ABSTRACT OF PRESENTED PAPERS

1GREEN TECHNOLOGY

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Abstract

In the last few years, both international and national legal requirements regarding the exhaust emissions of large-bore diesel engines have become much stricter. For shipping industry, these requirements focus primarily on the reduction of nitric oxides (NOx) and sulphur oxides (SOx). Exhaust emissions from ships are considered to be a significant source of air pollution. The environmental impact of shipping includes greenhouse gas emissions. Carbon dioxide emissions from shipping is currently estimated at 4 to 5 percent of the global total, and estimated by the International Maritime Organisation (IMO) to rise by up to 72 percent by 2020 if no action is taken. The third stage of the IMO emissions regulations, "IMO Tier III" is planned for 2016 and will be so strict that completely new measures and technical solutions will be required. In this paper we are focusing what are the new technologies in marine industry to protect environment. Because Shipping is also responsible for induction of ozone depleting substances and green house gases such as CFC's, SOx, NOx, and various volatile hydrocarbons in the atmosphere. So there is an extreme urge to make shipping more eco-friendly. On concentrating external modification in diesel engine we come across EXHAUST GAS RE-CIRCULATION which reduces nitrogen oxide emissions effectively. SEA WATER SCRUBBING technology utilizes the natural alkalinity of seawater to reduce the SOx emission from the exhaust stream. Both combined EGR WITH SCRUBBER is more efficient in the reduction of NOx emission. SELECTIVE CATALYTIC REDUCTION is an after treatment technology that can be used to effectively reduce the exhaust gas emission. HUMID AIR MOTOR technology utilizes the heat generated by the engine to produce the temperatures needed to vaporize the seawater. By moisture scavenge air we can achieve emission control and variable turbine area technology.

1DIESEL ELECTRIC PROPULSION

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Abstract

Conventional merchant ships, for most of their serving life, run at more-or-less their design speed, delivering cargo from one port to another. Manoeuvrability is of little importance, and the low-speed direct-drive diesel engine is the most favoured means of propulsion. The engine is matched to drive the ship, at its service speed, with maximum fuel economy and efficiency, together with long life and reliable operation, with the minimum of maintenance. This, however, is not the case with all ships. The operating profile of some vessels is very divergent from that of conventional cargo ships, and hence the design features also differ. For instance, large deck space aft is required by seismic survey vessels, AHTSVs, PSVs and OSVs, for different reasons. Therefore the engine room and accommodation are shifted right forward, but this can only be done at the expense of long shaft lines. In the case of the AHTSVs, a large power is required for towing, but only a fraction of it is used for supply duties. Seismic survey vessels, geo-technical research vessels and oceanographic research vessels are required to have minimal vibration and propeller-induced noise. Excellent manoeuvrability is required in ferries, OSVs, PSVs and MSVs, while dynamic positioning is also essential for MSVs. In passenger ships, the hotel load is even greater than the propulsion load, while redundancy of even the main propulsion machinery is necessary, on account of passenger safety. For ice breakers, the propulsion system should have a very high dynamic performance. These aforementioned vessels are a small part of a large group for which the direct-drive low-speed engine may not be the soundest choice for propulsion.

Some of the alternative means considered in this paper are:

One medium-speed diesel per shaft, driving a FPP through reverse reduction gears, together with a separate electric generating plant for other services.

The same arrangement with a CPP instead of an FPP.

-The same arrangement but with two medium-speed engines per shaft.

-One or two medium-speed diesels per side, driving azimuthingthrusters instead of the conventional shaft lines.

-Diesel-electric power generation, supplying both propulsion and power for other services, a choice of several different schemes being possible.

Each of these alternatives has its own advantages, weighed down by certain disadvantages. The paper draws a comparison based on various factors eg. the ship's role, it's operating profile, layout of machinery, fuel consumption and

limitations of manoeuvrability; leading to the conclusion that the diesel-electric propulsion is very well suited for each of the above-named vessel types.

It’s various advantages like flexibility, lower fuel consumption, higher efficiency, good dynamic performance and additional benefits which include the ability to consider new and unique forms of propeller drive like the pod propulsion and CRP are discussed further.

Finally, the various future developments possible with diesel electric propulsion are also discussed briefly.

1GREEN TECHNOLOGIES

Cdt. Rajesh Sharma

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Abstract

This document presents a study carried out by Lloyd's Register and DNV on estimated CO2 emission reductions associated with the mandatory technical and operational measures adopted at MEPC 62 as resolution MEPC.203(62) by adding a new chapter 4 on energy efficiency to MARPOL Annex VI.

Mandatory measures to increase energy efficiency and reduce greenhouse gasemissions from international shipping, in particular CO2 emissions, were adopted byParties to MARPOL Annex VI at MEPC 62, representing the first ever mandatory globalCO2 reduction regime for an international industry sector.

1GREEN SHIP TECHNOLOGIES

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Abstract

With more and more ships launched for commercial trade, marine environment concern has been at its peak among both ship makers and operators. The year 2011 has seen announcements of several projects that are specially designed to minimize pollution of the ocean from the shipping industry.

The Shipping Industry is leaving no stones unturned in order to contribute towards a greener marine environment. At both manufacturing and administrative levels, the maritime industry is taking advantage of the latest technologies to ensure that new ships contribute as low as possible to the global pollution.

With respect to airborne emission the aim of these technologies would be to provide new operational means to reduce emission as follows:

? 30 % reduction of CO2 emissions.

? 90 % reduction of NOx emissions.

? 90 % reduction of SOx emissions.

The year 2012 is expected to be more environmental friendly and green shipping activities will be at its peak with launch of new ships technology.

Designing a Ship in present times has become a challenging task for now a ship has to be fully complied with new environmental rules and regulations. A few benchmark technologies have already been developed to reach the ultimate goal of building a "Green ship" which would not only comply with the new environmental rules and regulations but would also leave least possible carbon foot-prints.

We'll be throwing light on 14 new technologies which if used together would result in ultimate "Green Ship of the Future". They are as follows:

•No Ballast System

•LNG Fuel for Propulsion

•LNG Fuel for Auxiliary engine

•Sulphur Scrubber System

•Advanced Rudder and Propeller System

•Speed Nozzle

•Hull Paint

•Waste Heat Recovery System

•Exhaust Gas Recirculation

•Water in Fuel

•Fuel and Solar Cell Propulsion

•Sandwich Plate Syatem (SPS)

Shipping is an extremely eco-friendly form of transport, but with the Green Ship of the Future initiative, we are making even greater efforts to protect the climate and the environment

1GREEN TECHNOLOGY FOR MARINE POLLUTION CONTROL"(BALLAST WATER MANAGEMENT)

Cdt. MadhusudanJadhav

Cdt. Lalit Shelar

Cdt. Akhilesh Shastrakar

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Abstract

In today's world there are certain hot topics often discussed, Pollution and global warming being the major one. World pollution is quite fast growing problem. This paper deals with the causes of pollution at sea, and the detailed discussion on the pollution due to ballast water and its control method via a new technology called VENTURI OXYGEN STRIPPING (VOS) system.

It is said that the sea can no longer be the dustbin to the world. This sentence can let us know the condition of today's oceans.

Ship pollution is the pollution of air and water by shipping. It is a problem that has been accelerating as trade has become increasingly globalized, posing an increasing threat to the world's oceans and waterways. It is expected that, shipping traffic in the whole world is projected to double by 2020. Because of increased traffic in ocean and ports, pollution from ships also directly affects coastal areas. The pollution produced affects biodiversity, climate, food, and human health.

In many instances vessels due to a variety of reasons intentionally discharge illegal wastes which in turn become cause of a marine pollution.

1CONTAINERISATION WITH 100% SCANNING

Abbas R Daruwala

Karan Raj Bhasin

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Abstract

The purpose of this paper is to analyse the impact of 100 % scanning of containers before shipping:

-on port facilities and ports,

-on transport systems to and from ports;

-and finally also on international trade.

We will first consider the container scanning infrastructure already implemented in ports and then consider additional technical and administrative measures which would achieve 100% scanning and cost implications of such measures.

The paper will then examine the impact of scanning on port and terminal operations. Estimates of the additional cost of 100% scanning will be put forward and these will cover the cost for the actual transfers to and from the scanning site, anticipated indirect costs, external costs generated by additional transport and any costs or benefits resulting from changes in supply chain.

1INFORMATION COMMUNICATION AND CONTROL TECHNOLOGIES IN TRANSPORTATION

Amit Yadav

Alex Joseph

Suba Subramanian

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Abstract:

Transportation has evolved with the development of human culture. Researchers believe that the first means of transportation that is “fixed wheels on carts” was invented way back in 3500 BC!!! Since then transportation has developed tremendously and has now reached a stage where IT and automation play a major role in transportation.

We intend to take this automation to a higher level by proposing to have a completely automated container port for ships with only a few people required for monitoring purposes and if this is achieved, a lot of time and manpower could be saved thus optimizing the process.

1GREEN TECHNOLOGIES

Aravind Munden

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Abstract

Ships are the most environmentally friendly form of transportation. Still, with 90% of the world trade being transported by ship, it is inevitable that shipping contributes to unwanted emissions from transportation. In recent years, sustainability in a climate and an environmental perspective has become an issue of highest priority. The strong focus should be on making waterborne trade even more environmentally friendly than it already is. The basic condition is being able to demonstrate a technology for reduction of air emissions within one of the four focus areas: Machinery, Propulsion, Operations and Logistics.

The regulations to be set for safe, secure and environmentally sustainable shipping must be goal-based instead of prescribing specific solutions. Such regulations create ample room for innovation of new efficient technologies and operational standards. Another important aspect is the work done by the International Maritime Organization, which is the key player in setting regulations applicable for all ships irrespective of the flag. In order to keep focus on the important agenda of sustainable and green shipping even in difficult times, we must turn towards innovation and efficient regulation.

So the main focus in this report will be on the technologies like the waste heat recovery system, exhaust gas recirculation, air cavity systems, scrubbers, water in fuel systems which predefines the existence of shipping in the Green World.

1COMBINED GAS AND STEAM CYCLE FOR MARINE PROPULSION

Chinmay Desai

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Abstract

This paper focuses on the implementation of combined cycle using Gas and Steam for propulsion and power requirement on board marine vessels. In this concept, Gas turbine works on Brayton cycle. Exhaust from the Gas Turbine is used to generate steam in a Heat Recovery Steam Generator, which is then used to run a steam turbine working on Rankine cycle. The efficiency of the combined cycle lies between 45-55% and is proved in the paper. Emission of harmful gases is negligible due to the use of natural gas hence; the paper concentrates on the use of natural gas as fuel.

1STUDYING THE FEASIBILITY OF NUCLEAR PROPULSION IN COMMERCIAL SHIPPING

Nitish Kumar Singh

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Abstract

Some 600 or so nuclear reactors are operating in the world today of which approximately one-third are operating at sea. The world's first nuclear powered merchant ship the N.S.Savannah was built as an exhibition ship, with sweeping lines, and quite luxurious passenger amenities not to be found on a conventional dry cargo ship. Cargo stowage was always difficult in hold space defined by lines of such elegance. She successfully met the requirements she was built for. Within the last few years several factors have changed, generating renewed interest in nuclear propulsion for merchant ships, for example recent papers concluding that the adoption of nuclear propulsion for high speed container ships is technically feasible and could be commercially more profitable than conventional container ship. This paper aims at raising hopes among people regarding the onset of nuclear propelled commercial ships in the near future.

1USE OF MAGLEV AS SUSTAINABLE DEVELOPMENT

Nikhil Jain

Animesh Degaonkar

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Abstract

Maglev is a completely new mode of transport that will join the ship, the wheel, and the airplane as a mainstay in moving people and goods throughout the world. Maglev has unique advantages over these earlier modes of transport and will radically transform society and the world economy in the 21st Century. Compared to ships and wheeled vehicles—autos, trucks, and trains—it moves passengers and freight at much higher speed and lower cost, using less energy. Compared to airplanes, which travel at similar speeds, Maglev moves passengers and freight at much lower cost, and in much greater volume. In Maglev—which is short for MAGneticLEVitation—high speed vehicles are lifted by magnetic repulsion, and propelled along an elevated guide way by powerful magnets attached to the vehicle. The vehicles do not physically contact the guide way, do not need engines, and do not burn fuel. Instead, they are magnetically propelled by electric power fed to coils located on the guide way. Our topic covers the detailed knowledge of its construction. Working principle, its significances in today's world sustainable development

1TRENDS IN MULTI MODAL TRANSPORT OPERATIONS

Ramesh Anand. N

Subash.R

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Abstract

The continued population growth expected will bring increasing demand for mobility and pressure to expand the capacity of the transportation system, including intercity transportation. If historic trends are any indication, we know that no single mode—rail, air, or highway—by itself can meet this increasing demand. Making the best use of each mode and creating Interconnections among them are the key to coping with rising demand for transportation.

Multimodal transportation is not a recent invention since any consignment coming from overseas and destined inland will be traveling on multi modes of transport utilizing sea, rail, air or road. What is new is that such a transport can be made without breaking bulk, i.e. carriage of goods by more than one mode of transport under a single contract. When a freight forwarder acts as a multimodal transport operator, he assumes responsibility for the execution of

the multimodal transport contract, and of the carriers participating in the multimodal transport operations. It involves the use of more than one means of transport such as a combination of truck, railcar, aero plane or ship in succession to each other.

The advantages of multi modal transports are minimises time loss at trans-shipment points, provides faster transit of goods, and reduces cost of exports. The result of the container "revolution" which has occurred over the last 20-30 years and with the development of Ro-Ro vessels, trailers or sea-ferries creating land-bridge routes.

1ELECTRICAL SYSTEM USED IN TRANSPORTATION

Cadet R.Gopinath

Cadet S. Anklin Rek

Marine Noorul Islam University, Kanyakumari.

Abstract

The shipping industry has come a long way as far as R & D for reducing costs of propulsion without increasing marine pollution is concerned. The conventional propulsion system of the ship is efficient but requires high operating costs and increases the marine pollution. The key challenge too often has been how to build the right ship around a given propulsion system, rather than creating tailored propulsion system for the ship. The propulsion systems, both mechanical and electrical, used in virtually all ships today operate less efficiency at lower speeds. If we can dramatically improve the power densities of marine propulsion motors and generators as well as their efficiencies -- i.e. make these efficiencies much higher and more uniform at varying loads, many of the other issues would be resolved too and ship design need not be compromised. In fact, with continuing improvements in power density and efficiency, electric drive propulsion systems are projected to displace mechanical drive systems across a broader spectrum of applications. This paper explores the maturation of HTS rotating machine design coupled with the upcoming 36.5 MW HTS motor development and testing signals that high temperature Superconducting (HTS)-based propulsion systems represent a near-term solution to these long-standing challenges. The reason HTS motors are so efficient is that HTS wire can carry up to 140 times more current than the copper wire of the same size and weight.

1REFRIGERANTLESS REFRIGERATION

Mathews Kurien

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Abstract

The aim of this presentation is to bring an innovative mode of refrigeration onboard. By using the "PELTIER EFFECT" we can reduce the risk of operation in this. A simple thermocouple module is used to cool liquid in compartment. When DC current is supplied, on one side of the module gives the cooling effect then the other side heat is generated. In hot side an exhaust type fan with heat sink is placed to remove the heat continuously. Then the amount of temperature difference is varied according to the current supplied. Then the system can be controlled by varying current supply. This method is "ECO FRIENDLY" because no refrigeration gas or compressor used in this method. Then the cost of refrigerator is less than the compressor refrigerator. This Peltier module consists of a semiconductor. In this semi conductor it forms p-n and n-p junctions. Each junction has thermal contact with heat sinks. When switching on the current of the defined polarity, there forms a temperature difference between the heat sinks: one of them warms up and works as heat sink, the other works as a cooler. By using this "REFRIGERANTLESS REFRIGERATION" method we could reduce the pollution, cost of the device compared to other device. It could be made more compact and maintenance is less required. In this device electrical components are only required to be given care.

1PERFORMANCE OF ACETYLENE IN MARINE DIESEL ENGINES

A.S. Abdul Khathar,

Shiv Pratap Maurya

Sumantra Chakraborty

Coimbatore Marine College, Coimbatore-641032,

Abstract

The present energy scenario is undergoing a period of transition as the inevitability of depletion of fossil fuels is understood by more and more users. Researchers all over the world focus attention on development of various alternative fuels including renewable resources and blending of renewable resources. These include biogas, producer gas, methanol, ethanol, vegetable oils, LPG, CNG and etc. Here we are concentrating on the use of acetylene on marine engines which will lead to increase in Mechanical efficiency, Brake thermal efficiency, effectiveness and increase in performance level of the

marine diesel engines. Here when a mixture of acetylene and diesel is injected together it can create an innovation in the world of marine engines.

1VESSEL PERFORMANCE MONITORING SYSTEM

Shardul Pathak

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Abstract

This paper deals with the integration of information technology with a vessel's performance monitoring. The advancement of science and technology has made it possible today, for seafarers to ease their workload and lead a life of convenience onboard. Vessel performance monitoring systems collect data with the help of various strategically placed sensors. These sensors send the information to a processing unit, the sensors and processors are connected via LAN. The processing unit also receives weather forecasts; which is made possible with the help of the vessel's communication system. Considering all the parameters from the engines and other machineries and the weather forecast the vessel's performance monitoring system suggests the favorable passage along with the appropriate settings of fuel for an optimum efficiency figure. This system also intimates the operating crew of the maintenance schedule. In light of the growing technology, a concept which this paper explores, however, is the possibility of a real-time data transfer between ship to shore.

1SUPERCONDUCTING ELECTROMAGNETIC PROPULSION FOR SHIPS (MAGNETO HYDRODYNAMIC PROPULSION)

Cdt. S.Ram Mohan

Cdt. K.Ramkumar

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Abstract

The need for alternative propulsion systems has increased in the marine industry due to many factors some of which are discussed below. The continuous growth in trade between the countries has led to the need for effective, rapid & efficient transportation. This leads to a need for alternative propulsion systems with higher power output & greater flexibility. Increase in fuel prices is also one of the contributors for the necessity of developing

alternative propulsion systems. The magneto hydrodynamic propulsion is one such alternate propulsion techniques.

1AIR BEARINGS

Anuj Sharma

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Abstract

This paper consists of a detailed description on the invention of air bearings. Air bearing can be defined as lifting the load using pressurized air instead of conventional method, lube oil. What leads to switch over from oil to air is mentioned in paper. The author through this paper throws light on the classification, working principle, application and merits of air bearings. How the pressure is actually generated and pressurized air is fed in bearings using various feed devices is illustrated.

In this paper an attempt has been made on reducing frictional losses due to relative motion of components involved. The working of air bearings has been mentioned and how the load of the crankshaft in internal combustion engines and air compressors can be supported by thin film of pressurized air. The paper illustrates how the crankshaft can be lifted using pressurized air and how the shortcomings can be overcome using air casters. The paper consists of various illustrations on air bearings.

1COASTAL AND INLAND WATER TRANSPORTATION

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Abstract

Here this is an Abstract about the Fuel-Efficient , environmental Friendly, alternative to the road and rail transportation. That is Coastal And Inland Water Transportation. This could be integrated to accommodate hinterland, coastal and internationaltraffic.The two waterborne modes, viz. Coastal Shipping and IWT aresimilar in many ways, in terms of energy efficiency, inter-modalism, infrastructurerequirements etc. Both modes are by nature inter-modal. Fuel consumption by this mode is effectively very less when compared to other modes.Coastal& Inland WT can handle large parcel sizes easily at very low

cost.Emissions of carbon dioxide, carbon monoxide, hydrocarbon etc with theexception of SO2 are very less.

1INDIAN SHIPPING 2020 VISION TO MAKE INDIA A GLOBAL SHIPPING DESTINATION

Ashwin A. Gadgil

Bikram Senapati Soumya

Ranjan Subudhi

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Abstract

Today, India's exports and imports are the main contributors to its GDP. In order to increase trade, there is a real need for significant improvements in the infrastructure of ports, as they form the main gateway for international trade. Indian ports are now witnessing unprecedented interest both from strategic buyers, including international liners, terminal operators, captive players, banks and infrastructure funds. The Government of India is planning to invest about $20.8 billion in 276 projects which are part of the government's endeavor to expand 13 major ports in the country. With a vast coastline spanning 7500 kilometers, rapid economic growth and technological advancements in the shipping industry as well as in all the related fields pose major challenges and exacting demands on infrastructure creation, human resource development, facilities for training, research and design studies, etc. in the areas of port infrastructure.

1INFRASTRUCTURAL AND APPROACH CHANGES REQUIRED FOR AN EFFECTIVE WATER TRANSPORTATION SYSTEM IN INDIA

Nikhil Ambattuparambil Gopi

Department Of Ocean Engineering And Naval Architecture

Indian Institute Of Technology, Kharagpur

Abstract

Water Transportation in India only constitutes 0.17% of the inland transport sector while some countries utilize waterways for as high as 45% of its commercial needs. Unequivocally, to make India a contender for the tag of a developed nation, development of infrastructure required for making inland water transport feasible is a step in the right direction.

This paper attempts

aTo identify the factors that make coastal & inland water transportation feasible in other countries,

bTo identify the local realities in India & its economic viability,

cTo propose action steps for a water transportation regime that would optimise commercial transport.

1GREEN TECHNOLOGY

Mahesh Kumar

Prathamesh Chari

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Abstract

Among the present modes of transport, it has been found from extensive studies that shipping is the most economical mode of transport. The object of green shipping is to minimize the overall harmful emissions during design, manufacturing, service and laying up in order to reduce the pollution to air, water and soil, save resources and improve economic and social benefits. The scope of green shipbuilding includes “green ship” and “green shipyard” Green ship mainly depends on green design. Ships should be designed to enable them give the minimal effect on the environment during manufacturing and service. The keys to green design are 3R.

1Reduce the consumption of materials and energy and the pollution to environment in ship manufacturing and service.

2Recycle the parts and accessories in ship maintenance. Reuse the majority of materials after ship laying up.

3Green shipyard shall ensure the high efficiency of materials and energy in shipbuilding, reduce the harmful Emissions and smoothen the process of integrated hull construction, outfitting and painting. Generally, the key to green shipbuilding is green design.

1MODERN HYBRID PROPULSION SYSTEM FOR THE FUTURISTIC NAVIGATION MOVE OF MARITIME SECTOR"

A.subaprakash

M.syed Ali

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Abstract

The way that we power our ships that maybe the best but we are still on research for a new era in ship propulsion. This paper gives general overview about the existing hybrid propulsion systems. the limited oil reserves and environmental issues make to think about complementing conventional drive concepts in ship building for efficient operation, so it discusses options in amperium, storage solutions, hybrid hull design(composite), cold ironing stages of vessel which will paves the way for modern hybrid propulsion units in future.

1PIRACY AND ITS CONTROL MEASURES - A NEW SOLUTION

Cdt.R.Ramamoorthy

Cdt.M.Thamizh Thendral

Department Of Marine Engineering

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Abstract

Nowadays 90% of world's transportation is being served by the maritime industry that has grown considerably since the early90's due to the expansion of the international trade and the ever increasing volume of the Asian economy. In parallel the expansion of international organized crime coupled with the emerge of terrorist networks has reminded once again the all timely issue of piracy and its negative side effects for the maritime sector. This paper will examine about the reasons for piracy, its effective and various methods to escape from the pirate attack, also solution to the piracy problem.

1ROAD SAFETY AUDIT OF ACCIDENT PRONE LOCATIONS IN BHOPAL CITY

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Abstract

A Road Safety Audit (RSA) is a formal safety performance examination of an existing or future road or intersection by an independent audit team which considers the safety of all road users, qualitatively estimates and reports on road safety issues and opportunities for safety improvement.

The objective of the research was to conduct the Road Safety Audit (RSA) of accident prone zones of Bhopal city as per the guidelines of IRC SP 88:2010, "Manual on Road Safety Audit", and to suggest remedial measures for prevention of accidents at accident prone locations. This research has provided necessary suggestions and recommendations which will act as a guideline for road network planners and the authorities concerned with accident mitigation measures.

1GREEN SHIPS AND SECURITY - "THE VOYAGE TO GREEN FUTURE"

Sathish.T

Shamshul Haliq.M.S

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Abstract

Today's globalised world trade would not be able to function without ships, Almost 90 % of the world trade is carried by ship and for the vast majority of

this trade there is little or no alternative to transport by ship, after all approximately 70% of the earth's surface is covered by water. Considering the staggering percentages of world trade vessels transport (80%). It is estimated that 2.7 % of the global CO2 emissions come from international shipping.

The marine transport sector contributes significantly to air and water pollution, particularly in coastal areas. In the oceans, the threat to marine life comes in various forms, such as overexploitation and harvesting, dumping of waste, pollution, alien species, land reclamation, dredging, and global climate change. A congressional research report indicates that cruise ships carrying several thousand passengers and crew have been compared to "floating cities," and the volume of wastes that they produce is comparably large, consisting of sewage; wastewater from sinks, showers, and galleys (gray water); hazardous wastes; solid waste; oily bilge water; ballast water; and air pollution. In this paper we are going to describe the issues which should be taken into consideration when talking about reducing the environmental impact of vessels.

They are as follows:

Reduction of Gas Emissions

•NOx,

•CO2,

•SOx,

Ship Waste Disposal

Black and Grey Waste Water Treatment

Ballast Water Treatment

This paper also deals about the one of the most important security system for the ship againstthe pirates attack known as the jet gun.

1COASTAL AND INLAND WATER TRANSPORT

Cdt. Vineet Kumar Gaur

Cdt. Yasir Ali Khan

Cdt. Dhiresh Sachdeva

The Great Eastern Institute Of Maritime Studies Lonavala

Abstract

Inland water transport includes natural modes as navigable rivers and artificial

modes such as canals. It is an environment friendly mode of transport. It has a vast potential to act as an alternate and supplementary mode of transportation under certain conditions.

The Inland waterways have played an important role in the Indian transport system since ancient times. However, in recent times the importance of this mode of transport has declined considerably with the expansion of road and rail transport. In addition, diversion of river water for irrigation has also reduced the importance of inland water transport. The decline is also due to deforestation of hill ranges leading to erosion, accumulation of silt in rivers and failure to modernize the fleet to suit local conditions. The transportation of goods in an organized form is confined to West Bengal, Kerala, Assam, parts of North Eastern region and Goa.

1RECENT TRENDS IN DEVELOPMENT OF SHIPPING INFRASTRUCTURE IN INDIAN SUBCONTINENT: OPPORTUNITIES AND OBSTACLES

Cadet. K. Vijay Bhaskar

Cadet. Rishabh Jain

Cadet. Sushant

Vishwakarma Maritime Institute, Pune

Abstract

The aim of the paper would be to study the major developments that have been taking place and are continuing to shape the country's shipping infrastructure landscape. In the paper, four issues representing the crux of the aforementioned matter would be dealt with. The said issues are:

1.Development of Shipping Logistics in the Country

2.Port and Hinterland Issues

3.Shipbuilding and Related Activities

4.Prevalent Obstacles

These issues would be placed in context within the wider industry framework that is prevalent in other parts of the world and is yielding more beneficial results to the countries employing them.