toolkit for familiarization with basic concepts for all employees which provides basic information like how the Ports work, their major components of operations and knowledge of Port traffic management
5	Environment aspects	Develop specialized modules for fresher senior officers (S/AS/JS/D) focused on environmental laws, regulations and clearances required
6	Port Automation	Training modules in • Automation in cargo handling and stevedoring operations • Familiarization with port automation and digitalization global trends

Table 0.10 - Sagarmala & PPP Division, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Data management through technological solutions	Development of an electronic database of FAQs/issues raised by stakeholders related to PPP to help officers look at previous queries/issues raised, and response provided
		Development of secure databases for filing electronic version of different categories of documents
		SOPs for submission of all documents by all officers/staff generating and managing documents to these databases for proper records
		Developing a 'search' application for this database for easy retrieval of relevant documents

1.5. Development Wing

Table 0.11 – Development Division, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Orientation of staff	Training toolkit focused mainly on manuals, technical standards, procurement, and Project Management specific to dredging
2	Port Management	Training Toolkit on Port Management and Operational evaluation focused on introduction to Ports, operational KPIs, tender management, procurement for Port development, project scheduling
3	Basic soft skills for day-to-day functions	Basic training on document writing along with training in MS-tools like PowerPoint, Excel focused on data representation (graphs, bar charts figures etc.)
4	General Finance rules, Introductory and advanced module on financial planning and development of port business	Training module for management of financial issues and understanding the general financial rules of the ministry including strategic pricing/costing and developing long term Investment plan for ports

Table 0.12 - Development Wing, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Skill enhancement of personnel working in HR function	PG Diploma for Human Resource Management/MBA in HR (available with PHRD) to be made compulsory for all HR functions in the Ministry and associated agencies and institutions

Table 0.13 - Development Wing, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Use of technological solution for capability enhancement	AV Toolkit for basic introduction to concepts related to Dredging and Port Operations and a Digital Technical Glossary

1.6. Administration Division

Table 0.14 - Administration Division, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic drafting techniques for official communication & rules related submission of cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
2	Material Management	Training module for efficient management of stationery/furniture
3	Module for promoted staff getting into senior positions	Develop specialized online 'familiarization' modules for fresher senior officers (S/AS/JS/D) focusing on domain specific issues like environmental laws, emerging trends like automation of ports, data analytics of port etc. and their new roles and responsibilities
4	Orientation module for staff	Develop an online 'Orientation' Module for all freshers in the Ministry that would include 360' understanding of the Ministry work, role and responsibilities, structure and working of the Ministry, role of Ministry in national and flagship programs like Atmanirbhar/PM Gati Shakti/Act East, Sagarmala, MIV 2030, JVM etc.
5	Accounting modules	Training Module on Basic Accounting/Cash Management, SOPs in LTA/travel booking/event management

Table 0.15 - Administration Division, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Data management through technological solutions	Database of Past requests/requirements of stationery /furniture /equipment and of O/M contracts to allow better planning and procurement
		Development of searchable digital database of previous Parliamentary Q&A, and FAQs
		Development of automatic reminder to officials whose response is awaited for a particular Parliament question
2	Use of Government portals for procurement management	Training module for efficient use of GEM for procurement including developing SOPs for special requirements of Ministries/common issues and challenges and their resolution when using GEM

1.7. Transport Research Wing

Table 0.16 - Transport Research Wing, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic drafting techniques for official communication & rules related submission of cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
2	Adoption to general financial rules of the Ministry	Training module for management of financial issues and understanding the general financial rules of the ministry
3	Orientation programme for all the freshers appointed in the Ministry	Develop an online 'Orientation' module for all freshers in the Ministry that would include understanding role & responsibilities, structure, and ministry's flagship programs and including familiarization of basic concepts like dredging, fairway, draft, channel, terminal, berth etc.
4	Reforms and regulations of Ministry	Training modules to get officials familiar with acts focusing on key reforms and critical features of the act and implications by the ministry
5	Adoption of general legal procedures	Introductory Online course on regulatory aspects of IWT: Matters under state jurisdiction/central government responsibilities /responsible ministries and departments/applicable laws and regulations
6	HSE Training	Training modules on safety/security of LPG vessels

Table 0.17 - Transport Research Wing, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Shortage of adequate skilled manpower for reporting	Leveraging common pool of data analysts available with affiliated institutes/academies and with CTFL (Logistics Division, DPIIT) to expand the scope, quality, and periodicity of reporting

Table 0.18 - Transport Research Wing, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	IWT and Geostrategic Implications	Short AV module explaining IWT role in BBIN, BIMSTEC, Act East etc. (appreciation of larger picture). This module can also be used as an additional sub-component of the 'GENERAL ORIENTATION' for all freshers for interested officers outside IWT wing
2	In adequate usage of technological solutions in Maritime sector	Ensuring adequate functionalities exist in under-development NMP (Ministry) and ULIP (Logistics Division, DPIIT) to implement

S. No	Gap Identified	Technological Solution Suggested
		regular and automated reporting of shipping, port operations, throughput, productivity, and other data parameters
		Familiarization (digital) toolkit for Inland Vessel Act 2021 focusing on key reforms and critical features of the act and its implications

1.8. Coordination and IPA

Table 0.19 – Coordination and IPA Wing, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic soft skills for day-to-day functions	Providing basic training on document writing along with training in MS-tools like PowerPoint, Excel focused on data representation (graphs, bar charts figures etc.)
2	Basic drafting techniques for official communication & rules related submission of cabinet note	A basic module on standard operating procedures for Stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
3	Adoption of general finance rules and regulations	Training module for management of financial issues and understanding the general financial rules of the ministry
4	Orientation Module and general awareness program	Develop an online 'Orientation' Module for all Freshers to the Ministry that would include 360' understanding of the Ministry work, role and responsibilities, structure and working of the Ministry, role of ministry in national and flagship programs like Atmanirbhar/PM Gati Shakti/ Sagarmala, MIV 2030etc
5	Project Management	Training Module on Project Management (Structuring, Evaluation, Implementation, Monitoring KPIs, Typical challenges)

Table 0.20- Coordination and IPA, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Motivation among the employees	Module on motivational training and commitment to work ethics and self-motivation to perform
2	Human resource development module	Training Module on HR Management (IPA role for PHRD): Additional domain specific curriculum related to wage negotiation (including Productivity Linked Reward scheme) and labor laws related regulations applicable to Port sector

Table 0.21 - Coordination and IPA, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Project Monitoring dashboards/software	Developing a "Performance Monitoring Toolkit' for use by officers, customized for on job performance monitoring for ASO/SO

1.9. Major Ports

1.9.1. Jawaharlal Nehru Port Trust (JNPT)

Table 0.22 – Coordination and IPA Wing, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Environmental & Pollution knowledge	Module for Civil/Mech/Marine Officers on Environmental Aspects of • Environmental footprint of Ports • Best practices in energy efficiency • Best practices for pollution control • Concept of a 'Green' Ports
2	Knowledge of Project & Risk management and PPP	Training Module focusing on Project evaluation, milestones monitoring and KPI's, identifying bottlenecks and risk mitigation strategies, Management of PPP and concessionaire Management in PPPs
3	Multi Modal logistics operations	Module on Multi-Modal Logistics Operations for Class 1 officers in Traffic • Commercial Operations and Business Development • Management of Multi-Modal logistics services • Increasingly, ports are offering end-to-end services in partnership with logistics supply providers. Understanding of such end-to-end multimodal services are critical for port business development teams. • Explore online interactive sessions with business development teams implementing such multi-modal service offering in major global ports as a part of this training module, or look partnering with major logistics centers of excellence, like the Kuhne Logistics University, Hamburg
4	Development and Management SEZ/Dry Ports	Skill development sessions on the following topics shall add value to the JNPT port officials • Business Development for SEZ/Dry ports • Value-added services • Regulatory management
5	Financial Management	Introductory and Advanced Module on Financial Planning and Development of Port Business, including • Strategic Pricing/Costing • Development of Long-Term Investment Plan for Ports Development of modules on the following topics for Chairman/Dy. Chairman, All class 1 and 2 officers of Admin/Traffic/Finance • Global best in class course material, and interactive modules with key experts. • Course material should include case studies, scenario building and problem solving.

		• Pricing and costing sub-modules should include 'live gaming' methodologies requiring participants to react to simulated situations of actual competition scenarios
	Revenue Optimization from Port Operations	Module on Revenue Optimization from Port Operations for Class 1 and 2 officers in Finance department, focusing on • Estate business • Cargo business • Vessel • Other revenue streams
	Need for continuous learning on Tax implications for Ports	Short online modules providing updates of Taxes with illustrative examples applicable to ports for class 1 and 2 finance officers which is applicable to all ports
	Electricity Distribution	Training in Electricity Distributions • Procurement • Legal and regulatory management

Table 0.23- Coordination and IPA, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Landlord model in Ports	Immediate Training of current grade 1 and 2 staff to meet already emerging needs for such skills/functionalities. This would also lead to better transition management to landlord model in the medium-term and provide a bridge to longer-term integration of new hires
2	Appropriate recruitment in time to ensure smooth handover	• Transition is further complicated due to the fact that average age of port management staff (including grade 2 and 3 staff) is around 50 years. Thus, transition planning will have to consider that JNPTs core technical and management talent would be retiring soon. Recruitment planning to be done at the earliest which shall ensure handover is done in a streamlined manner • Immediate Training of current grade 1 and 2 staff to meet already emerging needs for such skills/functionalities. This would also lead to better transition management to landlord model in the medium-term and provide a bridge to longer-term integration of new hires (point B) • Develop a plan for hiring new younger talent focusing on the areas of focus from a landlord port perspective
3	Dedicated team for estate management	• Currently Estate management related activities are being done by Administration and Civil Engineering team which has its limitations. Dedicated team for Estate Management and Monetization needs to be deployed, which shall also include Legal experts (as FTEs) to manage the increasing amount of cases / litigation. • Legal FTEs shall handle legal aspects of PPP, Real Estate, Regulatory, Project management, including arbitration proceedings. Competent legal team would have a bearing on revenue (or loss of it) due to lost or poorly handled litigation
4	Digitalization of Old Data	Dedicated resources for managing the digital maintenance of various records. Institutional memory of the port compromised due to ad-hoc maintenance of digital records, and inadequate

S. No	Gap Identified	Institutional Solution Suggested
		conversion of paper to digital for old records (should be undertaken expeditiously) Potential interventions include: • Relevant training of at least few existing IT Staff in the port IT team for digitalization • Creating a dedicated 'Digitalization team' in IPA to support all Major Ports in this area. Team could be a combination of one/two FTE and outsourced support
	Discrepancy in Pay scales	Pilots need extensive training in local conditions before being allowed to independently handle vessels. However, attrition due to higher private sector salaries is a major issue. This means that Marine department is often short of adequate pilots. This negatively impacts operational efficiency and leads to adverse impact on port competitiveness. Report to IPA has been submitted by High Level Committee to revise pay scales.
	Developing a 'Centre for Excellence' for Pilot training, including training for tug-boat operators could be considered by the Ministry.	It is suggested that a National Centre of Excellence in this area is developed with adequate investment in Simulator. Advanced Simulator Tech that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing pilots with specific conditions.
	Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in Piloting operations	• MoPSW can consider sensor-based solutions that provide greater ease in operations for pilots and decrease overall time for port entry/exit and berthing/unberthing of vessels in India's Major Ports, thereby increasing productivity as well as safety • It is suggested that advanced system that integrated VTS, IoT, GPS, and UDA framework (ref. Commander Arnab Das, MEPC 76/INF.32 IMO and MRC) is considered for Indian Major Ports as a strategic medium-term investment that adds value to improving vessel management, environmental monitoring, and security aspects for the port.

1.9.2. Deendayal Port Trust (DPT)

Table 0.24 - Transport Research Wing, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic drafting techniques for official communication & rules related submission of cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
2	Adoption to general financial rules of the Ministry	Training module for management of financial issues and understanding the general financial rules of the ministry
3	Orientation programme for all the freshers appointed in the Ministry	Develop an online 'Orientation' module for all freshers in the Ministry that would include understanding role & responsibilities, structure, and ministry's flagship programs and including familiarization of basic concepts like dredging, fairway, draft, channel, terminal, berth etc.
4	Knowledge of general legal procedures	Training Module for management of legal issues and court procedures and lawyers working for the Ministry
5	Estate Management	To strengthen Estate Management activities, training modules to be developed on: • Estate Management • Estate Development and Monetization • Project Management and PPP It is recommended that global best practice and top domain experts are included to develop modules for all ports. Institutes like Kuhne, and immersion with estate business teams in major global ports like Singapore (Temasek), Hamburg, Antwerp etc. are to be explored.
6	Ro-Ro operations and management	Specialized technical modules on Ro- Ro which includes: • Familiarization with Ro-Ro operations • Technical module on Ro-Ro infrastructure development (both offshore and onshore) • Ro-Ro vessel design and fitness parameters-international standards and assessment techniques • Automation in Ro-Ro operations • Repair and Maintenance of Ro-Ro operations • Modules related to Operations and business development of Ro-Ro Ro-Ro Operations Management-International Best Practices This is a critical requirement given that KPT has been tasked with the development of several RoRo terminals and their upkeep and management across Gujarat coast. Gujarat coast represents a good business development opportunity for RoRo business development.

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		The expertise developed here could be leveraged across Indian ports. Perhaps, KPTs institute could be provided adequate resource to be a 'center of excellence' within MoPSW for RoRo related technical, operational, and commercial related skill development and learning
7	Cargo operations and management	Advanced interactive digital Modules for cargo management including: • Automation in cargo handling and stevedoring operations • Familiarization with port automation and digitalization global trends • Introduction to mechanized/automated dry bulk handling and its management principles • New developments in container design/containerized solutions for bulk and liquid cargo • Introduction to use of new technologies including robotics in control and mitigation of fire and other incidents arising from compromise of DG/HG cargo • Digital transactions, exchange of shipping and trade documents and use of blockchain applications • PCS 1x and National Marine Portal (NMP)-Interactive Module allowing participants to use the system and its applications
8	Maritime Economy	Advanced Course on Business Analytics and Maritime Economy on Class 1 Officers in Traffic (Class 2 Officers – optional), with specific modules on: • Global trends in international commerce/trade patterns and its implications for maritime sector • Recent industrial development patterns in India and trade lane priorities • Business development and marketing for Port services • Fundamentals of Port led growth and industrialization • e. Forecasting and analytical techniques for Port and Maritime business (As Major Ports compete with private minor ports, and seek to attract cargo from regional hubs outside India to improve the frequency of port of call through increased predictable cargo demand due to cargo agglomeration, the business development perspective for port management must be a critical priority)
9	Financial Planning	Introductory and Advanced Module on Financial Planning and Development of Port Business, including • Strategic Pricing/Costing • Developing Long Term Investment Plan for Ports For Chairman/Dy. Chairman, All class 1 and 2 officers of Admin/Traffic/Finance • Global best in class course material, and interactive modules with key experts. • Course material should include case studies

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Scenario building and problem solving Pricing and costing sub-modules should include 'live gaming' methodologies requiring participants to react to simulated situations of actual competition scenarios
10	Advanced Cargo Handling and Management	Introduction to Advanced Cargo Handling and Management, with a focus on audio-visual features and gaming techniques that allow 'Virtual' operational experience • Introduction to Mechanized/Automated Dry Bulk Handling and its Management Principles • Advances in Liquid Bulk management • Mechanization of Break Bulk Operations • New developments in Container Design / Containerized solutions for bulk and liquid cargo • Concept of 'Physical Internet' Recommended for all Class 1 and 2 officers of Marine, Eng. and Traffic. Optional for Admin and Finance Departments. Since different Indian ports (both major and private) are adopting automation / mechanization, and some regional ports like Singapore, Port Klang, Dubai, and Busan represent advanced levels of automation, immersion programs (4-6 weeks working alongside relevant teams in these ports) could be explored through MoUs.
11	Ship building and Ship repair	Modules on Shipbuilding/Ship Repair which includes: • Technical aspects and contract management for repair/ship building operations • International best practices for managing drydocks/shipyards • Other relevant modules in this domain as suggested by experts Repairs / Building are increasing and represent a value-add to the overall port business and source of revenue. This should be perceived as an investment in overall port business development strategy
12	Liquid and Sensitive cargo	Advanced Techniques for Handling Liquid / Other Sensitive Cargo / HG for Class 1 and 2 Officers of Marine Department/Eng. Department/Optional for Traffic and Admin Depts • Introduction to adoption of advanced sensors/IoT/ for detection of fires/other hazardous incidents due to compromise in DG/HG • Introduction to use of new technologies including robotics in control and mitigation of fire and other incidents arising from compromise of DG/HG cargo Adoption of such technologies, while represent a significant SR capex, will increase safety and reduce overall operational costs in the LR.
13	IT Operations	Management of IT Operations for Class 2 officers in Port IT/Admin/Finance

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• IT Op/Maintenance Contracts • Managing Outsourced IT Services • IT Security/SOP in case of issues of data breach
14	Health & hygiene	Online short interactive module for Introduction to Hygiene/Self-care/ and basic emergency response SOPs for pandemic

Table 0.25 - Transport Research Wing, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Dedicated faculty for Training	Due to manpower shortage, and given the critical nature of day-to-day port operations management, providing required time to Officers (Class 1 and 2) for training presents a big challenge. Recruitment of dedicated faculties for training is required.
2	Module for ICU Experience and Pandemic related Emergency Response	Tie-up with relevant Medical College with affiliated hospital is recommended for an 'immersion' exercise allowing practical experience and exposure to ICU protocols and medical procedures

1.9.3. Chennai Port Trust (CPT)

Table 0.26 – Chennai Port Trust, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Advanced Port Management	Skilling interventions required for Advanced Port Management which is critical given the changing nature of Major Ports under the new Major Ports Act/change in tech/and priorities identified in the MIV 2030. Key focus areas for Port admin shall be: • Real Estate • Modern Port Management Principles • Legal • Environment • PPP and Concessionaire management • Strategic pricing
2	Maritime Economy	Advanced Course on Business Analytics and Maritime Economy on Class 1 Officers in Traffic (Class 2 Officers – optional), with specific modules on: • Global trends in international commerce/trade patterns and its implications for maritime sector • Recent industrial development patterns in India and trade lane priorities • Business development and marketing for Port services • Fundamentals of Port led growth and industrialization • e. Forecasting and analytical techniques for Port and Maritime business (As Major ports compete with private minor ports, and seek to attract cargo from regional hubs outside India to improve the frequency of port of call through increased predictable cargo demand due to cargo agglomeration, the business development perspective for port management must be a critical priority)
3	Multi Modal logistics operations	Module on Multi-Modal Logistics Operations for Class 1 officers in Traffic • Commercial Operations and Business Development • Management of Multi-Modal logistics services • Increasingly, ports are offering end-to-end services in partnership with logistics supply providers. Understanding of such end-to-end multimodal services are critical for port business development teams. Explore online interactive sessions with business development teams implementing such multi-modal service offering in major global ports as a part of this training module, or look partnering with major logistics centers of excellence, like the Kuhne Logistics University, Hamburg
4	Revenue Optimization from Port Operations	Module on Revenue Optimization from Port Operations for Class 1 and 2 officers in Finance department, focusing on • Estate business

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Cargo business • Vessel • Other revenue streams
5	Environmental & Pollution knowledge	Module for Civil/Mech/Marine Officers on Environmental Aspects of • Environmental footprint of Ports • Best practices in energy efficiency • Best practices for pollution control • Concept of a 'Green' Ports
6	Project Management and PPP	Advanced interactive modules on: • Project Management • Project Analytics and KPIs • Management of PPP • Concessionaire Management in PPPs Relevant to all Operational teams that manage projects (Eng., Marine, Finance, Traffic)
7	Leadership and Behavioral change	Module focusing change management and behavioral change aspects to make port officials ready for this transition: • Proper course on organizational leadership • Ease of Doing Business for Port users-Customer satisfaction • Stakeholder engagement and effective communication to port's customers • Marketing Critical point made that loss of monopoly (rise of large minor ports), and with the landlord model coming into play (TAMP gone), Major Ports would be responsible for competition management as a critical task. These skills would be key to meet that mandate This course needs to focus on Grade 1 and 2, starting with officers who will be taking over the leadership of Major Ports 2 to 3 years down the line so as to prepare them for this transition It is also recommended that this course, incorporating the behavioral aspects of leadership needs to be a comprehensive residential one, on the model of what is available in Mussoorie for senior officials. This course should be viewed as one that is creating the next-gen leadership cadre for India's Major Ports, which are strategic assets for GoI
8	Dredging Operations and Management	Development of Modules as a form of continuous learning for technical officers • Technological Developments in Dredging/New Dredging techniques suitable to Indian riverine conditions • Best practices in dredging outsourcing contract management, monitoring performance and outcome indicators

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
9	Cargo Handling and Management	Introduction to Advanced Cargo Handling and Management, with a focus on audio-visual features and gaming techniques that allow 'Virtual' operational experience • Introduction to Mechanized/Automated Dry Bulk Handling and its Management Principles • Advances in Liquid Bulk management • Mechanization of Break Bulk Operations • New developments in Container Design / Containerized solutions for bulk and liquid cargo • Concept of 'Physical Internet' Recommended for all Class 1 and 2 officers of Marine, Engg and Traffic. Optional for Admin and Finance Departments. Since and private) are adopting automation / mechanization, and some regional ports like Singapore, Port Klang, Dubai, and Busan represent advanced levels of automation, immersion programs (4-6 weeks working alongside relevant teams in these ports) could be explored through MoUs.

Table 0.27- Chennai Port Trust , Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Dedicated team for estate management	• Currently Estate management related activities are being done by Administration and Civil Engineering team which has its limitations. Dedicated team for Estate Management and Monetization needs to be deployed, which shall also include Legal experts (as FTEs) to manage the increasing amount of cases / litigation • Legal FTEs shall handle legal aspects of PPP, Real Estate, Regulatory, Project management, including arbitration proceedings. Competent legal team would have a bearing on revenue (or loss of it) due to lost or poorly handled litigation
2	Recruitment of Staff	Onboarding of dedicated FTEs with combined expertise in Environmental Management and Port Domain Awareness
3	Roles & Responsibilities and KPIs of each role	There is a critical need to differentiate the specific roles and respective value-addition between junior and senior positions in the hierarchy. This would allow smooth transition from Grade 3 to Grade, and Grade 2 to 1. In this context It is suggested that a detailed document is developed outlining: • Specific detailed expectation from every role • Specifications of duties in manner that clearly distinguishes the more strategic/managerial deliverables from the more operational/transactional deliverables at the junior most levels • Defined pyramidical structure with clearly defined Detailed KPIs for each role This will help develop a clear responsibility for roles at the higher levels of this hierarchy

S. No	Gap Identified	Institutional Solution Suggested
4	Modules for Transition management	Mandatory Course for Level Transitions: • Special modules for officers undergoing level transition to fully familiarize them with changed expectations, roles and duties. Such modules would have to be customized to specific roles/departments and respective hierarchies • Such courses would best delivered by experienced former officers who have lived and worked in these roles, in combination with faculty who are experienced in the overall domain of level transition management. The course material would need to be linked to the detailed document discussed in the previous point
5	Discrepancy in Pay scales	Pilots need extensive training in local conditions before being allowed to independently handle vessels. However, attrition due to higher private sector salaries is a major issue. This means that Marine department is often short of adequate pilots. This negatively impacts operational efficiency and leads to adverse impact on port competitiveness. Report to IPA has been submitted by High Level Committee to revise pay scales.
6	Developing a 'Centre for Excellence' for Pilot training, including training for tug-boat operators could be considered by the Ministry.	It is suggested that a National Centre of Excellence in this area is developed with adequate investment in Simulator. Advanced Simulator Tech that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing pilots with specific conditions.
7	Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in piloting operations	Advanced system that integrates VTS, IoT, GPS, and UDA framework to be considered for Indian Major Ports as a strategic medium-term investment that adds value to improving vessel management, environmental monitoring, and security aspects for the port

1.9.4. Visakhapatnam Port Trust (VPT)

Table 0.28 - Visakhapatnam Port Trust, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	IT Operations	Management of IT Operations for Class 2 officers in Port IT/Admin/Finance • IT Op/Maintenance Contracts • Managing Outsourced IT Services • IT Security/SOP in case of issues of data breach
2	Estate Management	To strengthen Estate Management activities, training modules to be developed on: • Estate Management • Estate Development and Monetization • Project Management and PPP It is recommended that global best practice and top domain experts are included to develop modules for all ports. Institutes like Kuhne, and immersion with estate business teams in major global ports like Singapore (Temasek), Hamburg, Antwerp etc. are to be explored
3	Cargo Handling and Management	Introduction to Advanced Cargo Handling and Management, with a focus on audio-visual features and gaming techniques that allow 'Virtual' operational experience • Introduction to Mechanized/Automated Dry Bulk Handling and its Management Principles • Advances in Liquid Bulk management • Mechanization of Break Bulk Operations • New developments in Container Design / Containerized solutions for bulk and liquid cargo • Concept of 'Physical Internet' Recommended for all Class 1 and 2 officers of Marine, Engg and Traffic. Optional for Admin and Finance Departments. Since different Indian ports (both major and private) are adopting automation / mechanization, and some regional ports like Singapore, Port Klang, Dubai, and Busan represent advanced levels of automation, immersion programs (4-6 weeks working alongside relevant teams in these ports) could be explored through MoUs.
4	Environmental & Pollution knowledge	Module for Civil/Mech/Marine Officers on Environmental Aspects of • Environmental footprint of Ports • Best practices in energy efficiency • Best practices for pollution control • Concept of a 'Green' Ports
5	Maritime Economy	Advanced Course on Business Analytics and Maritime Economy on Class 1 Officers in Traffic (Class 2 Officers – optional), with specific modules on

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Global trends in international commerce/trade patterns and its implications for maritime sector • Recent industrial development patterns in India and trade lane priorities • Business development and marketing for Port services • Fundamentals of Port led growth and industrialization • e. Forecasting and analytical techniques for Port and Maritime business (As Major Ports compete with private minor ports, and seek to attract cargo from regional hubs outside India to improve the frequency of port of call through increased predictable cargo demand due to cargo agglomeration, the business development perspective for port management must be a critical priority)
6	Ship building and Ship repair	Modules on Shipbuilding/Ship Repair which includes: • Technical aspects and contract management for repair/ship building operations • International best practices for managing drydocks/shipyards • Other relevant modules in this domain as suggested by experts Repairs / Building are increasing and represent a value-add to the overall port business and source of revenue. This should be perceived as an investment in overall port business development strategy
7	Inventory and Equipment Maintenance	Skill upgradation combined Module on SOPs and Best practices for Class 2 and Class 3 officers of Mech Engg Dept in: • Maintenance/Repair of Port related equipment • Material/inventory management
8	Revenue Optimization from Port Operations	Module on Revenue Optimization from Port Operations for Class 1 and 2 officers in Finance department, focusing on • Estate business • Cargo business • Vessel • Other revenue streams
9	Need for continuous learning on Tax implications for Ports	Short online modules providing updates of Taxes with illustrative examples applicable to ports for class 1 and 2 finance officers which is applicable to all ports
10	PPP and Project Management	Advanced interactive modules on: • Project Management • Project Analytics and KPIs • Management of PPP • Concessionaire Management in PPPs Relevant to all Operational teams that manage projects (Engg, Marine, Finance, Traffic)
11	Financial Planning	Introductory and Advanced Module on Financial Planning and Development of Port Business, including

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
		• Strategic Pricing/Costing • Developing Long Term Investment Plan for Ports For Chairman/Dy. Chairman, All class 1 and 2 officers of Admin/Traffic/Finance • Global best in class course material, and interactive modules with key experts. • Course material should include case studies • Scenario building and problem solving Pricing and costing sub-modules should include 'live gaming' methodologies requiring participants to react to simulated situations of actual competition scenarios

Table 0.29 -Visakhapatnam Port Trust, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Recruitment of Staff	Shortage of FTE leads to dependence on Outsourced staff, resulting in the following challenges • Constant deployment of new staff due to high attrition of outsourced staff. This means constant pressure on training new staff and familiarizing them with Ports IT related needs • Digital security is a concern. While antecedents are checked, given the constant churn and new people coming in, the risk increases. Also, outsourced staff is less accountable than Port FTEs
2	Recruitment of Staff	Onboarding of dedicated FTEs with combined expertise in Environmental Management and Port Domain Awareness
3	Discrepancy in Pay scales	Pilots need extensive training in local conditions before being allowed to independently handle vessels. However, attrition due to higher private sector salaries is a major issue. This means that Marine department is often short of adequate pilots. This negatively impacts operational efficiency and leads to adverse impact on port competitiveness. Report to IPA has been submitted by High Level Committee to revise pay scales.
4	Developing a 'Centre for Excellence' for Pilot training, including training for tug-boat operators could be considered by the Ministry.	It is suggested that a National Centre of Excellence in this area is developed with adequate investment in Simulator. Advanced Simulator Tech that can recreate at least some of operational situation for some of the key ports, including VPT would be great advantage in familiarizing pilots with specific conditions.
5	Adoption of Technology solutions that lead to greater automation and thereby reduce complexity in piloting operations	Advanced system that integrates VTS, IoT, GPS, and UDA framework to be considered for Indian Major Ports as a strategic medium-term investment that adds value to improving vessel management, environmental monitoring, and security aspects for the port
6	Capacity Augmentation of VPT	VPT is competing with ports like Dhamra / Krishnapatnam. In order to effectively compete, VPT needs to bring in Capesize

S. No	Gap Identified	Institutional Solution Suggested
		vessels. There are operational challenges w.r.t. that need to be addressed Rate of discharge at VPT is one-fourth of competitor ports (Dhamra/Krishnapatnam). VPT is around 10k/15k ton per 24 hours compared to 40k/60k ton per 24 hr. This is due adoption of advanced technology and equipment. Urgent need of improving technology related to handling and discharge-more automation modernization

1.10. Inland Waterways Authority of India (IWAI)

Table 0.30 – IWAI, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	River Conservancy works	Development of Modules as a form of continuous learning for technical officers on key areas like • River Conservancy • River Training • Riverbank Management/Mitigation of impact from vessel operations on Riverbank • Technological Developments in Dredging/New Dredging techniques suitable to Indian riverine conditions • Vessel design
2	Vessel and equipment maintenance	Extensive efforts need to be put into formal documentation of operational on-ground experience of serving officers of IWAI dealing with contextual challenges unique to Indian geography and river morphology to develop modules on the following topics • Design/operate/maintenance of weirs/dams • IW Terminal Operations and Management • Equipment Ops and management (incl dredging equipment) • Equipment Operational assessment (operational feedback on why certain international designs do not operate optimally under Indian conditions) • Vessel fitness assessment/Vessel design evaluation
3	River Morphology and Behavior	Detailed Modules on • River Morphology of Indian rivers • River behavior
4	River training and Siltation management	Advanced Module on River Training, with focus on • Siltation Management • Global best practices on siltation management • Adoption of traditional techniques on siltation management • Coordination with MoJS/CWC/State Admins
5	Project Management and PPP	Advanced interactive modules on: • Project Management • Project Analytics and KPIs • Management of PPP • Concessionaire Management in PPPs Relevant to all Operational teams that manage projects (Eng., Marine, Finance, Traffic)
6	Multi Modal logistics operations	Module on Multi-Modal Logistics Operations customized as per IWAI needs • Commercial Operations and Business Development • Management of Multi-Modal logistics services • Logistics Operations costing and associated pricing decisions • Logistics business client expectations and KPI • Contracts in Logistics Business

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
7	IT applications for IW	Module on IT Applications for IW • IoT • GPS/Sat Nav • Using IoT for cargo tracking and security • Terminal Operation Systems
8	IWT Operations and management	Induction Module for Senior IWAI Management-Customized to IWAI needs • Global trends/technologies/business models in IW Strategic Importance of IW for India: Act East/BBIN • Points of interface with other Ministries/Agencies/State Governments

Table 0.31 - IWAI, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Discrepancy in Pay scales for Technical roles	Recommendation is to address this anomaly in pay scales, but making Chief Engineer equivalent to JS, and Director equivalent to DoPT Director grade
2	Roles & Responsibilities and KPIs of each role	There is a critical need to differentiate the specific roles and respective value-addition between junior and senior positions in the hierarchy. This would allow smooth transition from Grade 3 to Grade, and Grade 2 to 1. In this context It is suggested that a detailed document is developed outlining • Specific detailed expectation from every role • Specifications of duties in manner that clearly distinguishes the more strategic/managerial deliverables from the more operational/transactional deliverables at the junior most levels • Defined pyramidical structure with clearly defined Detailed KPIs for each role This will help develop a clear responsibility for roles at the higher levels of this hierarchy
3	Transition courses	Special modules for officers undergoing level transition to fully familiarize them with changed expectations, roles and duties. Such modules would have to be customized to specific roles/departments and respective hierarchies
4	Human Resource Development	Developing a compendium of grievances with high, medium and low prioritization to be compiled independently, with help of an independent external HR expert engaged by CBC to address organizational morale, institutional challenges, and motivational issues A clear implementation plan for grievances to the extent possible needs to be developed subsequently by senior leadership of IWAI

1.11. Directorate General of Lighthouses and Lightships (DGLL)

Table 0.32 – DGLL, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	IT applications	Module on IT Applications • Cybersecurity • Advanced Digital Technologies in use in the Navigation/ATON/VTS space
2	Knowledge of Project management and Risk management	Training Module focusing on Project evaluation, milestones monitoring and KPI's, identifying bottlenecks and risk mitigation strategies
3	CSR and Public Relations	Specialized Module for Station-In-Charge. This training needs to reflect the broad frontline function of this role, including responsibility for being the DGLL face with the local community. Therefore, needs to incorporate • Communication and Public Relations • Stakeholder Engagement • Social Responsibility
4	Tourism	Module to focus on • Heritage maintenance • Community engagement/cultural engagement to connect the lighthouse to the local community and develop pride in the lighthouse among local community members • Best practices in lighthouse management with a tourism and tourist related revenue generation focus

Table 0.33 - DGLL, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Capacity Augmentation of MNTI	MNTI trains private sector as well, playing a key role in industry skilling, Moreover, given the need for these skills in the wider region, this adds to international employability of Indians, and is in line with the Skill India Mission. It also needs to be noted that navigation management is a critical strategic aspect of the overall vision of an 'Open and Safe Indo-Pacific' and thereby needs adequate attention It is recommended that measures be taken to allow MNTI facility expansion and infrastructure upgrade expeditiously. Since MNTI serves as the regional center for AILA, and is largely financially self-supporting, it should be considered as a 'Centre for Excellence' and provided support towards this end
2	Dedicated Faculty for trainings in MNTI	Presently training is mostly provided by the current operational staff causing disruption of work and inadequate training due to paucity of time availability from duties of the designated role. Also, it needs to be noted that faculty (trainers) need to be trained periodically as well. DGLL serves a domain with rapidly changing technology, and needs its trainers (i.e., its faculty) to be periodically get updated in new technologies and processes. This can only happen efficiently if there is a core faculty that can be

		regularly updated, and who in turn have the mandate to train rest of the DGLL staff
3	Induction module for new joinee	Developing a Comprehensive Induction Module for all new joinee officers. Module should include Strategic Aspects of DGLL's work, and overall maritime strategic vision of GoI and MoPSW
4	Hardship Allowance/Posting Allowance	DGLL officers are stationed in very remote, hardship locations Such postings can be very challenging, and often a reason for attrition. A hardship allowance could be considered for such locations
5	Recruitment of Civil Engineers	The direct recruitment of Junior Civil Engineers should be permissible as these are the frontline staff of DGLL specifically for activities such as development/maintenance of ATONs. Currently these functions are identified as non-core and outsourced which can result in loss of accountability/quality control. Frequent rotation of the staff and change in personnel for these positions results in loss of learning and domain knowledge and the direct recruitment Junior Civil Engineer for these positions can be considered

1.12. Directorate General of Shipping (DGS)

Table 0.34 – DGS, Competency Solution Suggested

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
1	Basic soft skills for day-to-day functions	Providing basic training on document writing along with training in MS-tools like PowerPoint, Excel focused on data representation (graphs, bar charts figures etc.)
2	Basic drafting techniques for official communication & rules related to cabinet note	A basic module on standard operating procedures for stakeholder engagements, communications which shall include RFI (request for information,) RTI (Right to Information) follow ups and creating information sharing platforms.
3	General Finance rules, introductory and advanced module on financial planning and development of port business	Training module for management of financial issues and understanding the general financial rules of the ministry including strategic pricing/costing and developing long term investment plan for ports
4	Digitalization of Data	Access to special module on efficient E-File Management. Orientation course for staff should include a module on E-file
5	Tracking and Monitoring od ships	Familiarization with technologies and applications for long range tracking/monitoring of ships (as per requirement for Sagar Manthan project)
6	Air Pollution	Module for familiarization/assessment methodologies/ for MARPOL Annex VI (Prevention of Air Pollution from Ships)
7	Hybrid/Alternate fuel ships	Familiarization module on 'hybrid' ships (using alternative fuels (LNG) or combination of fossil fuel with wind or solar energy, or hydrogen fuel). Module to include global best practices/emerging trends on regulation of such vessels, including their operational safety and fitness audit, and applicable standards that inform the same Emerging technology, will proliferate quickly, and DGS needs to ramp up knowhow and capacity in this area (All Nautical, Eng. and all SMT)
8	IMDG Cargo Management	• Developing SOPs for handling of IMDG Cargo • Program for regular dissemination and capacity building in the practical adoption of protocols and SOPs • Toolkit for continued learning to be used in such dissemination programs " Linkage to Port run programs on DG/Hazardous, recommendation could be to dovetail and create a comprehensive standardized program with specific modules for on-ground handling entities, and for regulators that focuses on readiness and compliance appraisal
9	Indian Laws and Acts	• Best practices and methodologies for rulemaking and developing procedures for compliance from laws • Toolkit to enable on-demand learning/refresher on all applicable Indian laws that applies to the maritime domain, and associated international laws/treaties/protocols

S. No	Gap Identified	Skills/Competency Related Intervention Suggested
10	Legislative and regulatory developments worldwide	• Workshop on legislative and regulatory developments worldwide (specially in US, UK, Australia and Canada) to bring greater transparency and eliminate unfair trade practices in the shipping industry and maritime services. To reflect greater emphasis being put by regulators worldwide to deal with increasing concentration, especially in the container shipping industry
11	Examination best practices	DGS is responsible for (conducting and assessment) of examinations for related to seafarers/mariners. Many of the examinations represent continued learning/mandatory refresher aspects, in this context, developing a module on examination best practices (examination framework and assessment), as well as adoption of remote examination (given post pandemic priorities) where this is possible

Table 0.35 - DGS, Institutional Solution Suggested

S. No	Gap Identified	Institutional Solution Suggested
1	Orientation module	An 'Orientation' Module for all joinees that provides 360' detailed understanding the role of DGS, functionality of all the departments including current and future challenges and overall understanding of the shipping sector
2	Career development/progression plan	There is need for a career development and growth plan for DGS personnel as per qualifications and skill set with well-defined roles and responsibilities of each position and their KPIs to enable objective performance appraisals
3	Roles & Responsibilities and KPIs of each role	There is a critical need to differentiate the specific roles and respective value-addition between junior and senior positions in the hierarchy. This would allow smooth transition from Grade 3 to Grade, and Grade 2 to 1. In this context It is suggested that a detailed document is developed outlining • Specific detailed expectation from every role • Specifications of duties in manner that clearly distinguishes the more strategic/managerial deliverables from the more operational/transactional deliverables at the junior most levels • Defined pyramidical structure with clearly defined Detailed KPIs for each role This will help develop a clear responsibility for roles at the higher levels of this hierarchy

Table 0.36 - DGS, Technological Solution Suggested

S. No	Gap Identified	Technological Solution Suggested
1	Latest Technology	Familiarization module on unmanned ships/marine drones/submarine drones. Module to include global best practices/emerging trends on regulation of such vessels, including their operational safety and fitness audit, and applicable standards that inform the same

S. No	Gap Identified	Technological Solution Suggested
		Emerging technology, will proliferate quickly, and DGS needs to ramp up knowhow and capacity in this area (All Nautical, Eng., and all SMT)
2	Improved regulations of the shipping sector	Given rapid technological and institutional changes, as well as increasing need for improved regulation of the shipping sector, and international cooperation in regulating shipping industry in order to ensure fair access to shipping services for Indian trade and industry, there is need to review the current sanctioned no of officers. New officers, especially technical qualified officers to handle to emerging technologies (on the engineering and nautical side), and need for improved and better regulation, including managing cooperation on anti-competitive practices and fair play in the maritime industry needs to be looked into expeditiously

Annexure 5 – Illustrative list for digital glossary

The list of terms and subjects on which a digital glossary is required to be developed supplemented with short films for providing comprehensive understanding of the subject, is given in the table below.

S No.	Subject
a)	Dredging
b)	Dredging Terminology supported by visuals from the Film
c)	Terminal Handling Operations (Film)
d)	Terminal Handling Terminology (supported with visuals from the film)
e)	Vessels: Types and Standards (Film)
f)	Port Terminology e.g. Berth/Dock/Crane/Terminal/Yard
g)	Port Operations (Film)
h)	Port Operations (module wise i.e traffic, navigation, cargo handling etc)
i)	Port Related Terminology
j)	Inland Water
k)	Inland Water Related Terminology
l)	RoRo Terminal Design and Operations
m)	Civil Works in Ports
n)	Mechanical Works in Ports
o)	Shipping Logistics: Functions of Different Players
p)	Shipping Logistics Operational and Commercial Terminology
q)	IMO: Key Regulations Standards and Guidelines (Basic Introduction)
r)	IT and AI in Ports and Shipping: PCS and Port Automation
s)	Port Community System
t)	Multi-Modal Operations in Ports (Rail/CFS/Extended Port Gate)
u)	Processing of Goods and Cargo Management in Ports: Rules and Procedures

Annexure 6 – Illustrative list of training courses

The table below provides an illustrative list of the relevant training programs/courses available at Indian Universities, which may be considered to strengthen the Behavioral and Functional competencies at the Ministry.

Table 0.1 - Sample Courses available at Indian Universities for developing competencies

Course Name	Name of the University	Competency Requirement	Course Link	About the course
Personality Development	Savitribai Phule Pune University	Stakeholder focused	https://onlinecourses.swayam2.ac.in/cec21_mg22/preview	The course aims to cause a basic awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality.
Management Accounting for Decision Making	Indian Institute of Management Bangalore (IIMB)	Financial management for decision making	https://onlinecourses.swayam2.ac.in/imb21_mg44/preview	This business and management course will show how accounting information is relevant to managers, and how it can be processed and analyzed for effective managerial decision-making.
Infrastructure Development PPPs and Regulation	Indian Institute of Management Bangalore (IIMB)	PPP	https://onlinecourses.swayam2.ac.in/imb21_mg38/preview	This course is about infrastructure, its characteristics, drivers for commercial outlook and key implications of commercialization/PPPs.
Effective Business Communication	Indian Institute of Management Bangalore (IIMB)	Business communication, team management	https://onlinecourses.swayam2.ac.in/imb21_mg55/preview	In a business scenario, communication not only helps us share our thoughts but is essential in getting our work done and becoming more successful. This course will help improve these communications skills by exploring the inherent challenges and providing techniques to help overcome hurdles.
Business Organisation and Management	Indira Gandhi National Open University	Team Management and Leadership	https://onlinecourses.swayam2.ac.in/nou21_mg06/preview	This course acquaints with various dimensions of management, organisation control, communication, motivation, and leadership.
Administration & Public Policy: Concepts and Theories	Scottish Church College, Kolkata	Administration, Public policy	https://onlinecourses.swayam2.ac.in/cec21_hs37/preview	This course provides an insight into the management of affairs of the government at all levels-national, state and local. This will also help to understand how human and material resources can be used to reach its desired goals. This course will also highlight the formulation and implementation of public policies, organizational structures and machinery of administration as well as administrative practices. Moreover, it

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				addresses a relationship between government, organisations and its environment.
Developing Soft Skills and Personality	Indian Institute of Technology Kanpur (IIT Kanpur)	Stakeholder focused	https://onlinecourses.nptel.ac.in/noc21_hs57/preview	The course aims to cause a basic awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality.
Introduction to Public Administration	Kurukshetra University, Kurukshetra	Public Administration	https://onlinecourses.swayam2.ac.in/cec21_hs29/preview	This course focuses on the basic principles of an organization, various approaches used in studying the discipline of Public Administration and about the changes and impacts of globalization, privatization, and application of information technology etc. on the structure and functioning of public administrative systems in general.
Administrative Law	University of Kashmir	Legal aspects, administration	https://onlinecourses.swayam2.ac.in/cec21_lw10/preview	This course will help understand aspects of administrative laws including quasi-legislative quasi-judicial and other ministerial functions of administration. This pertains to decision making of various administrative entities of the government like boards, tribunals or commissions which are a part in making nationwide schemes for trade, taxation, transport, and policing laws.
Advanced Business Negotiation Programme	Indian Institute of Management Bangalore (IIMB)	Negotiation Skills	https://www.iimb.ac.in/eep/product/162/Advanced_Business_Negotiation_Programme	The International Negotiating Skills programme provides a framework for managers/negotiators to analyze and improve their own decision processes and approaches in choosing to reach an international agreement.
Strategic Perspectives on the Design of Public Private Partnerships (PPPs)	Indian Institute of Management Bangalore (IIMB)	PPP project design, financing	https://www.iimb.ac.in/eep/product/283/Infrastructure_Development_PPPs_and_Regulation	The programme provides emphasis on the role of government regulation and legal environment on PPP design, and on how project structuring and project financing choices must be made to ensure optimal risk allocation.
Microsoft EXCEL for Business: Basic and Advanced	Indian Institute of Management Indore (IIMI)	Technology understanding	https://www.iimidr.ac.in/mdp-calendar/microsoft-excel-for-business-basic-and-advanced/	The programme aims to teach the participants how to use Microsoft Excel tool for automation, modelling, reporting, and solving several problems related to business. This is a rigorous hands-on course which is appropriate for beginners as well as proficient excel users.
Administrative Leadership and Good Governance	Indian Institute of Management	Good Governance	https://web.iima.ac.in/exed/programme-	To ensure good governance and fair administration, organizations are subject to several audit procedures and compliance norms. There are two aspects to this

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	Ahmedabad (IIMA)		details.php?id=ODUz	exercise that hamper the entire philosophy of good governance. • Despite a host of audit guidelines, corruption and unfair administration do happen. • Compliance norms are a hindrance to everyday affairs and therefore, a deterrent to the operational efficiency of employees. The motivation behind this programme is to address the above two contemporary challenges from a leadership perspective.
The Essence of Leadership: Explorations from Literature	Indian Institute of Management Bangalore (IIMB)	Leadership	https://onlinecourses.swayam2.ac.in/imb21_mg54/preview	This course reads between the lines of some of the greatest works of literature and draws out lessons to help transform from being an effective manager to a motivational leader.
Strategic Management	Indian Institute of Management Bangalore (IIMB)	Strategic Management	https://onlinecourses.swayam2.ac.in/imb21_mg52/preview	Strategic Management is an important concept for managers, decision makers and entrepreneurs. This course will show how a business views itself in its "totality" and in the context of its environment. The course will be taught from the perspective of a manager or chief executive officer (CEO).