



Port Services Network

The APSN Green Port Award System

Dr. Yang Dong
Former Head of project Section
Senior Consultant of
APEC Ports Services Network (APSN)
Email: dong.yang@polyu.edu.hk

Background



Port Services Network



Basic factor for future development **Green Wave**



Green: Common Color of New Generation

Green is an inevitable trend of port development

Green is bound to become a necessity of future ports.

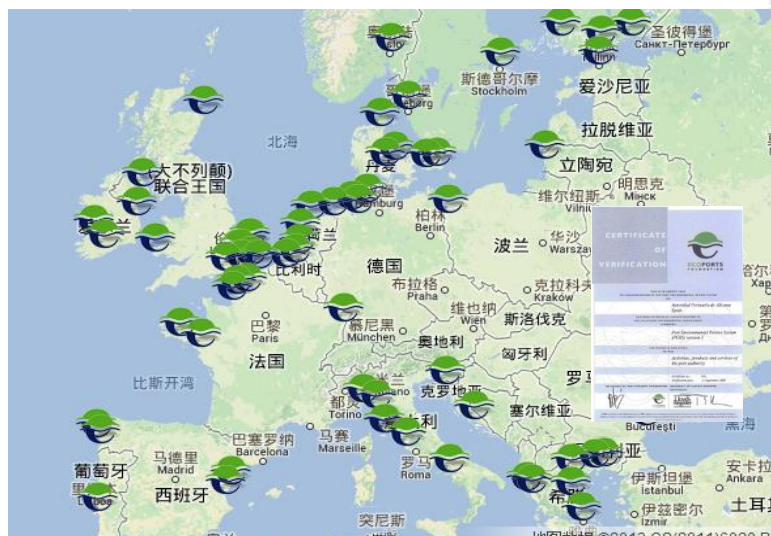


Networking for Stronger Port Industry and Better Community

Practices on Green Ports



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Scope	Systems	Objective
Global (most frequently)	ISO 14001	Any organization including Ports
EU	SDM (EcoPort)	Port Sector
EU	PERS (EcoPort)	Port Sector
North America	Self-evaluation Guides	Ports, terminal and shipyards

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Practices on Green Ports

EcoPorts :

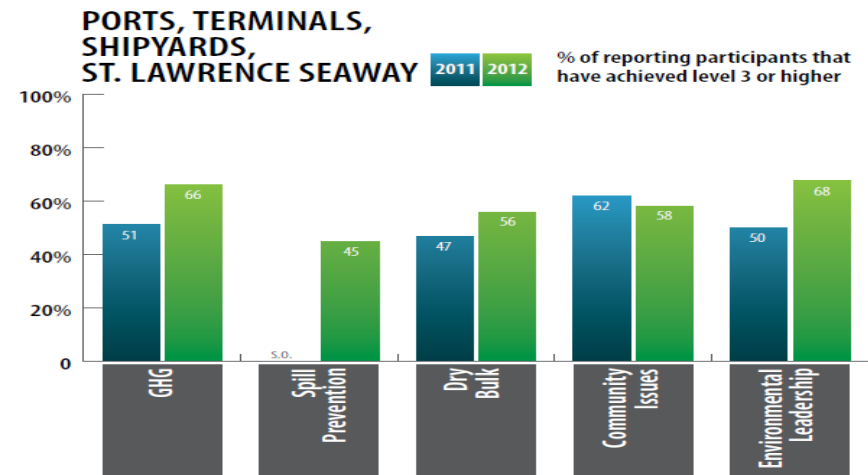
Average levels attained by Ports, Terminals and Shipyards (Results based on a scale of 1 to 5)

Year	2008	2009	2010 (excluding new participants)	2010 (including new participants)
GHG Emissions	1.7	2.4	2.6	2.5
Cargo Residues	2.6	2.6	2.8	2.6
Environmental Leadership	/	2.2	2.5	2.4

Source: coast to coast progress report 2010-2011

65% of ESPO members had set up their own environmental monitoring mechanism, and the ratio increased to 77% in 2009.

Green Marine →



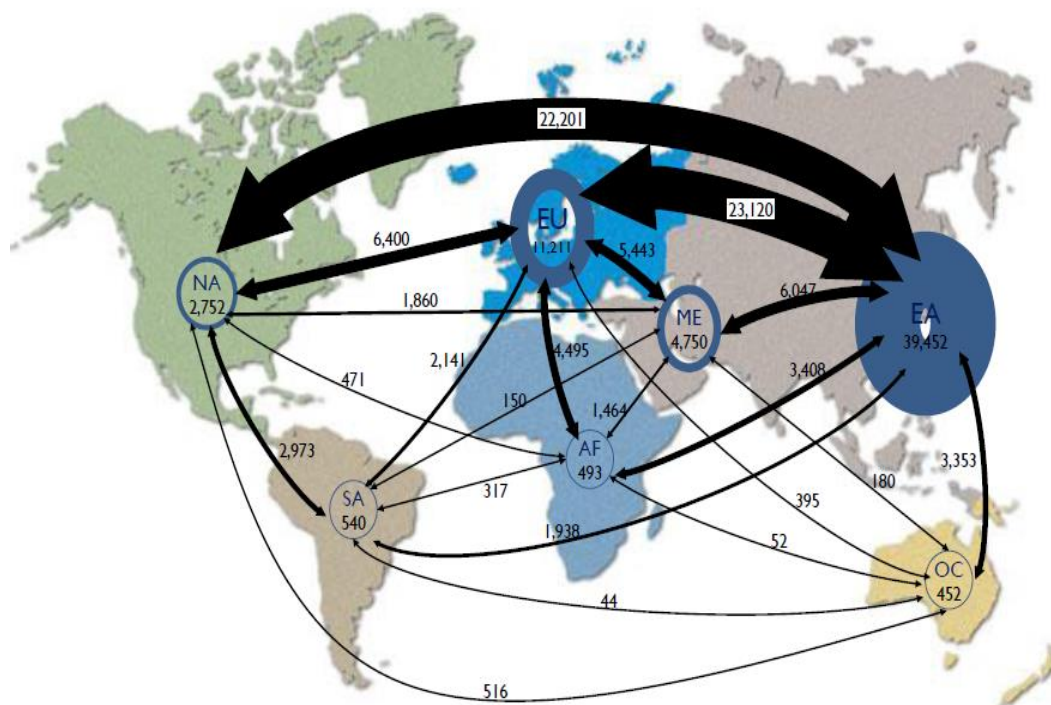
Source: Green marine2012 Progress Report

Background



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Global container traffic between continents in 2006 ('000 TEUs)



TOP 50 WORLD CONTAINER PORTS

Rank	Port, Country	Volume 2012 (Million TEUs)	Volume 2011 (Million TEUs)
1	Shanghai, China	32.53	31.74
2	Singapore, Singapore	31.65	29.94
3	Hong Kong, China	23.10	24.38
4	Shenzhen, China	22.94	22.57
5	Busan, South Korea	17.04	16.18
6	Ningbo-Zhoushan, China	16.83	14.72
7	Guangzhou Harbor, China	14.74	14.42
8	Qingdao, China	14.50	13.02
9	Jebel Ali, Dubai, United Arab Emirates	13.30	13.00
10	Tianjin, China	12.30	11.59
11	Rotterdam, Netherlands	11.87	11.88
12	Port Kelang, Malaysia	10.00	9.60
13	Kaohsiung, Taiwan, China	9.78	9.64
14	Hamburg, Germany	8.86	9.01
15	Antwerp, Belgium	8.64	8.66
16	Los Angeles, U.S.A.	8.08	7.94
17	Dalian, China	8.06	6.40
18	Keihin ports*, Japan	7.85	7.64
19	Tanjung Pelepas, Malaysia	7.70	7.50
20	Xiamen, China	7.20	6.47

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Objectives of GPAS



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- Improve environmental awareness and increase the understanding of green port development strategy, with the aim of achieving a balance between economic development and environmental protection in the APEC ports community;
- Promote the sustainable development of ports in APEC and protect the port environment for the benefit of the entire APEC community;
- Improve interoperability of green port systems in the APEC region;
- Share information and best practices and encourage mutual assistance among APEC ports.



**Sustainable
development**

SAFE

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Why Ports should be involved in the GPAS



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- Provide a clear objective to develop green port plans;
- Provide a platform to share information and best practices to promote green growth among the APEC ports;
- Raise the profile of ports so as to attract more attention from shipping companies, shippers and investors as well;
- Help to improve sustainable developing capacity and overall competitiveness of ports.

Comparison between GPAS and other systems



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➤ **EcoPorts:**

- Serves as a guide for participants to satisfy EU requirements .

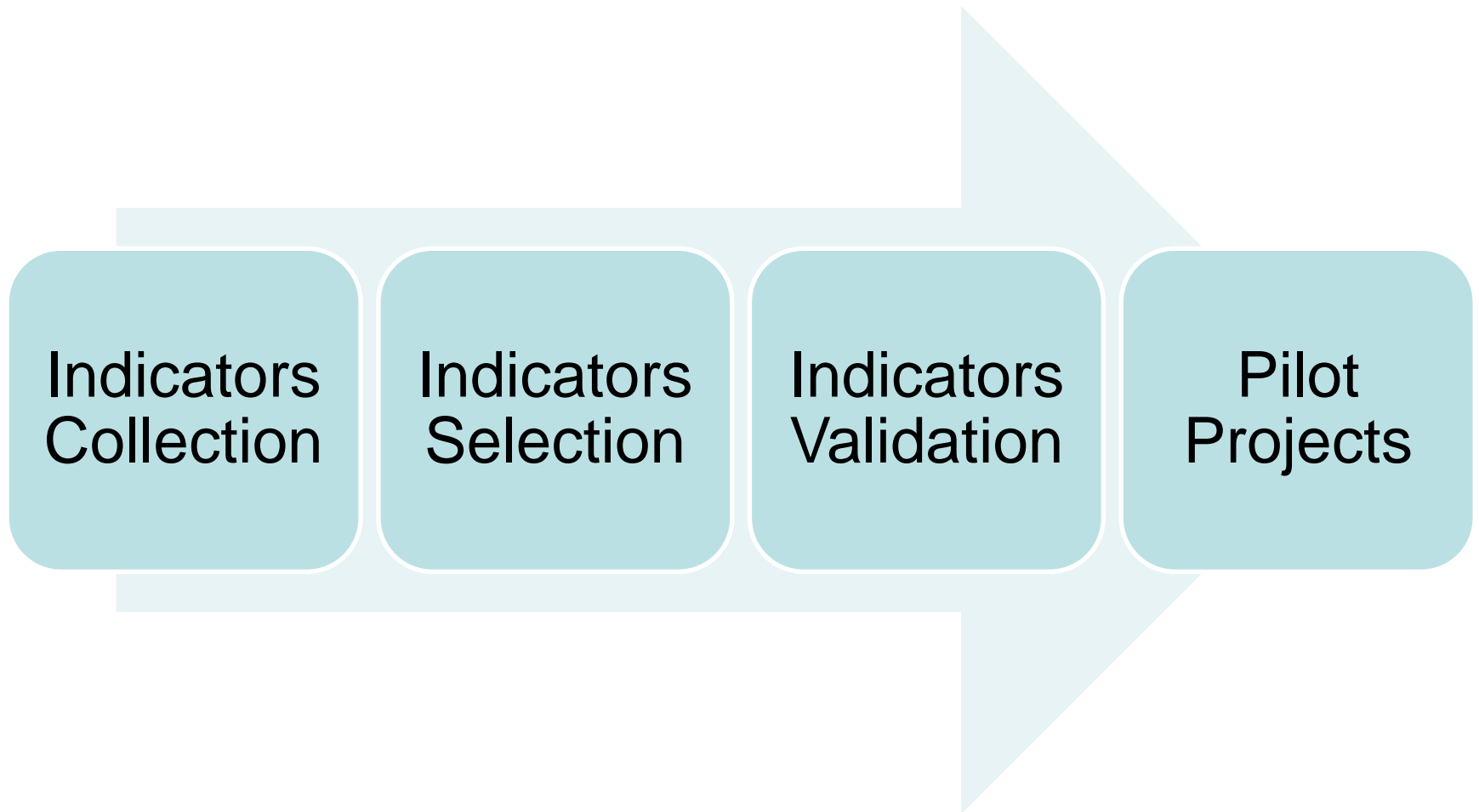
➤ **Green Marine**

- Features high standards, strict requirements, great expectation.

➤ **GPAS**

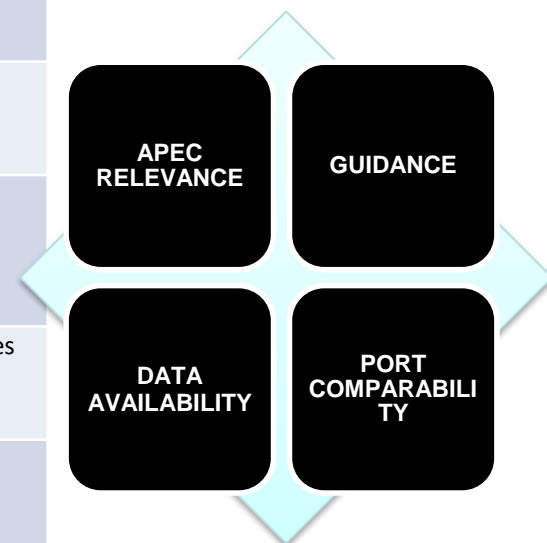
- Serves as motivation for participants to improve their green performance
- Adopts general assessment criteria for participants at diverse levels of port development, flexible performance indicators.

Preparation



Indicator System

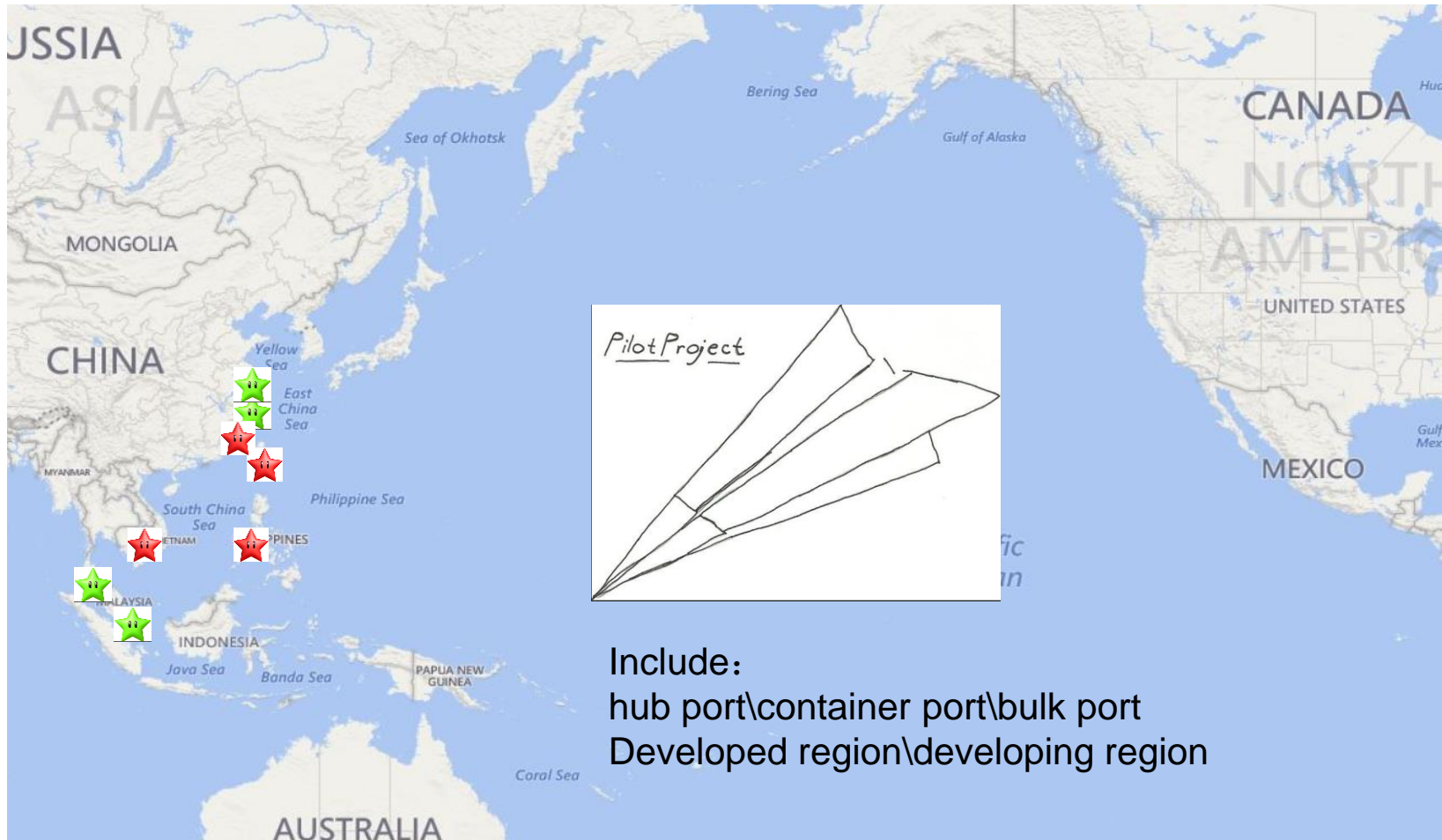
Primary Indicator	Secondary Indicator	Reference Standard
Commitment and Willingness (25%)	Green Port Awareness and Willingness (60%)	(1) Green strategy or development plans (2) Green support funding (3) Green annual reports (4) Others
	Green Port Promotion (40%)	(1) Green training programs (2) Green promotion campaigns (3) Others
Action and Implementation (50%)	Clean Energy (15%)	(1) Using renewable energy sources (2) Using of LNG (3) Using cold ironing (shore power) (4) Others
	Energy Saving (30%)	(1) Using energy-saving devices & technologies (2) Optimizing power supply system (3) Others
	Environmental Protection (40%)	(1) Air pollution prevention (2) Noise control (3) Waste treatment (liquid and solid) (4) Others
	Green Management (15%)	(1) Green environment management system (2) Green performance assessment (3) Others
Efficiency and Effectiveness (25%)	Energy Saving (40%)	(1) Energy consumption reduction (2) Renewable energy increment (3) Others
	Environmental Protection (60%)	(1) Air quality improvement (2) Noise control result (3) Liquid & solid pollution control (4) Others



Pilot Project



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Include:
hub port\container port\bulk port
Developed region\developing region

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Pilot Project Round 1



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First hierarchy		Second hierarchy	Third hierarchy	Weight	Weight rank	S--Jurong	S--BKP	S--Shanghai	S--Lianyungang
Commitment and Willingness	0.31	Development Aspirations				Port A	Port B	Port C	Port D
			Any green EMS	0.043	9	5	4	5	3
			Any green development planning	0.049	6	5	4	4	3
			Any green support funding	0.049	6	5	5	3	4
		Any green annual report	0.023		3	5	3	2	
		Any green development planning	Any green training program	0.11	1	4	5	5	3
Any green promotion campaigns, e.g. seminars, workshops or other	0.036		10	5	5	3	4		
Action and Implementation	0.538	Green Energy Structure	Using renewable energy sources (sun, tide, wind and so on)	0.033		3	3	5	5
			Encouraging use of low-sulphur fuel	0.023		1	1	1	1
			Encouraging use of LNG	0.027		1	3	4	5
			Encouraging use electrically powered equipment	0.031		3	3	5	3
		Energy Saving Technology	Using energy-saving devices	0.053	2	2	3	4	3
			Any energy saving policy? e.g. reducing ship speed after landfall	0.053	2	4	3	3	2
		Environmental Technology	Using recyclable resources	0.034		4	3	3	4
			Noise control methods	0.014		4	3	3	1
			Ballast water pollutant control	0.028		1	1	1	1
			Cargoes spilling control & prevention	0.03		4	3	4	4
		Integrated Management	Avoiding pollutants during cargo handling and port maintenance	0.023		4	3	3	3
			Fuel oil spilling contingency plan	0.022		2	1	4	3
			Sewage treatment (and water resource control)	0.024		2	4	5	5
			Wetland & marine habitat preservation	0.017		2	3	1	4
			Port entrance sediment & coastal erosion control	0.016		1	1	2	1
			Aesthetic interference, visual impact, and improving city scenery	0.012		3	2	4	3
		Energy Utilization	Energy consumption reduction (per throughput)	0.053	2	3	3	4	3
			Renewable energy increment in the total energy structure	0.045	8	3	3	5	4
Efficiency and Effectiveness	0.152		Air pollution reduction	0.052	5	4	3	3	3
			Noise control result (No. of complain)	0.032		4	3	3	1
			Solid waste dumping management defection	0.033		3	4	4	4
			Liquid pollution control	0.035		2	1	3	3
			Scores	1		3.35	3.28	3.65	3.12

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Pilot Project Round 2

First hierarchy	Second hierarchy	Weight	Port A	Port B	Port C	Port D
Commitment and Willingness	Green Port Awareness and Willingness	0.6	3.00	4.67	4.33	3.67
	Green Port Promotion	0.4	3.50	4.00	3.67	4.00
Action and Implementation	Clean Energy	0.15	2.83	3.00	3.33	3.00
	Energy Saving	0.3	5.00	3.17	3.00	4.00
	Environmental Protection	0.4	3.67	4.17	4.00	4.00
	Green Management	0.15	4.17	4.67	4.17	4.00
Efficiency and Effectiveness	Energy Saving	0.4	2.50	3.67	2.67	3.67
	Environmental Protection	0.6	2.67	3.00	2.17	4.00
			3.63	3.13	3.25	3.88

Summary on Pilot



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Some Interesting Findings:

- With a full mark of 5, the final scores of the four ports ranged from 3.4 to 3.8.
- If we set 3.5 as the GPAS qualification line, two ports, one in developed region, one in developing region, reach the APSN Green Port standards.
- All ports scored high in Commitment and Willingness, but there is a large room to improve in Efficiency and Effectiveness.

Problem:

- Data provided by the ports is not sufficient and concrete, in particular, in the part of Efficiency and Effectiveness;

GPAS Documents



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- a) GPAS Application Form
- b) GPAS Port Self-Evaluation Form
- c) Guide to GPAS Port Self-valuation
- d) Guide to GPAS Expert Evaluation
- e) GPAS Implementation Plan

a) Application Form



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GPAS Application Form

Port	
<i>Summarize the green activities in your port:</i>	
Green Strategies	
Green Initiatives and Actions	
Achievements	
<i>Legal Representative</i> Name: _____ Position: _____	
I hereby certify that all the information provided in this Form, the GPAS Port Self-Evaluation Form and its annexes are true and complete.	
Signature: _____ Date: _____	

Contact Person

Name:
Email:
Address:

Position:
Tel:

Application form composes a summary of green practices undertaken by ports, signature, and contact information, etc.

b) Port Self-evaluation Form



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GENERAL INFORMATION OF APPLICANT:			
APPLICANT			
PORT NAME		ECONOMY	
ANNUAL THROUGHPUT	TOTAL		TON
	--CONTAINER		TEU
	--PASSENGER		PERSON-TIME
BRIEF DESCRIPTION OF THE APPLICANT (Location of your port/terminals, number of terminals, cargo type, main type of the cargo, number of port calls, etc.)			

Begins with a table for applicants to fill out general information

b) Port Self-evaluation Form



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2.3 Environmental Protection.
<p>1) Air pollution prevention.</p> <p>Description: (Action and implementation relating to this item, such as air quality monitoring system installation, dust control measures, wind proof construction, low-sulphur fuel usage and etc. For example, ports may set up restrictions on atmospheric emissions of port users, adopt low-sulfur fuel for port vessels, establish dry-bulk handling and storage rules that reduce dust production, etc.).</p> <p>✓</p> <p>✓</p> <p>✓</p>
<p>2) Noise control.</p> <p>Description: (Action and implementation relating to this item, such as noise-insulation installation of electrical motors, noise barriers construction and etc. For example, ports may reduce or not use sound-making equipment, or ports can mandate port users to function under certain noise levels.).</p> <p>✓</p> <p>✓</p> <p>✓</p>
<p>3) Waste treatment (liquid and solid).</p> <p>Description: (Wastewater collection and treatment system construction and usage, solid waste collection, disposal and recycling and etc. For example, evidence of ports prohibiting waste water discharge in certain areas, setting up a unit in charge of collecting vessel pollutants, classifying garbage into different categories such as toxic and normal waste, establishing requirements that prevent the washing of decks contaminated with pollutants.).</p> <p>✓</p> <p>✓</p>

2. Followed by a sheet for applicants to fill out the self-evaluation of green port performance and provide relevant supporting materials.

3. Explanation and definition for indicators in the Self-Evaluation Form is added to further clarify the criteria of GPAS Award

c) Guide to Port Self-evaluation



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1.1 Green Port Awareness and Willingness.
<p>1) Green strategy or development plans</p> <p>Description: (Your green strategy, public or internal, scope, implementation and etc.)</p> <p>Sustainability and green concept were considered in the design of the new terminal in our port. While not formally accredited, the terminal's design achieves an equivalent 4.5 Green Star rating. Some of the environmental initiatives incorporated into the building's design include:</p> <ul style="list-style-type: none"> ➤ Installation of a 50 kiloliter tank to harvest rain water for use in toilets and landscape irrigation. ➤ Use of efficient lighting for 95 per cent of the net let-table area, reducing lighting energy consumption. This lighting has been linked to daylight and/or occupancy sensors. ➤ Installation of a Building Management System for the early identification of water leaks and optimization of power usage including early detection of wastage and identification of supply problems.
<p>2) Green support funding</p> <p>Description: (Green funding types, usage, amount and etc.)</p> <p>The appropriate green support funding is \$0.5 million a year with a 2% annual average growth rate.</p>
<p>3) Green annual reports</p> <p>Description: (Public or internal, scope, implementation, consistency with the green strategy/ development plans and etc.)</p> <p>In 2013, our ports issued a review of the Green Port Guidelines, taking into industry best practice consideration. A new and updated set of guidelines is due to be launched in 2014. A Development Guideline to promote sustainable development in the precinct was also finalized.</p>
<p>4) Others</p> <p>Description: (Other good activities/practice implemented relating to this indicator other than the above three items.)</p> <p>Several industry experts are paid to evaluate and improve the annual report on green development of the port.</p>

1. Provide instructions for applicant ports to complete the GPAS Port Self-Evaluation Form.
2. A GPAS Port Self-Evaluation Example is also provided for reference.

d) Guide to GPAS Expert Evaluation



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Table 2 GPAS Performance Indicators System

First class indicator	Second class indicator	Reference standard
Commitment and Willingness (25%)	Green Port Awareness and Willingness (60%)	(1) Green strategy or development Plans (2) Green support funding (3) Green annual reports (4) Others
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Table 1 APEC Evaluation Criteria

Level	Criteria
1	Very poor (No green practice has been implemented to date)
2	Poor (Only very limited green practice has been implemented to date)
3	Medium (Compliance with certain number of applicable green practice)
4	Good (Systematic use of a defined number of best practice)
5	Excellent (Integration of best practice into an adopted management, Introduction of new technologies or management)

Provide a guide for experts to assess the Self-Evaluation Form submitted by ports. Grade should be based on the performance indicator system while not limited to it. Practice relevant to the second class indicator should be considered reasonably. Taking the imbalance of port development in APEC region into consideration, the green improvement made by ports is suggested to be given priority.

e) GPAS Implementation Plan

1. Introduction
2. Application
3. GPAS System
4. Evaluation
5. Approval of Results, Publicity and Awarding

Annex : Proposed Designs of GPAS Awards

1. Introduction



Port Services Network

➤ What is GPAS?

- A green evaluation system for APEC ports;
- An integral part of the APSN' s ongoing efforts to promote green growth, and encourage port growth without placing additional pressure on the environment

➤ What does GPAS aim to achieve?

- To provide a clear objective to develop green port plans;
- To provide a platform to share best practices to promote green growth ;
- To raise the profile of ports to attract more attention from carriers, shippers and investors;
- Improve sustainability and overall competitiveness of APEC ports.

➤ Who are eligible applicants?

- Applicants for GPAS are any ports (port authority or port operator) who intend to become green port with good progress in the past two or more years.



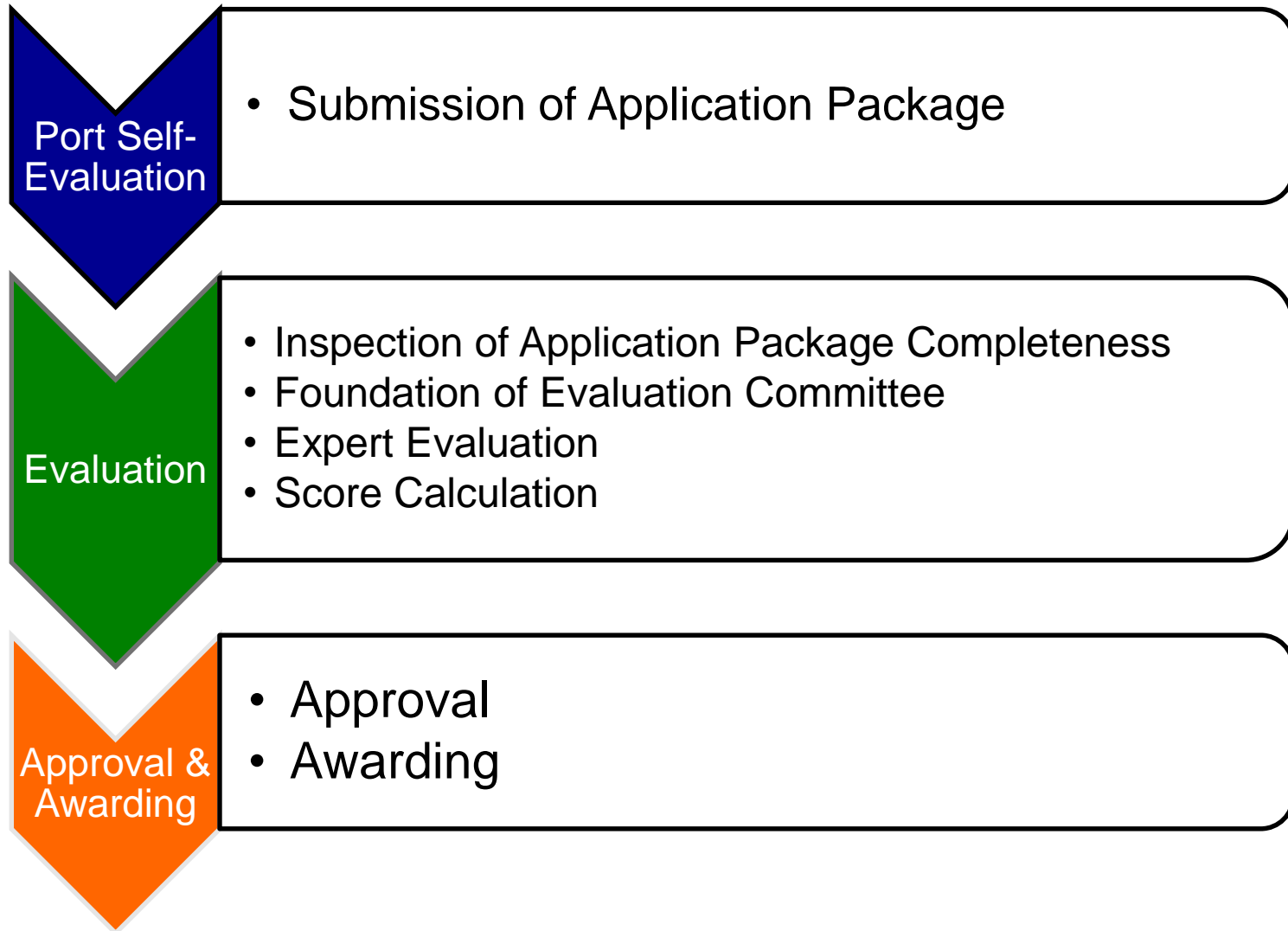
2. Application

- Download the GPAS Application Form, the Port Self-Evaluation Form, and the Guide to GPAS Port Self-Evaluation from APSN website.
- Conduct Port Self-Evaluation, send the material to the Secretariat together with Application Form.
- Applications submitted before June 30th will be evaluated for the GPAS Award of the application year; those after June 30th will be evaluated for the Award of the following year.

3. GPAS system

- Three categories of primary indicators: Commitment and Willingness, Action and Implementation, Efficiency and Effectiveness.
- Each primary indicator comprises secondary indicators defined by several other reference standards.
- Final score of the applicants calculated with consideration to the weight of each indicator.

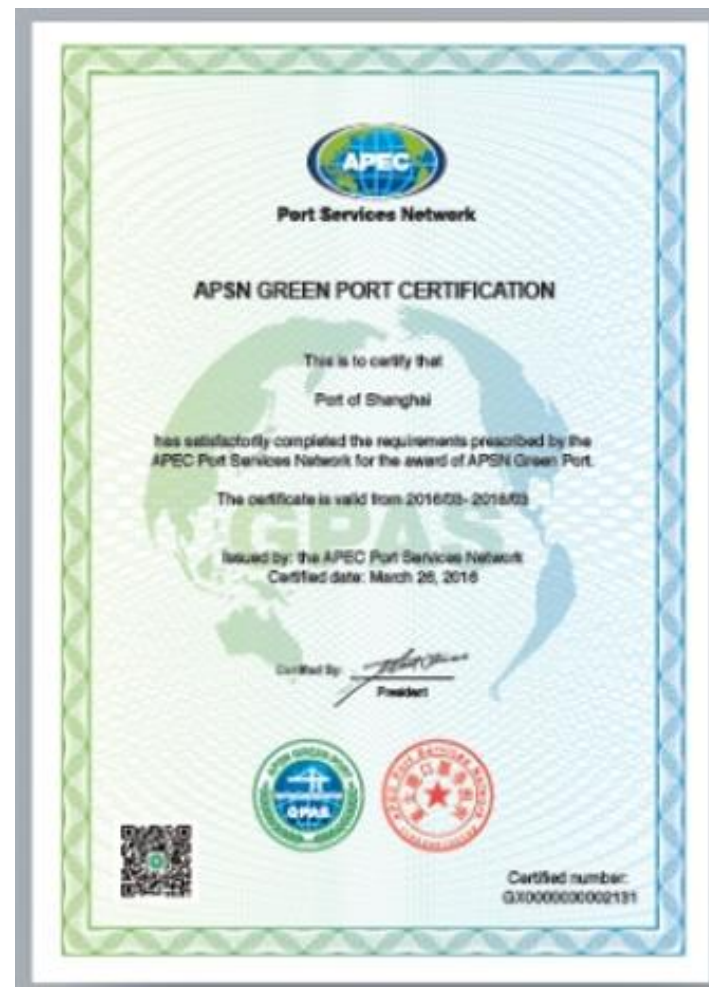
4. GPAS Evaluation



Proposed Designs of GPAS Award



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The GPAS award is valid for two years. The prize (See Annex 5) comprising a certification, a badge and a flag will be awarded to winning ports at a formal award ceremony during the annual council meeting.

INVITATION



OFFICIALLY LAUNCHED IN 2016!

Green Port Award System





Port Services Network

Welcome to the GPAS family!



THANK YOU
for your
ATTENTION!