



Inferno Saga of MV X-Press Pearl (Chemical Carrier) off Colombo



Sagar Aaraksha-II

Indian Coast Guard & Sri Lankan Forces



GENESIS OF "SAGAR AARAKSHA"

The code word "**SAGAR AARAKSHA**" was coined for High Level Joint International Maritime Firefighting & Pollution Response Operation in the Indian Ocean Region to signify :

- "SAGAR"** - India's Hon'ble PM's vision of
'Security And Growth for All in the Region'
- "AARAKSHA"** - Means "**PROTECTION**" in Sinhala
(Sri Lankan Language)



राजनाथ सिंह
RAJNATH SINGH



सत्यमेव जयते

रक्षा मंत्री
भारत
DEFENCE MINISTER
INDIA

FOREWORD

India has an extensive history of maritime economics dating to the excavated site of ship building and repair at Lothal, Gujarat. India, with the only ocean named after it, occupies a significant position in the maritime trade overseeing the busiest of international shipping lanes. 95% of India's trade by volume and 68% by value is conducted through these waters.

Coordination and collaboration amongst maritime neighbours holds the key to maritime safety and security in the Indian Ocean Region (IOR). The Hon'ble Prime Minister's vision for Security And Growth for All in the Region - SAGAR and Neighbourhood First Policy are prime initiatives for IOR which bear testimony to India's priorities. India, thus in letter and spirit has been at the forefront in providing assistance to our maritime neighbours in time of need.

The collaboration of Indian Coast Guard (ICG) and Sri Lankan forces was highlighted during successful joint maritime firefighting operation 'SAGAR AARAKSHA' onboard MT New Diamond in September, 2020 carrying 2.7 Lakh Metric Tonnes of crude oil. This was again witnessed in joint firefighting and marine pollution response operation 'SAGAR AARAKSHA-II' of ablaze MV X-Press Pearl (Chemical Carrier) off the port of Colombo since 25 May, 2021 for over a fortnight, by deployment of ICG ships and aircraft.

A cooperative environment and collaborative mechanism in the maritime neighbourhood of IOR is essential to address the maritime challenges, thereby ensuring maritime safety, security and protection of marine environment.

I compliment Indian Coast Guard for evolving as one of the finest and professional Coast Guards of the world furthering India's maritime policies.

"Jai Hind"

(Rajnath Singh)

Date : 11 Aug, 2021

Place : New Delhi



डा. अजय कुमार, आई ए एस
Dr. Ajay Kumar, IAS



PREFACE

रक्षा सचिव
भारत सरकार
रक्षा मंत्रालय
**Defence Secretary
Government of India
Ministry of Defence**

Indian Ocean Region (IOR) is at the cross roads of Africa, Asia and Australia interconnecting the oceans. The Indian Ocean's maritime routes are pivotal for the worldwide supply of energy and represents almost 20% of world's ocean area connecting shores of three continents. Trade through the Indian Ocean impacts the economies of nearly all major nations of the world, thus encouraging most world powers to have a foothold or at least presence in the region. Hence, stability, safety, security of maritime trade, as also protection of marine environment in the Indian Ocean Region is of paramount significance to the world community as a whole.

India had promptly responded to the request from Sri Lanka and at once deployed ICG ships for assistance towards major fire incident onboard container vessel MV X-Press Pearl at anchor off Colombo. The distressed vessel carrying 1486 containers containing chemical cargo classified as International Maritime Dangerous Goods (IMDG) posed huge environmental risk to the Indian Ocean Region with its impact not limited to one nation alone. Braving the inclement weather, rough sea conditions and roving containers in vicinity, ICG Ships displayed exemplary professionalism in manoeuvring close to the distressed vessel for spraying of foam and sea water through high powered external firefighting systems. The coordinated operation '**Sagar Aaraksha-II**' by ICG and Sri Lankan Forces resulted in successfully dousing the fire with no oil spill.

Overall, 03 ICG Ships including one specialised Pollution Response vessel were involved in strenuous round the clock joint operations with Sri Lanka. The potential disaster looming over the Indian Ocean from increasing flow of maritime trade has already been felt in Sep 2020 in a similar incident wherein an environmental catastrophe from potential oil spill from a VLCC carrying 2.7 lakh metric tons of crude oil was prevented on the east coast of Sri Lanka successfully through coordinated fire fighting operation '**Sagar Aaraksha**' by Indian Coast Guard, Sri Lankan forces and Indian and Sri Lankan agencies.

The growing maritime challenges are of concern to all nations in the IOR. The vast ocean area and multitude of challenges requires shared responses to address the issues of maritime commons. The maritime industry is an important catalyst in the overall economic growth of

any coastal nation and thus maritime safety and security are the core of achieving the potential of blue economy for any developing maritime nation.

I, complement, ICG in assisting the regional partners in times of maritime emergencies which reinstates India's capability and capacity as a dependable partner in South Asia and IOR.

"JAI HIND"

A handwritten signature in blue ink, appearing to read 'Ajay Kumar', with a stylized flourish at the end.

(Dr. Ajay Kumar, IAS)

Place : New Delhi
Date : 10 Aug 2021



महानिदेशक
भारतीय तटरक्षक
Director General
Indian Coast Guard
Chairman, NOSDCP
&
CNA under SACEP

INTRODUCTION

महानिदेशक के नटराजन, प.वि.से.प., रा.त.प., त.प.

DG K Natarajan, PVSM, PTM, TM

The Indian Ocean which connects Pacific Ocean in the east and Atlantic Ocean in the west is host to transoceanic International Shipping Lanes (ISL) and has been a key contributor for development of economy of Indian Ocean Rim nations. The increased use of oceans and enhanced maritime traffic in contemporary times has transformed the challenges of safety, security in the oceans to conform to international laws as also protection of marine environment. Collaboration and cooperation amongst the peninsular nations in the Indian Ocean Region (IOR) is being increasingly viewed as the key for safe, secure and clean seas.

Indian Coast Guard (ICG) being the Samaritans at sea has always been at vanguard in IOR in assisting our Regional partners for responding to maritime emergencies as in the case of 'MT New Diamond' for which a coordinated operation **"Sagar Aaraksha"** between ICG, Sri Lankan Forces and Indian as well as Sri Lankan agencies resulted in successful dousing of fire saving 2.7 lakh metric tons of crude and averted a major ecological disaster off southeast coast of Sri Lanka.

Yet another scenario built up 09 nautical miles northwest of Colombo, Sri Lanka on 20 May 21 when MV X-Press Pearl carrying 1486 containers of International Maritime Dangerous Goods (IMDG) reported fire onboard resulting from a leakage of Nitric Acid. The fire was reported to be brought under control by Sri Lankan Authorities. However, on 25 May 21 a major fire was reported and assistance of ICG was sought by Sri Lanka through Govt of India. ICG being the Competent National Authority and National Operational Authority from India under the MoU with South Asian Cooperative Environment Programme (SACEP) is mandated to assist in responding to oil and chemical pollution in the (South Asian Seas) Region.

The ICG multi mission patrol vessel ICGS Vaibhav on deployment in south Gulf of Mannar was diverted immediately for assistance. Simultaneously, ICGS Vajra at Tuticorin embarked with additional Fire Fighting (FF) and Pollution Response (PR) equipment was also dispatched for assistance. ICG specialised Pollution Control Vessel Samudra Prahari mobilised from Mumbai for augmentation. By first light on 26 May 21, ICG ships in coordination with Sri Lankan forces, assets mobilised by Sri Lanka Port Authority and salvors had launched a coordinated operation **"Sagar Aaraksha-II"** despite the prevailing inclement weather. The

aerial assessment was undertaken by ICG Dornier aircraft providing valuable inputs to facilitate effective firefighting. The massive firefighting and subsequent pollution response operation lasted for over a fortnight.

It is noteworthy to mention that neither the 322 Metric Tonnes of Heavy Fuel Oil carried onboard the ill-fated vessel caught fire nor escaped into the sea. This feat was achieved only due to the collaboration and cooperation of forces engaged in firefighting and pollution response Operation '**Sagar Aaraksha-II**'. I am thus confident that our growing collaborative efforts with international partners will lead the way for mitigating maritime emergencies. ICG is always 'Ready, Relevant and Responsive' in addressing the maritime challenges in Area of Responsibility in sync with our motto '**Vayam Rakshamah**' meaning '**We Protect**'.

"JAI HIND"



(DG K Natarajan)

Place : New Delhi
Date : 09 Aug 2021

Inferno Saga of MV X-Press Pearl off Colombo



Motor Vessel X-Press Pearl, a Singapore flagged double hull container carrier, a recent construct of Nov 2020, laden with 1486 containers was anchored 09 nautical miles Northwest of Colombo on 19 May 2021 for discharge of cargo. The vessel was carrying 322 metric tons of Heavy Fuel oil and International Maritime Dangerous Good

(IMDG) classified cargo in the containers. The IMDG cargo primarily consisted of Nitric Acid, Methanol, Methyl Acetate, Sodium Hydroxide and Polystyrene beads which were highly inflammable and reactive.

On 20 May 2021, fire with heavy smoke was observed onboard MV X-Press Pearl. It was appreciated that the fire occurred due to leakage of Nitric Acid from one of the containers. The master was from Russia and 25 crew from Philippines, China and India all reported safe. The fire was brought under control by tugs from Sri Lanka Port Authority (SLPA) and Sri Lanka Navy ships. Salvage team engaged by shipping company in coordination with tugs from SLPA thereafter monitored the situation.

FIRE INCIDENT ONBOARD MV X-PRESS PEARL



Harrowing Irrepressible Blaze

As the teams coordinated, the flame simmered, but appeared to be under control. On 25 May 2021, an explosion in cargo hold no.3 caused a major fire onboard MV X-Press Pearl. Inclement weather persisted in area with sea state 4-5, swell of 1.5-2.0 mtrs and winds gusting upto 40 knots with rain and thundershowers. The vessel at anchor was stemming the wind and owing to rough sea conditions, the offshore support vessels were unable to manoeuver and hold the vessel in the direction away from wind. Thus, the wind

further aided spread of fire as ship's lay was in line with the wind. Despite operating the Carbon-di-Oxide (CO₂) fixed firefighting system by the ship's crew, the fire rapidly spread out of control. The 13 crew and 12 salvage members who were onboard the vessel for assessment and monitoring post initial fire incident were safely evacuated by the Sri Lanka Navy. Within hours of explosion, the irrepressible fire spread in an unprecedented manner to adjacent cargo hold no 4 & 5.



Sensitive Marine Ecosystem under Threat

MV X-Press Pearl on fire was anchored just 09 nautical miles from the shores of Colombo (Sri Lanka) having 322 metric tons of Heavy Fuel Oil (HFO) and carrying dangerous cargo. The threat of oil and chemical spill was imminent in case of spread of fire to fuel tanks, causing explosion and subsequent oil spill. Sri Lanka being an island nation has a rich and sensitive marine ecosystem. Further, the vessel on fire was in close proximity to the Negombo lagoon and fishing harbour which is one of the major fishing harbour of Sri Lanka. The oil and chemical

spill would have adversely affected the marine ecosystem, its flora and fauna. Being a fishing harbour, the livelihood of thousands of coastal populace engaged in fishing would also have been severely affected. The weather conditions owing to southwest monsoon would have aided in carrying the spill to the shoreline, affecting the beaches and the tourism industry of the island nation. The threat of oil and chemical spill was not restricted to Colombo or Negombo alone but to entire west coast of Sri Lanka.



¹HFO – Characterised by high specific gravity from 0.92 – 1.02 g/cm³ and high viscosity from 5000 – 30000 cSt. HFO does not appear into thin layers, stays as floating near or just below water surface

²Bar Reef Marine Sanctuary is largest of Marine Protected Area covering 306 sqKms located west of Kalpitiya Peninsula and borders the Puttallam Lagoon and is host to coral reefs, mangroves, seagrass beds and coastal sand dunes. Out of 28 species of whales and dolphins, 10 are reported in Gulf of Mannar Region. The location is also an important foraging site and migratory route of Olive Ridley turtles.

Government of India's Vision - Neighbourhood First Policy

Government of Sri Lanka through High Commission of India at Colombo requested for firefighting and pollution response assistance. The request was parallelly communicated from Sri Lanka Coast Guard (SLCG) to Indian Coast Guard (ICG) as also from South Asian Cooperative Environment Programme (SACEP) Secretariat, Colombo since ICG is the Competent National Authority (CNA) for Oil and Chemical Spill Response in South Asian Region under the provisions of Memorandum of Understanding of SACEP Agreement. Prompt approvals were accorded by the Ministry of

Defence and Ministry of External Affairs, Govt. of India for extending ICG assistance to Sri Lankan authorities for firefighting and pollution response. ICG had the backing of experience gained from the successful firefighting operation onboard Very Large Crude Carrier (VLCC) Motor Tanker New Diamond carrying 2.7 lakh metric tons of Kuwait crude off the South East coast of Sri Lanka in Sep 2020 as also the wherewithal to fight such fires owing to ICG inventory of specialised Pollution Response Vessels and multi-mission capable offshore patrol vessels.



Assessment & Evaluation - Devising Response Strategy

On 25 May 2021, in less than an hour of receipt of information at 1030 hours, Indian Coast Guard Ship (ICGS) Vaibhav on surveillance mission in south Gulf of Mannar was diverted for assistance. The multi-mission platform equipped with External Fire Fighting (EFF) system and Aqueous Film Forming Foam (AFFF) compound was approximately 130 nautical miles from the casualty vessel. Further, 05 KL of AFFF compound and 450 kgs Dry Chemical Powder (DCP) was resourced and embarked onboard ICGS Vajra at Tuticorin which was already in possession of 25 KL AFFF. ICGS Vajra embarked with pollution response equipment viz. RO boom, skimmers, oil spill dispersants, AFFF and DCP was deployed from Tuticorin at 1830 hours on 25 May 21 for augmentation of firefighting and pollution response efforts.

It was critical to assess the construction characteristics of ship and details of cargo as also

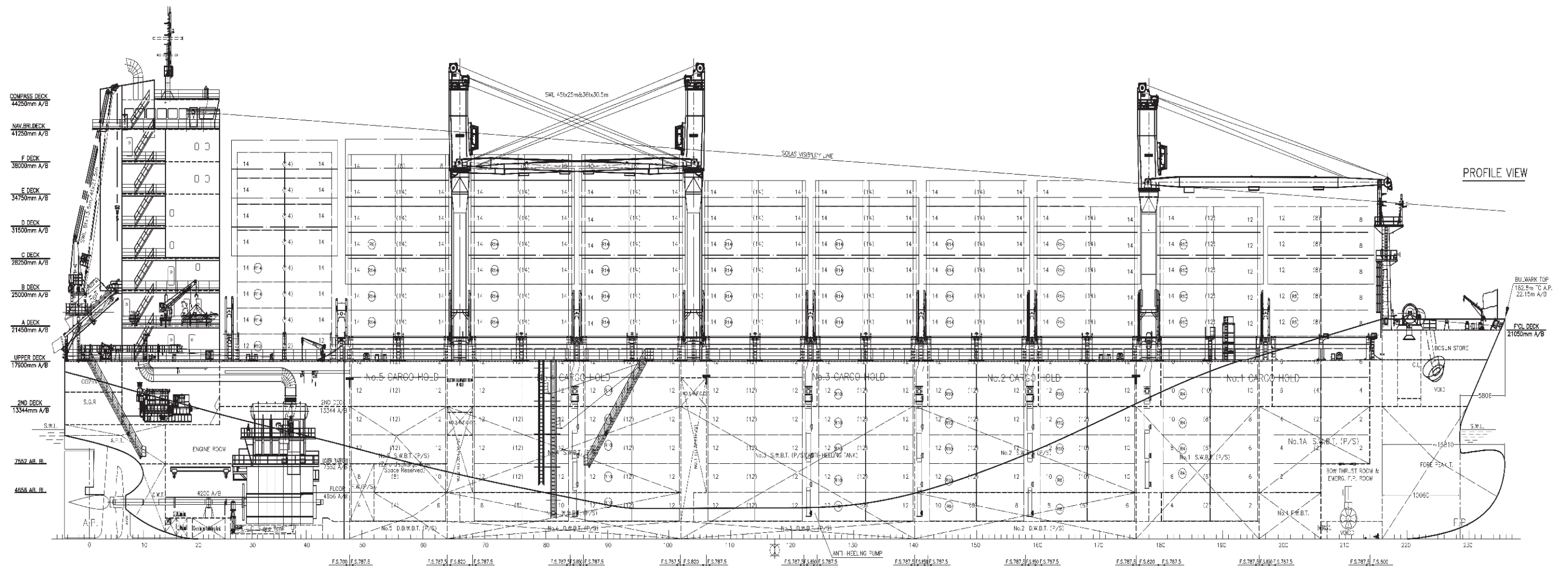
its stowage inflammability and reactive nature, location, quantity and type of fuel stowed to effectively draw and implement the firefighting and pollution response plan. Unfortunately, such details were not available with the master and crew as they had abandoned the vessel leaving the details onboard the vessel. ICG sourced these details from the Vessel's Shipping Company at Singapore.

The General Arrangement (GA) drawing, Fire Control and Safety Plan, ship build characteristics, container manifest alongwith chemical properties and reactive nature of cargo and fuel stowage location of the vessel were carefully analysed. Director General K Natarajan, PVSM, PTM, TM, Director General Indian Coast Guard having vast experience, spearheaded the operation to work out a plan for simultaneous firefighting and oil/chemical pollution response in the event of a spill.



MV X-Press Pearl (GA Drawing)

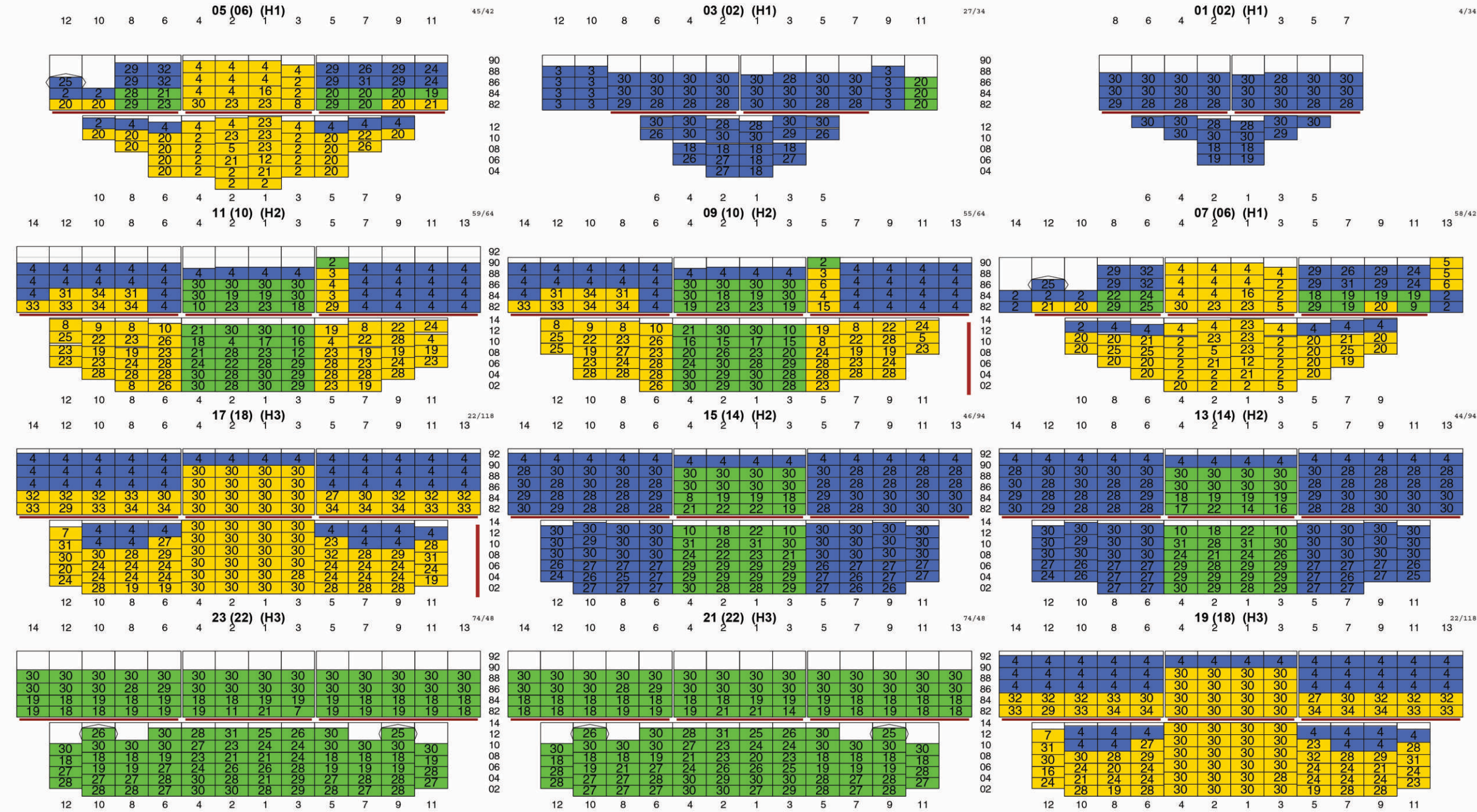
38		34		30		26		22		18		14		10		06		02		40' BAY	TOTAL NUMBER
39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	09	07	05	03	01	20' BAY	



General Arrangement Drawing- MV X-Press Pearl

Bayplan

POD LKCMC MYTPP SGSIN



Bay Plan of Cargo Hold - MV X-Press Pearl

The bulk of the International Maritime Dangerous Goods (IMDG) cargo consisted of Sodium Hydroxide (Caustic Soda) and Nitric Acid in addition to Lithium Ion batteries, Sodium Acetate, Methanol, cosmetics, resins and polystyrene beads all of which were highly inflammable except Sodium Hydroxide which was in solid form weighing about 1 million kgs.

The chemical property of Sodium hydroxide

was studied. It was classified as corrosive, non-inflammable, non-explosive however retains heat, dissolver and acute toxicity against humans as well as marine ecology. As per the prediction models, in the event of chemical spill of 500 tons, an area of 2.8 nm could be affected. Thus, the measure included monitoring of pH Value of sea water and establishment of exclusion zone for fishing/water intake. The probable chemical reaction to sea water could be as:-



The vessel also had 25 metric tons of nitric acid in 75% concentration with density greater than one, classified as dissolver. However, when reacts with water, emits heat which intensified the fire and toxic nitrogen oxide fumes apart from hydrogen

nitrate on being exposed to heat. It was also ascertained that nitric acid is gradually neutralised by hard materials in sea water such as calcium, magnesium, etc., and ultimately consumed as plant nutrient.



The three ICG ships were thus directed to attack the seat of fire using AFFF compound, boundary cooling to prevent the spread of fire to fuel tanks and simultaneous air dropping Dry Chemical Powder on seat of fire by Sri Lanka Air Force helicopters in

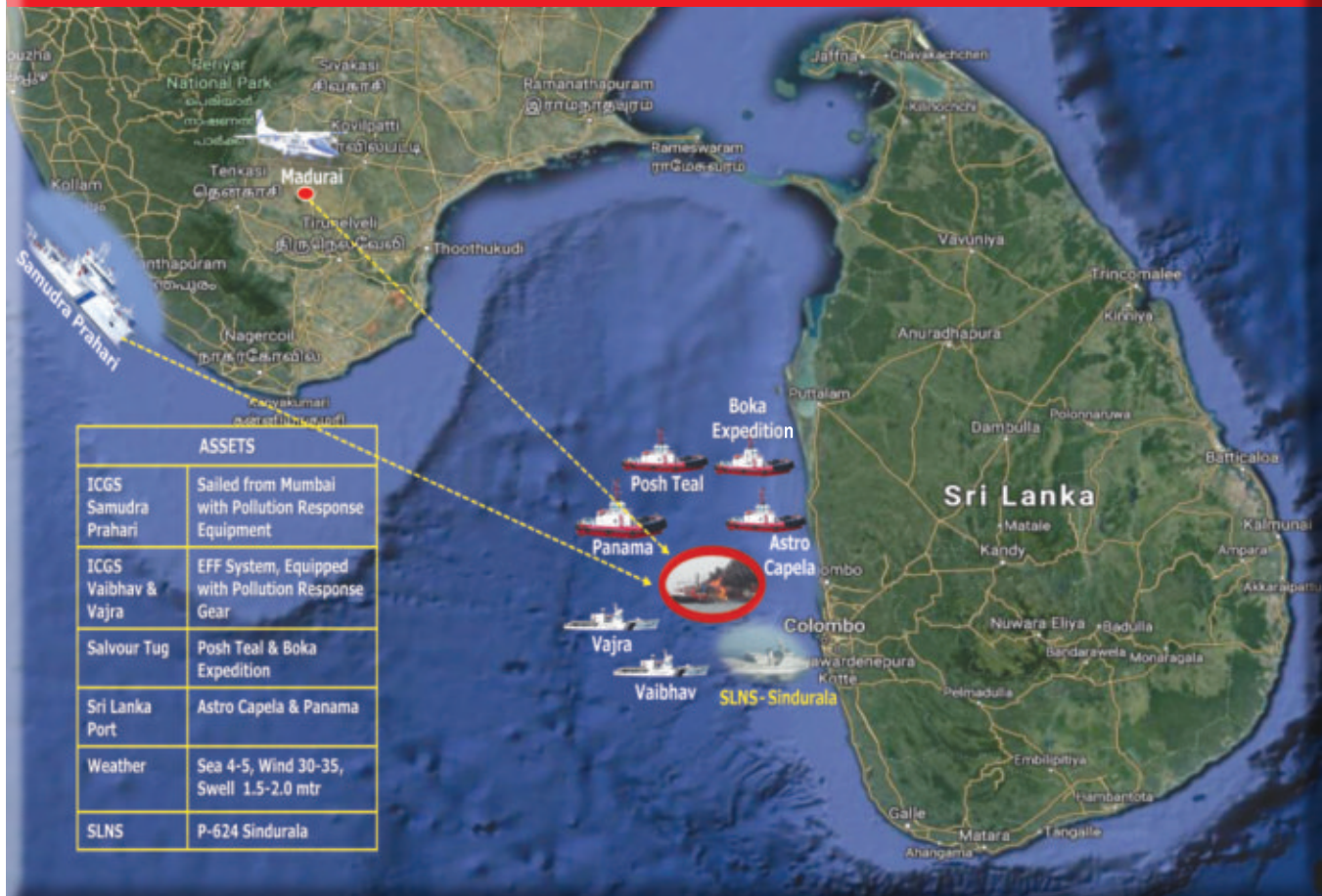
coordination with support vessels engaged by salvors and SLPA tugs. The measures were essential to address the fire square by cutting off the oxygen supply by smothering, removal of combustible material, quenching the free radicals and removal of heat.

Response & Mobilisation - Augmentation of Efforts

ICGS Vaibhav (Multi-mission platform) arrived on scene at 2330 hours on 25 May 2021 despite rough sea conditions and undertook preliminary assessment. It was informed by support vessels of salvors that few containers had fallen overboard with their positions unknown and a few leaning in precarious condition from container stacks of the vessel. The situation was compounded by rough seas and prevailing low visibility due to heavy rains and marginal weather condition. ICGS Vajra arrived in area at 0600 hours on

26 May 2021 and assumed the duties of On Scene Commander (OSC) for effective implementation of firefighting measures in coordination with Sri Lanka Navy ships, 02 support vessels of salvors and 02 SLPA tugs. ICGS Samudra Prahari, specialised firefighting and pollution response vessel, with additional pollution response gears was deployed from Mumbai in the early hours of 26 May 2021 for augmentation of efforts and to deal with catastrophe in the event of huge oil spill.

COORDINATED FIRE FIGHTING EFFORTS



Fire was observed at fore and midship area of the ship with dense black smoke emanating from the affected area, thus simultaneous spray of AFFF compound and air dropping of DCP was resorted. Accordingly, 4500 ltrs of AFFF compound and 450 kgs DCP was provided to Sri Lanka Navy. Braving rough sea conditions, two ICG ships undertook coordinated firefighting operation alongwith boundary cooling of the vessel.

ICG Dornier aircraft was launched from Chennai staging through Madurai at 0600 hours on 26 May 2021 for aerial assessment of area. No oil spill was observed, but unprecedented spread of fire and thick black smoke was reported by the aircraft.





Whilst the firefighting operation was being progressed, it was also essential to situate the shoreline pollution response measures to prepare

for likely oil or chemical spill. ICG being the CNA under provisions of MoU of South Asia Co-operative Environment Programme (SACEP) was in continuous liaison with SACEP Secretariat, Colombo and rendered valuable advise post professional evaluation.

Media reports indicated few containers reaching ashore along with plastic beads affecting the marine ecology in the coastal areas extending upto 84 km along the shoreline having mangroves, corals, fish breeding, turtles, prawns, crabs and bird sanctuaries and threat from dangerous goods onboard MV X-Press Pearl having Caustic Soda as major Hazardous and Noxious Substance (HNS). Further, the release of caustic soda in the marine environment would cause an irreparable loss to the benthic biota affecting fish, mangroves and marshy lands. The release of oil from the vessel would have had severe impact on the marine ecology since the coastal waters contain different types of habitats on surface, subsurface as well as along the coastline. Thus, SACEP, Colombo was

advised that both Net Environmental Benefit Analysis (NEBA)/Net Environment Economic Benefit Analysis (NEEBA) may be undertaken by Marine Environment Protection Agency (MEPA), Sri Lanka in advance in order to arrive on a calculated decision prior Hazardous and Noxious Substances or oil getting leaked from the vessel or these dangerous effluents reaching shoreline.

The use of chemical dispersants was advised to be well thought off and decision to be weighed in advance whether to save mangroves, bird sanctuaries, fish/crab habitats or corals. It was informed that chemical dispersants, if applied, would break the surface oil into smaller molecules which would travel through the water column into the benthic environment and the disintegrated molecules would settle on the seabed and certainly affect the habitats in water column as well as the corals. However, the decision would achieve the safety of mangroves, bird sanctuaries and other habitats on the sea surface. Additionally, shoreline will also not get affected since the oil would disintegrate before it reaches shore. If chemical dispersants were not applied, the water column, benthic organisms and corals were likely to remain unaffected. However, oil on the sea surface will impact shoreline, mangroves, bird sanctuaries and turtles. The shoreline

cleanup efforts along the pristine beaches will be easier to clean but mangroves will take long years to recover from the environmental disaster. It would further result in affecting bird sanctuaries since the mangroves are the host for them.

It was therefore recommended that NEBA/NEEBA may be studied along with the

sensitivity mapping of the coastal areas likely to get affected in order to arrive at early decision for use of chemical dispersants. It would ensure timely risk assessment and mobilisation of efforts by the concerned agencies in Sri Lanka to mitigate the effects of marine ecological disaster looming over their coastal areas.



Quenching the Raging Inferno

By evening of 26 May 2021, fire had engulfed the entire ship including the container stacks and super structure with raging flames. Daunting task lay ahead of the ships to first prevent fire from reaching the fuel tanks which would have led to explosion and subsequent spillage of oil into sea. Secondly, to prevent the fire from spreading to anchor/windlass area which could part the cable causing the ship on fire to drift towards shallow waters.

ICG Ships in coordination with SLN ship, salvor engaged vessels and SLPA tugs undertook the valiant mission of firefighting in close proximity of raging fire in rough sea conditions with molten containers falling overboard, in a calculated manner from attacking the seat of fire maintaining continuous boundary cooling of external hull. ICGS Samudra Prahari joined the mission at 1315 hours on 29 May 2021, providing a fillip to the firefighting operation. ICG

Dornier sorties were undertaken daily w.e.f. 26 May 2021 from Madurai for aerial assessment, monitoring any sign of oil spill and advice to ships on status of fire.

The audacious firefighting operation braving all odds such as rough sea condition, strong winds, navigation hazard due to falling containers, noxious gas in air coupled with explosion continued for 06 days and night from 26-31 May 2021 and the inferno was quenched on 31 May 2021 with mild white smoke emanating from the remnant cargo mainly due to sodium hydroxide.



Sinking of Vessel & Combating Marine Pollution

As the fire was extinguished with only residual smoke emanating due to sodium hydroxide, the members of the salvor team embarked the ill-fated vessel for assessment on 01 June 21. The vessel was observed to be trimmed by aft with draught of 14.4 mtrs an increase by 3 mtrs from original draft of 11.5 mtrs. With first light on 02 June 21, water ingress was observed in the aft portion of the vessel and by 0750 hours same day, bilge water alongwith burnt black material was observed on the sea surface and the vessel gradually started sinking.

The tugs of salvor attempted to tow the vessel away from the coast. However, the

vessel sank at 1330 hours on 02 June 21 approximately 10 nautical miles northwest of Colombo in 18 mtrs depth and 04 nautical miles away from the nearest coastline with part of super structure visible.

The escape of oily bilge water and chemical from the vessel, proximity to coast and adverse weather owing to onset of southwest monsoon unwrapped the threat of oil and chemical pollution to the pristine ecosystem including the corals, benthic fauna, mangroves and the coastline. Laying of booms around the ill-fated vessel was not feasible owing to fallen containers close to the vessel, prolonged high swell, breaking



waves and strong winds. Further, the deployment of oil spill dispersants had to be a weighed decision considering the shallow depths close to coast and its impact on the environment. The shoreline protection and cleanup measures were to be simultaneously implemented to minimise the impact on

the beaches. Thus, Marine Environment Protection Agency, Sri Lanka was advised by CNA, SACEP, ICG to undertake Net Environment Benefit Analysis whilst ICG ships were standby for implementation of measures as per the decision of Govt of Sri Lanka.



Culmination of Sagar Aaraksha-II

ICG ships remained standby for marine pollution response, as also continuously advised and monitored the status of ill-fated vessel and probability of leakage of Heavy Fuel Oil from the tanks.

Stray incidents of oil sheen extending upto 05 cables from the derelict vessel in north-north easterly direction towards Negombo were observed by ICG ships. However, the same were observed to wither away by high speed churning of effected area by ICG ships in coordination with SLN ships. It was opined that the Heavy Fuel Oil and Marine Gasoline Oil might have got incinerated whilst the vessel on fire and the present seepage may be a residual mix likely from below engine room tank. The sample of oil water mix assessed by the marine chemist of the salvage team did not indicate any Heavy Fuel

Oil and Marine Gasoline Oil.

The further course of action merited assessment, salvage and wreck removal of the derelict vessel was progressed by Sri Lankan Authorities, owner of the vessel and the salvage team. The Sri Lankan Authorities through High Commission of India conveyed for de-induction of ICG assets on 10 June 21.



Observations & Lessons Learnt

The stacking of containers aboard the ship was in accordance with IMDG code guidelines and stowage plan duly prepared by Chief Officer of the ill-fated vessel. The dangerous cargo was separated from each other as per segregation group indicated in the IMDG code guidelines and the shipper is responsible for deciding whether allocation of dangerous goods under this segregation group is appropriate or not. The shipper is also responsible for safe stowage of cargo in containers.

The leak of Nitric Acid was first noticed on 11 May 2021 with emanating fumes from one of the containers carrying Nitric Acid. As per the existing regulations, the port shall have specialist facility or expertise to deal with such dangerous goods and Port State Control (PSC) inspector shall be notified in case of such incidents by the ship's crew. Since no specialist facilities or expertise were immediately available to deal with the leaking Nitric Acid, the permission for offloading such containers was not granted at previous ports of call viz. Port of Hamad (Qatar) and Hazira (India). The Colombo port had expertise to assist X-Press Pearl in dealing with the leaking Nitric acid.

The fire was first reported on 20 May 2021 and was extinguished by drenching CO₂

(Carbon di-Oxide) into holds using shipboard system in accordance with Emergency Response Procedures for Ships Carrying Dangerous Goods (EmS) Guide.

The chemical reactions of Sodium Hydroxide (NaOH), stored in containers as cargo onboard X-Press Pearl and Carbon dioxide (CO₂), used to extinguish the fire, would have resulted in formation of Sodium Bicarbonate (NaHCO₃). Sodium Bicarbonate after reacting with Carbon dioxide in presence of water vapour will lead to formation of Sodium Carbonate (Na₂CO₃).

Also, when Sodium Bicarbonate (NaHCO₃) reacts with water, it will form Carbonic Acid (H₂CO₃). This is an exothermic reaction and will result in producing a good amount of heat (approx 44 KJ/mol). Now the produced Carbonic Acid, being an unstable compound, will further break-up into Carbon dioxide and water ions. These unstable ions/free radicals have a tendency to aid propagation of fire.

The reaction between Nitric Acid (HNO₃) and Sodium Chloride (NaCl) present in sea water, being used for firefighting, will result in formation of Hydrochloric Acid (HCl) and Sodium Nitrate (NaNO₃). This reaction is an endothermic reaction. The reaction between Nitric Acid (HNO₃) and Sodium Hydroxide (NaOH) will also result in formation of

Observations & Lessons Learnt

Sodium Nitrate (NaNO_3) only alongwith water.

However, the fire got re-ignited on 25 May 21 possibly due to following factors:-

- Leakage of CO_2 gas through gaps in the holds thereby leading to ineffective fire-fighting.
- The Sodium hydroxide has a tendency to retain heat might have resulted in re-ignition.
- The monsoon weather prevailed was not conducive to undertake firefighting as well as towing the vessel to deeper waters. In fact the weather assisted fire to sustain and spread to all parts of the ship.
- The integrity of containers containing Sodium Hydroxide could have breached due to initial firefighting using water thereby triggering exothermic chemical reaction between water and Sodium Hydroxide generating heat and facilitate fire to sustain.

The wide variety of chemicals transported alongwith their varying physical and chemical properties, potential for effects on humans, behavior in the marine environment is not as straight forward as for oil. The consequences

of a chemical spill can be more wide reaching and result in multitude of various hazards. These disasters onboard container ships present the difficulties of preventing and extinguishing fires in the open sea.

The dangerous goods onboard MV X-Press Pearl was probably spilled into the sea due breach of containers, thus impacting shoreline, mangroves, bird sanctuaries and turtles. The chemicals released in the marine environment may cause an irreparable loss to the benthic biota affecting fish, mangroves and marshy lands. It is likely that the cargo on the shoreline could mix with the impermeable and semi-permeable substrate affecting the marine environment alongwith the species present therein. Moreover, with lapse of time, the containers in the vessel are likely to disintegrate and cause further spill of residual perished cargo into the marine environment that may end up on the shore lines or on the sea bed.

Notwithstanding aforesaid, the firefighting and subsequent pollution response incident highlighted the efficacy and necessity of bilateral and regional cooperation in dealing with maritime emergencies. It underscored that a singular nation or organisation will not have the necessary wherewithal to deal with such magnitude of maritime emergencies. The seamless administrative and logistical support extended to ICG ships by Sri Lanka

Observations & Lessons Learnt



authorities played a crucial role in maintaining the cadence of the operation. The incident necessitated:-

- Formulation of response plan with each nation to deal with chemical pollution hazards.
- Establishment of institutionalised framework and designate Points of Contact for exchange of information.
- Conduct regular exercises for validation and timely implementation of remedial measures.

- Chemical response book to be held by each ship as per response plan.

The size of container ships is becoming larger along with their carrying capacity and such incidents present loss of a sizeable environmental financial and most importantly, human life. Improved ship designing, review by IMO and classification society or study into current requirements and control, improved fire fighting equipments onboard, correct cargo declaration and storage should greatly reduce the risk of such fire incidents onboard container ships.

It is understood that research and development in the direction of further safeguarding carriage of dangerous goods at sea has larger implications in terms of ship building as multifarious agencies including classification societies, examination and certifying agencies will have unequivocal roles.

Accolades



*Rear Admiral GEWMAN Ekanayake,
RSP & Bar, USP, psc, MMaritimePol, MSc (D&SS), Dip in IR
Director General Sri Lanka Coast Guard*

13th June 2021

Dear Sir,

I write this letter on behalf of Sri Lanka Coast Guard with deep sense of gratitude to you and the Indian Coast Guard for the timely assistance and cooperation that have been extended during the distress of MV X-PRESS PEARL.

Under your able leadership, Indian Coast Guard Ship ICGS Vaibhav had been directed and reached the location of the stricken vessel 2230 hrs on 25th May 2021 as a first responder to douse the fire in swift response to the request made by Sri Lanka Coast Guard invoking clause 3 (d) of the Memorandum of Understanding signed between Indian Coast Guard and Sri Lanka Coast Guard. Subsequently, ICGS Vajra, ICGS Samudra Prahari and Dornier Aircraft were also reached and remained distress location until 10th June 2021 to assist firefighting and pollution response effort.

The instantaneous support received from Indian Coast Guard was instrumental in completely dousing the fire on board minimizing marine environmental pollution averting a major ecological disaster. The crews of ICG ships have displayed the courage and dedications amidst of adverse weather during firefighting and pollution prevention operation. Thus, the effort of those who are involved for this earnest cause is praiseworthy.

Further, it is noteworthy to highlight the continuous intelligence sharing and the cooperation extended to deter drug trafficking in Indian Ocean. Thus, Sri Lanka Coast Guard wishes to seek continuous cooperation and assistance from the Indian Coast Guard in the future as well.

Finally, while thanking once again for all the assistance rendered, I on behalf of Sri Lanka Coast Guard wish you and Indian Coast guard all the very best and success in every future endeavors.

Accolades

Sri Lanka Coast Guard avails itself to this opportunity to renew to the good office of the Indian Coast Guard, the assurance of its highest consideration.

Yours Sincerely,



*Director General Krishnaswamy Natarajan, PTM, TM
Director General of Indian Coast Guard,
Indian Coast Guard Headquarters,
National Stadium Complex,
New Delhi 110001,
India*

Office : Coast Guard Headquarters, Udupila, Mirissa, Sri Lanka **Tel :** (+94) 412 254 751 **Fax :** (+94) 412 254 752 **E-mail :** dgcg@coastguard.gov.lk **Web :** coastguard.gov.lk
Residence : No. 380/3, Srimala Kudarathwatte Mawatha, Dodamwala, Kandy, Sri Lanka. **Mob :** (+94) 0777145926

Tweets

India in Sri Lanka @IndiainSL · May 25

Help on way! Responding promptly as ever to the request by #SriLanka, #India dispatches #ICGVaibhav, #ICGDornier and Tug Water Lilly for fighting the fire on MV X Press Pearl off Colombo. @MFA_SriLanka



SpokespersonNavy and 4 others

14 122 653

Show this thread

Gotabaya Rajapaksa @GotabayaR · May 26

Instructions to take maximum measures were conveyed to safeguard our coast from the debris & other impacts of recent fire in MV X-Press Pearl vessel.

My appreciation to @sriLanka_navy, @airforcelk, @IndiainSL, CoastGuard, NARA, MEPA, DFAR, @ashadevos & others for the assistance.



25 49 386

India in Sri Lanka @IndiainSL · May 27

As the two @IndiaCoastGuard vessels and 4 tugs take the battle late into night, positive developments are emerging. Fire is now limited only to aft portion of #MVXPressPearl and draught of the vessel remains steady. The joint #India-#SriLanka operation continues unabated(1/2)



SpokespersonNavy and 4 others

2 16 50

Show this thread

National Centre for Coastal Research @CentreCoastal · 1 Jun

Kudos to the ICG for keeping our coasts clean from polluting oil spills @moesgoi @MoesNiot @MVR_NCCR

Indian Coast Guard @IndiaCoastGuard · 31 May

#NeighbourhoodFirst #OperationSagarAraksha2 Non-stop joint #FireFighting continues for #MVXPressPearl by ICG Ships Samudra Prahari, Vaibhav & Vajra. Moderate density white smoke emanating. No flames visible. Mist spraying/boundary cooling carried out. Draught stable. No oil spill



1 1

The Pearl Protectors

27 May ·

Indian Coast Guard came to the rescue of MV X-Press Pearl.

See how they helped in trying to contain the fire onboard.

#mvxpresspearl

Indian Coast Guard

27 May ·

#FireFighting #MVX-PressPearl off #Colombo #ICG Ships continuously fighting intense fire amidst rough seas. #ICG Dornier aircraft carried recce India... See more



India in Sri Lanka @IndiainSL · May 28

Relentless efforts by the teams from #India and #SriLanka are matched by incremental results. Draught of #MVXPressPearl remains steady and no list / trim is observed. More to follow.




SpokespersonNavy and 3 others

1 9 30

Show this thread

India in Sri Lanka @IndiainSL · Jun 1

#OperationSagarAraksha2 reaches a milestone!! Salvors have finally embarked on #MVXPressPearl after dousing the fire. Assessments are being carried out. These pictures speak of the progress made by the teams from #India and #SriLanka. @IndiaCoastGuard @MFA_SriLanka



A. Bharat Bhushan Babu and The Sri Lanka Navy

8 52 143

Show this thread

Tweets



ICG ship fighting fire onboard MV X-Press Pearl off Colombo
oneindia.com/photos/icg-shi...

#Colombo #MVXPressPearl
#ICG #icgpcnf21



4:41 PM · May 27, 2021 · Twitter Web App



Ajay Kumar @drjaykumar_jas · 28 May
Tremendous work by @IndiaCoastGuard in support of Sri Lanka to bring under control the fire onboard #MVX_PressPearl off #Colombo. Second major rescue op by ICG off Sri Lankan coast within a year. Well done @IndiaCoastGuard

Indian Coast Guard @IndiaCoastGuard · 28 May
#NeighbourhoodFirst #ICG Ships Vaibhav & Vajra undertaking coordinated #FireFighting with precision towards dousing fire onboard #MVX-PressPearl off #Colombo @DefenceMinIndia @MEAIndia @IndiainSL @SpokespersonMoD



1:54 6.2K views 199 joint firefighting operations by ICG ships



Truth First - Lanka
@ApiWenuwen

හැවට වඩා දැවැන්ත තෙල් තව්වුවක් දර්ශනය වෙමින් පවතී. අවසානයේ අප ස්වභාවධර්මයට පරදවීද?
#srilanka @Neetwit @ThiloDerana

Indian Coast Guard @IndiaCoastGuard · 14h
#OperationSagarAaraksha2 Underwater assessment of partially submerged #MVXPressPearl carried out by SLN divers & deliberations underway with salvors. #ICG Ship Vajra & PCV Samudra Prahari standby in PR configuration for response. Additional PR gears being augmented by #ICG.



8:51 PM · Jun 3, 2021 · Twitter Web App

...



LatestLY latestly · 28 May
Indian Coast Guard's Operations Continue To Control The Fire Onboard MV X-Press Pearl
#SriLankan
#ICG



Indian Coast Guard's Operations Continue To Control The Fire Onbo...
The ICG Dornier aircraft operating from Madurai undertook aerial reconnaissance of the area on May 27, 2021. No oil spill has been...
latestly.com

1 1 1

LatestLY @latestly

Indian Coast Guard's Operations Continue To Control The Fire Onboard MV X-Press Pearl
#SriLankan
#ICG



Indian Coast Guard's Operations Continue To Control The Fire Onboard MV X-Press Pearl | latestly.com

11:05 AM · May 28, 2021 · TweetDeck



raditha dissanayake
@e4c5

how would the salvage crews the Indian coast guard and the SL navy have handled this if they didn't have to follow certain decrees?

Indian Coast Guard @IndiaCoastGuard · 14h
#OperationSagarAaraksha2 Underwater assessment of partially submerged #MVXPressPearl carried out by SLN divers & deliberations underway with salvors. #ICG Ship Vajra & PCV Samudra Prahari standby in PR configuration for response. Additional PR gears being augmented by #ICG.



7:14 AM · Jun 4, 2021 · TweetDeck

Tweets



India in Sri Lanka @IndiainSL · May 27

Boost to the joint operation!! #ICGVajra provided 4500 litres of AFFF solution, 450 kg Dry Chemical Powder, and other materials to @sriLanka_navy in #Colombo for strengthening the fight before rejoining the #India - #SriLanka operation. @IndiaCoastGuard #MVXPressPearl



SpokespersonNavy and 2 others

2 8 47

Show this thread



India in Sri Lanka @IndiainSL · June 11

High Commissioner held productive discussions with Defence Secretary. Commanders of @sriLanka_navy and @airforceLK and other senior officers of @defenceSL on furthering the close cooperation between #India and #SriLanka in defence and security spheres. (1/2)



1 10 20



The Sri Lanka Navy @sriLanka_navy · 22h

Commander of the Navy VAdm Nishantha Ulugetenne appreciative of prompt response by #IndiaCoastGuard sending assets on Sri Lanka's call, visited ICGS Samudra Prahar, Vajra at Colombo harbour & praised their commitment including ICGS Vaibhav. #ika #SriLanka #India #ICG



defence.lk @LkDefence · June 11

Mentioning the rapid response and support extended by the Indian Coast Guard Ships to douse the fire triggered onboard merchant vessel X-PRESS PEARL. Defence Secretary expressed his appreciation to the Indian High Commissioner HE Gopal Baglay today. defence.lk/Article/view_a...



1 5



India in Sri Lanka @IndiainSL · Jun 10

#OperationSagarAraksha2 - High Commissioner appreciated the gesture of @sriLanka_navy to acknowledge the contribution of the @IndiaCoastGuard and other personnel to various recent firefighting and pollution control operations. (1/2) #MVXPressPearl



A. Bharat Bhushan Babu

1 4 28

Show this thread



India in Sri Lanka @IndiainSL · Jun 10

Replying to @IndiainSL

He applauded their professionalism and #India-#SriLanka cooperation in fighting such disasters at sea as a silver lining during the past few weeks. (2/2)

1 1 4

India in Sri Lanka Retweeted



Sri Lanka Tweet @SriLankaTweet · Jun 11

Indian Coast Guard vessels have returned back after working tirelessly alongside #SriLanka for more than 2 weeks in OperationSagarAraksha2. Thank you India for standing by us at a critical time 🙏

@IndiainSL @IndiaCoastGuard

#MVXPressPearl #XPressPearl #LKA #India



6 32 213

**MINISTRY OF DEFENCE**
SRI LANKA
for a secure and peaceful country

සංචාරය தமிழ்

About Services

NEWS / DEFENCE NEWS

Defence Secretary appreciates the support of ICG vessels

JUNE 11, 2021

English සිංහල தமிழ்

Mentioning the rapid response and support extended by the Indian Coast Guard Ships to douse the fire triggered onboard merchant vessel X-PRESS PEARL, Defence Secretary Gen. Kamal Gunaratne (Retd) expressed his appreciation to the Indian High Commissioner in Colombo, His Excellency Gopal Baglay at the Defence Ministry today (June 11).

During the session, the Defence Secretary also recalled the long existing bilateral ties and cooperation between the two countries.

Gen. Gunaratne expressed these views during a bilateral discussion with the Indian envoy in Sri Lanka, on matters of defence cooperation today.

Attention was also drawn into the avenues of smooth functioning of long-existing military training exchange between two countries while taking the pandemic situation into consideration.

Focused areas of bilateral cooperation including the matters of mutual relevance were also discussed during the session.

Mementos were exchanged between the Defence Secretary and Indian High Commissioner to mark the occasion.

The meeting was held adhering to the stipulated healthcare guidelines to contain the spread of COVID-19.

Navy Commander Vice Admiral Nishantha Ulugetenne, Air Force Commander Air Marshal Sudarshana Pathirana, Chief of National Intelligence Maj. Gen. Ruwan Kulathunga (Retd), Military Liaison Officer Brig. Dinesh Nanayakkara, Additional Secretary (Defence) PBSC Nonis, Indian Defence Adviser in Sri Lanka Capt. Vikas Sood and relevant Ministry officials were also present.



 View in Hindi: **R. PIRGI**

R. REPUBLICWORLD.COM

The Debate India News Arnab Online Coronavirus **World News** Entertainment News Spo

Last Updated: 12th June, 2021 13:11 IST

Sri Lankan Defence Secy Lauds India's Quick Response & Aid In Dousing X-Press Pearl Fire

Sri Lankan Def Secy thanked the Indian High Commission for rapid response & aid by the Indian Coast Guard to douse the vessel X-Press Pearl Fire.

Written By **Srishti Jha**





CREDITS: FACEBOOK MAJOR GENERAL KAMAL GUNARATNE/ AP

Commander of the Navy appreciates contribution of ICGS 'Samudra Prahari', 'Vajra' and 'Vaibhav'

Appreciative of the praiseworthy contribution made by Indian Coast Guard Ship (ICGS) 'Samudra Prahari', 'Vajra' and 'Vaibhav' during damage control operation in collaboration with other stakeholders, following MV X-PRESS PEARL caught fire off Colombo harbour on 20th May 2021, Commander of the Navy, Vice Admiral Nishantha Ulugetenne presented Letters of Appreciation to the Commanding Officers of those ships in a simple ceremony at the port of Colombo today (10th June 2021).

In response to a request made by Commander of the Navy from the Indian Coast Guard to manage the developing situation, the ICGS 'Vaibhav' and ICGS 'Vajra' were rushed to the scene of action on 25th & 26th May and they were followed by Pollution Control Vessel ICGS 'Samudra Prahari' on 29th May. Accordingly, the three ships were engaged in firefighting and damage control operation in collaboration with rest of the stakeholders off Colombo throughout.

In recognition of the impressive professionalism, dedication and commitment to the assigned task displayed by the entire crews of ICGS 'Samudra Prahari', ICGS 'Vajra' and ICGS 'Vaibhav', cooperating with all stakeholders to achieve common goal, this appreciation was placed and the gesture also signified the long standing friendship between India and Sri Lanka. As such, Commander of the Navy, Vice Admiral Nishantha Ulugetenne presented Letters of Appreciation to Commanding Officer ICGS 'Samudra Prahari', DiG K Sitaram and Commanding Officer ICGS 'Vajra', Commandant (DiG) Alex Thomas today.

As ICGS 'Vaibhav' has already returned home, the Letter of Appreciation for its Commanding Officer, Commandant Suresh Kurup was handed over to Indian High Commission in Colombo to be delivered to the ship's Commanding Officer later.

High Commissioner of India to Sri Lanka His Excellency Gopal Baglay, Commander Western Naval Area, Rear Admiral Upul De Silva, Defence Attaché at High Commission of India in Colombo, Captain Vikas Sood, senior officers from the Navy Headquarters and Western Naval Command and a limited group of invitees were present on this occasion.



DNA

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Ship fire off Colombo: Indian Coast Guard rushes assets, more on standby

The ship was carrying 1486 containers and about 25 tons of hazardous nitric acid and other chemicals.



Glimpses of Past Operations

- 1980 - Transferred the Indian Peace Keeping Force (IPKF) between India and Sri Lanka, apart from joint patrolling with the Sri Lankan Navy.
- Dec 1988 - The biggest contraband haul in the country was made by ICGS Varuna by apprehending dhow 'Al-Kjalidi' carrying gold worth ₹ 28.42 crores.
- 1993 - Major oil pollution response carried out to tackle spill of 40,000 tons from MV Maersk Navigator off Nicobar Island.
- **Nov 1999 - ICGS Tarabai apprehended pirated Japanese vessel 'MV Alondra Rainbow' in the Arabian Sea - A Maritime History.**
- 1999 - Longest ever towing of Mauritius warship from Port Louis to Mumbai covering a distance of 2600 nm.
- 22 Jan 2008 - Successfully recovered GSLV-IV experimental SRE Module launched by ISRO off Chennai.
- Aug 2010 - Coast Guard Ships and Aircraft undertook pollution response operations for oil spill from MV Chitra in Mumbai Port area.
- 06 Apr 2013 - ICGS Rajshree rescued 120 Sri Lankan refugees from adrift fishing boat which sailed from Velanganni for Australia approximately 09 nm South East of Nagapattinam due to water ingress.
- **17 Jun 2013 - ICG undertook firefighting operation onboard MV Mol Comfort and effected the rescue of all 26 crew members.**
- 20 Apr 2015 - ICGS Sangram apprehended one Pak fishing boat (Al-Yasir) with 08 crew including recovery of 232 packets of Narcotics worth upto ₹ 600 crores in the International market.
- 04 Jul 2015 - ICGS Samar and ICGS Abhinav apprehended Iranian fishing vessel MV Barooki with 12 crew off Alleppey.
- 16, 17 & 23 Nov 2015 - ICG rescued 3440 persons during Chennai Floods.
- 31 Aug 2016 - ACV H-190 deployed for 4th Island with search party of ICG, IB and Custom officials found 17.050 Kgs Ganja in total (each packet weighing around 02 Kgs) amounting of ₹ 1,70,000/-.
- 07-09 Dec 2016 - ICG ships Rescue 242 tourists stranded at Havelock Island view Severe Cyclonic Storm 'VARDHA'.
- **04-08 Apr 2017-ICGS Shoor undertook firefighting operation onboard MSC Daniela, 30 nm off Sri Lanka coast.**
- **27-30 Jul 2017 - ICG created Maritime History by apprehending MV Henry in the biggest ever drug haul of 1.5 Tons Heroin being smuggled through sea.**
- 30 Nov-31 Dec 2017 - ICG rescued 488 fishermen During Cyclonic Storm 'Ockhi' from Kerala coast.
- **17 Jan 2018 - ICGS Samudra Pavak provided firefighting to MT Genessa off Kandla Port.**
- **06-10 Mar 2018 - ICGS Shoor undertook firefighting operation onboard container ship Maersk Honam on the fringes of Indian AoR.**
- **13 Jun 2018 - ICGS Rajkiran rescued 22 crew of MV SSL Kolkata off Sunderban.**
- 13 Jun 2018 - Evacuation of 77 Passengers including 03 female and 05 children from Diglipur jetty to Gandhinagar Island by ICGS C-145 at North Andaman.
- **11-25 Aug 2018 - Assistance to Civil Authority during Kerala Flood. 3521 persons evacuated safely.**
- 15 Dec 2018 - Evacuation of 707 Stranded Passengers from Neil and Havelock Islands at A&N Islands by ICG Ship ICGS Rajshree, Aruna Asaf Ali, C-412, C-415 and C-423.

Glimpses of Past Operations

- 21 May 2019 - ICGS Arinjay apprehended Pakistani Fishing boat 'Al Madina' with 217 Kgs of Brown Sugar worth ₹ 1000 Crores.
- **04-15 Aug 2019 - ICG efforts during Disaster Relief Operation at Maharashtra, Karnataka and Kerala resulted in evacuation of 4418 persons to safer locations.**
- 18-22 Sep 2019 - ICGS Rajveer Interception of Myanmar Boat with 1160 Kgs "Ketamine" was recovered worth ₹ 300 Crores.
- 05 Oct 2019 - ICG in a joint operation facilitated apprehension of Pakistani fishing boat with 50 Kgs Heroin by MNDF (CG) off Maldives.
- 20 Dec 2019 - ICGS Aruna Asaf Ali apprehended Myanmar boat with 371.6 Kgs of Methaqualone (Narcotics) worth ₹ 185 Crores in A&N Island.
- 06 Jan 2020 - ICGS C-408 & C-437 apprehended Pakistani boat with 35Kgs of Heroin worth ₹ 175 Crores off Indo-Pak IMBL.
- **03-10 Sep 20 - Joint International Maritime Fire Fighting and Pollution Response Operation 'Sagar Aaraksha' onboard MT New Diamond carrying 2.7 lakh metric tons of crude oil by ICG, Sri Lankan Forces and Indian and Sri Lankan Agencies.**
- **28 Sep 20 - ICGS Varad undertook firefighting operation onboard container vessel MV X-press Godavari, 34 nm off Sagar Islands (WB).**
- 24 Nov 20 - Apprehension of 100 kgs heroin and 20 kgs synthetic drug alongwith 05 pistols worth ₹ 1000 Crores off the Kanyakumari coast by ICGS Vaibhav.
- 11 Dec 20 - Recovery of 09 kgs Gold worth ₹ 4.5 Crores west of Pamban by ICGS C-432.
- 18 Mar 21 - Seizure of 300 Kgs Heroin and 05 AK-47 Assault Rifles alongwith 1000 live rounds by ICGS Samarth.
- 15 Apr 21 - Apprehension of Pakistan boat with 08 crew and recovered 30 kgs Heroin by ICGS C-429.
- **16-18 May 21 - Rescue of 224 lives during cyclone 'Tauktae' and 'Yaas' on west and east coast of India respectively.**



Glimpses of Past Operations



MV MOL COMFORT



MSC DANIELA



MT GENESSA



MAERSK HONAM

Glimpses of Past Operations



SSL KOLKATA



MV X-PRESS GODAVARI



MT NEW DIAMOND

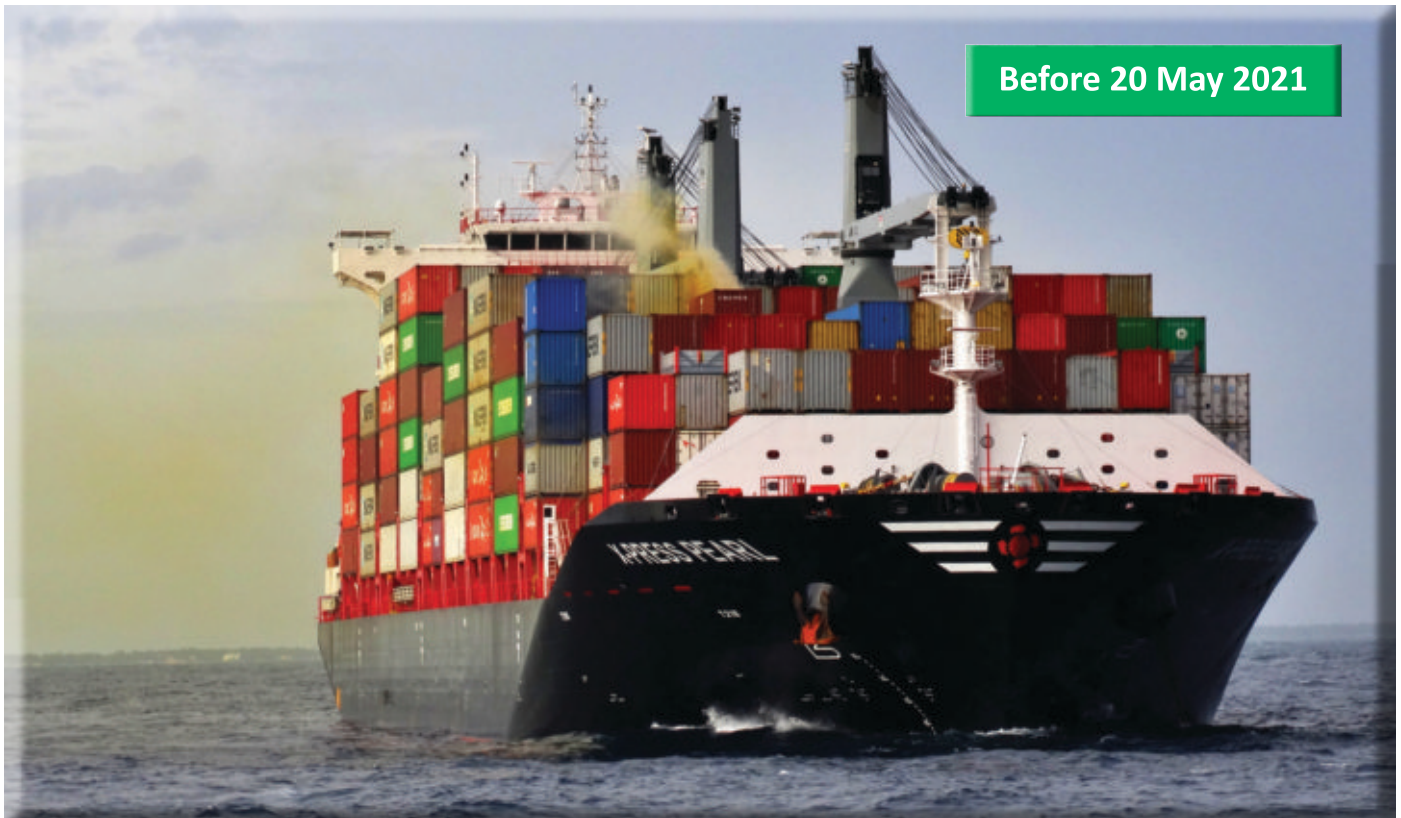
Epilogue

Oceans, seas, and coastal areas form an integral part of the earth's ecosystem. They are a repository of minerals and resources which are critical for sustainable development. A significant proportion of the world's population, close to three billion people, resides in the coastal areas, and dependent on the marine resources for their livelihood. There is a need for conservation and sustainable use of marine resources being a significant determinant factor for the growth and future of mankind. The ICG has

a benign charter of duty which includes preservation and protection of the maritime environment and prevention and control of marine pollution. Since its inception in 1978, the ICG has relentlessly pursued the objective of safe, secure, and clean seas through bilateral and multilateral cooperative frameworks. The successful completion of operation 'SAGAR AARAKSHA-II' has vindicated the ICG approach and will to continue to lead India's efforts in ocean peacekeeping in the IOR and beyond.



MV X-Press Pearl





Neighbourhood First

Together We Can
We Will...We Did
&
Will continue...



Indian Coast Guard: Ready... Relevant... Responsive