

# Gaps Analysis on “SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING (SENSREC) PROGRAMME IN PAKISTAN”

(2<sup>nd</sup> Edition – October 09, 2024)



Researched by  
**NATIONAL INSTITUTE OF MARITIME AFFAIRS,  
PAKISTAN**



**Gaps Analysis**  
**on**  
**“SAFE AND ENVIRONMENTALLY**  
**SOUND SHIP RECYCLING (SENSREC)**  
**PROGRAMME IN PAKISTAN”**



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## "CHARTING A COURSE FOR SUSTAINABLE SHIP RECYCLING IN PAKISTAN"

an exclusive interview with NIMA of  
**MR. ARSENIO ANTONIO DOMINGUEZ VELASCO,**  
**Secretary General**  
**International Maritime Organisation (IMO)**

The National Institute of Maritime Affairs (NIMA) had the distinct honour of interviewing H.E. Arsenio Antonio Dominguez Velasco, Secretary General of the International Maritime Organization (IMO), at the International Maritime Sustainability Exhibition and Conference 2024 (IMSEC 2024) held in Karachi. This engaging conversation articulated by His Excellency highlights critical maritime challenges and opportunities, displaying his leadership and commitment to fostering sustainability, in Pakistan's maritime industry in general and the ship recycling industry in particular.

*It has been a truly enriching experience. Not only did I enjoy the excellent hospitality and food, but I also witnessed a deep commitment to developing the maritime sector. What stood out most to me was the significant progress in ship recycling and the active engagement of communities in this effort. Pakistan's vision in planning and executing this three-day conference shows its dedication to moving forward in the maritime space, and I am confident that this will lead to positive outcomes for both the local industry and global partnerships. Pakistan has a wealth of potential, and with the right strategic focus, it can become a maritime hub in the region.*

*The maritime industry is undergoing significant transformations, particularly in decarbonisation and digitalisation. These transitions require innovation and advanced research, where NIMA can play a pivotal role. The need for modernisation in terms of training seafarers, promoting alternative fuels, and leveraging innovative technologies for safer and greener shipping practices is growing. IMO defines robust standards, but to bring them into practical application, collaboration with think tanks is crucial. By conducting research, offering policy recommendations, and engaging in development projects, NIMA can help align Pakistan's maritime practices with global sustainability goals. Additionally, Pakistan's contributions in research and development can bolster IMO's efforts to lead the world toward safer and environmentally friendly maritime operations.*

Visiting the Gadani Shipyard was a rewarding experience. I had the chance to speak directly with the workers and management, and I was struck by their determination and sense of ownership over their work. Ship recycling is a complex industry, and the commitment I saw from the shipyard operators is commendable. More importantly, we've started a collaborative project with MoMA, which aims to bring Gadani's practices in line with global standards for safety and environmental protection. This will require time and effort, but I'm confident that with the assistance we are providing, we can help the shipyard evolve into a model for sustainable ship recycling. The project will also play a key role in boosting the local economy by generating jobs and ensuring the industry adheres to international best practices. It's a win-win for Pakistan and the global maritime community.

The green transition in shipping is a priority for the IMO, and we are working on several fronts to ensure it becomes a reality. However, we do recognise that not all countries have the same level of resources, and some, like Pakistan, which leads in ship recycling, need cost-effective measures to remain competitive. IMO has developed various technical cooperation activities that aim to help countries transition to greener shipping practices. For instance, by investing in alternative fuels and energy-efficient technologies, countries can reduce operating costs in the long term. Through collaborations and partnerships with stakeholders, Pakistan can benefit from international funding and technical assistance, which would offset some of the financial burdens of the green transition. Ratifying IMO's MARPOL Annex VI treaty will also open doors to these opportunities.

The IMO has already developed cybersecurity guidelines to protect the maritime industry from emerging threats. We are also focused on the broad challenges that come with technological advancement, such as decarbonisation and the adoption of AI. New technologies can not only reduce emissions but also improve the efficiency of maritime operations. At the same time, we must ensure that the workforce is prepared for these changes. The implementation of AI, for instance, can greatly assist in reducing carbon footprints, but it also requires a well-trained workforce. These issues, including infrastructure and cybersecurity, are regularly addressed at global forums like the UN Summit in the General Assembly, and we are working with stakeholders to ensure smooth transitions across all these areas.

Capacity building is a core part of IMO's mission. We provide a range of support to our member states, including technical assistance and training programs designed to enhance maritime sustainability.

## FOREWORD

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The Shipbreaking Industry is a cornerstone of the global maritime sector and a crucial component of many national economies. This industry involves the dismantling of end-of-life ships to recover valuable materials and products, aligning with the principles of a circular economy. While the theoretical benefits of ship recycling are significant, the practical realities often reveal a different picture. Shipbreaking operations worldwide are fraught with hazards, presenting serious risks to both human health and the environment. The processes involve the release of harmful chemicals and fumes and improper handling and disposal of waste, such as residual oil, that inflict substantial damage on marine ecosystems and compromise worker safety.

In Pakistan, the Gadani Shipbreaking Industry holds a pivotal role. Historically, this sector has significantly contributed to revenue generation, employment and national steel demand. Besides, recycled steel production has contributed to the reduction of carbon footprint. Yet, despite its economic contributions, the industry is beleaguered by numerous challenges, including inadequate safety protocols, poor environmental management, and inadequate regulatory frameworks. The informal nature of the sector, combined with low wages and weak enforcement of labour laws, has been alluring international ship-owners seeking to cut costs, often at the expense of the environment and workers' safety and welfare.

On November 30, 2023, Pakistan took a significant step and became a Party to the Hong Kong International Convention (HKC) for Safe and Environmentally Sound Ship Recycling, becoming the 23<sup>rd</sup> country to do so. With the HKC 2009 set to be enforced from June 26, 2025, this accession is a crucial milestone in elevating safety and environmental standards within the industry.

The Research Study conducted by the National Institute of Maritime Affairs (NIMA) on "Gaps Analysis on Safe and Environmentally Sound Ship Recycling in Pakistan" is not merely an academic endeavour; it serves as a clarion call for the warranted actions needed to address the critical issues facing our shipbreaking industry. It exposes the pressing need for reform and provides actionable recommendations to address existing compliance gaps, enhance safety protocols, improve environmental management and adopt

sustainable practices. The study advocates for the development of a sector-specific regulatory framework, revised taxation policies, and infrastructural advancements, drawing on both global best practices and local realities. It emphasises the necessity of capacity-building initiatives to enhance workforce skills and ensure that our Ship Recycling Industry meets international standards, enabling it to thrive in a competitive global market. The industry's recent decline, driven by current fiscal policies and resistance to public-private partnerships, therefore highlights the urgent need for a comprehensive policy and legal framework.

I would, therefore, urge policymakers, industry stakeholders, and members of civil society to engage with the findings and recommendations presented in this Report. Embracing these insights through unwavering commitment and collaborative efforts is vital for transforming Pakistan's Shipbreaking Industry into a beacon of the Green Ship Recycling Industry and a model of sustainability and safety. This transformation is not only crucial for our national economy but also for aligning with global sustainability objectives and ensuring the well-being of future generations.

I commend and extend my deepest gratitude to the National Institute of Maritime Affairs and its Research Team for their rigorous and insightful work. Their efforts provide a clear path towards a more responsible, sustainable, and economically viable Green Ship Recycling Industry in Pakistan.

Let us seize this opportunity to advance our industry on a war footing, prioritising the capability and capacity building programmes, the safety and health of our workers and the protection of our environment through achieving HKC 2009 compliance swiftly and effectively. Let us further commit ourselves to embracing EUSRR. This Report represents a pivotal step towards setting a new standard for maritime practices in Pakistan.



**MUSHAHID HUSSAIN SAYED**

former Minister for Information, Culture & Tourism, and  
Chairman,  
Senate Defence and Defence Production Committee

## PREFACE

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The global ship recycling industry is poised for substantial growth over the coming decades, driven by an ageing worldwide and IMO's Green Shipping requirements. The ship recycling market is anticipated to expand from 2023 to 2030 at a Compound Annual Growth Rate of 5.3%. This looming wave of ship retirements, estimated at 15,000 vessels over the next decade, will double the recycling demand. Steel demand is projected to reach 2.2 billion metric tons by 2030. This growth presents significant economic opportunities, including revenue generation, job creation and a crucial source of scrap metal for steel production. By reducing reliance on raw iron ore, ship recycling contributes to a circular economy and helps lower carbon emissions. As the annual count of end-of-life ships surges towards approximately 800, the industry will likely face a critical shortage of sustainable recycling capacity. Innovations in recycling processes could yield around \$4.5 trillion in economic benefits by 2030, highlighting the sector's potential for growth and efficiency as sustainability becomes a priority.

In the dynamic tapestry of Pakistan's industrial landscape, few sectors stood as prominently as the Shipbreaking Industry. For decades, this industry has been a stalwart pillar of the nation's economy, providing livelihoods to hundreds of thousands and fueling over 36 downstream industries, particularly steel production. Historically, the Gadani Shipbreaking Industry handled up to 400 ships annually on average. The Industry, once the leader in the shipbreaking arena, now grapples with significant challenges that threaten its operational relevance. Recent years have witnessed a considerable decline in the shipbreaking volume at Gadani, revealing deficiencies in governance, lax regulations, precarious OHS&E practices, deficient safety instruments, poor healthcare facilities, economic challenges and dilapidated infrastructure.

In response to the shortfalls of the Basel Convention and the pressing concerns surrounding hazardous ship dismantling practices, frothed with death-defying occupational health, safety and environmental vulnerabilities globally, the IMO undertook a crucial initiative to develop a comprehensive legally binding instrument focused on Ship Recycling. The IMO's Hong Kong Convention (HKC), adopted on May 15, 2009, and set to come into force on June 26, 2025, accentuates the IMO's commitment to establishing international standards for Safe and Environmentally Sound Ship Recycling. HKC 2009 shall

regulate sustainable and responsible shipbreaking practices, safeguarding worker health and safety, mitigating environmental impacts, and ensuring the sound management of hazardous materials.

The EU expresses significant concern regarding the institutionalisation of green practices and the establishment of a robust certification mechanism. To address these issues, accession to the HKC 2009 and subsequent compliance are paramount.

In November 2023, the Norwegian Ambassador to Pakistan informed that Norway boasts one of the largest merchant fleets, comprising 1,748 vessels. With a significant number of EU fleets set to phase out in the coming years, Pakistan risks missing out on lucrative opportunities unless it ratifies the HKC 2009 and embraces the EUSRR. To expedite this process, seeking consultancy services may be prudent. On February 16, 2023, NIMA convened a Round Table Conference in coordination with the Royal Norwegian Embassy. Mr Erling Rimestad, Norway's Deputy Foreign Minister, officiated as the Guest of Honour, Mr. Per Albert Ilaas, Norwegian Ambassador to Pakistan, along with senior officials from MoMA, MoFA, MoCC&EP, BDA, BEPA, SEPA, BF and PSBA. Subsequently, on February 22, 2023, the NSD mandated the formation of a Task Force/Working Group to address these matters urgently. NIMA took a proactive position in advocating HKC accession and pursuing a capacity-building partnership between IMO, NORAD, and Pakistan. On June 6, 2023, during her visit to Oslo, Mrs. Hina Rabbani Khar, Minister of State, met with Ms. Line Falkenberg Ollestad, Senior Advisor at NORAD. She reaffirmed NORAD's commitment to assist Pakistan in upgrading the Gadani Shipbreaking Yards through a three-tier strategy. The First Tier would involve conducting a gap analysis, the Second Tier would focus on establishing an IMO Office in Pakistan to align capacity-building programs with HKC certification requirements, and the Third Tier would be the ratification of the HKC. It was further informed that IMO was willing to support building Pakistan's capacity and capability in 2 to 3 years to the level required by HKC 2009.

Pending any decision on HKC accession by Pakistan, Bangladesh and Liberia became the contracting parties to the convention on June 26, 2023, thereby marking the fulfilment of all prerequisites warranted for the enactment of HKC 2009. NIMA played a vital role in bringing the HKC 2009 to national attention, leading to its eventual accession by Pakistan on November 30, 2023, after almost 14 years of its adoption. This belated accession has delayed all entailing actions obligated under the Convention, which mandates significant reforms in the Ship Recycling Industry.

Recognising the importance of this international framework, Norway, a key player in the safe disposal of End-of-Life Ships, sought NIMA's expertise through its Ministry of Foreign Affairs to undertake Research on the Gaps Analysis on "Safe and Environmentally Sound Ship Recycling (SENSREC) Programme In Pakistan". The goal has been to outline the requirements for capacity-building programs through preliminary research that will serve as a foundation in the ship recycling sector with the following outcomes:

- a. Heightened stakeholder awareness of the existing gaps and deficiencies in the ship recycling industry.
- b. Strengthened policy frameworks through the reform and enhancement of existing regulations.
- c. Upgraded infrastructure and technology to promote safer and more environmentally sound ship recycling processes.
- d. Development of a skilled workforce through targeted capacity-building initiatives.

The Ship Recycling Industry is poised for growth over the next 15 years, driven by an ageing global fleet and increasing regulatory compulsions. Stricter environmental regulations will compel shipowners to retire older, non-compliant vessels. Economic fluctuations will further incentivise the scrapping of less efficient ships. The demand for recycled materials, especially steel, will continue to support the industry's viability. Environmental concerns, infrastructure deficiencies, and technological hurdles remain significant obstacles. Transforming the ship recycling industry requires a focus on sustainability, regulatory compliance, and human capital development.

The "**Gaps Analysis Study on Safe and Environmentally Sound Ship Recycling at Gadani Ship Recycling Yards, Balochistan, Pakistan**" addresses the urgent need for reforms in this critical industry. At its core, this report is a testament to our unwavering commitment to sustainability, environmental protection, and economic resilience. It provides a thorough examination of the industry, revealing its operational intricacies, challenges, and opportunities.

Through extensive stakeholder engagement and the contributions of experts, this Report offers a comprehensive view of the Gadani Shipbreaking Industry, from its historical roots to its potential future trajectories. It represents a crucial milestone in our journey towards Safe and Environmentally Sound Ship Recycling (SENSREC) in Pakistan, serving as a vital resource for policymakers, industry stakeholders, and international organisations dedicated to sustainable practices. This analysis identifies key deficiencies in adherence to HKC 2009

standards and emphasises the urgent need for targeted government intervention to facilitate the necessary reforms.

It is reiterated that these efforts will position Pakistan's ship recycling industry to align with international standards, contributing to sustainable maritime practices on a global scale. Given the substantial economic potential of meeting burgeoning global ship recycling demands, Pakistan would greatly benefit from a robust capacity-building program. Such an endeavour would not only elevate the existing ship recycling operations at Gadani but also ensure stringent adherence to HKC Standards through the adoption of industry best practices and pave the way for embracing EUSRR. Bangladesh serves as a commendable example through its participation in the IMO's capacity-building SENSREC project, funded by NORAD. This initiative has established a benchmark for other prospective ship recycling nations in their capacity building for ship recycling.

NIMA organised an International Symposium on April 25, 2024, at Karachi on the subject to bring the relevant stakeholders together, providing a vital platform for dialogue to address the industry's challenges and pave the way for a sustainable future in ship recycling.

As we embark on this journey together, let us not lose sight of the significance of our collective efforts. Each recommendation, each insight, and each call to action contained within these pages represents a stepping stone towards a more sustainable and prosperous future for Pakistan's Ship Recycling Industry.

I am confident that this Report will catalyse dialogue, innovation, and decisive action. May it inspire policymakers, industry leaders, and stakeholders alike to come together in pursuit of a common goal: to build a Ship Recycling Sector in Pakistan that meets the best standards of safety and environmental protection and serves as a beacon of progress and prosperity for the generations to come.

  
Vice Admiral AHMED SAEED HI(M) (Retd)  
President NIMA

## ACKNOWLEDGEMENTS

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I wish to thank the NIMA Research Team for their unwavering dedication and insightful contributions throughout this comprehensive study. This significant achievement was made possible by the enthusiastic participation and collaborative spirit of all team members, whose collective efforts have enriched our research and illuminated the dissociated domain.

I want to extend my deepest appreciation to HE Per Albert Ilsaas, Ambassador of the Royal Norwegian Embassy in Pakistan. His catalytic guidance and steadfast support were instrumental in enabling us to undertake this important study. I also wish to acknowledge the exceptional coordination provided by Miss Helene, the Political Coordinator at the Royal Norwegian Embassy in Pakistan.

Special acknowledgement is due to Mr. Anees Khan, the Lead Author, whose intellectual contributions have been pivotal in shaping the direction and depth of this study. I am equally grateful to Mr. Raheel Masood for his instrumental role in steering the project and developing the study with clarity and vision. Additionally, I would like to recognise the dedicated efforts of the Research Associates from NIMA, Miss Saba Zeenat, and the Data Analysis led by Cdre (R) Imran ul Haque. Their substantial contributions were vital in developing various sections of the Gaps Analysis, significantly enhancing the overall quality and rigour of this work.

I am profoundly grateful to the officials of the MoCC&EC, Government of Balochistan, particularly Mr. Shakeel Qadir Khan, the Chief Secretary, and Capt (R) Javed Iqbal, Chairman of BDA. Their support, along with the contributions from officials at BDA, BEPA, Balochistan Labour and Law Departments, Pakistan Ship Breakers Association, M/s GEMS, Gadani Labour Union, NTUF, PMSA, JMICC, KS&EW, KPT, and Bahria University was essential in refining our findings and providing the rich context needed for the research.

Furthermore, I extend my special acknowledgement to UNILO, Pakistan, and Professor Raphael Baumler, Head of Maritime Safety and Environmental Administration at WMU. Their guidance and support have been invaluable in shaping our understanding of the critical issues at hand. I am hopeful that the insights gleaned from this study will assist stakeholders in developing effective

strategies, policies, and actions in shaping and advancing the future of Pakistan's Ship Recycling Sector.

I would also like to express my deepest gratitude to Senator Nisar Ahmed Khuhro, the President of Pakistan Peoples Party Sindh, and Mr. Iftikhar Ahmed Sheikh, President of KCC&I. Their insights and facilitation have been invaluable in navigating the complex landscape of this subject.

Lastly, I extend my earnest thanks to all participants of the International Symposium held on April 25, 2024, in Karachi. Their engagement, expertise, and willingness to share knowledge have significantly enriched our understanding:

| <b>TOPIC</b>   | <b>DISCUSSANT</b>   |
|--|---|
| a. Challenges in Gadani Ship recycling industry: Implementation of HKC Regulations                   | Mr. Javed Iqbal,<br>Member Executive<br>Committee, PSBA         |
| b. Potential of KS&EW in ship recycling  | Cdre (R) Waqar Ahmed<br>SI(M), GM (Ship Repair),<br>KS&EW       |
| c. Shipbuilding and recycling prospects of KPT   | Mr. Malik Babar Rashid<br>Technical Cord to GM(E), KPT          |
| d. GoB Role in Protecting Labour's Rights in Ship Recycling Industry of Pakistan                     | Mr Shahab Jahangir<br>Balochistan Labour Dept                   |
| e. Upgradation of Gadani Yards considering HKC Regulations and hazardous material disposal mechanism | Mr. Saleem Uz Zaman<br>CEO,<br>M/S GEMS                         |
| f. Occupational Health and Safety and waste management practices at KS&EW                            | Cdr (Retd) Farooq Ali PN<br>GM (QHSE),<br>KS&EW                 |
| g. Capacity building of BEPA personnel for effective compliance of HKC                               | Mr Tariq Ali<br>Deputy Director,<br>BEPA                        |
| h. Facilities to labourers in the Recycling Industry   | Mr Musharaf Humayun<br>Finance Secretary<br>Gadani Labour Union |

| TOPIC  | DISCUSSANT  |
|--|---|
| i. ILO'S Role in Protecting Labour's Rights in Ship Recycling Industry of Pakistan                                 | Mrs Rabia Razzaque<br>Senior Programme Officer<br>UNILO   |
| j. BDA'S responsibilities in ship recycling at Gadani Yards and plan of action for implementing HKC Regulations    | Capt (R) Javed Khan<br>Chairman<br>BDA  |
| k. Role of PMSA in ship recycling  | Capt Tayyab W Anwar<br>CO PNS KOLACHI, PMSA   |
| l. Sharing of experiences on ship recycling practices in subcontinent. Guidelines for implementing HKC in Pakistan | Professor Raphael Baumler<br>Head of Maritime Safety and Environmental Administration,<br>World Maritime University |

  
Vice Admiral AHMED SAEED HI(M) (Retd)  
President NIMA

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## WORDS ABOUT HKC 2009

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### HONG KONG INTERNATIONAL CONVENTION (HKC) 2009

1. HKC 2009 aims to establish a Safe and Environmentally Sound Ship Recycling framework, addressing critical issues such as Hazardous Waste Management (HWM), Worker Safety, and Environmental Protection. It was adopted on May 15, 2009, and is set to be enforced worldwide by IMO from June 26, 2025. The key provisions of HKC 2009 include the following:
  - a. **Inventory of Hazardous Materials.** Ships are required to maintain detailed records of hazardous substances onboard.
  - b. **Preparation for Recycling.** Ships are to be prepared through a series of systematic documentation and certifications to ensure safe dismantling and minimise worker health risks.
  - c. **Ship Recycling Facilities (SRF).** Ship Recycling Yards are required to adhere to strict environmental and safety standards.
  - d. **Training and Certification.** Ship Recycling workers are to be imparted training through a set standardised pattern in the yards as per regulations of the Convention.
  - e. **Emergency Preparedness.** Ship Recycling Facilities (SRF) are required to prepare Ship Recycling Plans (SRP) and Ship Recycling Facility Plans (SRFP) to be able to effectively handle accidents and emergencies.
2. **CONDITIONS FOR HKC 2009 COMING INTO FORCE.** The following conditions were set for HKC 2009 coming into force:
  - a. **CONDITION NO.1**  
**Not Less Than 15 Contracting States**

**COMMENT.** At present, HKC has 24 Contracting States (Bangladesh, Belgium, Republic of the Congo, Croatia, Denmark, Estonia, France, Germany, Ghana, India, Japan, Liberia, Luxembourg, Malta, Marshall Islands, Kingdom of the Netherlands,

Norway, Pakistan, Panama, Portugal, São Tomé and Príncipe, Serbia, Spain, and Turkiye).

b. **CONDITION NO.2**  
**Not Less Than 40% of the World's Merchant Shipping by GT**

**COMMENT.** The 24 Contracting States represent 45.91% of the World's Merchant Shipping by Gross Tonnage.

c. **CONDITION NO.3**  
**Ship Recycling Capacity of Not Less Than 3% of the GT of the Combined Merchant Shipping of Contracting States.**

**COMMENT.** The combined "Annual Ship Recycling Volume of the 23 Contracting States during the preceding ten years" amounts to 23,848,453 GT, equivalent to 3.31% of the required recycling volume.

### **HKC ACCESSION BY PAKISTAN**

3. Pakistan became the Party to HKC on November 30, 2023. Aligning ship recycling practices at Gadani Shipbreaking Yards (GSBYs) with these standards is essential for maintaining its status as a competitive player in the global shipbreaking industry. GSBYs face significant challenges, including outdated practices and deficient safety measures. If Pakistan successfully complies with the HKC 2009 by the June 26, 2025 deadline, it stands to gain recognition as a responsible ship recycler, potentially increasing its market share. Conversely, failure to achieve compliance could result in serious consequences, including international scrutiny, trade barriers, and a further decline in market position. The country risks missing out on the economic benefits associated with sustainable ship recycling, including job creation and contributions to the circular economy.
4. By embracing the HKC 2009, Pakistan can enhance its environmental practices, improve worker safety, and position itself as a potent contributor in the Ship Recycling Industry, ultimately contributing to a more sustainable maritime sector.

## EXECUTIVE SUMMARY

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### BACKGROUND

1. The International Maritime Organization (IMO) sets global standards for shipping safety, security, and environmental performance. The IMO Conventions focus on safety, security, navigation efficiency, and pollution prevention. Due to concerns over precarious ship recycling practices and the associated health, safety and environmental risks, the IMO established a legally binding instrument specifically addressing ship recycling. This effort highlights the IMO's commitment to promoting sustainable and responsible shipbreaking practices, mitigating environmental impact, protecting worker health and safety, and ensuring proper management of HM. Consequently, the Hong Kong International Convention (HKC) was established on May 15, 2009, for Safe and Environmentally Sound Ship Recycling (SENSREC). The HKC introduces comprehensive articles and regulations aimed at standardising safety and environmental practices in ship recycling globally. By focusing on safety standards, environmental protection, and the well-being of workers, the HKC seeks to ensure compliant and environmentally sound ship dismantling practices.

### PART 1 CONTEXTUAL PERSPECTIVE AND RESEARCH METHODOLOGY

#### CONTEXTUAL PERSPECTIVE AND OBJECTIVE OF STUDY

2. Pakistan became Party to HKC 2009 on November 30, 2023, and is currently in the process of implementing its regulations in the GSBYs. Pakistan's adoption of the HKC 2009 reflects its commitment to promoting sustainable shipbreaking practices and aligning with international standards. Through the implementation of HKC regulations, Pakistan aims to enhance worker safety, protect the environment, and ensure uniformity in ship recycling practices worldwide. The convention will be enacted from June 26, 2025, which means that all Ship Recycling Facilities (SRFs) which do not comply with the HKC Regulations by this date and possess a 'Certificate of Compliance' from an International Certifications Agencies will not be allowed to undertake Ship Recycling on their Yards.

3. The National Institute of Maritime Affairs (NIMA) has carried out a preliminary gap analysis to determine the essential components of a Capacity-Building Program on SENSREC, with the following positive impacts:
  - a. Increased Awareness and understanding among stakeholders about the gaps and deficiencies in the Ship Recycling Industry.
  - b. Improved policy framework through reformed policies and regulations
  - c. Enhanced Infrastructure and technology leading to a safer and more environmentally sound ship recycling process
  - d. Skilled workforce and capacity enhancement through capacity building programme.
4. The comprehensive research was conducted with the stated objectives in focus. The Research Report is organised into 17 chapters spread across Five Parts. The First Part sets the contextual perspective, followed by the Second Part, which introduces the subject and the HKC. The Third Part examines the current practices at the GSBYs, while the Fourth Part focuses on identifying gaps and providing targeted recommendations for each aspect of ship recycling concerning HKC Regulations. The Fifth Part outlines the Way Forward and the Capacity-Building suggestions specifically designed for the Gadani Ship Recycling Yards.
5. The Research Study offers actionable recommendations for enhancing safety, environmental sustainability, capacity building, and regaining competitiveness. The findings aim to contribute to the development of a robust framework that aligns with international standards, ensuring the industry's long-term viability and accountability. This meticulously conducted study will be beneficial to policymakers, implementers, government and private entities, researchers, academicians, and students.

## **GAP ANALYSIS METHOD AND DATA COLLECTION**

6. To conduct the gap analysis, a five-step procedure was followed. In the First step, a specific problem area (the adoption of HKC) was identified. The Second step established a goal for its achievement (retaining market position under the new regulations). The Third step led to an analysis of the current state (Pakistan's competitive position in the global

SRI), followed by the Fourth step that defines the desired state (retaining and expanding the current market share). In the Fifth step, the gaps between these two states were identified, and actions were determined to bridge them (identifying current and future factors of competitive advantage and establishing policy guidelines at both federal and provincial levels).

7. Employing qualitative and quantitative methodologies, the research includes interviews, field visits, and surveys, culminating in an international symposium designed to bring stakeholders together and gather comprehensive data. Data was gathered from State Agencies directly involved in the industry, including, but not limited to, the Ministry of Maritime Affairs (MoMA), the Ministry of Climate Change and Environment Protection (MoCC&EP), the Pakistan Maritime Security Agency (PMSA), the Balochistan Development Authority (BDA), the Balochistan Environmental Protection Agency (BEPA), and various provincial Departments such as Planning and Development, Labour, and Law. The Pakistan Ship Breakers Association (PSBA), a key stakeholder in the industry, offered crucial insights into the industry's dynamics and the challenges it faces, such as deep-rooted cultural practices and the implementation mechanisms of existing government regulations. Interviews were also conducted with Pakistan's Permanent Representative to the IMO, representatives of the ILO, and Professor Raphael of the World Maritime University (WMU), who contributed his expertise during the International Symposium organised by NIMA. In addition to primary data, secondary data was sourced from research studies, research papers and online platforms, including journal articles, newspaper reports, and website-based research.

## **PART 2**

### **INTRODUCTION TO THE SHIPBREAKING INDUSTRY OF PAKISTAN**

#### **CHAPTER 1 OBJECTIVE OF THE GAPS ANALYSIS OF THE “SAFE AND ENVIRONMENTALLY SOUND SHIP RECYCLING (SENSREC) PROGRAM IN PAKISTAN”**

8. Historically, shipbreaking transitioned from developed countries to Asia in the late 20<sup>th</sup> century, with Pakistan ranking as the third-largest shipbreaking nation globally. The shipbreaking industry in Pakistan has a rich history, originating in Gadani, Balochistan, as early as the pre-partition era. Ships typically have a lifespan of 15 to 25 years, after which

they are dismantled due to high maintenance costs. This labour-intensive process often takes three months on average and employs local labour, contributing to the economy by generating revenue, employment and recycling materials.

9. The Gadani shipbreaking yard spans 1,256 acres and features 314 plots, with about 135 fully developed. The area's geographical advantages, such as moderate tidal ranges and proximity to major shipping routes, facilitate efficient operations; government initiatives in the 1970s and 1980s aimed to promote the industry, leading to significant growth. The sector instead faced a decline due to competition and regulatory changes. Safety concerns have plagued the industry, especially following the tragic MT ACES incident in 2016, which resulted in numerous fatalities and led to a temporary ban on tanker imports. Despite efforts to improve safety standards and operational procedures post-2016, accidents continued.

## **CHAPTER 2 SHIPBREAKING CONTRIBUTION TO PAKISTAN'S ECONOMY**

10. The GSBI is crucial to the country's economy, contributing significantly to employment and industrial development. Operating for over 70 years, Gadani ranks third globally in ship recycling despite challenges like scarcity of skilled labour, insufficient governmental support, and compliance issues with international standards such as the HKC 2009. The industry is vital for job creation, employing around 20,000 people directly and benefiting approximately 850,000 individuals indirectly. It supplies about 15% of raw materials for Pakistan's steel sector, generating annual revenues of PKR 14 Bn, with 30% allocated to the GoB. Shipbreaking's economic potential is further highlighted by the expected increase in global ship recycling due to stricter environmental regulations. The ageing global fleet is projected to yield around 1,000 end-of-life ships annually by 2030, presenting a significant opportunity for Pakistan to enhance its ship recycling capabilities and revenue by 30% to 35% through improved regulations and infrastructure.
11. The industry faces reluctance from yard owners to invest in upgrades necessary to comply with the HKC, largely due to concerns about high costs, regulatory complexities, and political instability. The investment climate is further complicated by the availability of alternative opportunities in sectors perceived as less risky and more profitable. To revitalise the shipbreaking sector, a collaborative effort among

stakeholders is essential to address these challenges and foster a sustainable investment environment, ensuring the industry can effectively contribute to Pakistan's economic growth and meet international standards.

### **CHAPTER 3 OVERVIEW OF HKC 2009 REGULATIONS**

12. **SECTION I: OVERVIEW OF HKC 2009 REGULATIONS.** The International Maritime Organisation (IMO) sets global standards for maritime safety, security, and environmental performance. Addressing concerns over outdated ship dismantling practices, the IMO developed the HKC 2009 to establish regulations for SENSREC. Set to enter into force on June 26, 2025, the HKC aims to enhance worker safety, protect the environment, and standardise global ship dismantling practices. Pakistan's commitment to the HKC demonstrates its intent to align with international standards. The Convention consists of comprehensive regulations encompassing safety, environmental protection, and HazMats management.
13. **SECTION II: ARTICLES OF HKC 2009.** The HKC Articles outline obligations, definitions, and application parameters for ship recycling. Article 1 establishes general responsibilities for protecting human health and the environment. Article 2 provides standardised definitions to improve understanding among stakeholders. Article 3 clarifies the Convention's applicability, excluding specific vessels. Articles 4 to 10 cover compliance controls, survey requirements, and authorisations for SRFs. The remaining articles focus on information exchange, inspections, violations, communication, technical assistance, dispute resolution, and the relationship with international law. These articles collectively aim to ensure safe, responsible ship recycling operations while promoting transparency and cooperation among parties.
14. **SECTION III: REGULATIONS OF THE HKC 2009.** The HKC includes 25 Regulations categorised into four chapters that govern ship recycling. Chapter 1 addresses general provisions, including definitions and applicability. Chapter 2 specifies requirements for ships, emphasising HazMats management and the necessity of an IHM. Chapter 3 details the requirements for SRF, mandating authorisations, safety protocols, and environmental considerations. Chapter 4 outlines reporting requirements during and after ship recycling. A step-by-step procedure for ship recycling is also defined, ensuring compliance with HKC

regulations throughout the process, from preparation to completion and reporting.

#### **CHAPTER 4 COMPARISON BETWEEN THE HONG KONG CONVENTION (HKC) AND EU SHIP RECYCLING REGULATION (EUSRR)**

15. The HKC and the EUSRR represent significant legislative efforts to improve the safety and environmental sustainability of ship recycling. While both the HKC and EUSRR aim to enhance ship recycling practices, the EUSRR provides a more rigorous and regionally specific framework that influences global standards and practices in ship recycling. Both frameworks aim to mitigate the adverse effects of ship dismantling on human health and the environment, but they differ in scope, implementation, and jurisdiction. The HKC is a global treaty requiring ratification by at least 15 states, while the EUSRR specifically targets ships registered in EU member states. The HKC sets international guidelines for safe ship recycling, whereas the EUSRR mandates compliance with stringent EU standards. The HKC outlines the development of SRPs and the HWM, while the EUSRR includes more detailed requirements, such as the IHM and the authorisation of SRFs. The HKC is enforced by individual countries post-ratification, whereas the EUSRR is directly applicable and enforced by the European Commission, ensuring compliance across member states. Both regulations promote worker safety, but the EUSRR includes more specific provisions regarding worker training, medical surveillance, and emergency preparedness. The EUSRR has stricter criteria for hazardous waste disposal, emphasising transparency and independent audits of SRFs. Unlike the HKC, the EUSRR prohibits the beaching method for recycling and requires comprehensive management of toxic waste.

### **PART 3**

#### **SYNOPSIS OF COMPLIANCE GAPS IN PAKISTAN'S SHIPBREAKING INDUSTRY RELATED TO HKC 2009**

#### **CHAPTER 5 PREVAILING PRACTICES AND GAPS OBSERVED AT GADANI SHIPBREAKING YARDS**

16. The SRI in Gadani, Pakistan, faces significant challenges in aligning with the HKC 2009 standards, which aim to ensure safe and environmentally sound ship dismantling practices. Despite being the third-largest ship recycling nation globally, Pakistan's practices lag behind Bangladesh

and India, where compliance with HKC regulations is already established. The GSBYs require urgent reforms in their operational practices, regulatory frameworks, and stakeholder coordination to mitigate risks associated with HazMats and improve worker safety ahead of the HKC's implementation deadline in June 2025. Current practices at GSBYs reveal a mix of informal procedures and inadequate adherence to safety and environmental standards. Workers often rely on traditional methods rather than documented practices, with training primarily based on familial ties rather than systematic instruction. Although some yards are pursuing ISO certifications, many lack the necessary infrastructure and formalised documentation required by HKC.

17. Key stakeholders, including the BDA and the PMSA, face operational challenges due to outdated regulations, inadequate funding, and ineffective communication. The BDA's current regulatory framework is outdated, and its capacity to enforce safety and environmental standards is severely limited. The PMSA has a critical role in overseeing ship dismantling activities but lacks a mechanism for post-dismantling reporting, which is essential for environmental accountability. BEPA also struggles with resource constraints and insufficient expertise, hampering its ability to monitor shipbreaking operations effectively. There is a clear need for improved coordination among stakeholders, enhanced training programs, and better infrastructure to support the industry's transition to HKC compliance.

## **CHAPTER 6    COMPARISON OF HKC WITH GROUND REALITIES AT GADANI SHIPBREAKING YARDS (GSBY)**

18. The analysis of GSBYs reveals significant gaps in compliance with the HKC 2009 regulations, which outline essential practices for safe and environmentally sound ship recycling. Despite decades of operation, the prevailing practices at Gadani are not aligned with HKC's six key areas, including SRPs, HWM, and certification protocols. A comparative evaluation indicates that the GSBYs do not have a formal authorisation to conduct Safe and Environmentally Sound Ship Recycling, and no standardised SRPs are developed, which are crucial for managing HazMats. The joint inspections by regulatory bodies like PMSA, BDA, and BEPA do not meet HKC requirements. Inadequate professional expertise is hindering effective oversight. The inventory of HazMats is inadequately managed, with no systematic procedures for identification or disposal, leading to environmental risks.

19. Occupational health and safety practices at Gadani are similarly deficient. While some improvements in PPE usage have been noted, the overall safety protocols are lacking. Emergency preparedness plans are non-existent, and training for workers is minimal, with many practices not formally documented or consistently implemented. The mechanisms for reporting incidents and accidents are absent, contributing to a culture of opacity regarding workplace safety issues. An assessment of the existing practices against HKC regulations indicates a uniform "poor" rating across the board, highlighting the urgent need for comprehensive reforms in worker safety, HWM, and regulatory compliance. To achieve alignment with HKC standards by the upcoming deadline, significant investment in training, infrastructure, and regulatory frameworks is essential. Overall, the findings underscore the critical need for systematic changes to enhance safety and environmental protections in Gadani's shipbreaking industry.

## **CHAPTER 7 ISO CERTIFICATIONS AND COMPLIANCE IN PAKISTAN'S SHIPBREAKING YARDS**

20. The GSBI has faced scrutiny following a fire incident in 2016, highlighting the urgent need for robust safety protocols and environmental standards. In response, the GoB issued a directive in April 2018 mandating improvements in ship dismantling practices, including the pursuit of ISO certifications, specifically ISO 9000, ISO 14000, and OHSAS 18001, by November 2018. As of December 2023, the PSB claimed that over 90% of Yards in Gadani possess these Certifications. While ISO Certifications mark a positive step towards improved practices, the absence of a dedicated ship recycling policy and specific adherence to ISO 30000 highlights significant gaps at Gadani. This iterates the need for comprehensive compliance with both ISO standards and HKC requirements to ensure safe and sustainable shipbreaking operations.
21. A closer examination reveals that while these ISO standards are relevant, they do not adequately address the specific requirements of ship recycling, particularly in light of the HKC. For instance, ISO 9001 and ISO 14001 are general frameworks that lack the specificity required for managing HazMats and waste in ship recycling. ISO 30000:2009, on the other hand, is specifically designed for ship recycling management systems and outlines comprehensive procedures for safe and environmentally sound operations. ISO 30000 encompasses the entire ship recycling process, detailing requirements for ship acceptance,

planning, execution, performance monitoring, and emergency preparedness. Despite PSBA's claims of ISO compliance, many yards do not demonstrate effective implementation of these standards, raising concerns about the authenticity of their certifications and audit mechanisms.

## **PART 4**

### **SYNOPSIS OF PAKISTAN'S SRI IN TERMS OF GAPS WITH IMO HKC 2009**

#### **CHAPTER 8    LEGAL REFINEMENT REQUIREMENTS FOR THE SRI IN PAKISTAN**

22. The GSBI faces significant challenges in ensuring OHS&E protection due to an incomprehensive legal framework. Until 2011, there were virtually no regulations governing safety in this sector, resulting in stagnant practices despite the industry's long history. The primary aim of this Chapter is to identify gaps in Pakistan's domestic laws concerning ship dismantling in alignment with the HKC 2009. Best practices from countries like Bangladesh and India, which have established regulatory frameworks for ship recycling, are examined. Bangladesh has implemented various laws, including the Shipbreaking and Recycling Rules (2011) and the Bangladesh Ship Recycling Act (2018), while India follows the Indian Shipbreaking Code (2013) and has a cohesive administrative body for ship recycling.
23. Pakistan is in the process of drafting the Safe and Environmentally Sound Recycling of Ships Act (2024), which aims to establish a National Authority to oversee ship recycling, manage HazMats, and enforce compliance. The existing laws are fragmented and lack comprehensive provisions for OH&S, HWM, and worker rights.
24. This Chapter identifies critical gaps, such as inadequate enforcement mechanisms, poor working conditions, environmental pollution from hazardous waste, and insufficient labour rights protection. It also highlights the ambiguity in federal and provincial jurisdictions concerning ship recycling regulations. To address these challenges, the Chapter proposes a framework that includes legal refinements to create a cohesive framework for ship recycling, institutional improvements for enforcement, stakeholder engagement, and capacity building. By integrating these strategies, Pakistan can enhance compliance with the HKC, promote safer working conditions, and ensure sustainable ship recycling practices.

## **CHAPTER 9 EVALUATION OF ENVIRONMENTAL IMPACTS OF SHIPBREAKING IN PAKISTAN**

25. The recycling of EoL vessels is crucial for sustainable development, yet current practices, particularly in South Asia, face criticism for hazardous working conditions and significant environmental impacts. Approximately two-thirds of dismantled ships are processed on beaches, leading to severe degradation of air, water, and soil quality, which adversely affects local ecosystems and biodiversity. Shipbreaking operations can release heavy metals and pollutants, especially during tasks like emptying oil tanks, where oil and wastewater often leak into coastal environments. The environmental components (atmosphere, lithosphere, hydrosphere, and biosphere) are all adversely impacted by these practices. This Chapter focuses on assessing the environmental conditions in Gadani, Pakistan, to determine their suitability for the health of workers involved in shipbreaking.
26. Pakistan's institutional and regulatory framework, particularly under the MoCC&EC and the BEPA, plays a critical role in addressing safety and health risks associated with HazMats in shipbreaking. MoCC&EC develops policies for pollution control, while BEPA directly manages environmental issues at Gadani. The SRI faces challenges due to the presence of HazMats, such as asbestos, heavy metals, and various pollutants. The prevalent beaching method used in South Asia severely damages local environments, impacting air quality, soil conditions, and marine ecosystems. Air pollutants like sulfur dioxide and nitrogen dioxide are prevalent, contributing to health risks for workers and surrounding communities. Furthermore, land pollution from toxic waste and chemicals during ship dismantling exacerbates environmental degradation, highlighting the urgent need for systematic management and regulatory compliance to protect both worker safety and the environment.

## **CHAPTER 10 GAPS ANALYSIS ON MAINTENANCE OF INVENTORY OF HAZARDOUS MATERIALS AND COMMON HAZARDOUS WASTE TREATMENT, STORAGE & DISPOSAL FACILITY (CHWTSDF) AT GSBY**

27. This Chapter examines the HWM practices at GSBYs in light of the HK and the Basel Convention. The HKC emphasises the identification and safe disposal of HazMats, defining them as substances posing risks to human health and the environment. In contrast, the Basel Convention primarily

focuses on HWD. Current practices at Gadani reflect significant gaps compared to HKC regulations. While the HKC mandates the maintenance of an IHM, the process at Gadani relies on informal certifications from shipowners, often lacking rigorous verification. The preparation of IEE Reports is inadequate, with BEPA not consistently sharing these reports with its regional office for oversight. Key issues include the absence of a structured SRP and proper certification processes, leading to insufficient controls over HazMats before and during dismantling. Furthermore, there is no established infrastructure for HWM, resulting in the dumping of toxic substances like asbestos and heavy metals on-site without proper disposal protocols.

28. Despite initiatives for HWD facilities, such as the CHWTSDF, progress has stalled due to funding and regulatory challenges. The existing legislation lacks clarity on the responsibilities of stakeholders regarding HWM. To improve HWM practices, the Chapter suggests several measures: increasing awareness among yard owners about HKC compliance benefits, establishing the CHWTSDF with support from international donors, implementing NEQS specifically for shipbreaking activities, and fostering collaboration with certified organisations for training and knowledge transfer. These steps are crucial for enhancing safety, environmental protection, and compliance with international regulations in the SRI.

## **CHAPTER 11 OCCUPATIONAL HEALTH AND SAFETY (OH&S) AT GSBY**

29. The shipbreaking industry is crucial for recycling materials from EoL ships, offering economic benefits and job opportunities. It is often criticised for hazardous working conditions and environmental degradation, particularly in South Asia. This Chapter examines the OH&S aspects at GSBYs through interviews and surveys with workers and stakeholders. Shipbreaking is labour-intensive and attracts a workforce largely composed of migrants from impoverished regions, who often accept dangerous jobs due to high unemployment. Despite some improvements in safety since the 1980s, significant issues persist, including inadequate use of PPE, deficient training on workplace hazards, and insufficient emergency preparedness. The industry faces numerous OH&S challenges, including exposure to HazMats and risks of accidents. Without proper management, workers are subjected to various health risks, such as respiratory diseases and injuries from manual

labour. The accession of the HKC 2009 by Pakistan in the recent past mandates improvements in working conditions at GSBYs.

30. Key findings from assessments reveal that working conditions are poor, with limited amenities and inadequate medical care. Many workers live in overcrowded, unsanitary accommodations, lacking basic facilities like clean water and proper kitchens. Survey results indicate a glaring deficiency in safety training, with a majority of workers unaware of OH&S standards and practices. To address these issues, the Chapter suggests urgent improvements, including comprehensive emergency response plans, better waste management practices, and enhanced training programs. The need for a coordinated approach among stakeholders is emphasised, alongside the implementation of HKC Guidelines, to ensure a safer and more sustainable shipbreaking industry.

## **CHAPTER 12 SHIP RECYCLING FACILITY (SRF) AUTHORISATION, SHIP RECYCLING PLAN (SRP) AND SHIP RECYCLING FACILITY PLAN (SRFP)**

31. Shipbreaking in Gadani poses significant safety concerns due to the handling of HazMats like asbestos and lead, which can harm workers' health and damage the environment. To improve safety standards, the GoP, alongside international organisations, is endeavouring to implement the HKC 2009. Currently, GSBYs lack formal authorisations as SRFs under the HKC, with oversight primarily based on accumulated informal knowledge rather than established regulations. Efforts are underway to upgrade yard infrastructure and implement documented practices through collaborations with organisations like GEMS. To align with HKC requirements, GSBY must develop SRPs and SRFPs to ensure proper HWM, worker safety, and emergency preparedness. The absence of standardised documentation and uniform processes highlights the need for a cohesive approach among stakeholders, including the BDA and PSBA, to facilitate the transition towards safe and compliant ship recycling practices.

## **PART 5 WAY FORWARD**

### **CHAPTER 13 KARACHI SHIPYARD & ENGINEERING WORKS AND KARACHI PORT TRUST AS ADDITIONAL SHIP RECYCLING FACILITIES (SRF)**

32. **SECTION I KARACHI SHIPYARD & ENGINEERING WORKS (KS&EW).** The GSBYs are Pakistan's only ship dismantling facility, managed by the BDA.

In contrast, KS&EW excels in shipbuilding and offers significant potential for enhancing ship recycling practices in Gadani. KS&EW emphasises QHSE management, evidenced by its ISO Certifications and commitment to sustainable practices. KS&EW has implemented a Ship Lift and Transfer System (SLTS) capable of handling vessels up to 7,300 tons, and it aims to utilise its infrastructure for ship recycling. The yard has structured training programs that could be vital for developing the skills of the Gadani workforce. The QHSE and environmental management systems at KS&EW can serve as a model for improving safety and compliance at Gadani. To foster a culture of safety and sustainability, a collaborative approach involving KS&EW, BDA, and the PSBA is essential. By establishing tailored training programs and a robust QHSE management system, the GSBYs can significantly enhance worker safety and operational efficiency, ultimately contributing to a more sustainable SRI in Pakistan.

33. **SECTION II KARACHI PORT TRUST (KPT).** KPT's Marine Engineering Department at Manora has significant limitations in its shipbreaking capabilities. The Dry Dock, constructed in 1901, has been non-operational for 15 years and requires substantial repairs. The four marine slipways are in poor condition, relying on mobile cranes due to the lack of portal cranes, with many floating cranes also non-operational. Additionally, workshops are equipped with outdated machinery, and training facilities are minimal. KPT does not participate in commercial-scale shipbreaking, focusing instead on dismantling decommissioned vessels, with only one small vessel currently being dismantled on-site. Overall, the infrastructure at KPT's Manora facility is inadequate for meaningful shipbreaking operations.
34. **SECTION III KEY TAKEAWAYS.** KS&EW presents a potential facility for ship recycling in Pakistan, capable of adhering to HKC standards despite limitations in ship size and draft. A compliant KS&EW would set a benchmark for developing Ship Recycling Yards in Gadani and provide an additional platform for recycling vessels up to 7,300 tons, attracting more business. Conversely, KPT's facilities face capacity constraints, limiting them to independent SRF operations for vessels under 25 tons. Leveraging KS&EW's established Quality Health and Safety Management System (QHSMS) can enhance practices at Gadani, while its waste management system offers a model for improved efficiency and regulatory compliance.

## **CHAPTER 14 HUMAN RESOURCE DEVELOPMENT FOR THE SHIP RECYCLING INDUSTRY OF PAKISTAN**

35. The HKC emphasises worker safety and health in ship recycling, mandating authorised facilities with proper infrastructure and trained personnel. Currently, GSBYs partially adhere to these standards, although efforts are underway to improve safety and operational procedures. Comparisons with neighbouring countries like India and Bangladesh have implemented successful safety initiatives and regulatory frameworks, with Bangladesh enacting stricter laws to ensure responsible operations. Despite the presence of certain training modules, GSBYs lack a formalised training infrastructure. The existing training primarily consists of on-the-job training, which is inconsistent and poorly documented. Key areas needing improvement include HWM, PPE usage, emergency response protocols, and general worker health and safety awareness. To enhance compliance with HKC, it is crucial to establish a dedicated training centre in Gadani, supported by BDA and the PSBA. Collaborations with KS&EW, PMA and Pakistan Navy training schools and other institutions can also facilitate the development of comprehensive training programs. Addressing these gaps is essential for improving worker safety, environmental sustainability, and overall efficiency within Pakistan's SRI.

## **CHAPTER 15 BALOCHISTAN GREEN SHIP RECYCLING BOARD (BGSRB) AND GOVERNMENT ONE-STOP SERVICE (GOSS)**

36. The BGSRB and GOSS aim to enhance coordination among stakeholders in ship recycling, ensuring regulatory compliance and environmental standards. By centralising oversight, GOSS will improve efficiency, safety, and transparency in GSRI, facilitating collaboration between government bodies and industry representatives to meet international best practices.

### **37. SECTION I SHIP RECYCLING TO INDIA, TURKIYE AND BANGLADESH**

- a. **SHIP RECYCLING IN INDIA.** India's ship recycling sector has evolved significantly, prompted by public outrage and legal interventions following environmental concerns, notably the Greenpeace campaign against the French aircraft carrier Le Clemenceau. This led to the establishment of the Indian Shipbreaking Code (ISB Code) in 2013, revised in 2019, and the ratification of the HKC. The

Ministry of Shipping oversees regulations, while the Directorate General of Shipping enforces compliance. The Gujarat Maritime Board (GMB) plays a crucial role in managing ship recycling in Gujarat, ensuring adherence to safety and environmental standards, providing essential infrastructure, and promoting worker welfare through training and health management initiatives.

- b. **SHIP RECYCLING IN TURKIYE.** The SENSREC Phase 1 Report from the IMO offers valuable insights into ship recycling practices in Turkiye. The Ministry of Transport, Maritime Affairs and Communications (MoTMAC) authorises SRFs, while the Ministry of Environment and Urbanisation (MoEU) issues recycling permits, both valid for one year. The Harbour Master of Aliaga issues three key permits: a Landing Permit for beaching, a Ship Recycling Permit for the recycling process, and a Cutting Permit for the ship's double bottom. HWM is facilitated by Sureko, an Integrated Waste Management facility licensed by MoEU, which handles hazardous waste from recyclers.
  
- c. **SHIP RECYCLING IN BANGLADESH.** In Bangladesh, ship recycling is regulated by multiple government entities, primarily the Ministry of Industries (MoIND) and the Department of Environment (DoE), alongside the Ministry of Shipping and the Ministry of Labour. The MoIND formulates policies and oversees industrial regulations, while the DoE enforces environmental laws and monitors compliance in shipbreaking yards. The Bangladesh Ship Recycling Board (BSRB) was established to provide a "One-Stop Service" for ship recyclers, ensuring adherence to safety, environmental standards, and proper HWM. The BSRB also coordinates with various ministries and organisations to promote sustainable practices in the SRI.

### 38. **SECTION II SUGGESTED MODEL OF GOVERNMENT ONE STOP SERVICE (GOSS) FOR GADANI SHIPBREAKING INDUSTRY PAKISTAN**

The GSBI is managed by the BDA under the BDA Act of 1974, which mandates the provision of essential services such as electricity, gas, and water, as well as worker safety measures. The BEPA oversees environmental aspects, including HWM and worker safety. Both organisations face challenges due to their remote locations in Hub,

which limits their effectiveness and results in reactive rather than proactive responses. To address these issues, stakeholders proposed the establishment of the BGSRB to ensure SENSREC practices are aligned with the HKC 2009. The BGSRB would focus on legislative oversight, sustainability promotion, workers' safety, training programs, and stakeholder engagement. Furthermore, a GOSS at Gadani is suggested to streamline administrative and regulatory functions, ensuring compliance with HKC standards. This integrated approach aims to improve safety, environmental protection, and economic growth within the ship recycling sector, ultimately fostering collaboration among stakeholders and aligning the industry with international best practices.

## **CHAPTER 16 HKC COMPLIANCE: A PATHWAY TO UN SDGS IN PAKISTAN'S SHIP RECYCLING SECTOR**

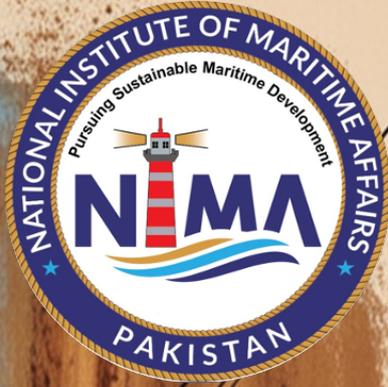
39. The HKC 2009 addresses ship recycling with a focus on human-centric issues, including HWM, environmental protection, and worker welfare. It aligns with the global frameworks of the UN Sustainable Development Goals (UN SDGs), which encompass 17 goals aimed at sustainable development by 2030. Adherence to HKC can enhance Pakistan's SRI, contributing to sustainable development and alignment with multiple UN SDGs. The HKC emphasises compliance with international standards, and while it does not explicitly reference the UN SDGs, it acknowledges that ship recycling supports sustainable development. Compliance with HKC can significantly impact Pakistan's SRI, particularly in Gadani, by improving labour conditions, enhancing worker safety, and promoting sustainable practices. Key alignments between HKC and UN SDGs include poverty alleviation (SDG 1), improved health and well-being (SDG 3), quality education and vocational training (SDG 4), economic growth (SDG 8) and industry, innovation, and infrastructure (SDG 9). The HKC promotes decent work environments and helps reduce inequalities (SDG 10) through fair labour practices. Additionally, it supports responsible consumption (SDG 12), climate action (SDG 13), marine resource conservation (SDG 14), and global partnerships (SDG 17) by fostering collaboration among governments and industry stakeholders.

## **CHAPTER 17 CAPACITY BUILDING - RECOMMENDATIONS FOR ACHIEVING HKC COMPLIANCE IN PAKISTAN'S SHIPBREAKING INDUSTRY**

40. This Research Study on the GSBYs aims to prepare for the implementation of HKC 2009 by June 26, 2025. The HKC sets standards to

mitigate risks to human health, safety, and the environment during ship recycling. The study identifies significant gaps in GSBY's practices and offers recommendations for compliance with international standards. Key outcomes include an increased awareness of existing deficiencies, improved policy frameworks, enhanced infrastructure, and a skilled workforce. The proposed capacity-building program focuses on developing a comprehensive understanding of SENSREC practices. This includes creating documented plans, establishing SOPs, and addressing HWM. The analysis reveals inadequacies at GSBYs, such as the absence of documented plans and inadequate safety measures. Current operations rely on outdated SOPs, lack proper emergency preparedness, and do not effectively manage HazMats. Additionally, medical facilities are insufficient, posing risks to worker safety. To address these issues, the study emphasises the need for shared responsibility among stakeholders, including the PSBA, BDA, and BEPA. Recommendations include enhancing training infrastructure, establishing a permanent ship recycling office, and leveraging partnerships with organisations experienced in OH&S.

41. Legislative reforms are also crucial; the draft Ship Recycling Act 2024 should incorporate HKC guidelines, ensuring that responsibilities are clearly defined and compliance mechanisms are established. Furthermore, the establishment of a BGSRB and a GOSS would streamline operations, enhance regulatory compliance, and promote sustainable practices.
  
42. Achieving HKC compliance requires significant investment, legal clarity, and a cooperative approach among all stakeholders. Given the challenges, Pakistan may need to spread its phased Capacity and Capability programme from short-term to long-term. Furthermore, Pakistan would need to seek extensions for compliance to effectively transition towards sustainable ship recycling.



*“IMO aims to bring Gadani’s practices in line with global standards for safety and environmental protection which will require time and effort, but I’m confident that we can help the shipyard evolve into a model for sustainable Ship Recycling. The maritime industry is undergoing significant transformations and these transitions require innovation and advanced research, where NIMA can play a pivotal role. IMO defines robust standards, but to bring them into practical application, collaboration with think tanks is crucial. By conducting research, offering policy recommendations, and engaging in development projects, NIMA can help align Pakistan’s maritime practices with global sustainability goals”.*

*Mr. Arsenio Dominguez, Secretary General, IMO  
Interview to NIMA at IMSEC 2024 on Visit to Pakistan – September 13, 2024*



*“NIMA research on HKC implementation in Gadani Ship Breaking Yards for Safe and Environmentally Sound Recycling of Ships (SENSREC) was found to be Comprehensive and ILO appreciates the inclusion of the HSE Management System in the research. It may be prudent to use the gap assessed as a baseline to explore other dimensions of work in the sector that can strengthen ecosystems for the Ship Recycling Sector”.*

*ILO Comments on NIMA Research Report - August 26, 2024*

*“In the context of HKC implementation in Pakistan, making all these processes in one or two years is quite difficult. But it can be achieved and the IMO SENSREC project in Bangladesh can be helpful for Pakistan. In Bangladesh’s experience, one of the very important elements was to make sure that the training requirements not only incorporate the international requirements but also meet the national realities. It is, therefore, very important to ensure that the processes adopted are Pakistan-centric and meet the ground realities of Pakistan”.*

*Professor Raphael Baumler, World Maritime University (WMU), Sweden  
NIMA’s International Symposium at Karachi, Pakistan on 25 April 2024*



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