Facts Findings of Energy Management & Conservation in the Port of Colombo

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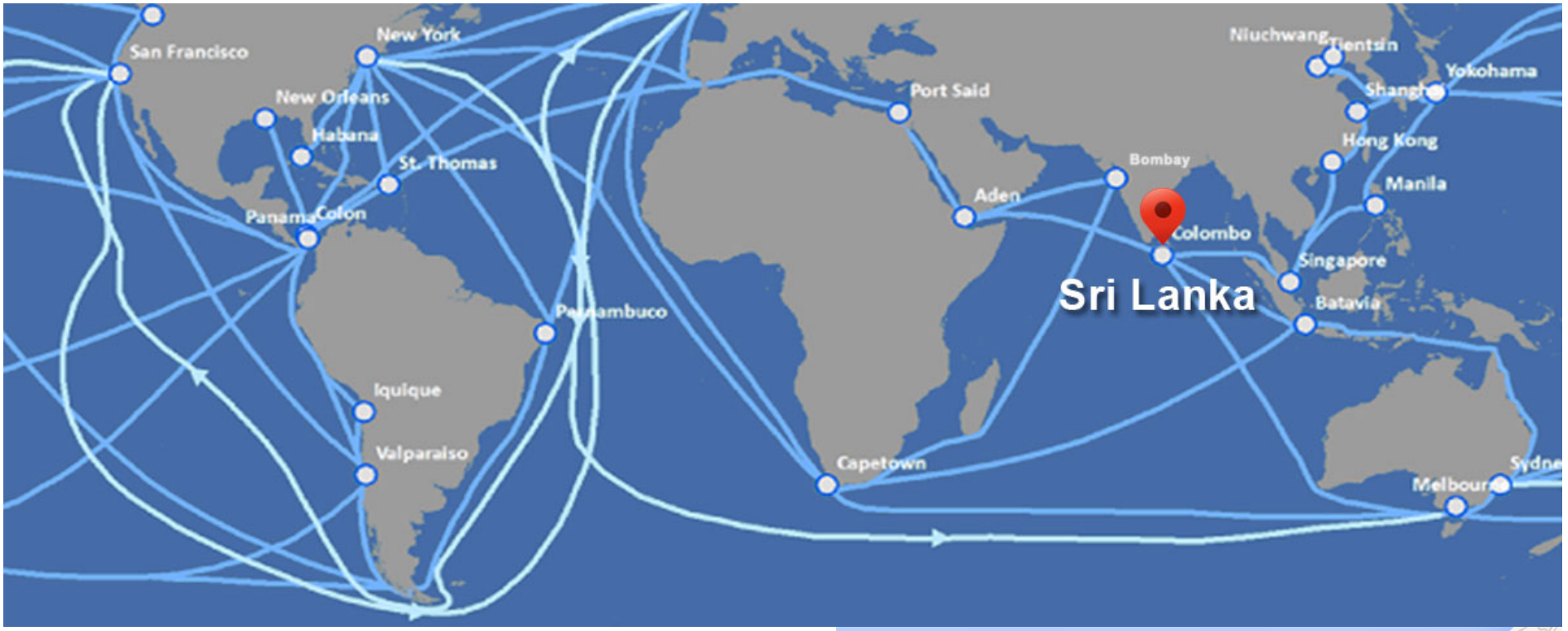
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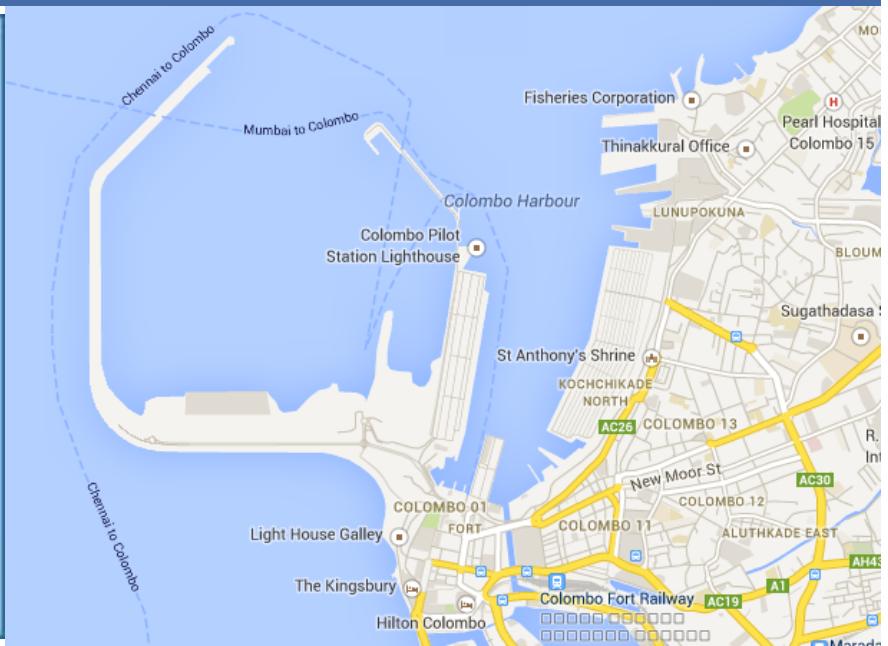
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Mumbai to Colombo
Fisheries Corporation
Thinakkural Office
Pearl Hospital
Colombo 15
Colombo Harbour
Colombo Pilot
Station Lighthouse
LUNUPOKUNA
Sugathadasa
St Anthony's Shrine
KOCHCHIKADE
NORTH
AC26
COLOMBO 13
New Moor St
AC30
COLOMBO 12
COLOMBO 01
FORT
COLOMBO 11
ALUTHKADE EAST
Light House Galley
The Kingsbury
Colombo Fort Railway
AC19
A1
Hilton Colombo

Terminals of Colombo port …

- Sri Lanka Ports Authority - ***Public***
- South Asia Gateway Terminal – ***Public Private Partnership***
- Colombo International Container Terminal - ***Public Private Partnership***

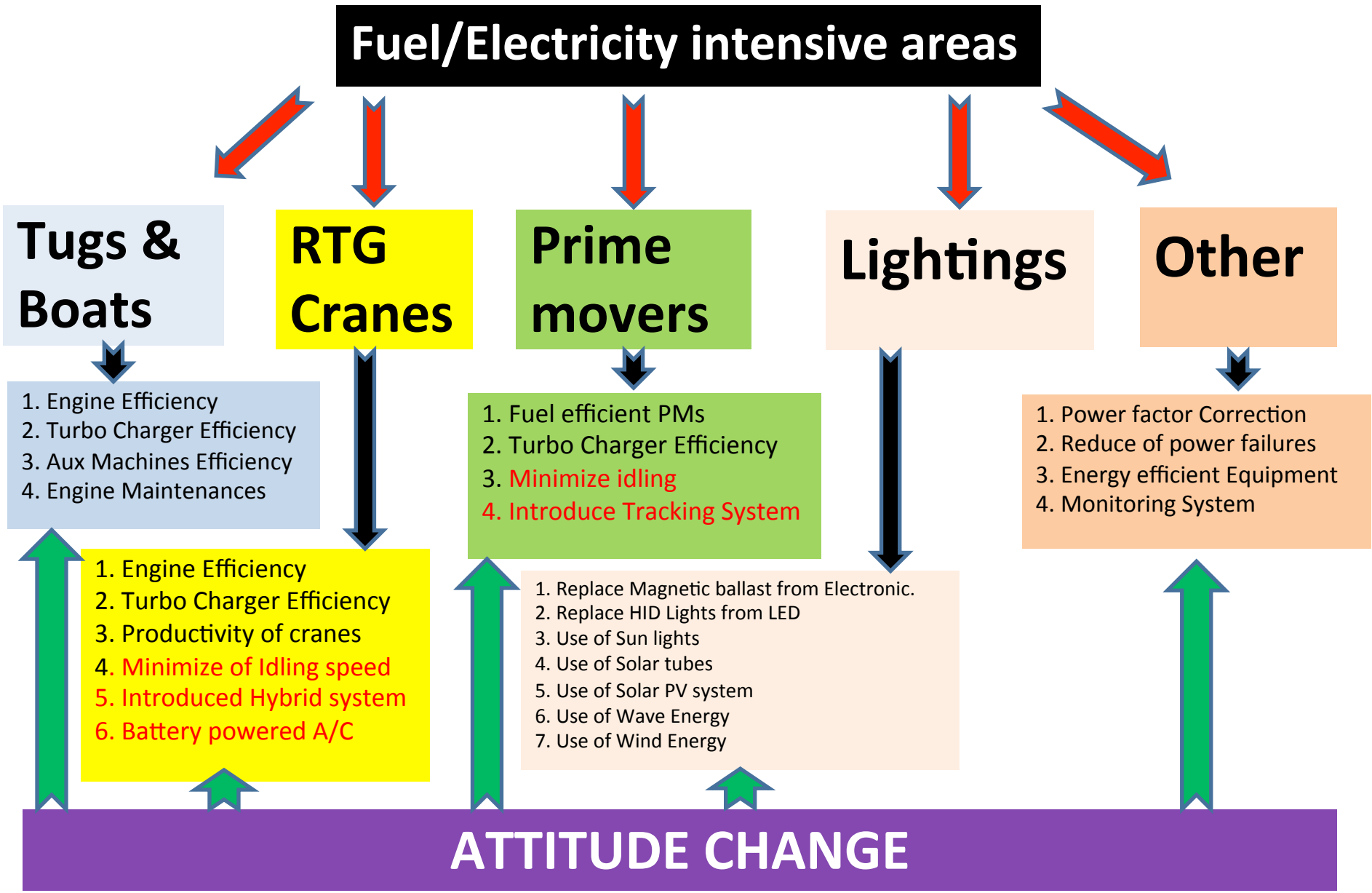
Energy is more important ..

- Sri Lanka heavily depends on fossil fuel.
- No fossil fuel available in Sri Lanka.
- 1/4 of total import cost for fossil fuels.
- Colombo port is energy intensive as others.
- Energy bill is paramount factor.
- Demand side Energy management is utmost.

Energy usage directly proportional..

- **Sustainability**
- **Efficiency**
- **Competitiveness**
- **Profit from Terminal Operations**

Demand Side Management



Demand Side Management

Fuel/Electricity intensive areas

Tugs & Boats

1. Engine Efficiency
2. Turbo Charger Efficiency
3. Aux Machines Efficiency
4. Engine Maintenances

- It founds that engine efficiency is very low.
- Turbocharger efficiency also very low
- Tugs cannot deliver desired output
- Consuming of more diesel
- Consuming more lubrication oil
- Auxiliary machines also in low performance
- Exhaust gas contents more Sox
- Higher operating cost
- Loss of opportunity

ATTITUDE CHANGE

Demand Side Management

Fuel/Electricity intensive areas

RTG Cranes

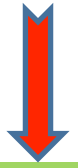
1. Engine Efficiency
2. Turbo Charger Efficiency
3. Productivity of cranes
4. Minimize of Idling speed
5. Introduced Hybrid system
6. Battery powered A/C

- Engine always running on full speed.
- Productivity of the crane is very low
- Generated Reverse power run of waste
- Operators bad attitude
- Consuming of more diesel
- Consuming more lubrication oil
- Higher operating cost
- Acquire hybrid power system
- Fuel saving of 100lt/day/unit
- 1/3 of reverse power from generation
- Control of carbon emission

ATTITUDE CHANGE

Demand Side Management

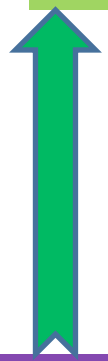
Fuel/Electricity intensive areas



Prime movers

1. Fuel efficient PMs
2. Turbo Charger Efficiency
3. Minimize idling
4. Introduce Tracking System

- Consuming of more diesel
- Consuming more lub oil
- Difficult to trace the PM
- Low productivity
- Higher operating cost
- Fuel saving
- Control of carbon emission



ATTITUDE CHANGE

Demand Side Management

Fuel/Electricity intensive areas

- HID lights wattage are high
- Magnetic ballast also high power consuming
- Utilized more daylights
- Energy saving
- Control of carbon emission

Lightings

1. Replace Magnetic ballast from Electronic.
2. Replace HID Lights from LED
3. Use of Sun lights
4. Use of Solar tubes
5. Use of Solar PV system
6. Use of Wave Energy
7. Use of Wind Energy

ATTITUDE CHANGE

Demand Side Management

Fuel/Electricity intensive areas

- Power factor Improvement (Existing pf varys from 0.8 to 0.5)
- Use of High efficiency motors
- Comprehensive Application system
- Maintaining of Maximum Demand

Other

1. Power factor Correction
2. Reduce of power failures
3. Energy efficiency Equipment
4. Monitoring System

ATTITUDE CHANGE

Challenges

- Barriers to approach to new technology
- Education, training and attitude changing of the staff.
- Cost Involvement.
- Obstacles to transform alternative energy sources.
- Obstacles to transform to high quality long lasting Products

Conclusion

- Emission of CO_2 from any place of the world will be a disaster for some other place. (According to the Butterfly Effect Concept)
- Already plan to consume almost all the fossil deposits within our generation.
- If we can save the environment for future generation, while achieving the desired targets will be the best investment today.
- By Improving Energy Efficiency in the Port, It can limit the use of fossil fuel and CO2 emissions protecting the environment meanwhile a monetary saving can be achieved. Further Renewable energy can be used for a part of Energy usage.