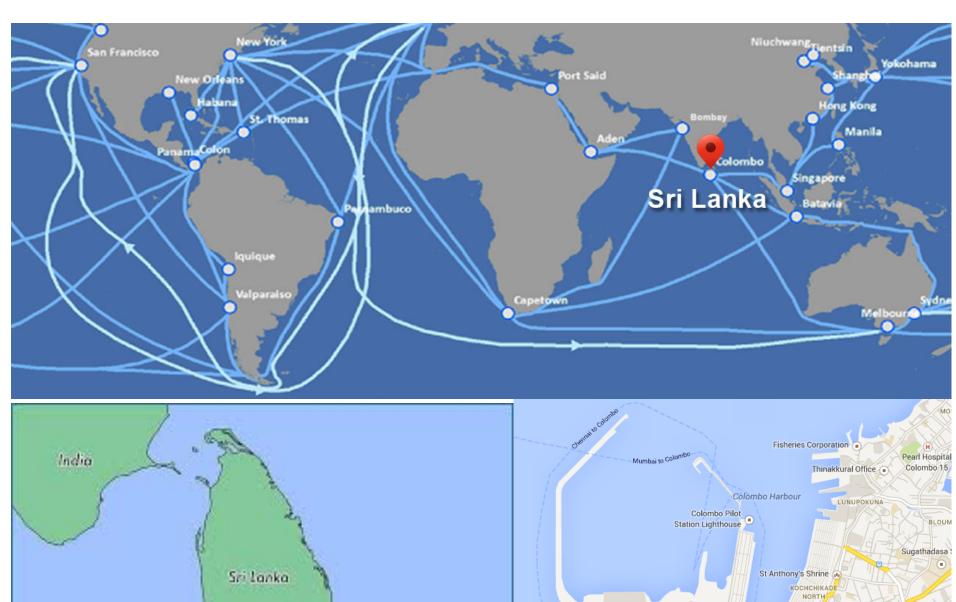
Facts Findings of Energy Management & Conservation in the Port of Colombo

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Sri Lanka Ports Authority
Colombo





Terminals of Colombo port ...

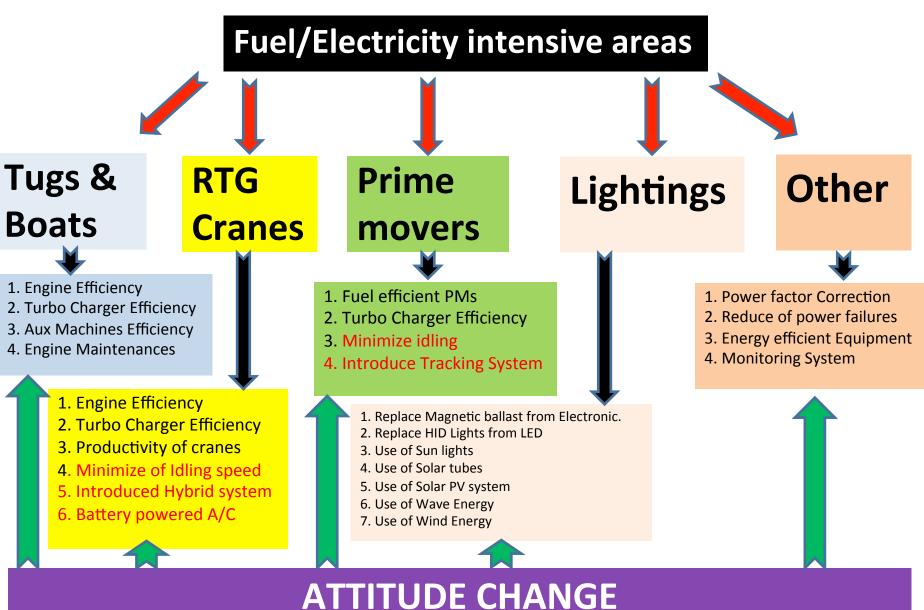
- Sri Lanka Ports Authority Public
- South Asia Gateway Terminal Public Private Partnership
- Colombo International Container Terminal Public Private Partnership

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



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

Fuel/Electricity intensive areas



- 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



Fuel/Electricity intensive areas



Prime

movers



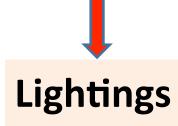
- 1. Fuel efficient PMs
- 2. Turbo Charger Efficiency
- 3. Minimize idling
- 4. Introduce Tracking System

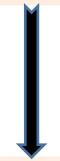
- Consuming of more diesel
- · Consuming more lub oil
- Difficult to trace the PM
- Low productivity
- Higher operating cost
- Fuel saving
- Control of carbon emission

ATTITUDE CHANGE

Fuel/Electricity intensive areas

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





- 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

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





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



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 CO₂ 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.