

## GLOBAL PORTS AND LOGISTICS STRATEGY



HERMAN JOURNÉE

CHAIRMAN ECO SUSTAINABLE LOGISTIC CHAIN FOUNDATION

MEMBER STEERING GROUP of ALLIANCE LOGISTICS INNOVATION THROUGH COLLABORATION IN EUROPE (ALICE)

# CONTENT

**ECO SLC**

Sustainable Logistic Chain

**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**

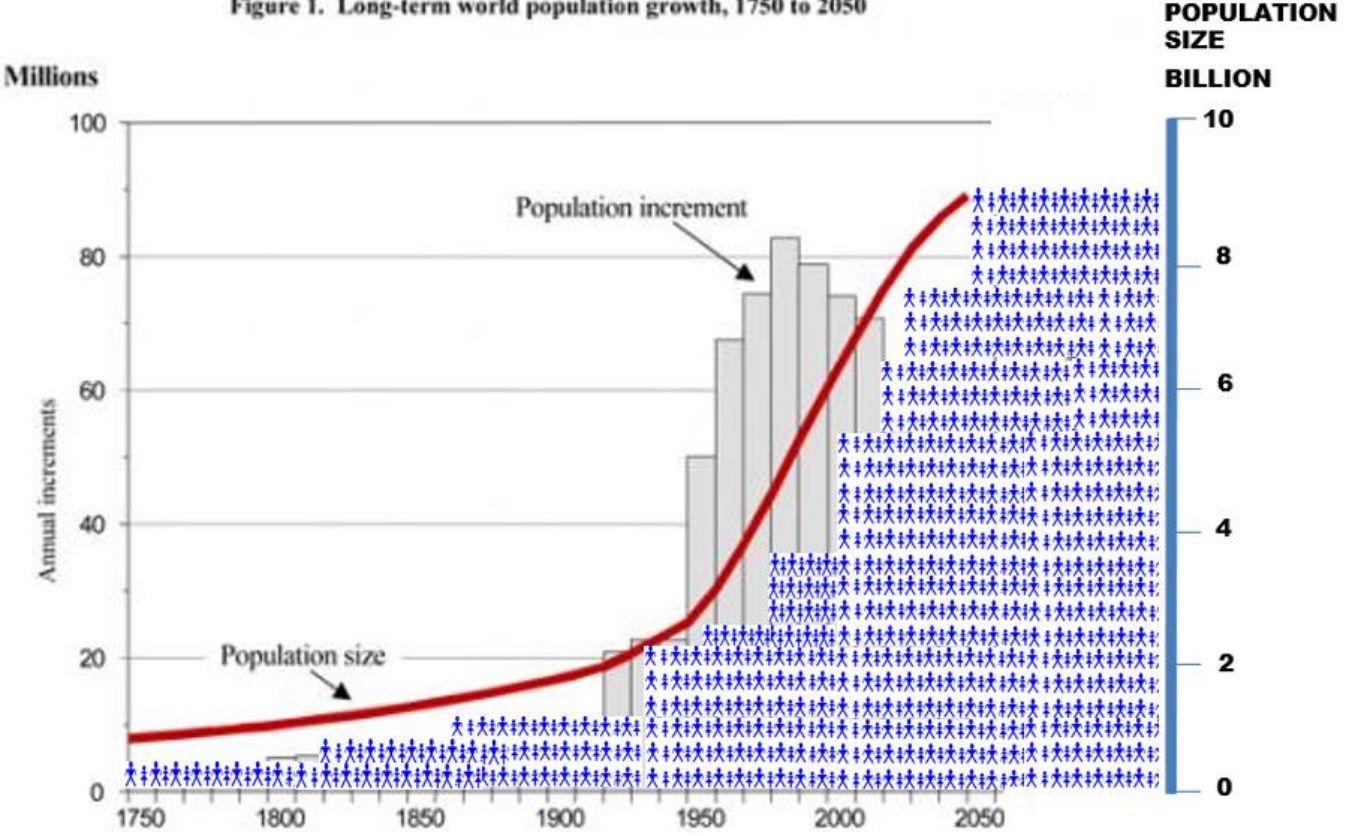
#### **Conclusions**

# POPULATION: SUBSTANTIAL GROWTH

United Nations



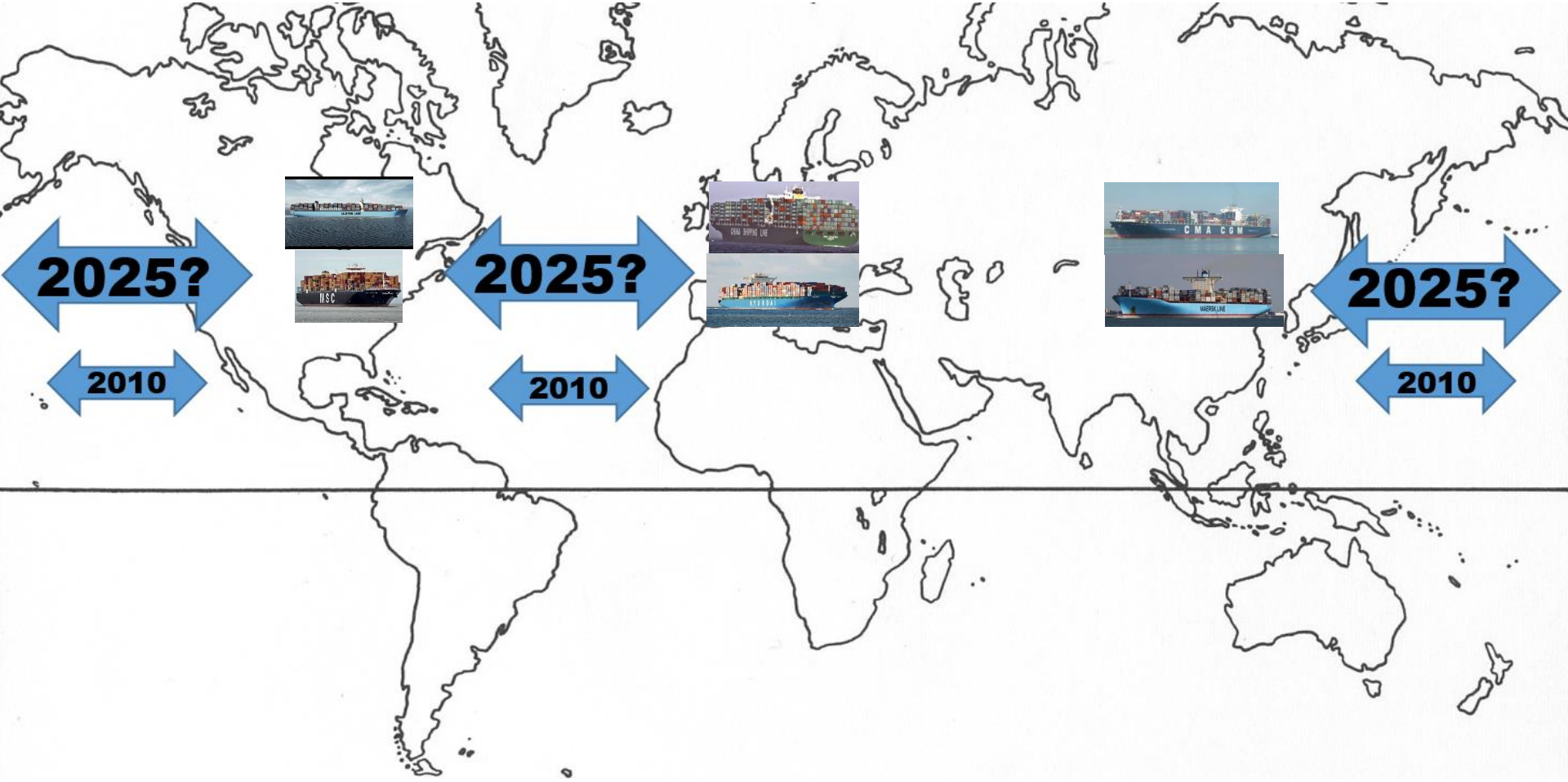
Figure 1. Long-term world population growth, 1750 to 2050



## CONSUMPTION INCREASES STRONGLY Sustainable Logistic Chain



## WILL TRANSPORT VOLUME DOUBLE?



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

### **1. Growth**

## **2.SCALE**

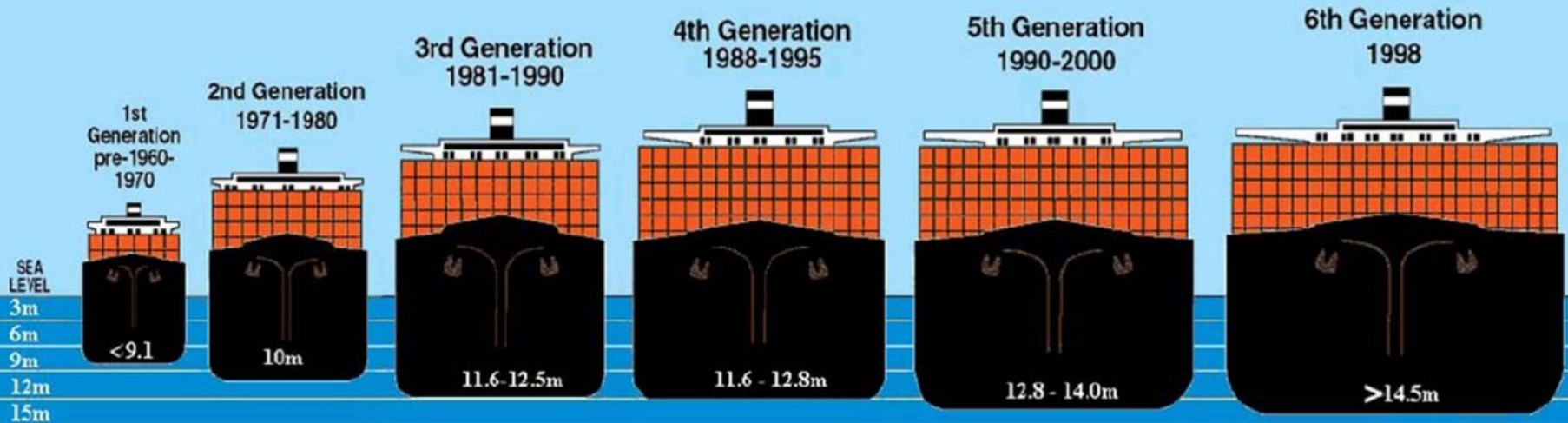
### **2. Proven Practical Ports and Logistics Solutions available**

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

### **Conclusions**

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

### Evolution of Container Ships



### ....AND IN THE PORTS



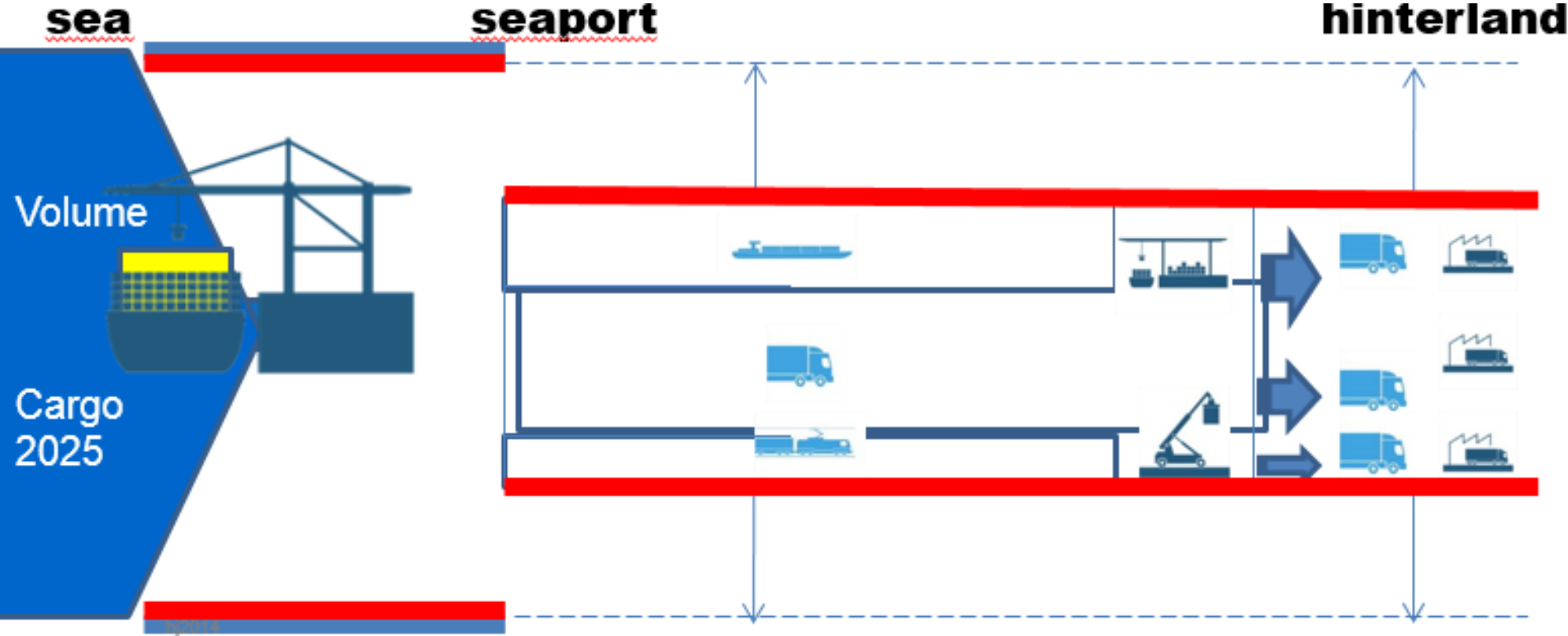
2003  
**18 M**



2013  
**59 M**

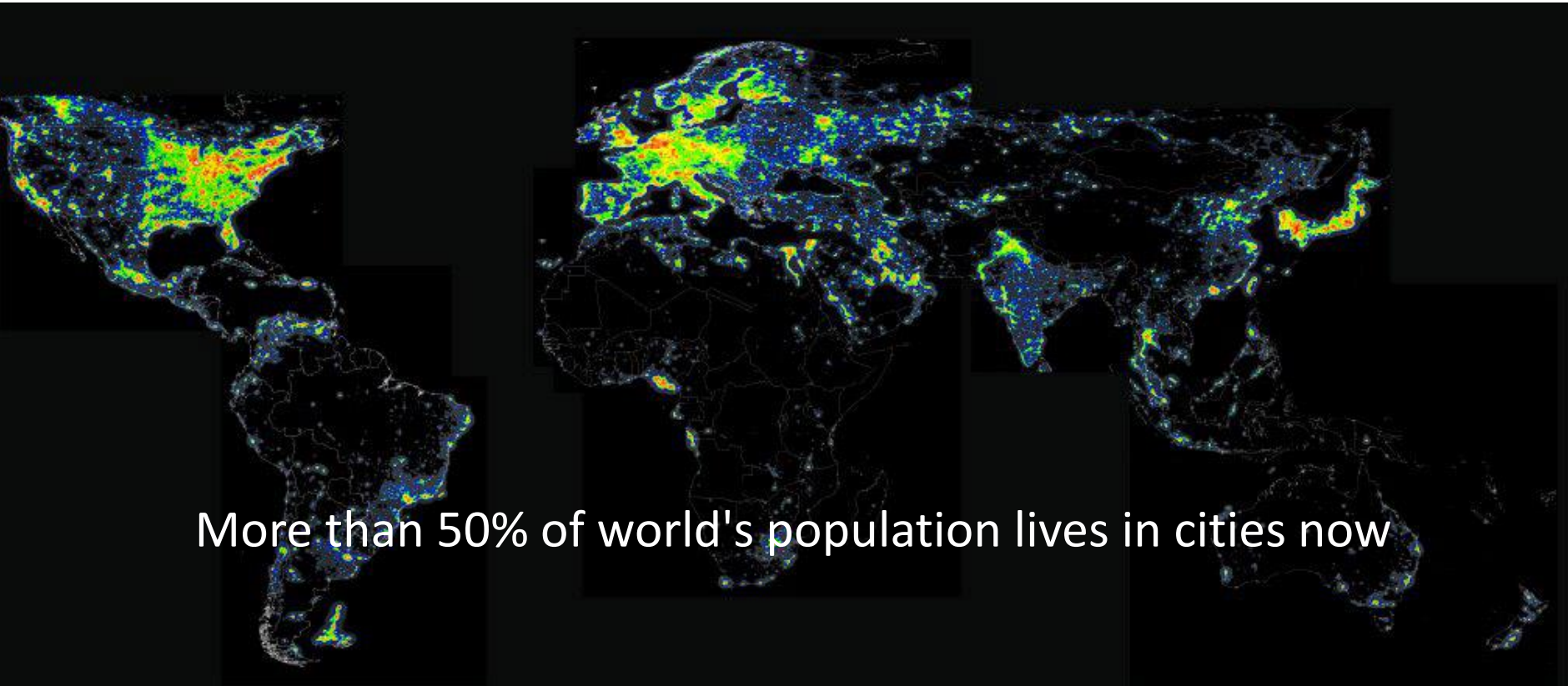


# THE PORT HINTERLAND SYSTEM: A SCALE PROBLEM?



**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

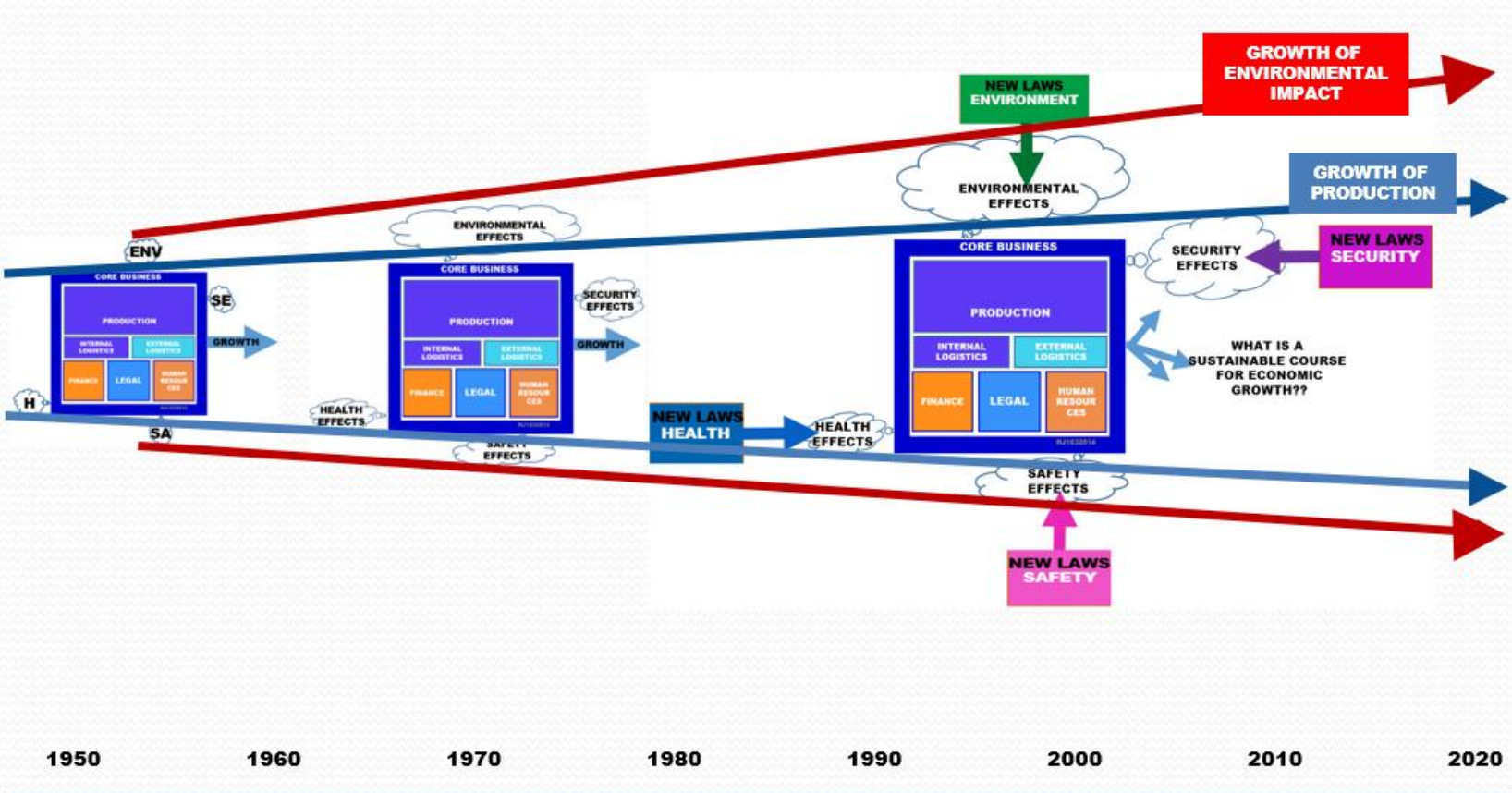
## **3. ENVIRONMENTAL EFFECTS**

### **2. Proven Practical Ports and Logistics Solutions available**

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

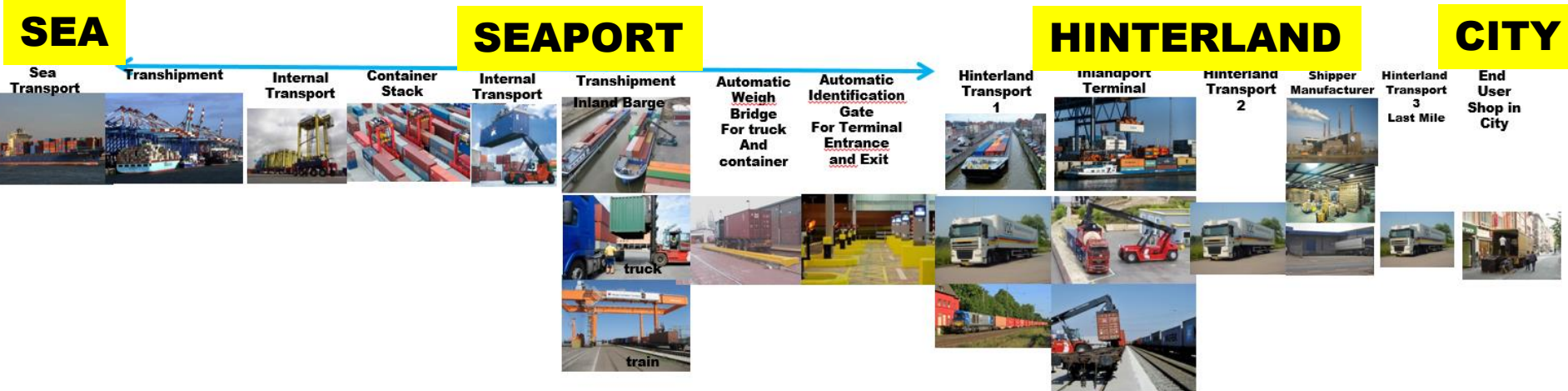
### **Conclusions**

## MORE GROWTH, MORE ENVIRONMENTAL IMPACT

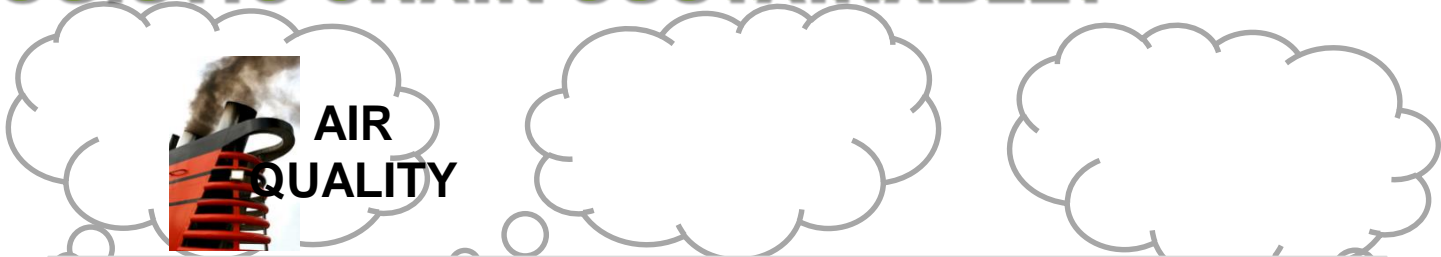


# **WHAT ROLE FOR A SEAPORT?**

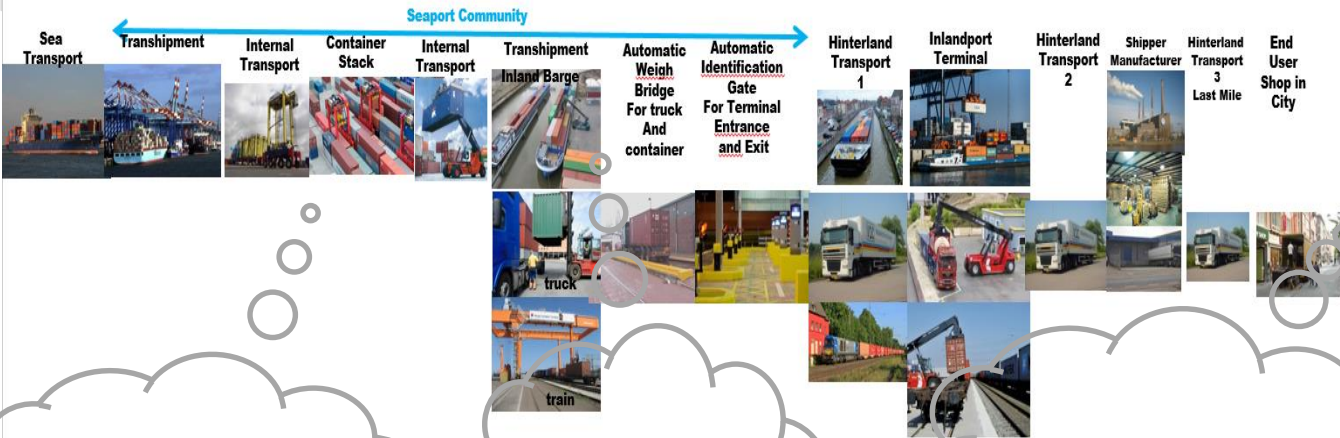
## SEAPORT IS NO LONGER A SOLO ORGANISATION BUT PART OF A LOGISTIC CHAIN



## IS A LOGISTIC CHAIN SUSTAINABLE?



### THE PARTNERS IN CARGO TRANSPORT



## IS A LOGISTIC CHAIN SUSTAINABLE?



### THE PARTNERS IN CARGO TRANSPORT

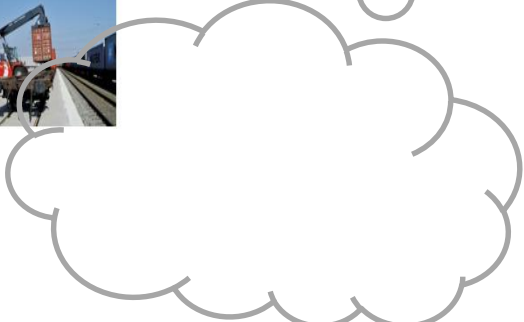
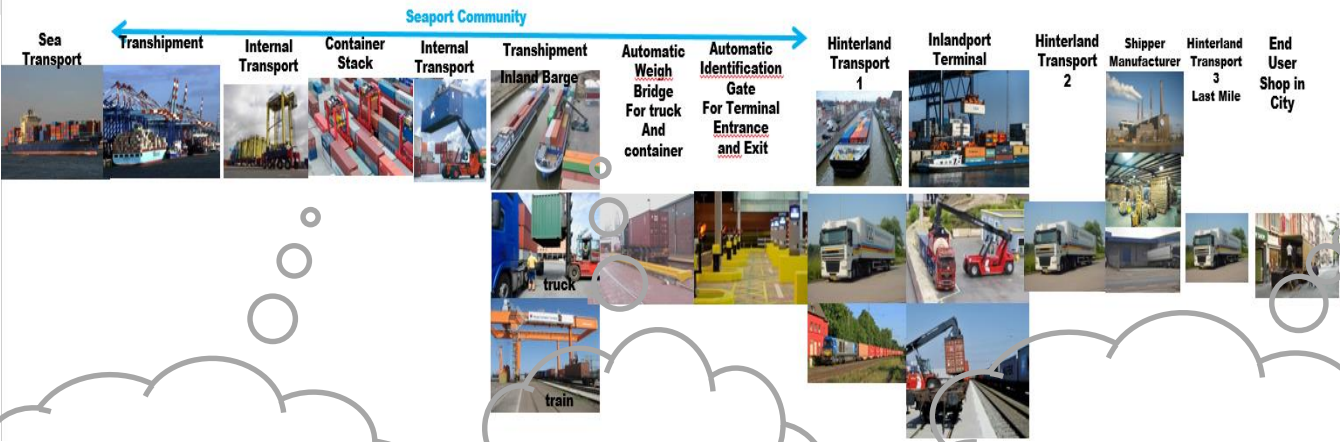




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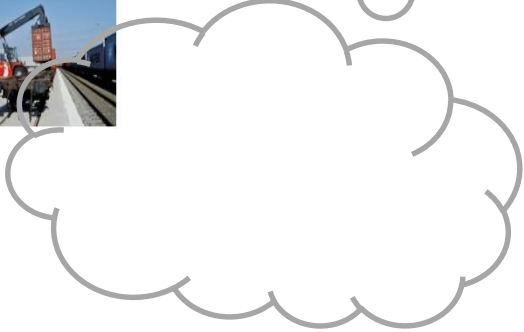
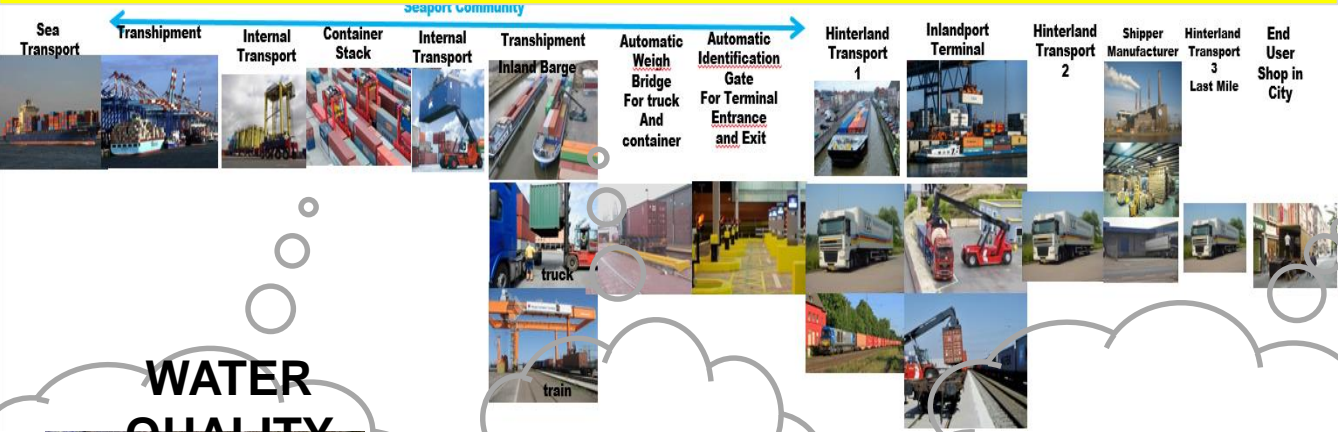
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## IS A LOGISTIC CHAIN SUSTAINABLE?



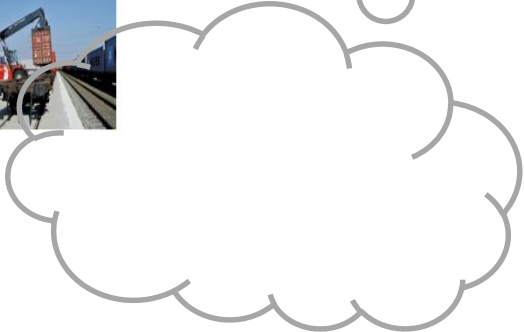
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## IS A LOGISTIC CHAIN SUSTAINABLE?



### THE PARTNERS IN CARGO TRANSPORT



## IS A LOGISTIC CHAIN SUSTAINABLE?



**IS A LOGISTIC CHAIN SUSTAINABLE?**

**NO !**

**A SUSTAINABLE PORTS AND LOGISTICS STRATEGY  
IS NEEDED**

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

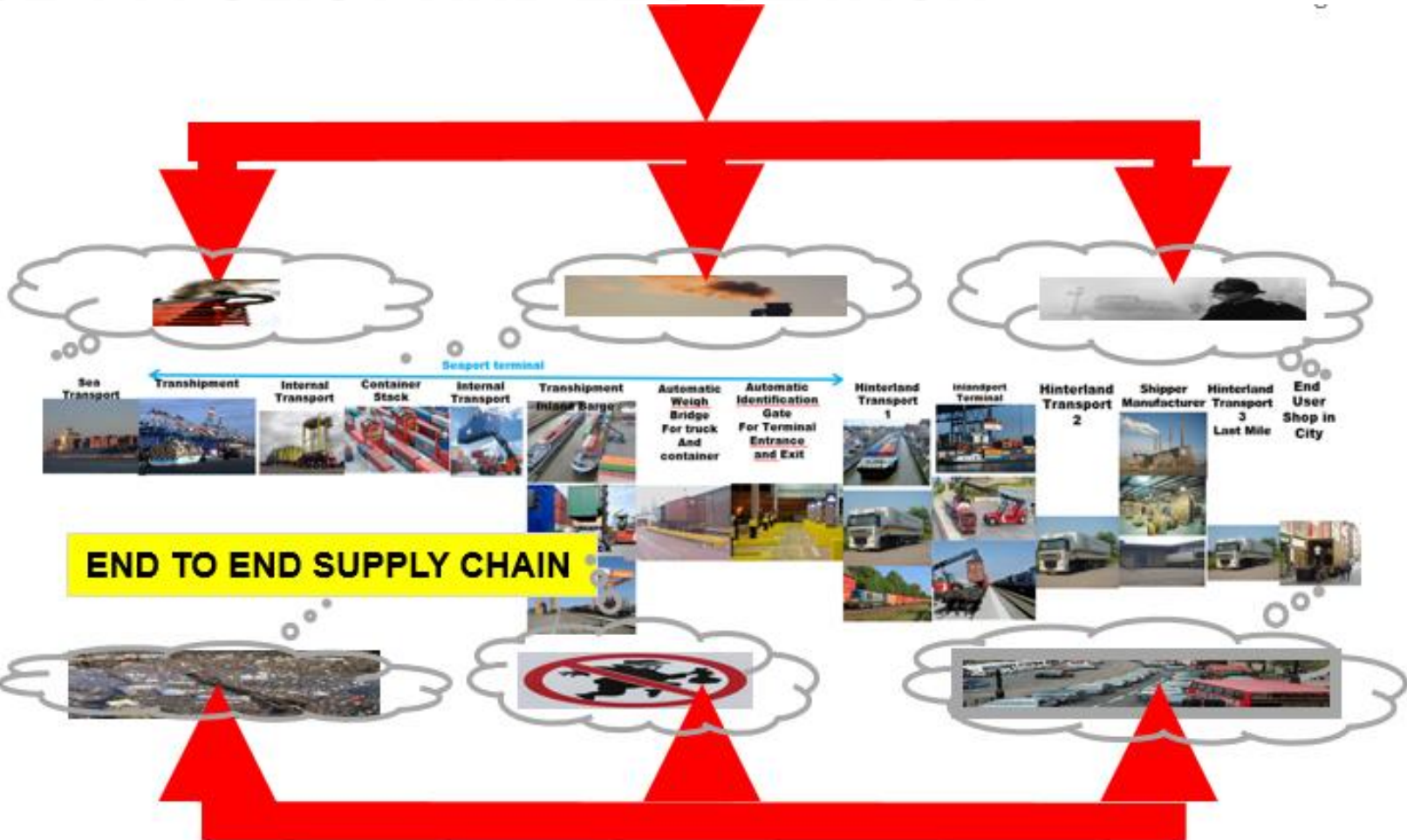
**2. Proven Practical Ports and Logistics Solutions available**

**1. 3 TOOLS TO REDUCE ENVIRONMENTAL EFFECTS**

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

**Conclusions**

## TOOL 1 : POLICY AND LEGISLATION



**POLICY AND LEGISLATION  
REDUCE ENVIRONMENTAL IMPACT**

## **TOOL 2: ENVIRONMENTAL MANAGEMENT SYSTEMS**

### ECOPOINTS 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. Transshipment 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
- 16. Fire Brigade
- 8. Customs Inspection
- 17. Food Inspection
- 18. Environment Inspection
- 19. Veterinary Inspection
- 20. City Planning
- 21. Port Authority
- 22. Coast Guard

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**PROVEN SOLUTIONS FOR  
SUSTAINABLE PORTS, TRANSPORT AND LOGISTICS  
ARE AVAILABLE**

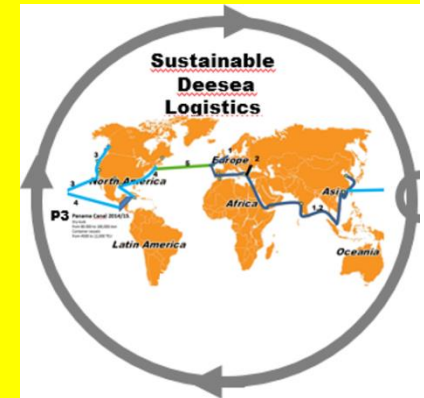
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1. 3 Tools to reduce environmental effects

## 2. SUSTAINABLE PORTS AND LOGISTICS

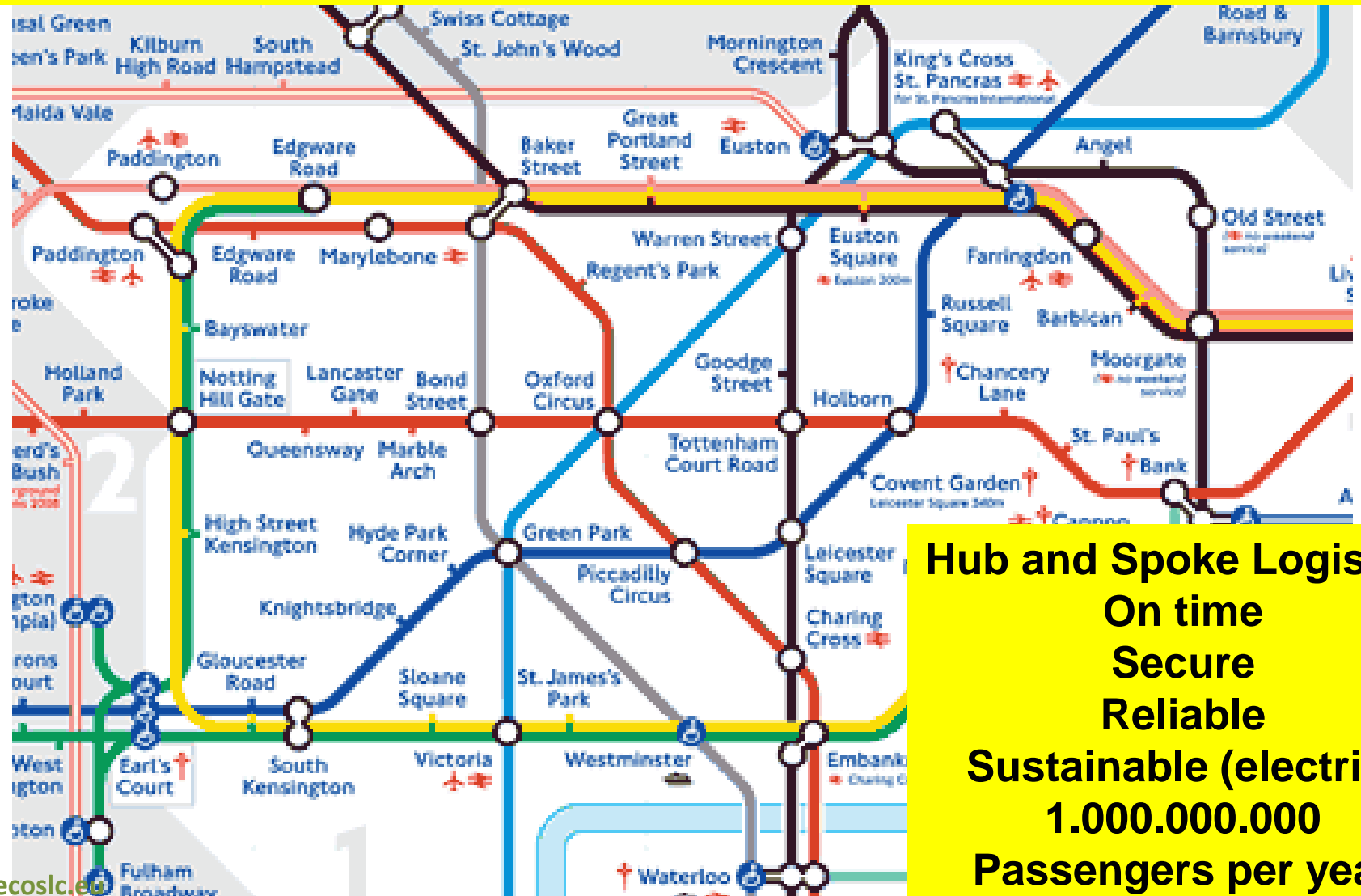
### A.SEA LOGISTICS



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

### Conclusions

## THE MODEL: METRO LOGISTICS INTER-CONNECTED CIRCLE LINES

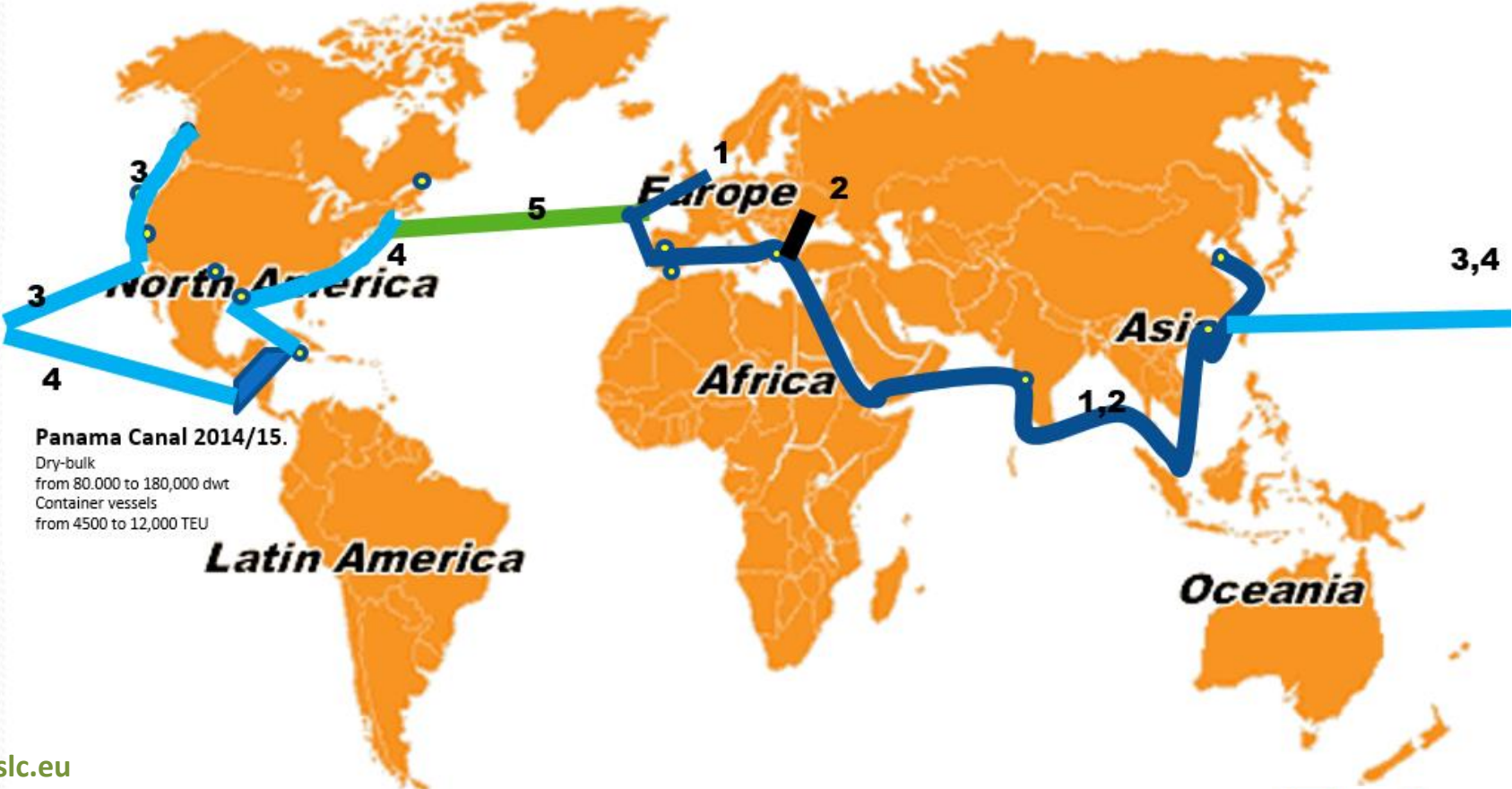


**Hub and Spoke Logistics**  
**On time**  
**Secure**  
**Reliable**  
**Sustainable (electric)**  
**1.000.000.000**  
**Passengers per year**

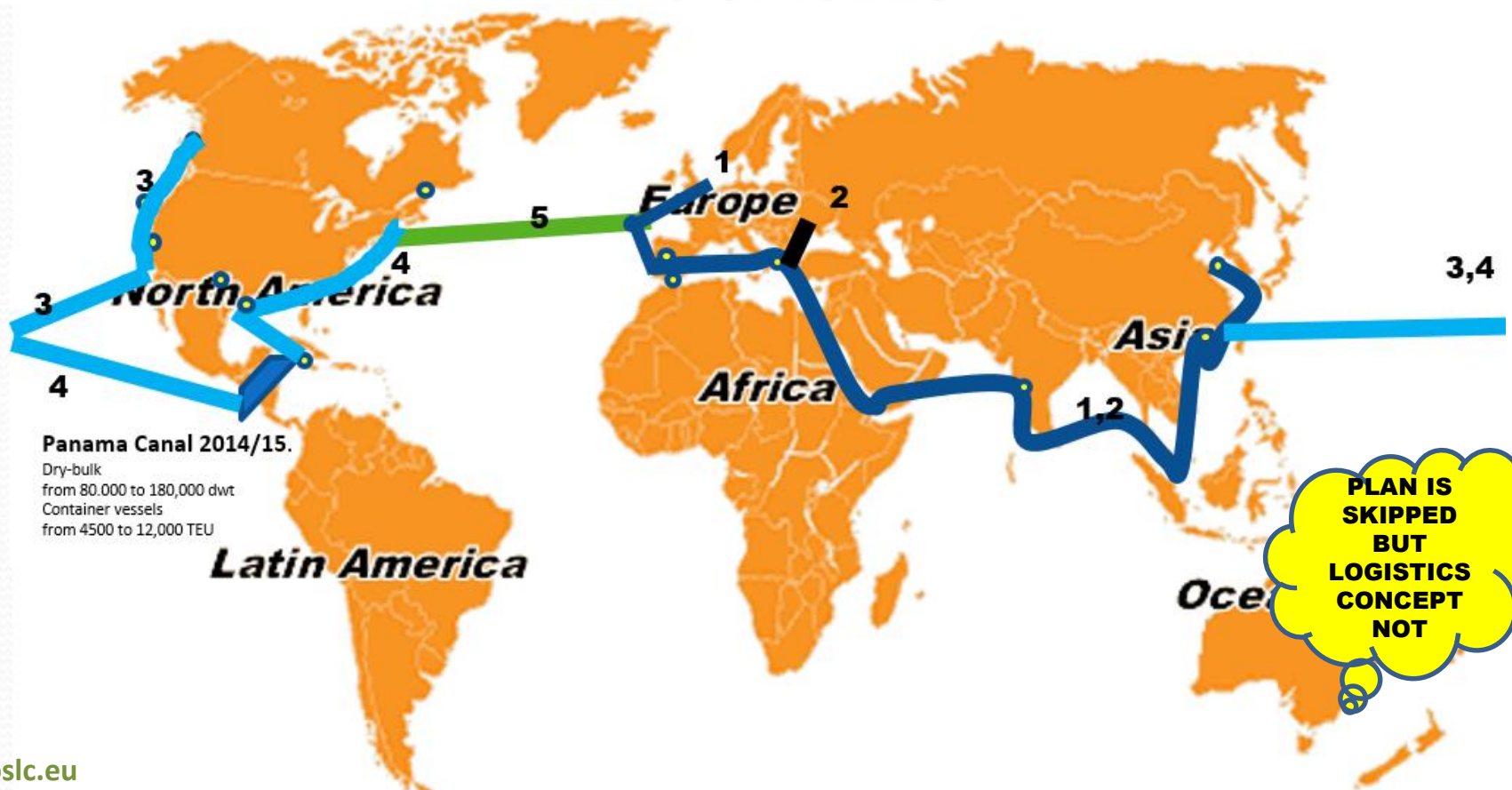
## 2011: Daily Maersk: 70 ships create a conveyor belt on deep seas: CIRCLE LINES Approach on Deep Seas



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



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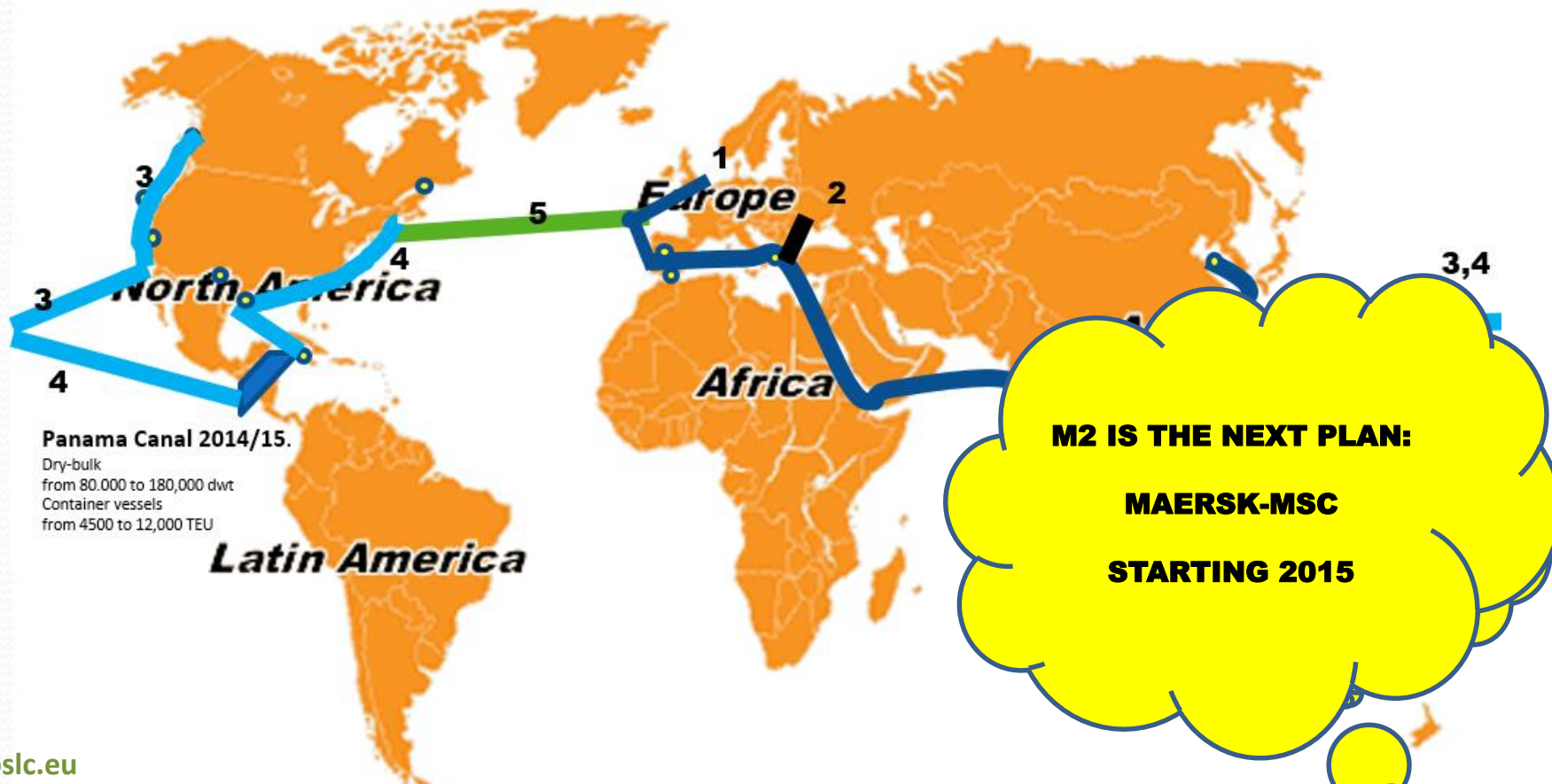
Panama Canal 2014/15.

Dry-bulk  
from 80,000 to 180,000 dwt  
Container vessels  
from 4500 to 12,000 TEU

PLAN IS SKIPPED  
BUT  
LOGISTICS  
CONCEPT  
NOT



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



# THE TRANSPORT TOOL: THE MEGA CONTAINERSHIP



## FROM SEAPORT TO HINTERLAND: 70% of port hinterland transport by truck (Europe)



**Truck needs 68.75 meter**



**Road Capacity**

## 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**



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## MORE ROAD CAPACITY NEEDED?



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

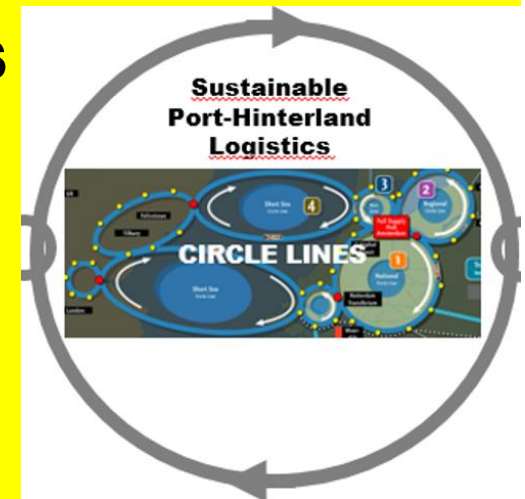
## 2. Proven Practical Ports and Logistics Solutions available

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



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## SUFFICIENT CAPACITY AVAILABLE ! just organize it

**WAITING?**

**So enough capacity available**



**EMPTY SAILING OR DRIVING?**

**So enough capacity available**



**EMPTY CONTAINER TRANSPORT?**

**So enough capacity available**

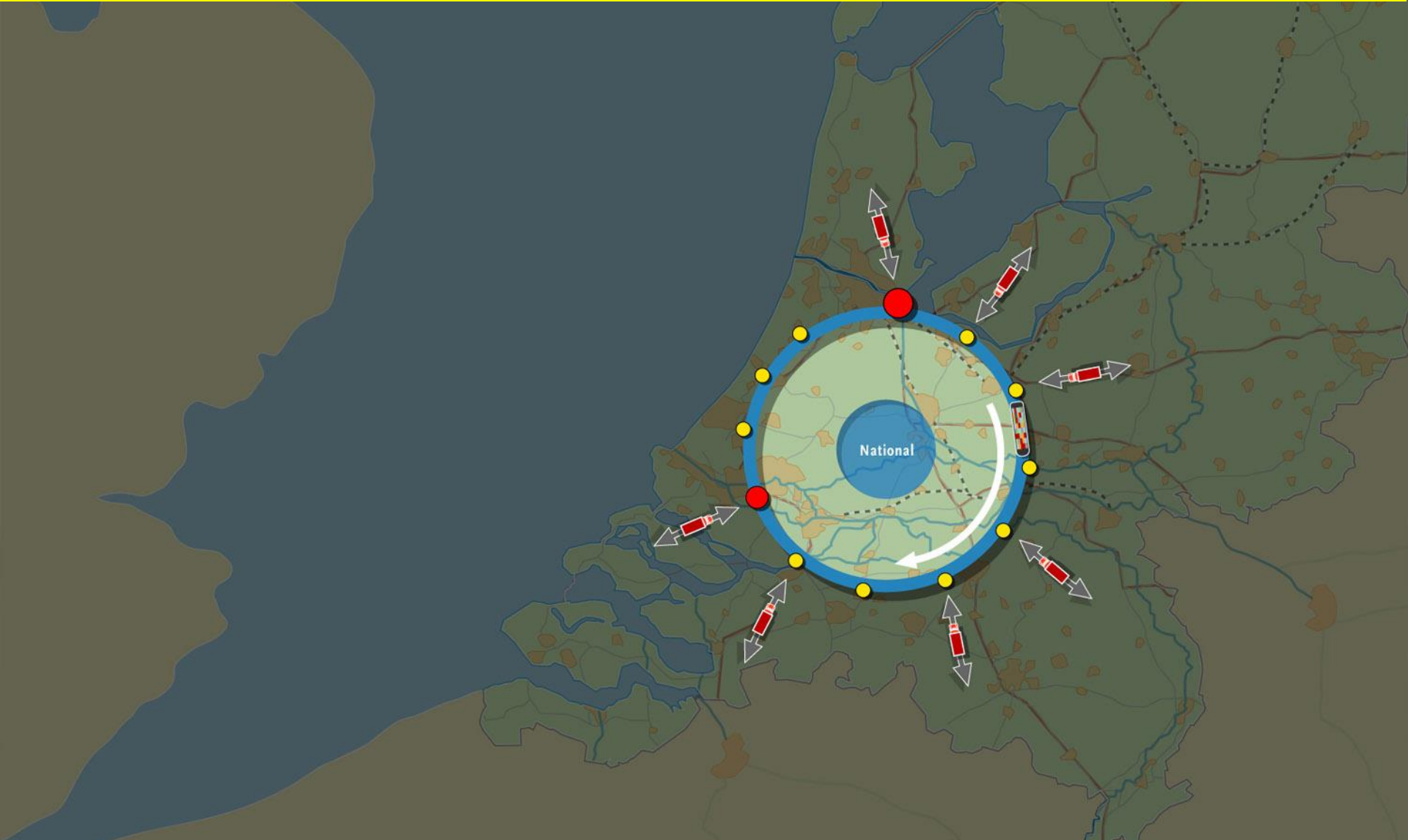


**World Economic Forum study Europe 2009:**

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

# **CIRCLE LINES: Sustainable Port Hinterland Logistics**

**Sharing free capacity in daily services with fixed time schedules**

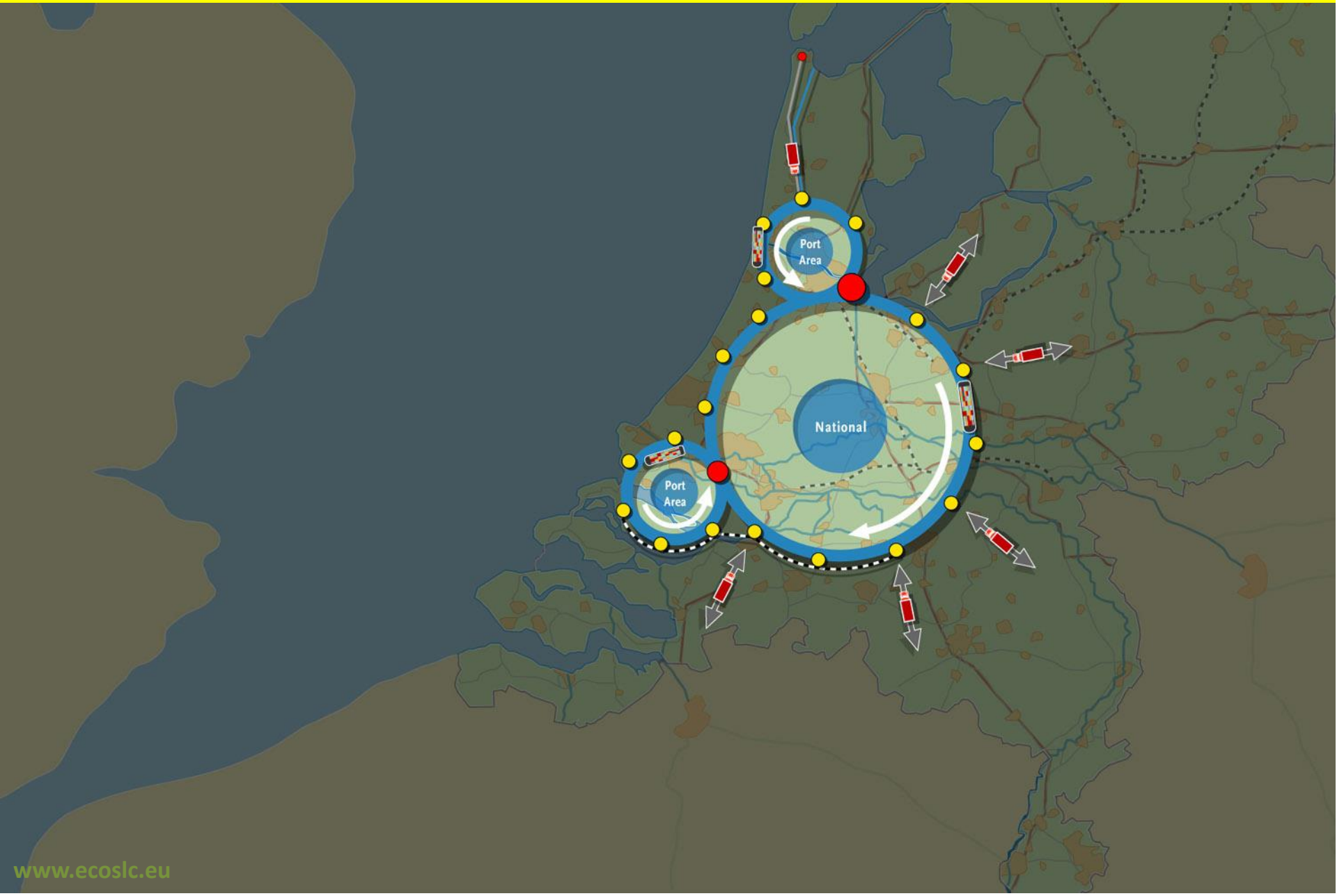


**CIRCLE LINE: COOPERATIVE OF ALL CHAIN PARTNERS:**

**SHIPPER, SHIPPING LINE, SEAPORT TERMINAL, INLAND TERMINAL, TRUCKING, BARGE**

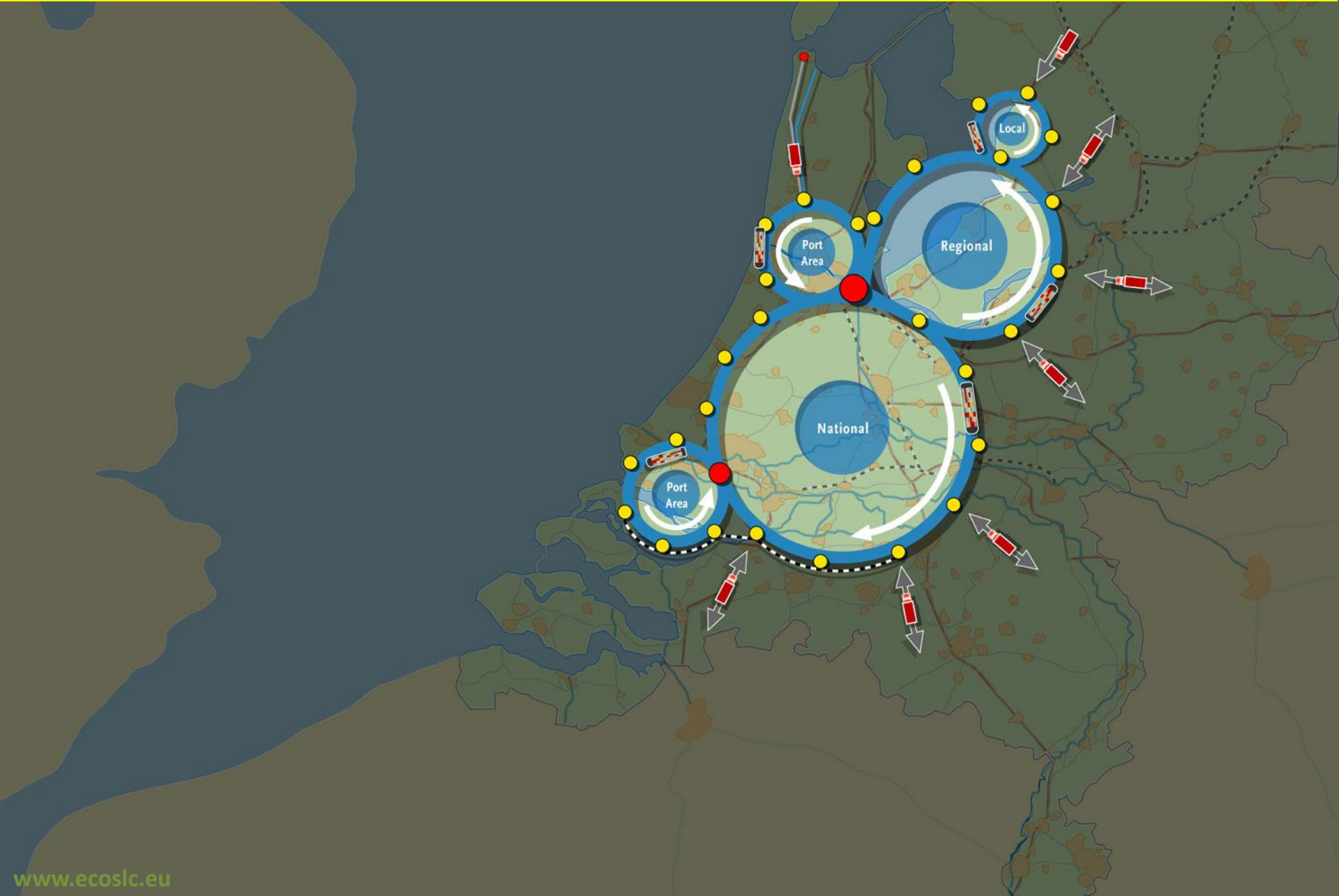
# CIRCLE LINES: Sustainable Port Hinterland Logistics

Sharing free capacity in daily services with fixed time schedules



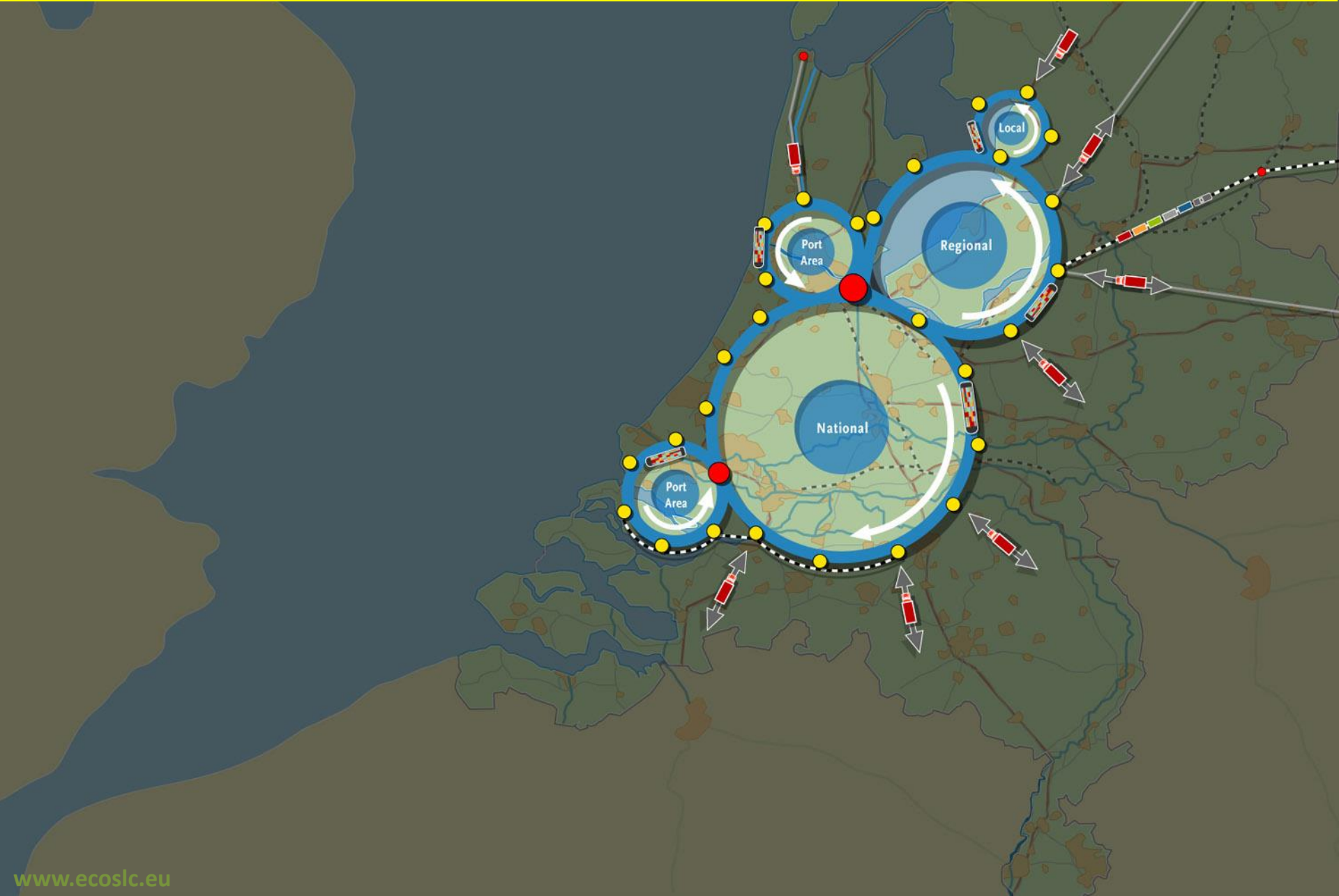
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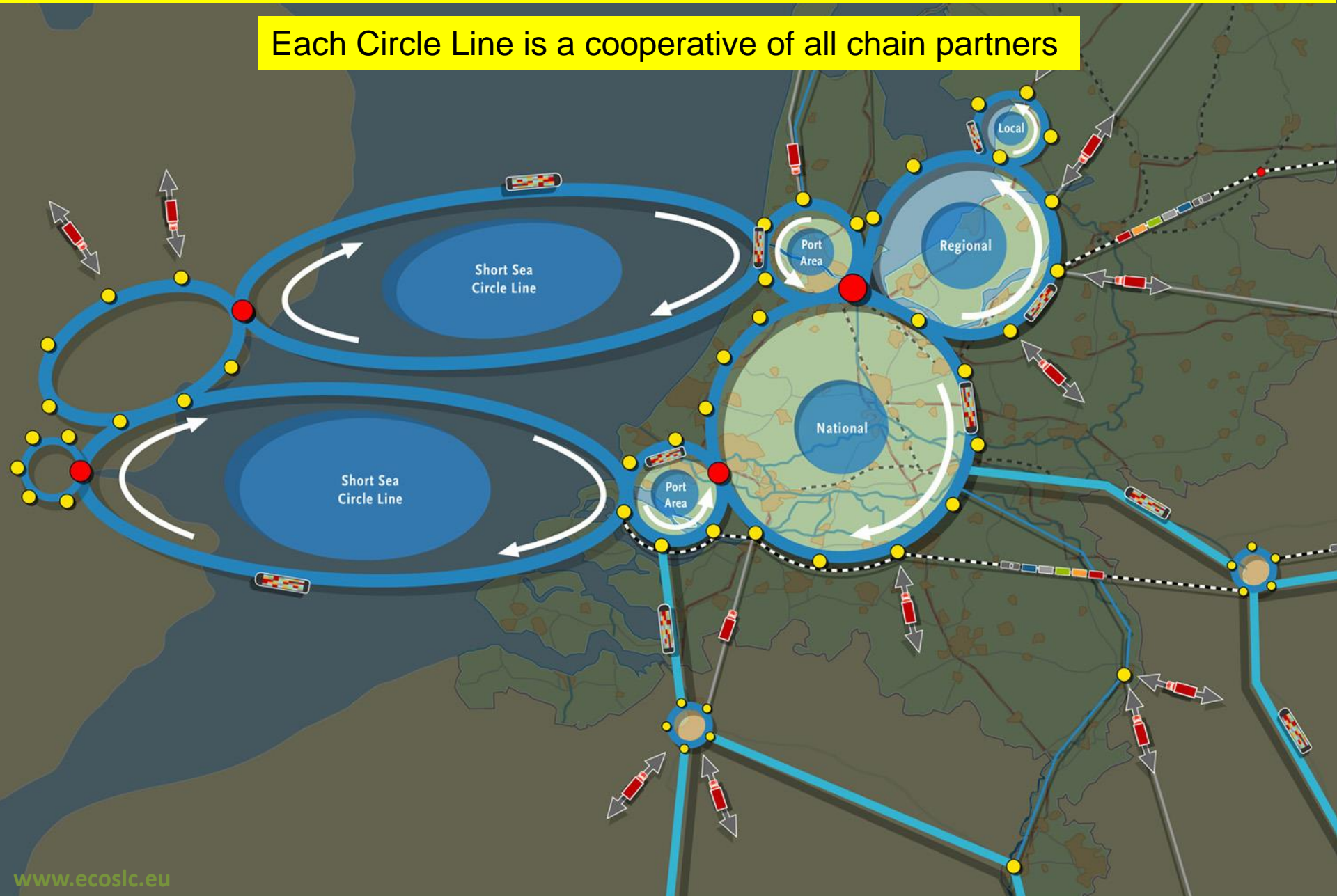
Sharing free capacity in daily services with fixed time schedules



# CIRCLE LINES: Sustainable Port Hinterland Logistics

Sharing free capacity in daily services with fixed time schedules

Each Circle Line is a cooperative of all chain partners

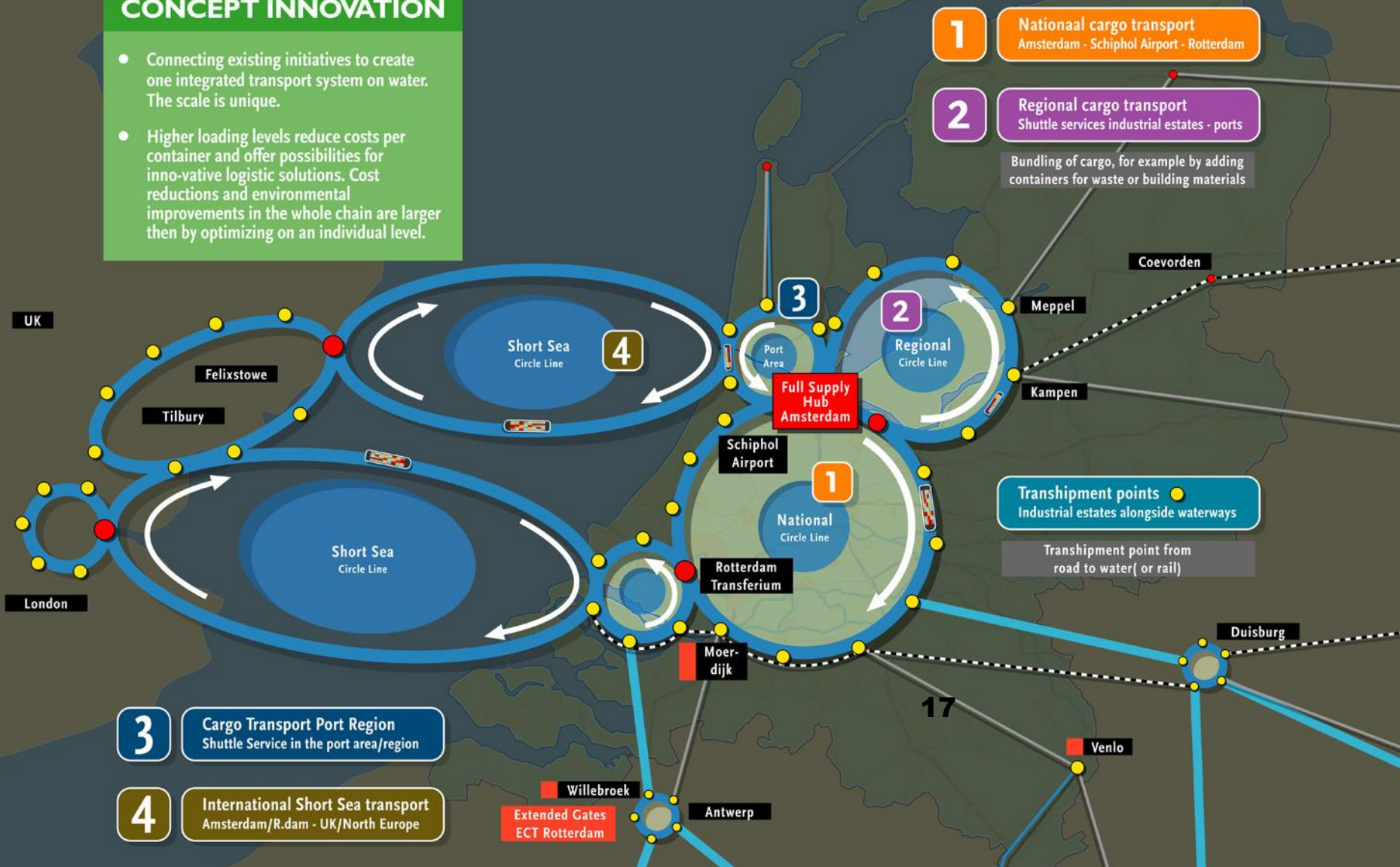


# CIRCLE LINES: Sustainable Port Hinterland Logistics

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 than 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**

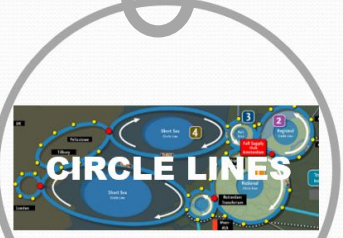
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## **RESULTS**

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

**Conclusions**

## RESULTS: A WORLDWIDE SUSTAINABLE PORTS AND LOGISTICS SYSTEM



	<b>Reliability</b> Guaranteed on time delivery	<b>Cost Reductions</b> per container	<b>Environmental Improvement</b> per container/package
DAILY MAERSK	X	30% Compared to standard ship	X
CIRCLE LINES	X	5—50% Including new income from new added value activities	5-80%
E-COMMERCE CITY LOGISTICS	X	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**

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**Conclusions**



**ECO SLC**

# **ECO PORTS ENVIRONMENTAL MANAGEMENT SYSTEM FOR PORTS**

**Supported by AAPA-ESPO**



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# **ENVIRONMENT IS HIGH ON THE PORT'S AGENDA WORLDWIDE**



# THE ENVIRONMENTAL REPUTATION OF PORTS WORLDWIDE

**ON A LOW LEVEL !**





**MANY ACTIONS**

**TO FORCE PORTS**

**TO REDUCE THESE ENVIRONMENTAL EFFECTS.**

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## EUROPEAN COMMISSION: “PORTS, BE MORE SUSTAINABLE!”

Dimitrios Theologitis – Head of Unit  
European Commission Ports & Inland Navigation  
April 2012

### 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

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



Birds and Habitats Directive, Natura 2000

Sulphur Content of Marine Fuels Pollution from Ships

Port Reception Facilities Water Framework Directive

Greenhouse Gas Emissions White paper- Road map to a Single European Transport Area

National Emissions Ceilings Environmental Noise Soil Framework Directive



Regulation on Shipment of Waste Waste Framework Directive Marine Strategy Framework

Supplementary Directive of Priority Substances

Ambient Air Quality Maritime Spatial Planning

### POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT

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## POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT

**AND FINES!!!**  
PORT COSTS

**..AND STOPPING PORT OPERATIONS**  
PORT COSTS

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PORT COSTS

**..AND STAKEHOLDERS' POLITICAL INFLUENCE**



Supplementary Directive of Priority Substances

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**POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT**

PORT COSTS

**..AND FINES!!!**

PORT COSTS

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Regulation on Shipment of ...

National Environmental Soil Framework

PORT COSTS

**..AND STAY POLITICAL**

PORT INCOME

CLEAN ENERGY FINANCING & INVESTMENT TOTALS SINCE ENVIRONMENTAL POLICY FRAMEWORK

(\$ in bn)



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

**POLICY AND LEGISLATION REDUCE ENVIRONMENTAL IMPACT**



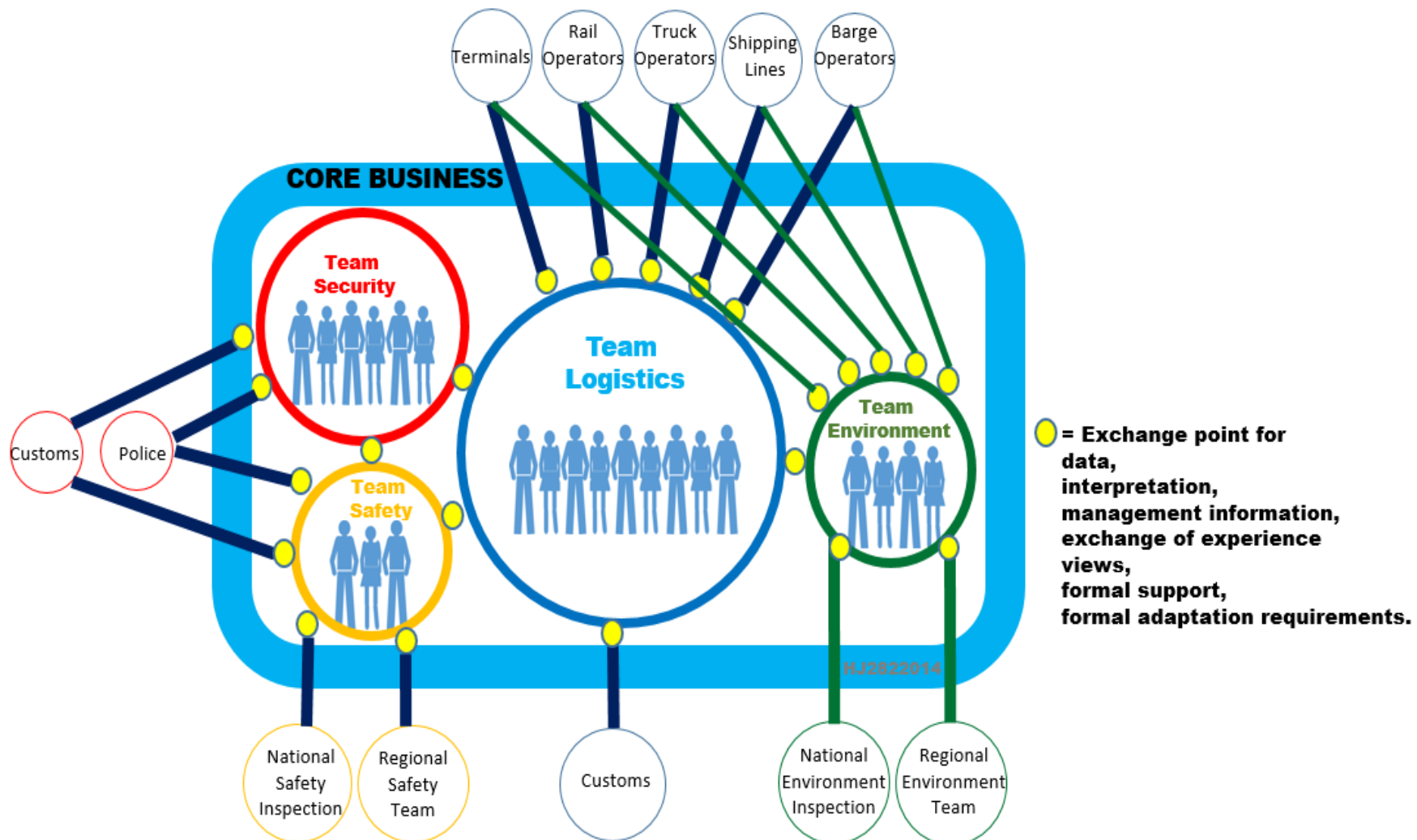
# PORT AUTHORITY ORGANIZATION:

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

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## MANAGEMENT OF LEGAL REQUIREMENTS IMPLEMENTATION



# IS YOUR ORGANIZATION IN CONTROL? **ECO SLC**

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## 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

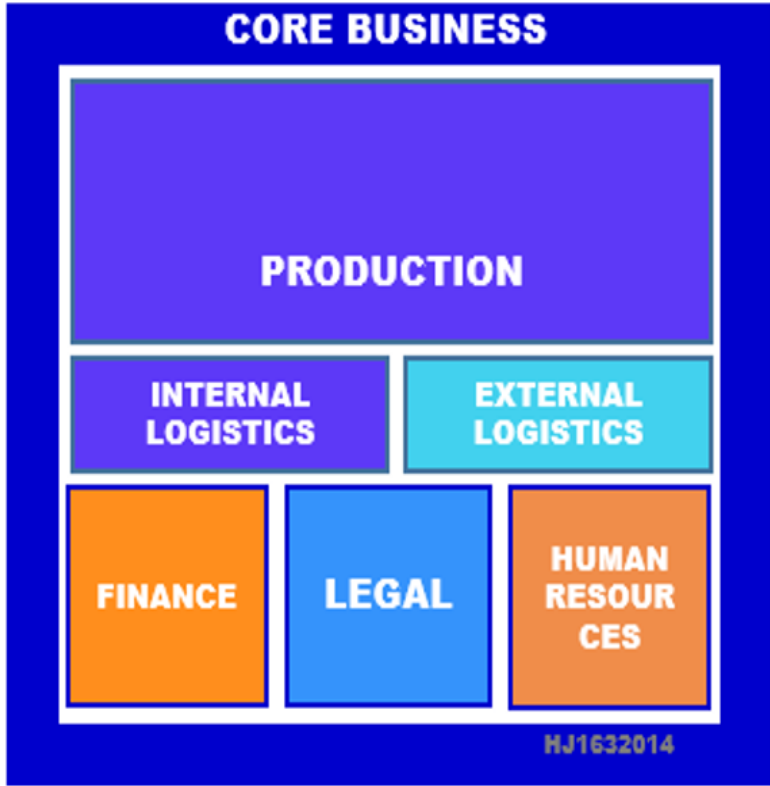
- HR: PERSONNEL: QUALITIES, AVAILABILITY
- FINANCE:
  - CASH FLOW
  - CAPITAL NEED
  - COST LEVEL
  - PROFIT MARGIN

- 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?

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

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Air  
quality



Water  
quality



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

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Air  
quality



Water  
quality

Soil  
quality



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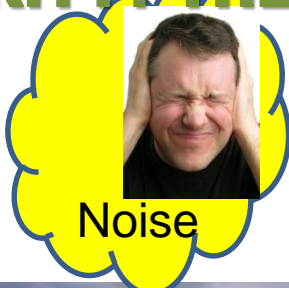




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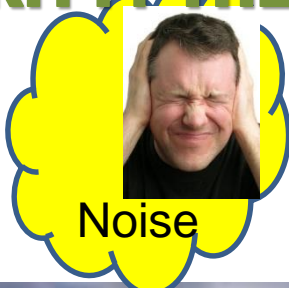




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# PORT AUTHORITY AND ENVIRONMENT: WHO IS RESPONSIBLE? THE PORT AUTHORITY? THE COMPANIES?

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Stakeholders/  
Influentials



Noise

Air  
quality

health

**THE PORT AUTHORITY**



safety

security



Sustainable  
logistics

Water  
quality

Soil  
quality



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

**ECO SLC**

Sustainable Logistic Chain

Stakeholders/  
Influentials

Residents



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



Companies



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

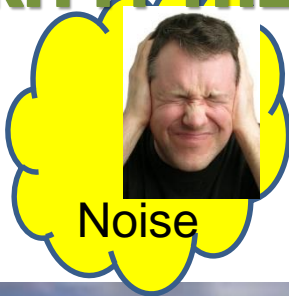
Residents



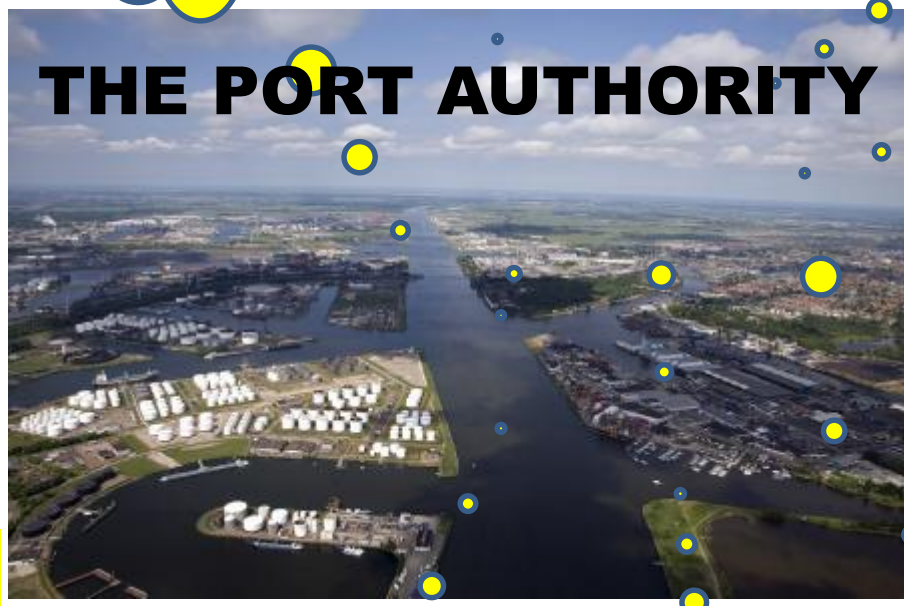
Companies



And many other people



Air  
quality



health

safety

  
security

Sustainable  
logistics

Water  
quality

Soil  
quality

**ECO SLC**

Sustainable Logistic Chain

# **HOW TO MANAGE THE PORT ENVIRONMENT COST EFFECTIVE?**



**ECO SLC**

Sustainable Logistic Chain

# **THE ECO PORTS 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 ECO PORTS FOUNDATION created**

board members from ports of 1.amsterdam, 2.antwerp, 3.barcelona, 4.british ports association, 5.genua, 6.göteborg, 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 ECO PORTS INITIATIVE IN EUROPE

## AFTER 2010: ECO PORTS in and outside Europe

ECOSLC and Lloyd's  
with the support of ESPO:

permanent investment in adapting ECO PORTS

to new rules and policies

## ECO PORTS: CERTIFICATION IN 3 STEPS

**Step 1:** ECO PORTS Introduction and Training Workshop

**Step 2:** Environmental Self Diagnosis Method: SDM

Formal Recognition:



**Step 3:** Port Environmental Review System: PERS

Formal Recognition:

After review by  
independent collaborating  
partner: Lloyd's Register



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

<b>Standard</b>	<b>Sector</b>
<b>ISO 26000:2010</b>	<b>Social Responsibility</b>
<b>ISO 9001:2008</b>	<b>Quality management</b>
<b>ISO 14001:2004</b>	<b>Environmental management</b>
<b>ISO 50001, TC 242</b>	<b>Energy Management</b>
<b>ISO/IEC 27001:2005</b>	<b>Information security</b>
<b>ISO 28000:2007</b>	<b>Supply chain security</b>
<b>ISO 22000:2005</b>	<b>Food safety</b>
<b>SA8000</b>	<b>Social Accountability</b>
<b>OHSAS 18000</b>	<b>Occupational Health and Safety</b>

## MANY ECOPORTS PORTS

### 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.

## ECOPORTS CERTIFICATE: WORLDWIDE RECOGNITION





**LOW INVESTMENT, HIGH RESULT**

**ECO SLC**

Sustainable Logistic Chain

## 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 PORTS DELIVERS POLICY INFORMATION

## ECO PORTS SDM BENCHMARKING RESULTS: TOP 10 PORT ENVIRONMENT ISSUES

	1996	2004	2009	2013
1	Port Development (water)	Garbage / Port waste	Noise	Air quality
2	Water quality	Dredging: operations	Air quality	Garbage/ Port waste
3	Dredging disposal	Dredging disposal	Garbage / Port waste	Energy Consumption
4	Dredging: operations	Dust	Dredging: operations	Noise
5	Dust	Noise	Dredging: disposal	Ship waste
6	Port Development (land)	Air quality	Relationship with local community	Relationship with local community
7	Contaminated land	Hazardous cargo	Energy consumption	Dredging: operations
8	Habitat loss / degradation	Bunkering	Dust	Dust
9	Traffic volume	Port Development (land)	Port Development (water)	Port development (land)
10	Industrial effluent	Ship discharge (bilge)	Port Development (land)	Water quality

# EFFICIENCY IMPROVEMENT: PORT INSPECTIONS BY AUTHORITIES BEFORE: 21 AUTHORITIES

TRADITIONALLY:  
21 SEPARATE INSPECTION AUTHORITIES  
TO CONTROL PORT ACTIVITIES





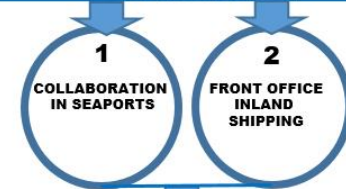
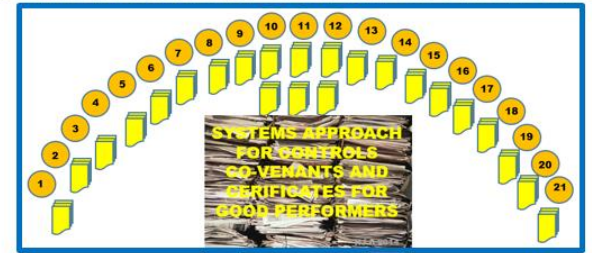
## EFFICIENCY IMPROVEMENT: PORT INSPECTIONS BY AUTHORITIES

**BEFORE: 21 AUTHORITIES**

**AFTER: 2 AUTHORITIES**

TRADITIONALLY:  
21 SEPARATE INSPECTION AUTHORITIES  
TO CONTROL PORT ACTIVITIES

RENEWED  
SUPERVISION AND CONTROL  
IN SEAPORTS NETHERLANDS: 2 INSPECTION ORGANISATIONS



**SEAPORT**

**SEAPORT**

**14 NOVEMBER 2014**  
**ECOPORTS CERTIFICATION, SUPPORTED BY STAKEHOLDERS:**  
**DIRECTORS OF ALL COMPANIES OF THE PORT ECO SLC**



# CONTENT

**ECO SLC**

Sustainable Logistic Chain

**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**

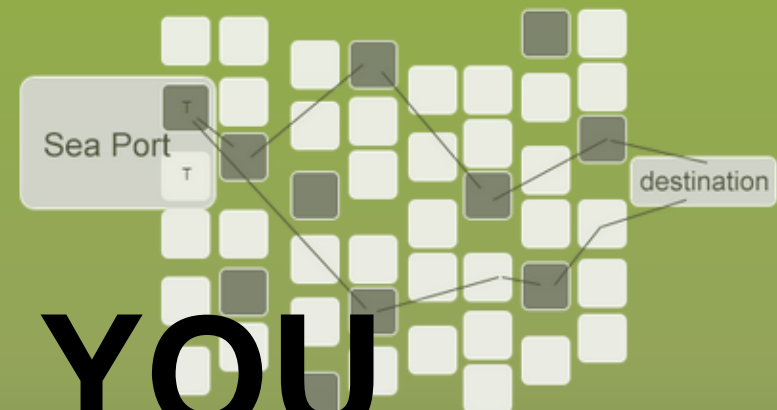
**CONCLUSIONS**

# CONCLUSIONS

**ECO SLC**

Sustainable Logistic Chain

- 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

## EcoPorts Environmental Management Tools & Services

- » Self Diagnosis Method (SDM)
- » Port Environmental Review System (PERS)

## ECOSLC Logistics Tools & Services

- » Sustainable Port Strategy within the chain
- » Sustainable Logistic Chain SDM
- » Introduction and training workshops