Governance Challenges for a Sustainable Maritime Supply Chain

29th August 2016
CBS Maritime, Copenhagen
Is this a port?
Is this a port?
Is this a port?
This is a port!
3 roles of an intelligent port

• The port company. Ongoing development with a focus on delivering value to its owners

• Servicing companies with a demand for port services, geography and infrastructure

• Contribute to local and regional business development and cooperation
Network: Port-city integration

- Ports and job creation
- Ports are transport centres
- Ports are not islands
- Multimodality depends on local, regional and national policy and investment
- Ports are business centres
- City development plans
- Buffer zones
Infrastructure:
Ports are multi modal

A regular container ship replaces 400 semitrailers on the main roads
Business: Sustainable ports

What is a green port?

EU transport policy: “A green port is a port that succeeds in balancing environmental challenges with economic demands”

Siim Kallas, former Transport Commissioner

“I define a green port as a port where the people planning it and working on it feel committed to minimise environmental impacts and preserve the natural resources for the future generations. A green port requires the support of a proud port community, making the port a bit 'greener' every day, in every way”
Let us sum up:
Environmental management for ports...

✓ DOES ANYONE DO IT?
✓ SUSTAINABILITY = ENVIRONMENT + ECONOMY
✓ LICENCE TO OPERATE
✓ OWN INITIATIVE VERSUS REGULATION
Complexity in EU legislation

✓ The Birds and Habitats Directives, Natura 2000, Life+
✓ Sulphur Content of Marine Fuels
✓ Pollution from Ships
✓ Greenhouse Gas Emissions
✓ Port Reception Facilities
✓ Water Framework Directive
✓ National Emission Ceilings
✓ Environmental Noise
✓ Soil Framework Directive
✓ Regulation on Shipment of Waste
✓ Waste Framework Directive
✓ Marine Strategy Framework
✓ Supplementary Directive on Priority Substances
✓ Ambient Air Quality
✓ Maritime Spatial Planning
## Environmental priorities

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port Development (water)</td>
<td>Garbage / Port waste</td>
<td>Noise</td>
<td>Air quality</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>
<td>Energy Consumption</td>
</tr>
<tr>
<td>3</td>
<td>Dredging disposal</td>
<td>Dredging disposal</td>
<td>Garbage / Port waste</td>
<td>Energy Consumption</td>
<td>Noise</td>
</tr>
<tr>
<td>4</td>
<td>Dredging: operations</td>
<td>Dust</td>
<td>Dredging: operations</td>
<td>Noise</td>
<td>Relationship with local community</td>
</tr>
<tr>
<td>5</td>
<td>Dust</td>
<td>Noise</td>
<td>Dredging: disposal</td>
<td>Ship waste</td>
<td>Garbage / Port 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>
<td>Ship waste</td>
</tr>
<tr>
<td>7</td>
<td>Contaminated land</td>
<td>Hazardous cargo</td>
<td>Energy consumption</td>
<td>Dredging: operations</td>
<td>Port development (land related)</td>
</tr>
<tr>
<td>8</td>
<td>Habitat loss / degradation</td>
<td>Bunkering</td>
<td>Dust</td>
<td>Dust</td>
<td>Water quality</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>
<td>Dust</td>
</tr>
<tr>
<td>10</td>
<td>Industrial effluent</td>
<td>Ship discharge (bilge)</td>
<td>Port Development (land)</td>
<td>Water quality</td>
<td>Dredging: operations</td>
</tr>
</tbody>
</table>
Priorities or challenges?

1. Noise
   - Air quality

2. Dredging
   - Energy Consumption

3. City vs Port
   - Noise

4. Dust
   - Relationship with local community

5. Ship waste
   - Garbage / Port waste

6. Port dev.
   - Ship waste

7. Air quality
   - Port development (land related)

8. Energy
   - Water quality

9. Own waste
   - Dust

10. Water
    - Dredging: operations

Top–10 environmental priorities of European ports for 2016

Danske Havne
Own initiative

**ESPO Green Guide – a toolbox**
- Best Practice Inspiration (Annex 1)
- Environmental legislation (Annex 2)

**GreenPort Conference**
- Inspiration and sharing experience

**EcoPorts – 100 members**
- Self Diagnosis Method (SDM)
- Port Environmental Review System (PERS)

**PORTOPIA – formerly known as PPRISM**
- Online system for collecting, analysing and reporting port performance data
The network is growing

Evolution of the EcoPorts network
Slow but steady

- 25% of ports have more than 50% of their traffic linked to energy commodities
- 38% are facilitators of renewable energy production
- 80% have measures to improve efficiency at port level
- 56% have established energy targets
- 83% take measures to reduce consumption at port level
- 72% monitor energy consumption of the port
- 50% promote or fund energy audits

*ESPO fact finding covering 83 EU ports and 57% of total port throughput
Greening and sustainability as part of the organisational identity

- **Sustainability at managerial level + core business**
  - **Corporate storytelling ("the myth")**
    - Where do we come from?
    - How did we develop?
  - **Routines**
    - How we do things
    - Initiatives, rules, operations and best practice
    - Network and cooperation – how we communicate
  - **Ethics**
    - Values and guidelines – politics, CSR
    - Why is the port unique?
Where to start?

Self Diagnosis Method (SDM)

• A check list for ports with the need of a greener strategy
• Benchmark on environmental performance
• Strong on logistics and cooperation
• Currently upgrade of the check list:
  – Onshore power supply
  – Liquefied natural gas
  – Environmentally differentiated port dues
### Self Diagnosis Method (SDM) BENCHMARK 2013-05-10 (78/165)

<table>
<thead>
<tr>
<th>Question</th>
<th>PERS</th>
<th>ISO</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1 Does the Port have an Environmental Policy?</td>
<td></td>
<td></td>
<td>85,9%</td>
<td>14,1%</td>
</tr>
<tr>
<td>A.2 IF YES, Is the Policy signed by Chief Executive / Senior Management?</td>
<td></td>
<td></td>
<td>82,4%</td>
<td>17,6%</td>
</tr>
<tr>
<td>A.3 IF YES, Is the Policy communicated to all relevant stakeholders?</td>
<td></td>
<td></td>
<td>81,1%</td>
<td>18,9%</td>
</tr>
<tr>
<td>A.4 IF YES, Is the policy communicated to all employees?</td>
<td></td>
<td></td>
<td>78,4%</td>
<td>21,6%</td>
</tr>
<tr>
<td>A.5 IF YES, Is the policy publicly available on the Port’s Website?</td>
<td></td>
<td></td>
<td>72,1%</td>
<td>27,9%</td>
</tr>
<tr>
<td>A.6 Does the Policy include reference to: Major objectives?</td>
<td></td>
<td></td>
<td>86,5%</td>
<td>13,5%</td>
</tr>
<tr>
<td>A.7 Does the Policy include reference to: Publication of an Environmental Report?</td>
<td></td>
<td></td>
<td>48,6%</td>
<td>51,4%</td>
</tr>
<tr>
<td>A.8 Does the Policy include reference to: The identification and control of the port’s Significant Environmental Aspects?</td>
<td></td>
<td></td>
<td>75,0%</td>
<td>25,0%</td>
</tr>
<tr>
<td>A.9 Does the Policy include reference to: Continual improvement?</td>
<td></td>
<td></td>
<td>90,5%</td>
<td>9,5%</td>
</tr>
<tr>
<td>A.10 Does the Policy include reference to: Prevention of pollution?</td>
<td></td>
<td></td>
<td>89,2%</td>
<td>10,8%</td>
</tr>
<tr>
<td>A.11 Does the Policy include reference to: Training employees in environmental issues?</td>
<td></td>
<td></td>
<td>77,0%</td>
<td>23,0%</td>
</tr>
</tbody>
</table>
Self Diagnosis Method (SDM)

- Environmental policy and involvement
- What is the scope – EcoPorts, CSR, sustainable development
- Goals and actual plans
- Environmental awareness and training
- Communication
- Operational dimension – manuals, action plan
- Emergency planning
- Monitoring
- Review and audit
Systematic environmental mgmt

DK: A vision to push the entire port industry and develop a basis for systematic environmental management

1. Mapping the port environmental activities
2. Decide an environmental policy
3. Clear measurable goals for environmental achievements
4. Action plan: How to get things done and reach the goals
5. Evaluation and adjustment of goals and action plan
Certification needed?

- Next step is an environmental management system running through all port operations, port workers and costumers
- Let the costumer decide next step
  - Port Environmental Review System (PERS) - 25
  - ISO14001
  - European Eco-Management and Audit Scheme (EMAS)
## Certification needed?

<table>
<thead>
<tr>
<th></th>
<th>PERS</th>
<th>ISO 14001</th>
<th>EMAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sector</strong></td>
<td>Ports only</td>
<td>All sectors</td>
<td>All sectors</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Policy, planning, not so much operational performance</td>
<td>Policy, planning, operational performance, continuous improvement, audit and review</td>
<td>Policy, planning, operational performance, continuous improvement, audit and review</td>
</tr>
<tr>
<td><strong>Audit</strong></td>
<td>No site visit in Europe, review of submitted documentation</td>
<td>Site visit</td>
<td>Site visit</td>
</tr>
<tr>
<td><strong>Environmental reporting requirement</strong></td>
<td>Some reporting requirements</td>
<td>No requirement</td>
<td>Comprehensive environmental report every 2 years</td>
</tr>
<tr>
<td><strong>Audit/Review costs</strong></td>
<td>1000 euro</td>
<td>Depends on size and activities of the port authority. Minimum 5000 euro but could be much more</td>
<td>Same as ISO 14001</td>
</tr>
<tr>
<td><strong>Implementation costs</strong></td>
<td>Moderate</td>
<td>More extensive in line with the focus</td>
<td>Same as ISO 14001 plus costs associated to environmental reporting every two years</td>
</tr>
<tr>
<td><strong>Best practices</strong></td>
<td>2 examples required</td>
<td>N.A</td>
<td>N.A</td>
</tr>
</tbody>
</table>
Communic’action

• Show the evidence
• No green washing – image driven communication on the basis of concrete action
• Environmental management: The port’s environmental challenges and a prioritised plan for e.g. waste, water, energy, transport, etc.
• Action before communication
  – Low hanging fruits: Invest in “small actions” but visible results
  – Communicate and cooperate
  – Prioritised environmental management
New business opportunities

Environmental mgmt and green profile opens new doors

- Environmental network
  - Counselling and analytical tools
  - Inspiration from other companies
  - Meet secondary companies
- Industrial symbiosis
- Certificate
  - Port Environmental Review System (PERS)
  - ISO 14001
  - EMAS
Port operations - examples

- Energy
  - Optimising the use of the port land
  - Crane power supply by kinetic energy
  - Port user power spending and need
  - LED lighting and night reduction
  - Solar panels
  - Isolation of buildings
Port operations - examples

• Waste reception
  – Understanding the waste streams and waste types of local industry and ships
  – Sorting waste for re-use

• Dust
  – New technology in cranes – right dosage
  – Cleaning port facilities

• Industry symbiosis
  – Sharing excess heating from industry
  – Bio mass facility running on port waste
Alternative fuels – regulation works

- What’s in pipeline?

New regulations:
- SOx, 0.1% by 2015, 0.5% globally by 2020
- NOx, Tier III limitations for all ships built after January 2016
- CO2 emissions
- European S-Directive
- Proposal for Directive Clean Power for Transport

LNG as a ship fuel would comply with all new regulations:
- NOx: 85-90%
- SOx: 100%
- Soot/particles: 100%
- CO2 reduction (20-25%)

Proven technology:
- Approx. 30 LNG fuelled vessels in operation
- Boil-off used on LNG carriers

- 85% of fuels are used at sea ➞ a need for solutions working at sea and port call
Alternative fuels

• Several on-going port projects in North Europe – but still small demand
• Significant remaining challenges – demand and insecurity concerning sulphur rules 2015 and other solutions e.g. scrubber, electricity, dual fuel
• Remember: Many alternatives and solutions concerning sulphur rules 2015 e.g. LNG, scrubber, electricity dual fuel and low sulphur fuel.
• Remember: New technology, big investments and big insecurity
  ➔ Shipping responsible for 2.5% of global green house gasses
  ➔ Global food production covers 30% – live stock 14.5%
Conclusions

- Ports are complex
- EU environmental law is complex
- Port sustainability = economy + environment
- Ports own initiative in greening = licence to operate
- Port-city integration forces buffer zones
- Alternative fuels: Several alternative solutions and on-going port projects in North Europe – but still small demand and insecurity due to young technology