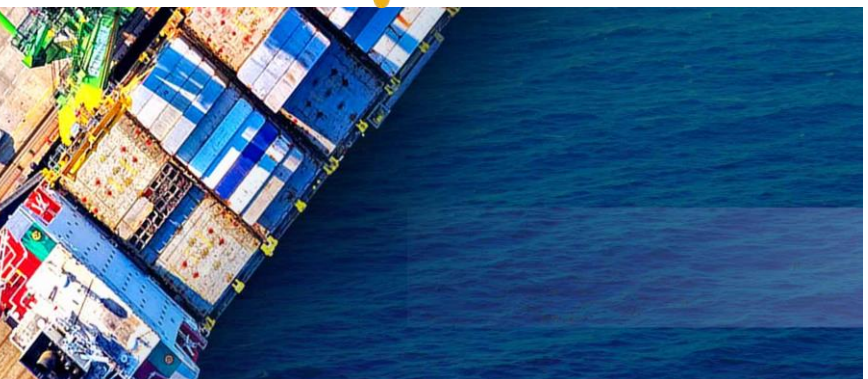
The Perspective of Developing Country Port Projects in stepping towards a Green Shipping Era:

Port of Colombo Actions and Challengers in creating a GHG emission reduction project wave

SRI LANKA PORTS AUTHORITY



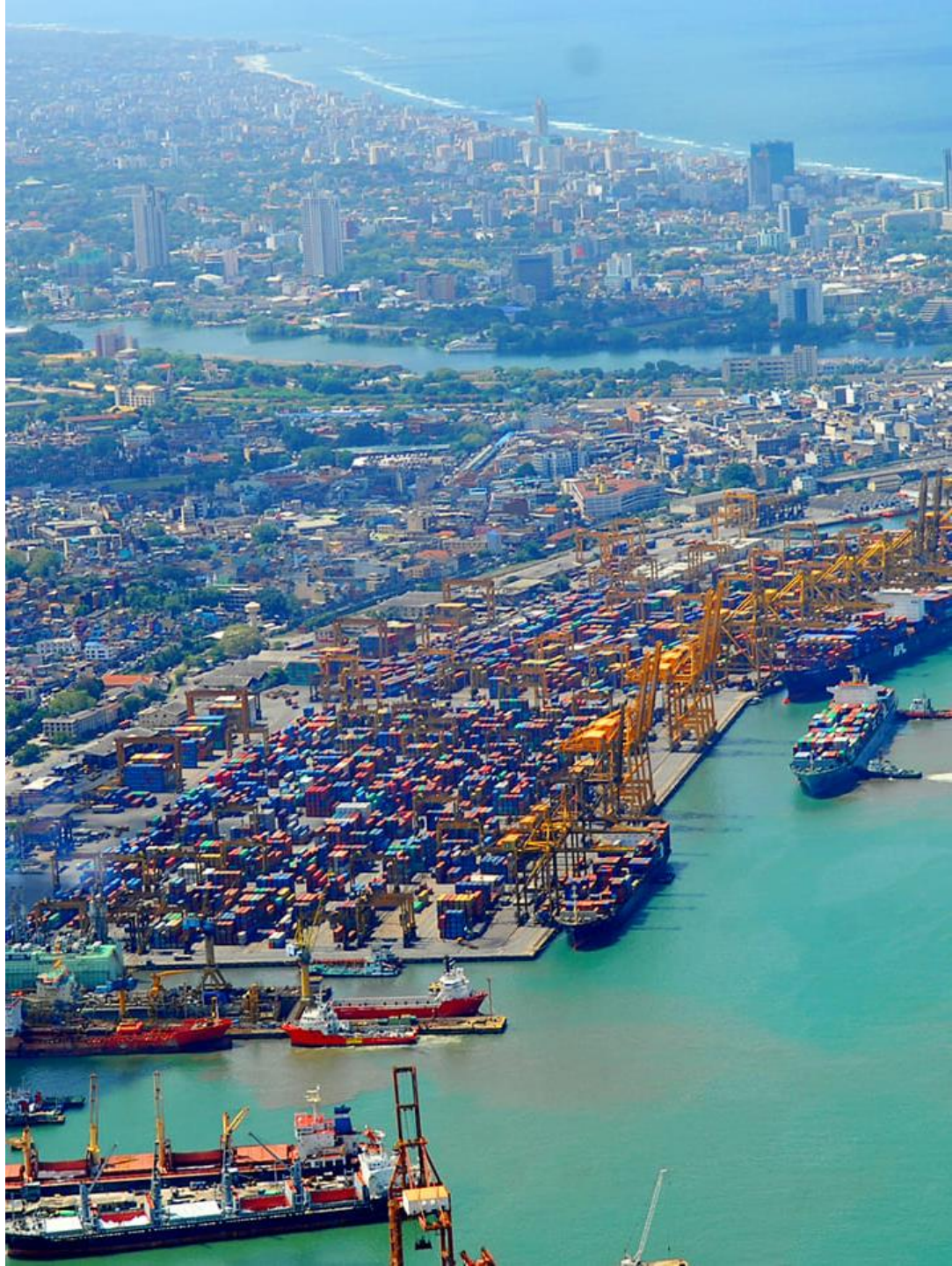
Overview of the Project

This explains how the Sri Lanka Ports Authority along with other terminal operators and port stakeholders collaborated to conduct sustainable and GHG emission reduction project Wave to achieve the National Climate change targets.

Sri Lanka as a country has developed its NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA – GHG Emission reduction. Sri Lanka Ports Authority as the governing body of the ports around the country has the responsibility to ensure the port projects and operations comply with these national level climate change targets.

Creating a project wave

As a port situated in a developing country the financing and investments towards these sustainability projects has been challenging. Therefore the Sri Lanka Ports Authority with collaboration with the other terminal operators and port stakeholders have taken joint measures through smaller but impactful contributions in GHG emission reduction.

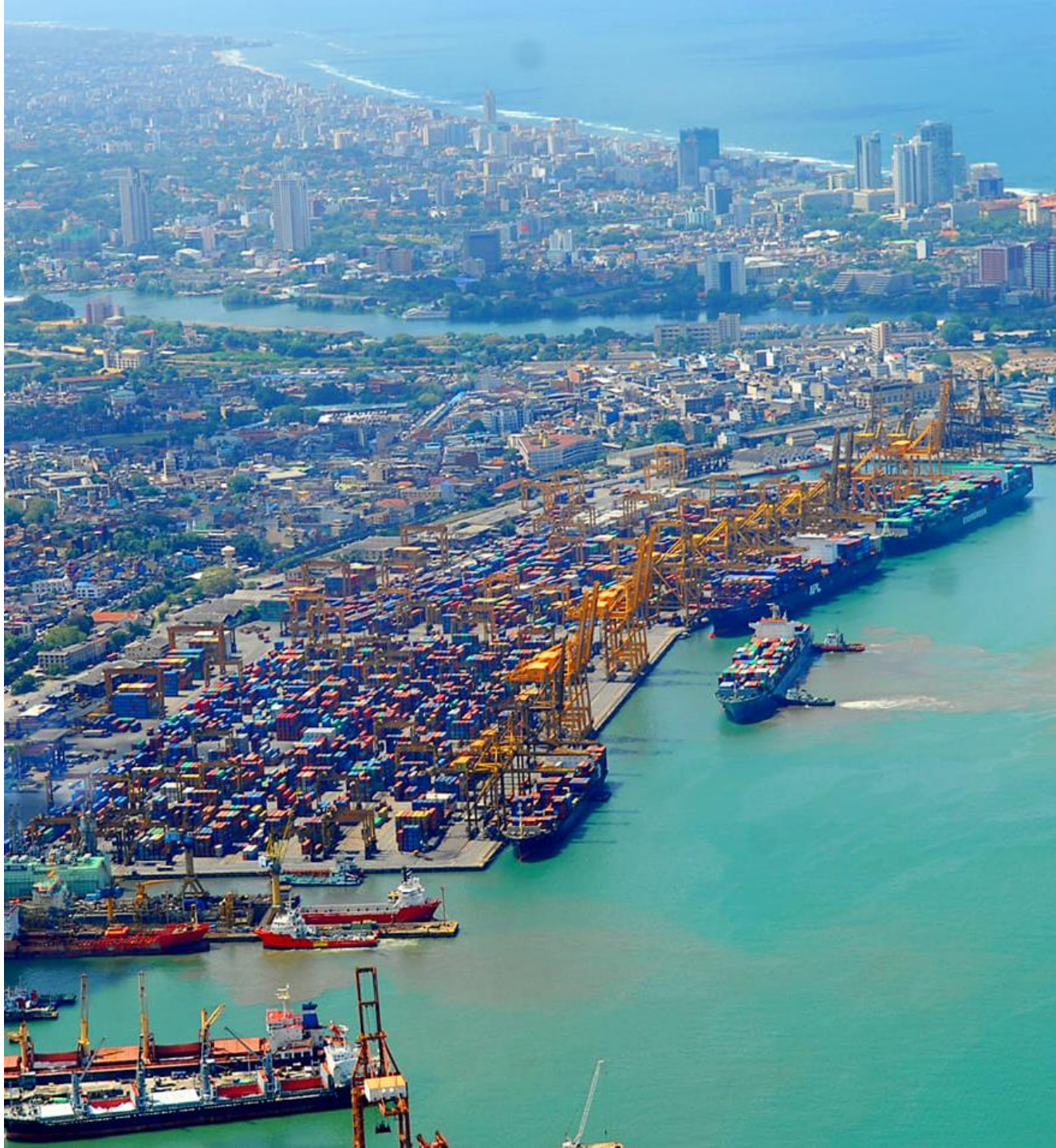


Objectives of the Project

- **To collaborate with all terminal operators and port stakeholders to contribute to the NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA – Focusing on GHG Emission reduction in the Energy Sector and Transport Sector**

- **Implement and promote smaller projects targeting GHG emission reduction so that the cumulative effect as a port is higher.**

- **Creating a dialog among port stakeholders on GHG emission reduction and increasing awareness of the public on the importance of it.**



NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA

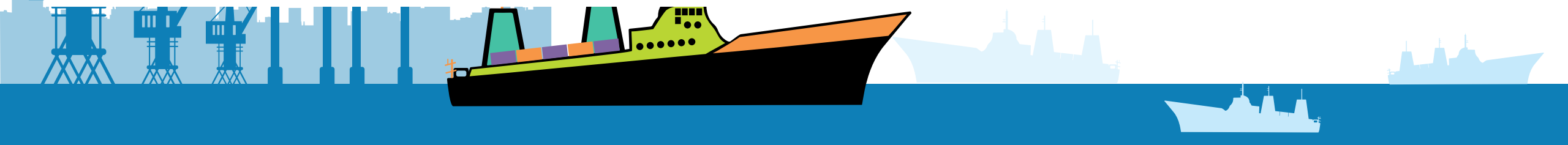
National Climate Change Policy of Sri Lanka has been developed to provide guidance and directions for all the stakeholders to address the adverse impacts of climate change efficiently and effectively.

Vision - A future where climate change will have no adverse consequences on Sri Lanka.

Mission - Addressing climate change issues locally while engaging in the global context

Goal - Adaptation to and mitigation of climate change impacts within the framework of sustainable development

As a global citizen, Sri Lanka recognizes its responsibility to uphold the Paris Agreement's objective of containing global warming. It will strive to steer development, especially post-Covid economic recovery and livelihood needs, along a low-emission trajectory that supports both mitigation of and adaptation to climate change, with a strong focus on reaching high income and human development in the next decade.



GHG EMISSION IN SRI LANKA

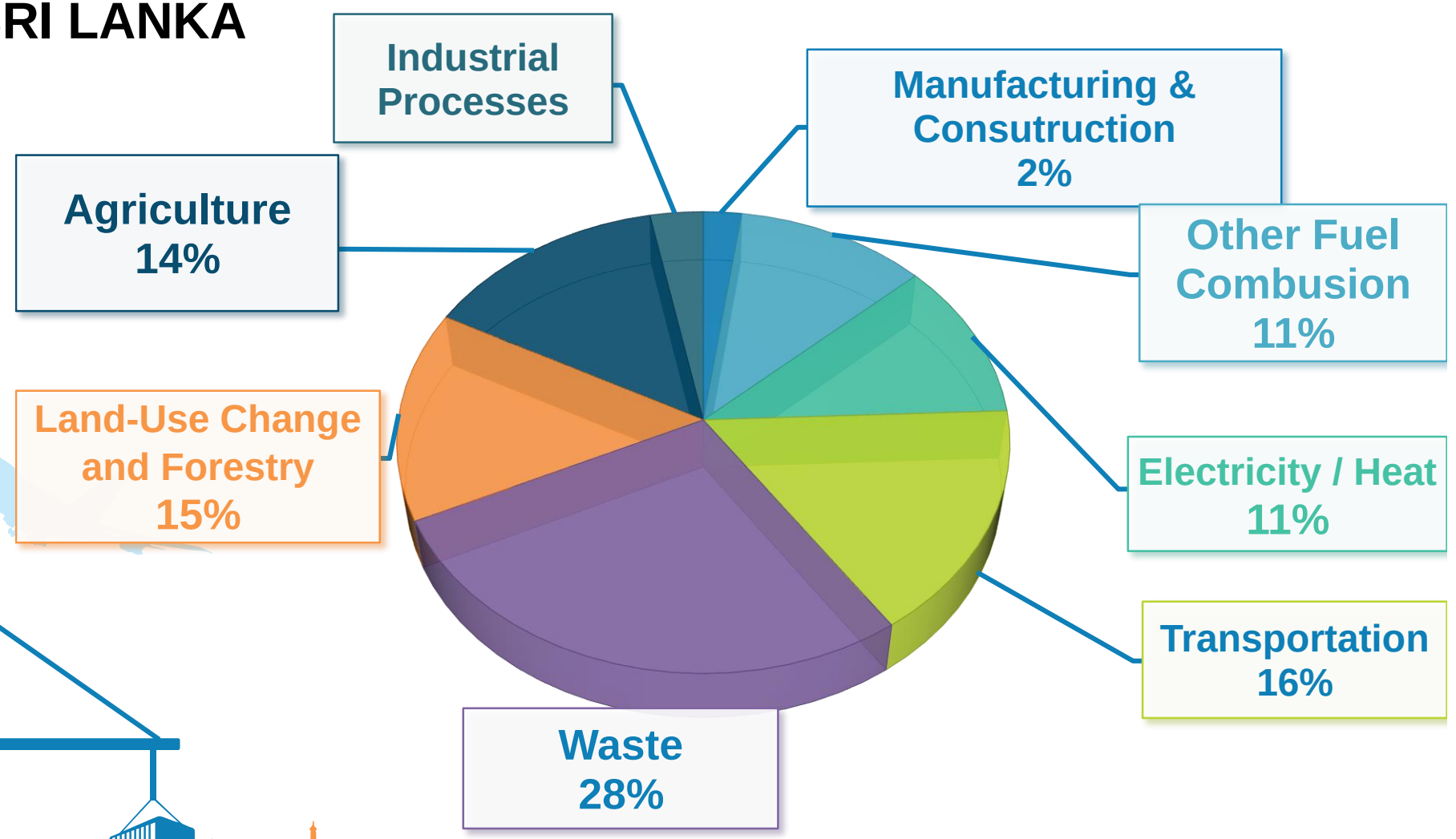
1.Energy

2.Transportation

3.Industry

4.Waste management

5. Agriculture and Livestock

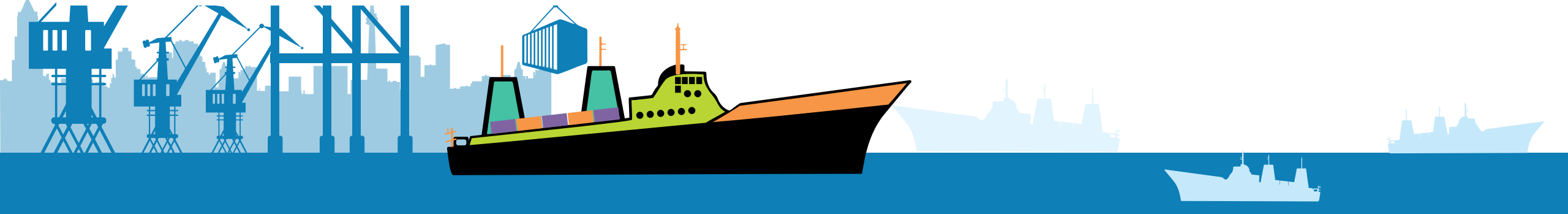


NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA

POLICY FOR SUSTAINABLE ENERGY AND TRANSPORTATION IN SRI LANKA

ENERGY

- Explore the potential of clean and renewable energy sources of the country and enhance their production, accessibility and affordability.
- Encourage the utilization of clean and renewable energy sources taking into account the local absorption capacity and long term sustainability.
- Take action to improve demand and supply side management to maximize the efficiency of energy utilization.
- Introduce economic incentives for less carbon intensive fuels and energy efficient technologies while imposing appropriate fiscal policy to combat detrimental practices.



NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA

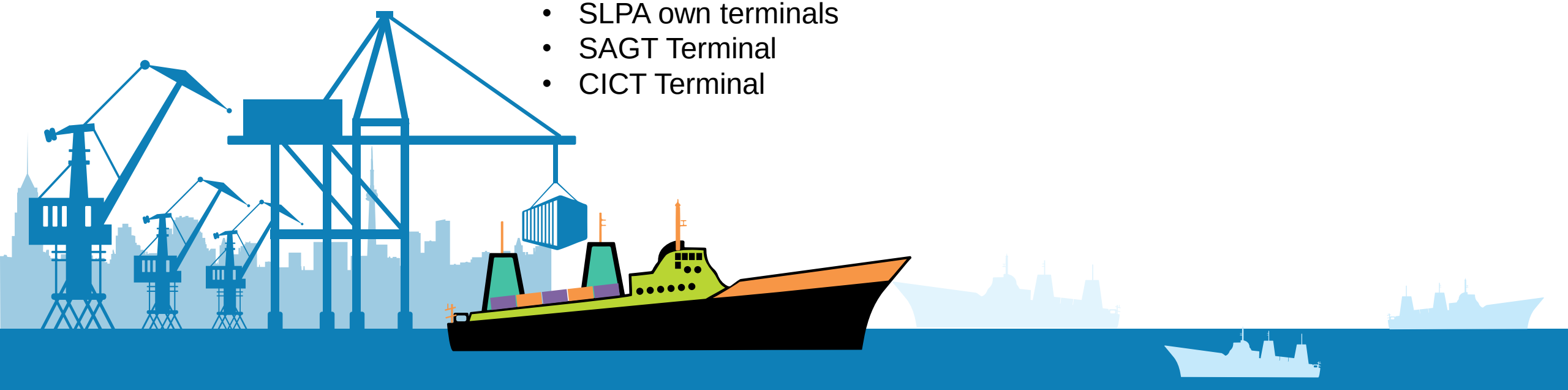
POLICY FOR SUSTAINABLE ENERGY AND TRANSPORTATION IN SRI LANKA

TRANSPORTATION

* Take action to promote integrated transportation systems, low emission fuels and improved fuel efficiency taking into consideration the long term sustainability of the existing resources.

Sri Lanka Ports Authority as the governing body of the Maritime Ports in the country has a major role in supporting the country specific climate change targets. This can be done through the collaborated effort of all three terminals of Port of Colombo

- SLPA own terminals
- SAGT Terminal
- CICT Terminal



Actions Taken by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Transport sector

Information sharing and increased efficiency

- We have signed TSA with many shipping lines ensuring them berthing windows. Since they know the time of their berthing availability the ships do not require to speed unnecessarily.
- This optimal speeds saves fuel and reduce GHG emissions.
- Further this is supported with greater efficiency in port operations without delays. The auxiliary services are allowed during operational hours.
- Quick navigational services.
- SLPA also have made it compulsory (as much as possible) the method of “double trucking” for inter terminal trucking.

Digitalization

- SLPA implemented projects related to digitization to ensure contactless documentation. This reduces the need for the presence in person, ensured quicker clearance and reducing the traffic.

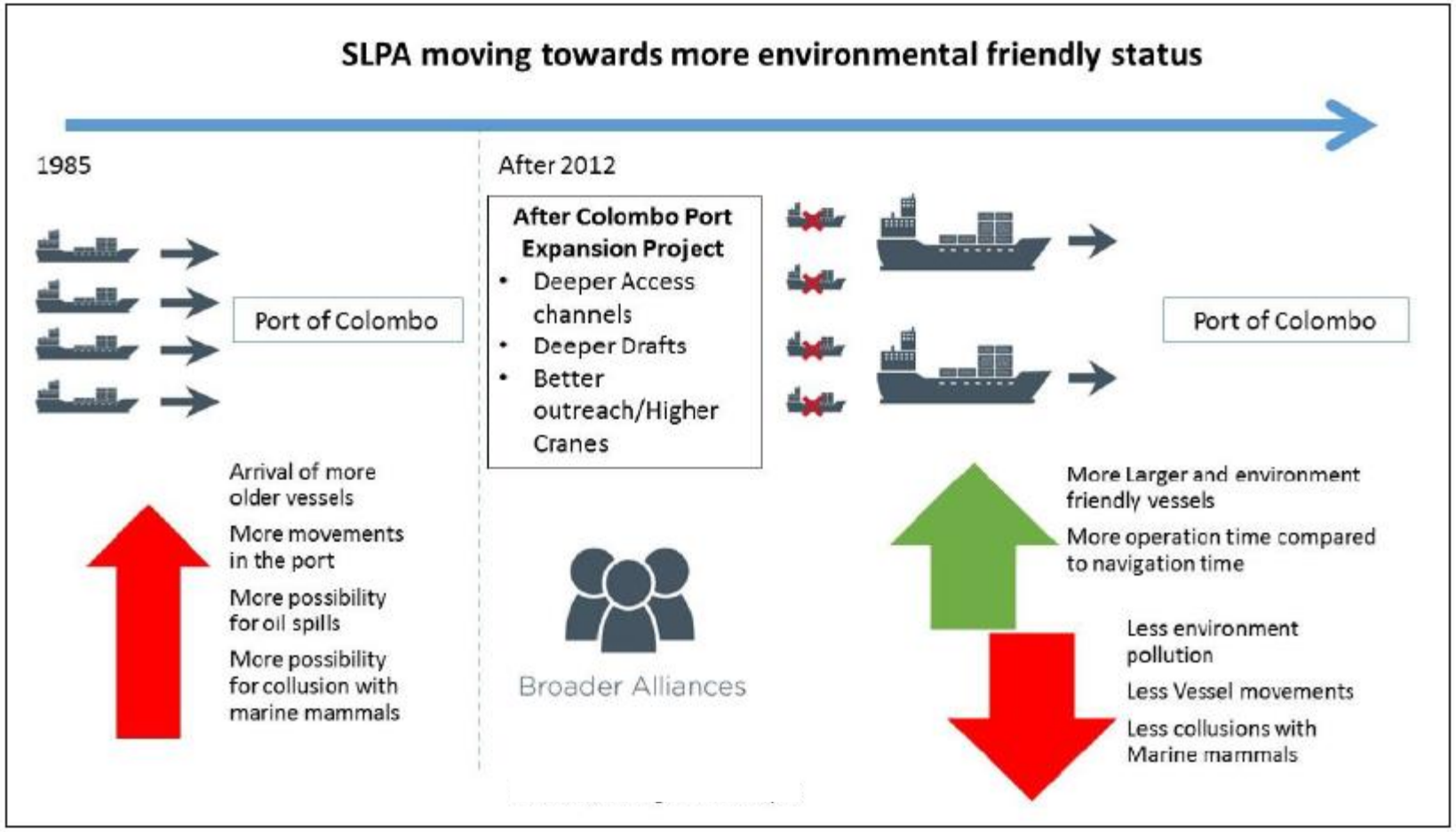
Actions Taken by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Transport sector

Infrastructure development
Port of Colombo has invested heavily in infrastructure and superstructure.

- Larger vessels can berth at POC. These larger vessels can transport more cargo and they are relatively new vessels which are more fuel efficient.
- Many terminals have installed twin lift cranes to ensure quick turnaround of vessels.
- The road network in the port has been upgraded from two lanes to four lanes. This has a clear impact on reduction of traffic within the port saving time fuel and reduction of GHG emissions.

Actions Taken by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Transport sector

- Less vessel navigation time in port and more operation times
- Less vessels movements in and out of the port
- The port is receiving more environmental friendly vessels
- New vessels have less possibility of oil spills



Actions by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Energy sector

Conversion of Traditional Diesel powered RTGC to ERTGs

CICT Terminal E-RTG project

- CICT is committed to carrying operations in a responsible manner which protects the environment. This is a commitment shared very passionately by the entire team at CICT. One of the key project completed recently was the conversion of company's diesel-operated rubber-tyred gantry cranes to electric-powered rubber-tyred gantry cranes or E-RTGs, making a major contribution to efforts by the Port of Colombo to go Green.
- Costing more than $ 10 million, the project has resulted in CICT deploying 40 zero-emission E-RTGs at the company-managed Colombo South container terminal, achieving a 45% reduction in the terminal's overall carbon dioxide emissions to the environment and a reduction of more than 95% in diesel consumption.
- The electrification of CICT's rubber-tyred gantry cranes involved modification work of fitting electricity collector trolleys in the RTG cranes and constructing a Conductor bar system (Bus-Bar) in the terminal for the cranes to function with electricity. Recognized around the world as an innovative port technology, E-RTGs have been proven to deliver significant environmental, technological and financial benefits to terminals.
- Their environmental benefits include reducing air and noise pollution; in economic terms they reducing operating and maintenance costs and in terms of technology represent an optimization of productivity and performance.

Actions Taken by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Energy sector

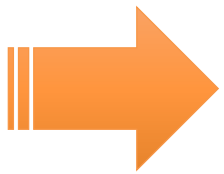
Provide Solar Power supply

to Lighthouse Operations

Actions Taken by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Energy sector

Energy sector

Replace of high-power consuming light sources at container yards and cranes with energy efficient light sources like LEDs



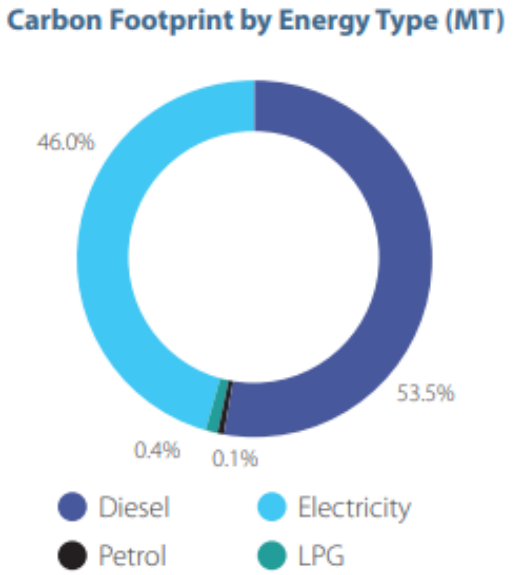
Sustainability Reporting

- Scope for Reporting
  - The sources directly under the control and operation of the port administration entity which include port-owned fleet vehicles, port administration owned or leased vehicles, buildings, port-owned and operated cargo handling equipment, and any other emissions sources that are owned and operated by the port authority or port company should be included in the counts.
- Maintaining an emissions inventory is a key policy decision. It should guide subsequent decisions regarding the level of detail, accuracy and the boundaries of the inventory.
- The aim of the emissions inventory is to develop strategies to set up a carbon emissions management system for the accurate tracking and reporting of carbon emissions and reduce carbon emissions in the entire port system in the future.

Port of Colombo, South Asia Gateway Terminals (SAGT) – Sustainability reporting

- Sustainability reporting is the key platform for communicating sustainability perfor mance and impacts.
- The sustainability information has been prepared in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standard
- First terminal in Sri Lanka to publish such sustainability report
- SAGT Sustainability Report 2019/20 explains to what extend SAGT process are sustainable, how it has not cause irreversible change to the environment, while being be economically viable, and benefitting the society.

Energy consumption and carbon footprint



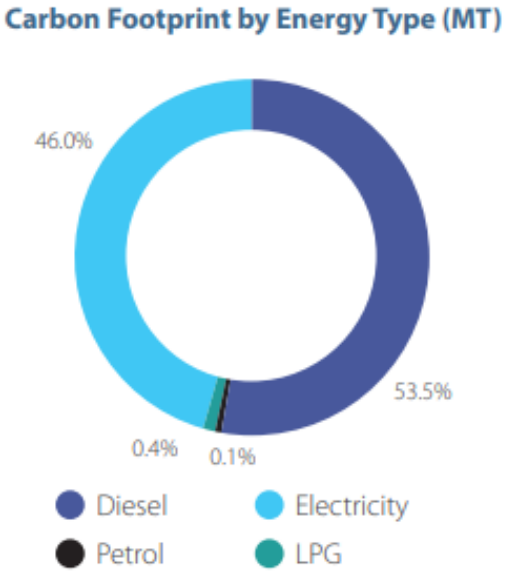
Total Power Consumed (GJ)	2019/20	2018/19
Diesel	194,172	186,673
Petrol	368	278
LPG	1,533	1,218
Indirect Energy - National Grid	63,249	57,224

13.0KWh of electricity consumed per box move

43.3 l of water per box move

19.91kg of carbon emissions per box move

SAGT - Energy consumption and carbon footprint



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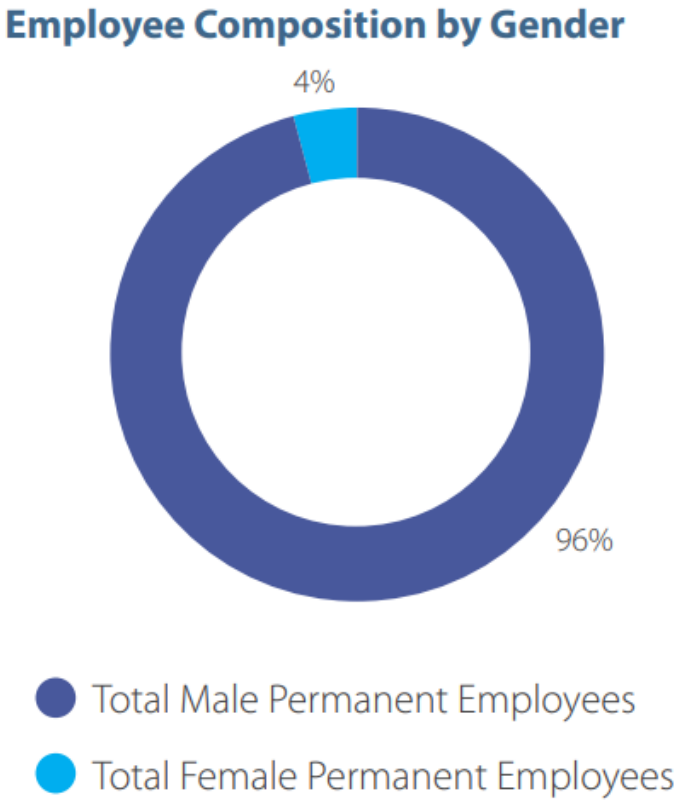
Diesel	194,172	186,673
Petrol	368	278
LPG	1,533	1,218
Indirect Energy - National Grid	63,249	57,224

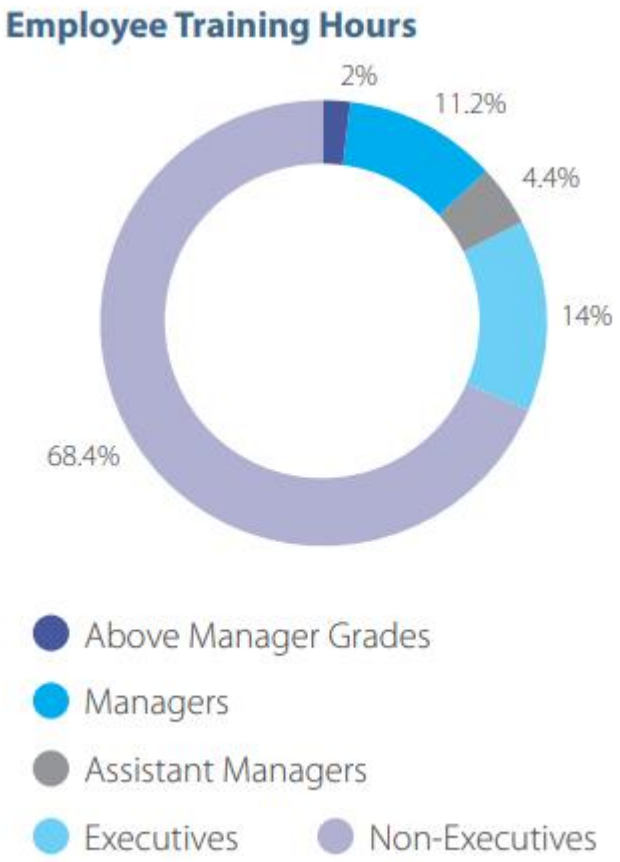
Total Electricity Consumption at SAGT (kWh)	2019/2020	2018/2019
All Quay Cranes (QC)	7,433,388	7,467,879
All Reefers	6,847,100	5,183,464
Yard/Building	3,288,660	3,244,171

Carbon footprint

The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

Highlights of SAGT Report (Social)





Being Carbon neutral

- SAGT has conducted Tree planting programs and coastal cleanup programs to partially compensate and off set the carbon emissions.
  - E.g of being carbon neutral

  Since SAGT has found out that they are emitting 26,881 MT of co_2 per year they can be carbon neutral by planting trees that will absorb the same amount of co_2

  - Publishing the emission and energy usage through a sustainability report is considered to be the initial step towards sustainability.
  - In this scenario they have chosen to partially off set it.
  - Being carbon neutral is a more advance step in sustainability Which is the target in the futrue.

Proposed Actions by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Energy sector

Proposed to provide Solar Power supply for general office at SLPA

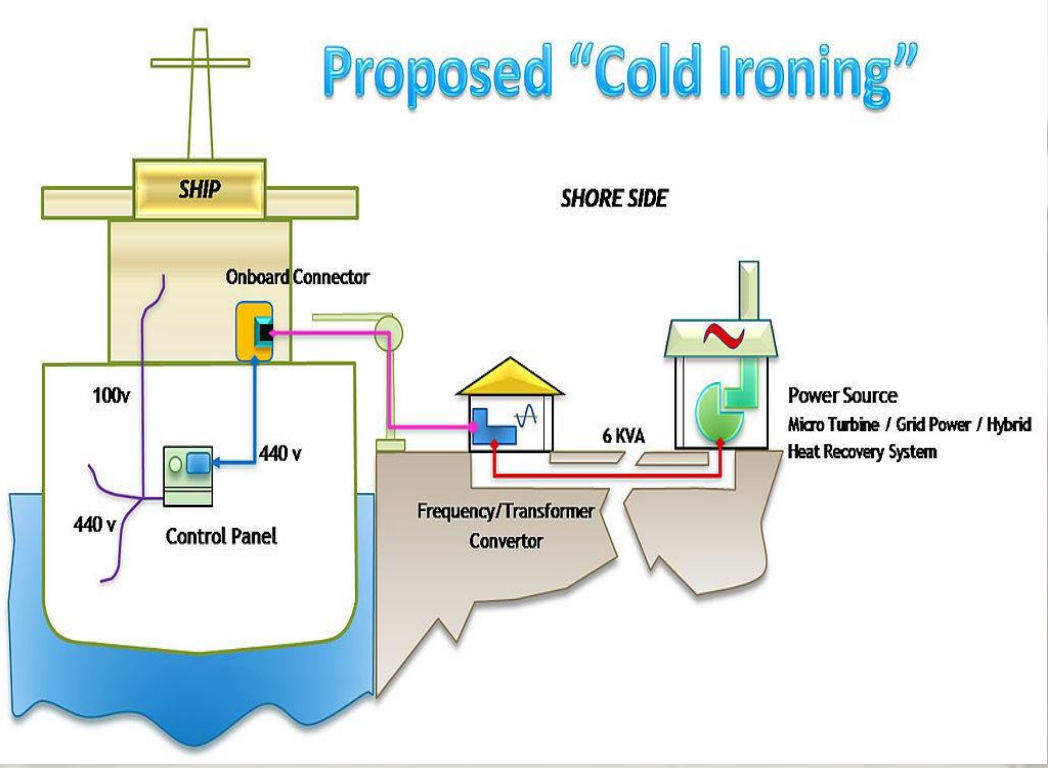
Clean Energy in logistic warehouses

- Plans are in progress to install Solar systems on warehouses roofs so that the particular warehouse can use its own energy.

- The folk lifts and other equipment fleet which is fuel powered is gradually replaced by electrical equipment.

Proposed Actions by SLPA to comply with NATIONAL CLIMATE CHANGE POLICY - Energy sector

Provide shore power supply to vessels at the berth



Results of the Project

- **Port sector contributions towards the NATIONAL CLIMATE CHANGE POLICY OF SRI LANKA – GHG Emission reduction.**

- **Increase awareness among port employees and port stakeholders on sustainability and GHG Emission reduction.**

- **All terminals have contributed with smaller projects and this have created a culture to implement sustainability projects**

- **The toughest part is the initialization of GHG emission reduction projects. Now with this project has given the kick start now the initial know how and knowledge is been received, which opens opportunities and ideas for the future for larger projects.**

- **A more green and environment friendly port which is contributing to economic developments**