GLOBAL PORTS AND LOGISTICS STRATEGY

Sustainable Deesea Logistics
Logistica Sostenible en alta mar

Sustainable Port-Hinterland Logistics
Logistica Sostenible Port Hinterland

Sustainable E-commerce/City Logistics
Logistica Sostenible E-commerce/City

HERMAN JOURNÉE
CHAIRMAN ECO SUSTAINABLE LOGISTIC CHAIN FOUNDATION
MEMBER STEERING GROUP of ALLIANCE LOGISTICS INNOVATION THROUGH COLLABORATION IN EUROPE (ALICE)
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
1. The World Changes: new sustainable Ports and Logistics needed

1. GROWTH

2. Proven Practical Ports and Logistics Solutions available

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
POPULATION: SUBSTANTIAL GROWTH

Figure 1. Long-term world population growth, 1750 to 2050

CONSUMPTION INCREASES STRONGLY
WILL TRANSPORT VOLUME DOUBLE?


2010  2010  2010  2010
1. The World Changes: new sustainable Ports and Logistics needed
   1. Growth

2. SCALE

2. Proven Practical Ports and Logistics Solutions available

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
INCREASE OF SCALE ON THE DEEP SEA....

Evolution of Container Ships

1st Generation pre-1960-1970
2nd Generation 1971-1980
3rd Generation 1981-1990
4th Generation 1988-1995
5th Generation 1990-2000
6th Generation 1998

SEA LEVEL
3m
6m
9m
12m
15m
<9.1
10m
11.6-12.5m
11.6-12.8m
12.8-14.0m
>14.5m

....AND IN THE PORTS

2003
18 M

2013
59 M

www.ecoslceu.com
THE PORT HINTERLAND SYSTEM: A SCALE PROBLEM?

Expected: Cargo Transport in 10 – 20 years double today’s size
POPULATION LIVING IN CITIES IS GROWING: CITY LOGISTICS: A NEW CHALLENGE

More than 50% of world's population lives in cities now
1. The World Changes: new sustainable Ports and Logistics needed
   1. Growth
   2. Scale

3. ENVIRONMENTAL EFFECTS

2. Proven Practical Ports and Logistics Solutions available

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
MORE GROWTH, MORE ENVIRONMENTAL IMPACT
WHAT ROLE FOR A SEAPORT?
SEAPORT IS NO LONGER A SOLO ORGANISATION BUT PART OF A LOGISTIC CHAIN

www.ecoslc.eu
IS A LOGISTIC CHAIN SUSTAINABLE?

THE PARTNERS IN CARGO TRANSPORT

ECO SLC
Sustainable Logistic Chain

www.ecoslc.eu
IS A LOGISTIC CHAIN SUSTAINABLE?

THE PARTNERS IN CARGO TRANSPORT

www.ecoslc.eu
### IS A LOGISTIC CHAIN SUSTAINABLE?

#### AIR QUALITY

#### HEALTH SAFETY

---

**THE PARTNERS IN CARGO TRANSPORT**

- **Sea Transport**: Transshipment, Internal Transport, Container Stack, Internal Transport, Transshipment to Barge, Automatic Weigh Bridge For truck and container, Automatic Identification Gate For Terminal Entrance and Exit.
- **Inlandport Transport**: Hinterland Transport 1, Inlandport Terminal, Hinterland Transport 2, Shopper Manufacturer, Hinterland Transport 3 Lost Bites, End User Shop in City.

---

[www.ecoslc.eu](http://www.ecoslc.eu)
IS A LOGISTIC CHAIN SUSTAINABLE?

THE PARTNERS IN CARGO TRANSPORT

- Sea Transport
- Transshipment
- Internal Transport
- Container Stack
- Internal Transport
- Transshipment
- Inland Transport
- Automatic Weigh Bridge For truck And container
- Automatic Identification Gate For Terminal Entrance and Exit
- Hinterland Transport 1
- Inlandport Terminal
- Hinterland Transport 2
- Shipper Manufacturer
- Hinterland Transport 3 Last Mile
- End User Shop In City

ECO SLC
Sustainable Logistic Chain

www.ecoslc.eu
**IS A LOGISTIC CHAIN SUSTAINABLE?**

<table>
<thead>
<tr>
<th>Air Quality</th>
<th>Health Safety</th>
<th>Water Quality</th>
<th>Security</th>
</tr>
</thead>
</table>

**THE PARTNERS IN CARGO TRANSPORT**

- Sea Transport
- Transshipment
- Container
- Internal Transport
- Transshipment
- Automatic Weigh Bridge
- For truck and container
- Automatic Identification
- Gate for Terminal Entrance and Exit
- Hinterland Transport 1
- Inlandport Terminal
- Hinterland Transport 2
- Shopper Manufacturer
- Hinterland Transport 3
- Last Mile
- End User Shop in City

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IS A LOGISTIC CHAIN SUSTAINABLE?

THE PARTNERS IN CARGO TRANSPORT

- Sea Transport
- Transshipment
- Internal Transport
- Container Stack
- Internal Transport
- Transshipment Into Barge
- Automatic Weigh Bridge For truck And container
- Automatic Identification Gate For Terminal Entrance and Exit
- Hinterland Transport 1
- Inlandport Terminal
- Hinterland Transport 2
- Shipper Manufacturer
- Hinterland Transport 3 Last Mile
- End User Shop in City

- Air Quality
- Health Safety
- Water Quality
- Security
- Air Quality Noise Safety

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IS A LOGISTIC CHAIN SUSTAINABLE?

NO!

A SUSTAINABLE PORTS AND LOGISTICS STRATEGY IS NEEDED
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available

1. 3 TOOLS TO REDUCE ENVIRONMENTAL EFFECTS

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
TOOL 1: POLICY AND LEGISLATION

END TO END SUPPLY CHAIN

POLICY AND LEGISLATION
REDUCE ENVIRONMENTAL IMPACT

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ECOPORTS
PORT ENVIRONMENTAL MANAGEMENT SYSTEM

starts

the improvement process for ports

ISO can follow easier
STAKEHOLDERS

Increased sustainability thinking and acting
TOOL 3: STAKEHOLDER MANAGEMENT
Port Stakeholders Control the ports

PORT COMPANIES
1. Sea Shipping Line Carriers
2. Logistic Service Providers
3. Transhipment Terminals for
4. Cruise Terminals
5. Warehousing
6. Tug boat Company
7. ICT Port Community System

PERSONNEL
8. Employees
9. Labor Organisation

SOCIETY ASPECT GROUPS
10. Citizens
11. Tourists
12. NGO’s
13. Environmentalists

GOVERNMENTAL ORGANISATIONS
14. Labour Inspection
15. Police Brigade
16. Fire Brigade
17. Customs Inspection
18. Environment Inspection
19. Veterinary Inspection
20. City Planning
21. Port Authority
22. Coast Guard
PROVEN SOLUTIONS FOR SUSTAINABLE PORTS, TRANSPORT AND LOGISTICS ARE AVAILABLE
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available
   1. 3 Tools to reduce environmental effects

   2. SUSTAINABLE PORTS AND LOGISTICS
      
      A. SEA LOGISTICS

3. Ecoports, a first step in Port Environmental Management and Certification
   Conclusions
THE MODEL: METRO LOGISTICS
INTER-CONNECTED CIRCLE LINES

Hub and Spoke Logistics
On time
Secure
Reliable
Sustainable (electric)
1.000.000.000 Passengers per year

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2011: Daily Maersk: 70 ships create a conveyor belt on deep seas: CIRCLE LINES Approach on Deep Seas

Result: reduction of costs and CO2, improved reliability

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Sustainable Logistic Chain

Maersk, CMA-CGM, MSC
2013/14: P3: PLAN TO CONNECT THE WORLD’S PORTS WITH 5 CIRCLES

P3 Network: daily worldwide deepsea services with 255 mega ships

www.ecoslc.eu
Maersk, CMA-CGM, MSC
2013/14: P3: PLAN TO CONNECT THE WORLD’S PORTS WITH 5 CIRCLES

Panama Canal 2014/15.
Dry-bulk
from 80,000 to 180,000 dwt
Container vessels
from 4500 to 12,000 TEU

www.ecoslc.eu

P3 Network: daily worldwide deepsea services with 255 mega ships
Maersk, CMA-CGM, MSC

2013/14: P3: PLAN TO CONNECT THE WORLD’S PORTS WITH 5 CIRCLES

P3 Network: daily worldwide deepsea services with 255 mega ships

M2 IS THE NEXT PLAN:
MAERSK-MSC
STARTING 2015

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THE TRANSPORT TOOL: THE MEGA CONTAINERSHIP
FROM SEAPORT TO HINTERLAND:
70% of port hinterland transport by truck (Europe)
MANY TRUCKS NEEDED

Mega container Ship: 18000 TEU
= 18000 containers of 20 Feet = 9000 containers of 40 Feet

1 container of 40 Feet
On one truck

1 ship = 9000 trucks with one 40Ft container
9000 x one 40 Feet container = 9000x68.75 meter = 618 kilometer road in use
1 mega container ship: 618 km of trucks on the road
MORE ROAD CAPACITY NEEDED?
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available
   1. 3 Tools to reduce environmental effects

2. SUSTAINABLE PORTS AND LOGISTICS
   A. Sea Logistics

B. PORT HINTERLAND LOGISTICS

3. Ecoports, a first step in Port Environmental Management and Certification
THE DAILY PORT HINTERLAND TRANSPORT "SYSTEM": CAPACITY PROBLEM?

Result: costs increase, CO2 increases and reliability diminishes
SUFFICIENT CAPACITY AVAILABLE! just organize it

World Economic Forum study Europe 2009:

Almost 60% of trucks, trains, ships in use between ports and country are empty

www.ecoslc.eu
CIRCLE LINES: Sustainable Port Hinterland Logistics
Sharing free capacity in daily services with fixed time schedules

CIRCLE LINE: COOPERATIVE OF ALL CHAIN PARTNERS:
SHIPPER, SHIPPING LINE, SEAPORT TERMINAL, INLAND TERMINAL, TRUCKING, BARGE
CIRCLE LINES: Sustainable Port Hinterland Logistics
Sharing free capacity in daily services with fixed time schedules
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Sharing free capacity in daily services with fixed time schedules

Each Circle Line is a cooperative of all chain partners
CIRCLE LINES: Sustainable Port Hinterland Logistics
Sharing free capacity in daily services with fixed time schedules

CONCEPT INNOVATION

- Connecting existing initiatives to create one integrated transport system on water. The scale is unique.
- Higher loading levels reduce costs per container and offer possibilities for innovative logistic solutions. Cost reductions and environmental improvements in the whole chain are larger then by optimizing on an individual level.

2008-2010 developed, 2010: tested, from October 2011 operational
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available

1. SUSTAINABLE PORTS AND LOGISTICS
   A. Sea Logistics
   B. Port Hinterland Logistics

C. CITY LOGISTICS

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
E-commerce revolutionizes Chain logistics and City Logistics
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions available

RESULTS

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
### RESULTS:
**A WORLDWIDE SUSTAINABLE PORTS AND LOGISTICS SYSTEM**

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Cost Reductions</th>
<th>Environmental Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed on time delivery</td>
<td>30% compared to standard ship</td>
<td>5-80%</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

- Including new income from new added value activities

- X

- Including new income from new added value activities

- X
HOW TO MANAGE PORTS SUSTAINABLE
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions

3. Ecoports, a first step in Port Environmental Management and Certification

Conclusions
ECO SLC

ECOPORTS
ENVIRONMENTAL MANAGEMENT SYSTEM FOR PORTS

Supported by AAPA-ESPO
ENVIRONMENT IS HIGH ON THE PORT’S AGENDA WORLDWIDE
MANY ACTIONS TO FORCE PORTS TO REDUCE THESE ENVIRONMENTAL EFFECTS.
Issues of EU Ports

- Lack of clear rules and transparency governing market access
- Unsatisfactory legal framework in relation to social protection of workers (training, health and safety, stability of workforce)
- Absence of minimum quality requirements for port service providers
- Difficulty to monitor and measure performance of port services
- Need for a level playing field and stability for investors and operators enabling further expansion of the port sector

Dimitrios Theologitis – Head of Unit
European Commission Ports & Inland Navigation
April 2012
LEGISLATION FOR BETTER ENVIRONMENT IN PORTS: 200 ENVIRONMENTAL LAWS AND REGULATIONS: MORE TO COME

- Birds and Habitats Directive, Natura 2000
- National Emissions Ceilings Environmental Noise Soil Framework Directive
- Sulphur Content of Marine Fuels Pollution from Ships
- Port Reception Facilities Water Framework Directive
- Supplementary Directive of Priority Substances
- Ambient Air Quality Maritime Spatial Planning
- Greenhouse Gas Emissions
  White paper Road map to a Single Europe Transport Area
- Regulation on Shipment of Waste

POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT

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LEGISLATION FOR BETTER ENVIRONMENT IN PORTS:
200 ENVIRONMENTAL LAWS AND REGULATIONS: MORE TO COME

PORT COSTS

..AND FINES!!!

ECO SLC
Sustainable Logistic Chain

- Birds and Habitats Directive, Natura 2000
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- Environmental Noise Soil Framework Directive
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- Sulphur Content of Marine Fuels
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- White paper Road map to a Single Europe Transport Area
- Regulation on Shipment of Waste
- Waste Framework Directive
- Marine Strategy Framework
- Ambient Air Quality
- Maritime Spatial Planning

POLICY AND LEGISLATION
REDUCE ENVIRONMENTAL IMPACT

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LEGISLATION FOR BETTER ENVIRONMENT IN PORTS: 200 ENVIRONMENTAL LAWS AND REGULATIONS: MORE TO COME

Birds and Habitats Directive, Natura 2000

National Emissions Ceilings Directive
Environmental Noise Directive
Soil Framework Directive

Sulphur Content of Marine Fuels
Pollution from Ships

Port Reception Facilities
Water Framework Directive

Greenhouse Gas Emissions White Paper
Road map to a Single Europe Transport Area

Regulation on Shipment of Waste
Waste Framework Directive
Marine Strategy Framework

Supplementary Directive of Priority Substances

Ambient Air Quality
Maritime Spatial Planning

PORT COSTS
AND FINES!!!

..AND STOPPING PORT OPERATIONS

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POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT
LEGISLATION FOR BETTER ENVIRONMENT IN PORTS: 200 ENVIRONMENTAL LAWS AND REGULATIONS: MORE TO COME

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AND PORT COSTS

..AND STAKEHOLDERS’ POLITICAL INFLUENCE

AND FINES!!!
LEGISLATION FOR BETTER ENVIRONMENT IN PORTS: 200 ENVIRONMENTAL LAWS AND REGULATIONS: MORE TO COME

..AND STAKEHOLDERS’ POLITICAL INFLUENCE

..AND COMPANIES DON’T LIKE TO INVEST IN ENVIRONMENTALLY RISKY AREAS

POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT
PORT AUTHORITY ORGANIZATION:

DIFFERENT DEPARTMENTS
SIMILAR CONTACTS AND METHODS
IMPROVEMENTS POSSIBLE BY SHARING KNOWLEDGE??

MANAGEMENT OF LEGAL REQUIREMENTS IMPLEMENTATION

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Sustainable Logistic Chain
IS YOUR ORGANIZATION IN CONTROL?

SOME CHECKLISTS OF PROPER FUNCTIONING

WHO DECIDES ON THE BALANCE BETWEEN INVESTMENTS IN RISK PREVENTION AND INVESTMENTS IN RISK TAKING IN INNOVATION AND NEW BUSINESS

BOARD
- SHAREHOLDER VALUE
  - PROFIT
  - LOSS
  - REPUTATION KPI'S

OPERATIONS
- HR: PERSONNEL: QUALITIES, AVAILABILITY
- FINANCE:
  - CASH FLOW
  - CAPITAL NEED
  - COST LEVEL
  - PROFIT MARGIN
- PRODUCTS
  - DEVELOPMENT
  - INNOVATION
  - PRODUCTION
  - LOGISTICS
  - INTERNAL
  - EXTERNAL
- QUALITY CONTROL
- RISK ASSESSMENT

LEGAL REQUIREMENTS
- HEALTH
- SAFETY
- SECURITY
- ENVIRONMENT
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

Air quality

THE PORT AUTHORITY
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

Air quality

THE PORT AUTHORITY

Water quality
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE?
THE PORT AUTHORITY? THE COMPANIES?

Air quality

THE PORT AUTHORITY

Water quality
Soil quality
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?
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THE PORT AUTHORITY
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE?
THE PORT AUTHORITY? THE COMPANIES?

Stakeholders/Influentials

Noise

Air quality

Health

Safety

Security

Sustainable logistics

Water quality

Soil quality

THE PORT AUTHORITY
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

Stakeholders/Influentials

Residents

Noise

Air quality

THE PORT AUTHORITY

Water quality

Soil quality

Port Authority and Environment: Who is responsible? The Port Authority? The Companies?

Sustainable logistics

Security

Health

Sustainable Logistic Chain
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

Stakeholders/Influentials

Residents

Companies

Air quality

Noise

The Port Authority

Residents

Companies

Sustainable logistics

Health

Safety

Security

Water quality

Soil quality
PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

Stakeholders/Influentials

Resident

Companies

And many other people

Air quality

Noise

Sustainable logistics

Water quality

Soil quality

Health

Safety

Security
HOW TO MANAGE THE PORT ENVIRONMENT COST EFFECTIVE?
THE ECOPORTS INITIATIVE IN EUROPE

Initiative 1: first design of environmental tools for ports
by port of amsterdam:hj, supported by, cardiff university: cw and lloyd’s register: pb

Initiative 2: independent neutral ECOPORTS FOUNDATION created
board members from ports of 1.amsterdam, 2.antwerp, 3.barcelona, 4.british ports association, 5.genua, 6.gothenburg, 7.hamburg, 8.rotterdam

Initiative 3: independent neutral auditor contracted: Lloyd’s Register

For an independent confirmation that your environmental management system is in place
THE ECOPORTS INITIATIVE IN EUROPE

AFTER 2010: ECOPORTS in and outside Europe

ECOSLC and Lloyd’s
with the support of ESPO:

permanent investment in adapting ECOPORTS
to new rules and policies
ECOPORTS: CERTIFICATION IN 3 STEPS

Step 1: ECOPORTS Introduction and Training Workshop

Step 2: Environmental Self Diagnosis Method: SDM
Field Recognition:

Step 3: Port Environmental Review System: PERS

Formal Recognition:
After review by independent collaborating partner: Lloyd’s Register

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**NEXT STEPS ARE EASIER**
With the understanding of Ecoports quality management

<table>
<thead>
<tr>
<th>Standard</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 26000:2010</td>
<td>Social Responsibility</td>
</tr>
<tr>
<td>ISO 9001:2008</td>
<td>Quality management</td>
</tr>
<tr>
<td>ISO 14001:2004</td>
<td>Environmental management</td>
</tr>
<tr>
<td>ISO 50001, TC 242</td>
<td>Energy Management</td>
</tr>
<tr>
<td>ISO/IEC 27001:2005</td>
<td>Information security</td>
</tr>
<tr>
<td>ISO 28000:2007</td>
<td>Supply chain security</td>
</tr>
<tr>
<td>ISO 22000:2005</td>
<td>Food safety</td>
</tr>
<tr>
<td>SA8000</td>
<td>Social Accountability</td>
</tr>
<tr>
<td>OHSAS 18000</td>
<td>Occupational Health and Safety</td>
</tr>
</tbody>
</table>
Welcome to the EcoPorts network

This page provides visibility and credit to ports that are currently part of the Network through the interactive map and the list below. The “EcoPort” status is obtained upon completion of a Self Diagnosis Method (SDM) checklist. The port is awarded in that way for providing data on the performance of its environmental management programme and for contributing in such way to the up-to-date maintenance of the ECOSLC International Benchmark of performance. Additional credit is provided to ports that are certified with PERS, the only port-sector specific environmental management standard, and ISO 14001.
Port’s own employees deliver interesting RESULTS

- “Cost reductions higher than investment in environmental management system” *
- Environmental risk reductions
- Improved environmental reputation with government and permits authorities
- Companies positive to invest in less environmentally risky places

* Conclusion of Study European Commission impact of introduction of an environmental management system
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions

3. Ecoports, a first step in Port Environmental Management and Certification
   A. Supported by the European Seaports Organisation, ESPO, and the American Association of Port Authorities, AAPA.
   B. Ecoports certification in 3 steps

C. RESULTS: AN EXAMPLE

Conclusions
ECO SLC
Sustainable Logistic Chain

**ECOPORTS DELIVERS POLICY INFORMATION**

**ECOPORTS SDM BENCHMARKING RESULTS: TOP 10 PORT ENVIRONMENT ISSUES**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Development (water)</td>
<td>Garbage / Port waste</td>
<td>Noise</td>
<td>Air quality</td>
</tr>
<tr>
<td>2</td>
<td>Water quality</td>
<td>Dredging: operations</td>
<td>Air quality</td>
<td>Garbage/ Port waste</td>
</tr>
<tr>
<td>3</td>
<td>Dredging disposal</td>
<td>Dredging disposal</td>
<td>Garbage / Port waste</td>
<td>Energy Consumption</td>
</tr>
<tr>
<td>4</td>
<td>Dredging: operations</td>
<td>Dust</td>
<td>Dredging: operations</td>
<td>Noise</td>
</tr>
<tr>
<td>5</td>
<td>Dust</td>
<td>Noise</td>
<td>Dredging: disposal</td>
<td>Ship waste</td>
</tr>
<tr>
<td>6</td>
<td>Port Development (land)</td>
<td>Air quality</td>
<td>Relationship with local community</td>
<td>Relationship with local community</td>
</tr>
<tr>
<td>7</td>
<td>Contaminated land</td>
<td>Hazardous cargo</td>
<td>Energy consumption</td>
<td>Dredging: operations</td>
</tr>
<tr>
<td>8</td>
<td>Habitat loss / degradation</td>
<td>Bunkering</td>
<td>Dust</td>
<td>Dust</td>
</tr>
<tr>
<td>9</td>
<td>Traffic volume</td>
<td>Port Development (land)</td>
<td>Port Development (water)</td>
<td>Port development (land)</td>
</tr>
<tr>
<td>10</td>
<td>Industrial effluent</td>
<td>Ship discharge (bilge)</td>
<td>Port Development (land)</td>
<td>Water quality</td>
</tr>
</tbody>
</table>
EFFICIENCY IMPROVEMENT: PORT INSPECTIONS BY AUTHORITIES

BEFORE: 21 AUTHORITIES

TRADITIONALLY:
21 SEPARATE INSPECTION AUTHORITIES
TO CONTROL PORT ACTIVITIES
EFFICIENCY IMPROVEMENT: PORT INSPECTIONS BY AUTHORITIES

BEFORE: 21 AUTHORITIES

TRADITIONALLY:
21 SEPARATE INSPECTION AUTHORITIES TO CONTROL PORT ACTIVITIES

AFTER: 2 AUTHORITIES

RENEWED SUPERVISION AND CONTROL IN SEAPORTS NETHERLANDS: 2 INSPECTION ORGANISATIONS

SEAPORT

SEAPORT
ECOLOGICAL PORTS CERTIFICATION, SUPPORTED BY STAKEHOLDERS: DIRECTORS OF ALL COMPANIES OF THE PORT
1. The World Changes: new sustainable Ports and Logistics needed

2. Proven Practical Ports and Logistics Solutions

3. Ecoports, a first step in Port Environmental Management and Certification

CONCLUSIONS
1. New management systems for ports and logistics lead to improvements of their environmental impact by sharing chain data and daily practice experience.

2. Environmental improvement can be combined with cost reductions: ECOPORTS certification starts the process.
THANK YOU