Implementation of Marine Control and Enforcement Experiences

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1. Introduction

- The Key Issue: Reducing Air Pollutant and GHG Emissions from Ocean-Going Vessels that call at Northwest US and Taiwan Ports
- The Cooperation Agreement: AIT (American Institute in Taiwan) and TECRO (Taipei Economic and Cultural Representative Office in the United States) for Technical Cooperation in the Field of Environmental Protection.
- The Partnership Conference: “Port Air Quality Partnership Conference” held on Nov. 18~20, 2008 at Kaohsiung, Taipei and Keelung:
  - To initiate cooperation on improving port air quality: A joint effort to improve air quality in Taiwan and north-western U.S. A. ports.
  - To sign the Port Air Quality Partnership Declaration

1. Introduction

- According to the meeting on Nov. 21, 2008, the cooperation items include:
  - Development of ports' air pollutant emissions inventories
  - Development of domestic regulations in compliance with the amendment of Annex 6 of the MARPOL
  - Other air emission control strategies
- March 3, 2009

  EPAT proposed the "Establishment of Port Air Pollutant Emissions Inventory and Drafting of Management Strategies Project" in the 2nd Port Air Quality Partnership Conference, held in Taichung Harbor
- July 3, 2009

  Commencement of the "Establishment of Port Air Pollutant Emissions Inventory and Drafting of Management Strategies Project"
- November 9, 2009

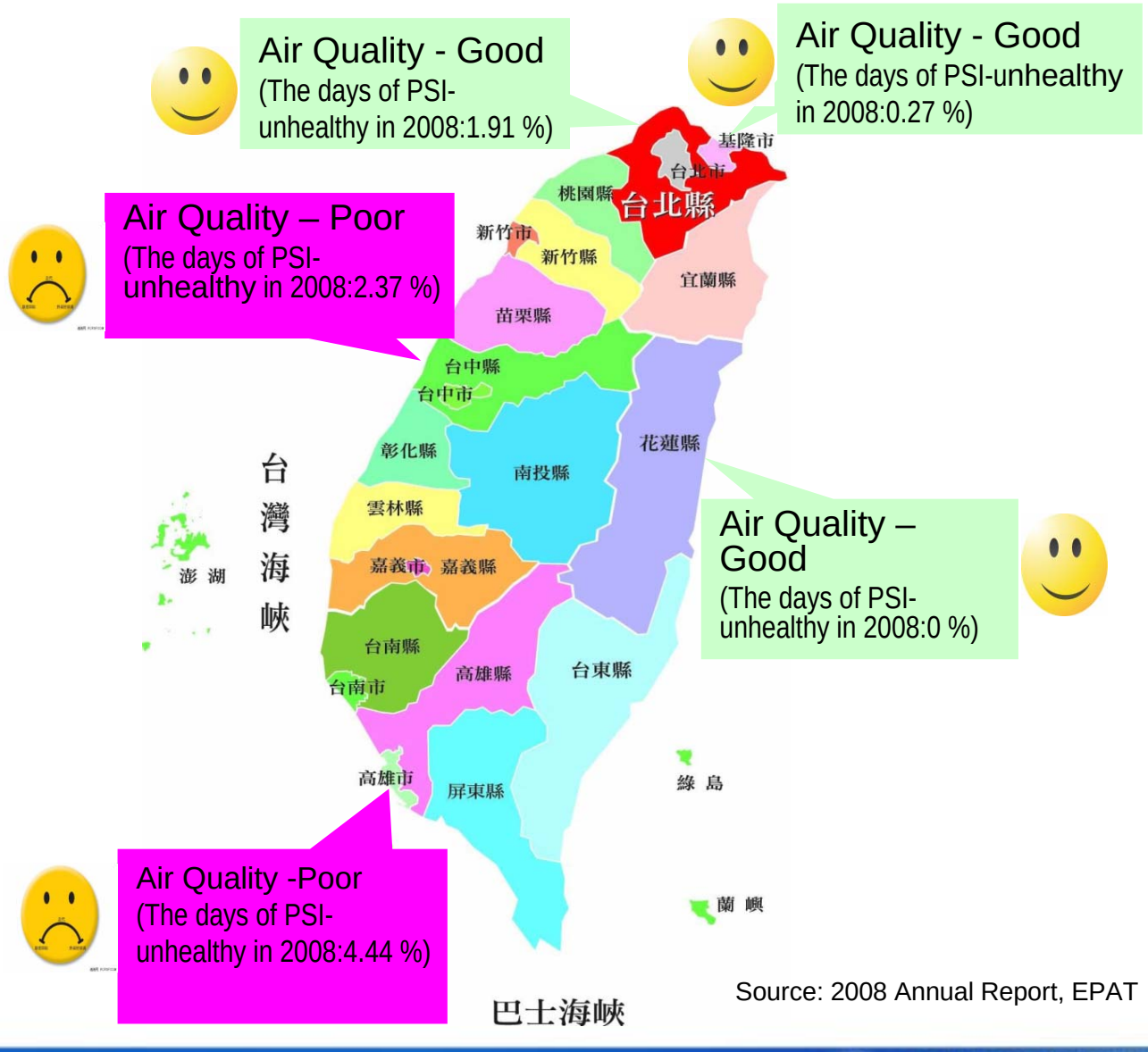
  EPAT invited US EPA and expert consultants to participate in a workshop in Taipei
  - Presented US experience in developing emissions reduction strategies that include regulatory and voluntary programs to reduce emissions in port areas
  - Engaged with EPAT, EPAT consultants, and other Taiwan government officials in dialogue to help identify methods and develop strategies to reduce emissions in ports areas in Taiwan

2. Project Description

Ultimate Goal: Green Harbor

- National Emission Control Policy
- Air Quality Management Plans of the cities in which the harbors are located
- Current intention of the harbor authorities and shipowners
- Practical Control Technology

Clean Air Action Plan



Source: 2008 Annual Report, EPAT

2. Project Description

Priorities for Emission Reduction

Short-Term

- OGV
  - Low Sulfur Fuel
  - Speed Reduction
- Harbor Crafts
  - Low Sulfur Fuel

Mid-Term

- OGV
  - Low Sulfur Fuel
  - Speed Reduction
- Harbor Crafts & Cargo Handling equipment
  - Low Sulfur Fuel
- Fugitive Sources
  - Closed type loading/unloading warehousing system

Long-Term

- OGV
  - Low Sulfur Fuel
  - Speed Reduction
  - International Convention
  - Shore power
- Harbor Crafts & Cargo Handling equipment
  - Low Sulfur Fuel
- Trucks
  - Control exhaust gas verification and self-management
- Fugitive Sources
  - Closed type loading/unloading warehousing system

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2. Project Description

Sources	Control Items	Control Strategies
OGV	Speed Reduction	Incentives Mechanism / International Cooperation
	Change Fuel	Regulations (MARPOL)
	On-board audit	Regulations (MARPOL)
	Promoting Control Technology	Control Technology
	Shore Power	Incentives Mechanism
Harbor Crafts		
	Low Sulfur Fuel	Lease Negotiation
	Fuel Audit	Regulations (Need development)

2. Project Description

Sources	Control Items	Control Strategies
Cargo Handling Equipment		
	Fuel Audit	Regulations (Nonroad fuel usage restriction)
	Electric Engine/Clean Engine	Incentive Mechanism
Trucks	Fuel and Exhaust Gas Audit	Regulations (Transportation fuel standards)
	Promotion of Anti-idling	Regulations (Need development)
	Automatic Recognition for Exhaust Gas Control and Self-Management	Regulations (Need development)
	Increase Self-Management for Diesel Vehicles	Incentive Mechanism

2. Project Description

Sources	Control Items	Control Strategies
Rail 	Exhaust Gas Audit	Regulations (Transportation fuel standards)
Fugitive Sources 	Audit Fugitive Sources	Regulations
	Cleaning Roads	Regulations
	Dust Proof Net for Vehicles	Regulations
	Movable Dust Proof Net and Water Sprinkle System for Material Loading and Unloading	Regulations
	Audit for Material Loading and Unloading Area	Incentive Mechanism / Lease Negotiation
	Encourage Closed Type Loading and Unloading and Warehousing System	Regulations
	Lease Contract of Storage Area to include Environmental Requirements	

Stationary Sources Fugitive Particles Pollution Prevention Facilities Management Measure

3. Current Results

Regulations and Control Standards

- Ships, Cargo Handling Equipment and Vehicles

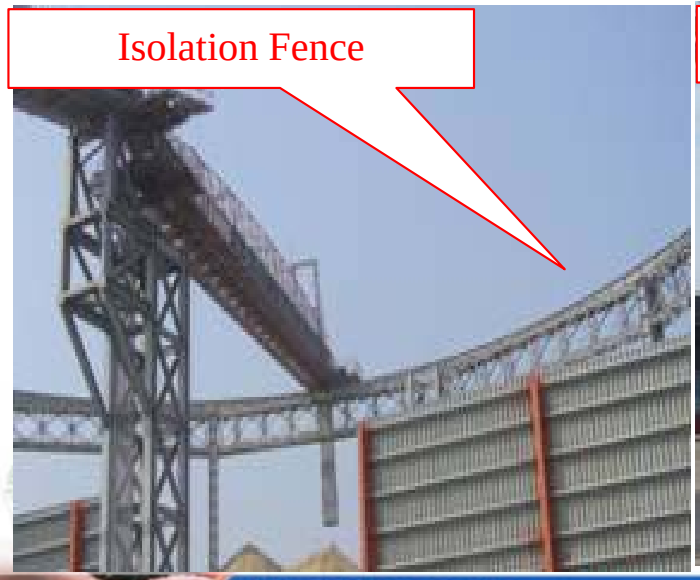
Domestic Regulations	┐	air pollution control act
	├	Commercial Port Act
	┘	The Law of Ships
International Convention		MARPOL 73/78 Annex VI

- On Jan. 8, 2009, to improve the air quality of ports, the EPA announced the “Stationary Sources Fugitive Particles Pollution Prevention Facilities Management Measure” providing lists of mandatory air pollution prevention facilities for different operation processes.

3. Current Results

Materials Storage

- Storage areas should install isolation fences or dust-proof nets to block wind and reduce dust blown by wind.
- Storage areas should be equipped with automatic water sprinkle systems to increase water content of stored materials and reduce dust from wind erosion.



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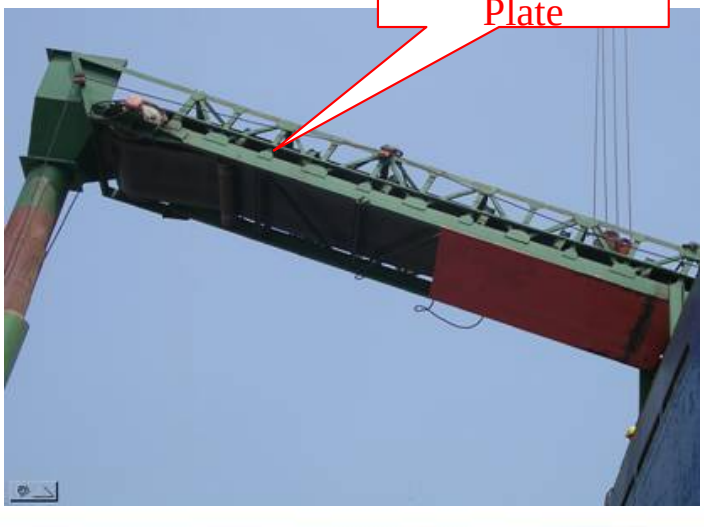
3. Current Results

Material loading and unloading

- Install funnel type of loading/unloading platform, stretch and shrink bushing to prevent gravel from falling to reduce particulate dust.
- Loading area covered with dust proof nets to isolate dust from loading processes , with help from gravity to settle dust. Cleaning process after operation finished to prevent secondary pollution from other operations.



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3. Current Results

Material transportation

- Vehicles transporting potential fugitive particle pollutants should use airtight containers, or use closed and covered containers. The use of dust covers should be tied up securely, the edge should extend more than 15 cm below the edge of the container

4. Future Plan

- According to the “Stationary Sources Fugitive Particles Pollution Prevention Facilities Management Measure”, a project has been commenced to evaluate the execution by ports on this issue.
- The amendment of “the Law of Ships” by the Ministry of Transportation and Communications, MOTC, has been approved by the Executive Yuan. This amendment empowers ports to check if ocean-going vessels are equipped with suitable instruments in compliance with the amendment of Annex 6 of the MARPOL.

5. Conclusion

- USEPA support and experience sharing are very much appreciated.
- By implementing the " Establishment of Port Air Pollutant Emissions Inventory and Drafting of Management Strategies Project", we will establish the port air pollutant emissions inventory and will draw up feasible control strategies.
- The EPA will continuously collaborate with harbor management authorities to initiate relevant control measures. Besides the regulatory control measures, the EPA also encourages local residents to voluntarily develop action plans to maintain port air quality and reduce public complaints.

Thank You!