

# COSTS OF WASTEWATER RECEPTION FACILITIES AT PORT OF HELSINKI

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# Port of Helsinki

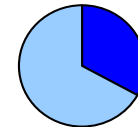
- Serving Finnish foreign trade
- Largest general port in Finland
- Port for unitised and valuable goods
- A high-frequency port
- Largest passenger port in Finland



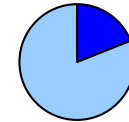
# Traffic in 2009

- Finland's biggest general port
  - Total traffic 9.8 Million tons
- Leading unitised cargo port
  - Unitised cargo 8.6 Million tons
  - Import 4.4 Million tons
  - Export 4.2 Million tons
- Biggest container port
  - 360 000 TEU
- Leading lorry and trailer port
  - 432 000 units
- Leading passenger port
  - Liner traffic 9.0 Million passengers
  - Cruise vessels 0.36 Million passengers
  - Passenger cars 922 000

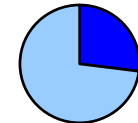
## Market shares



Import 37%



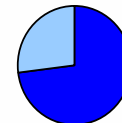
Export 19%



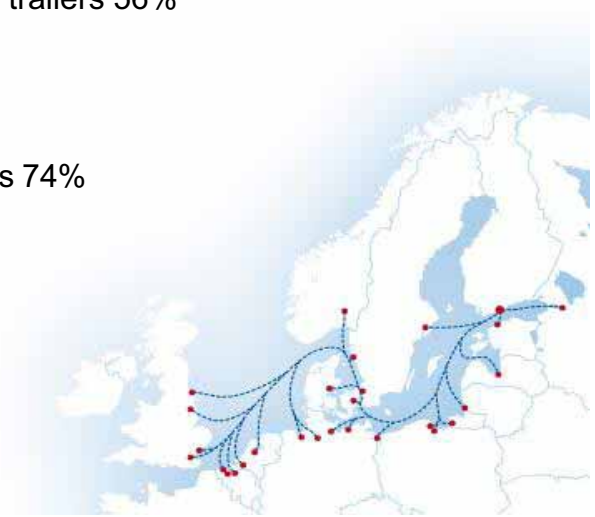
Containers 33%



Lorries and trailers 56%



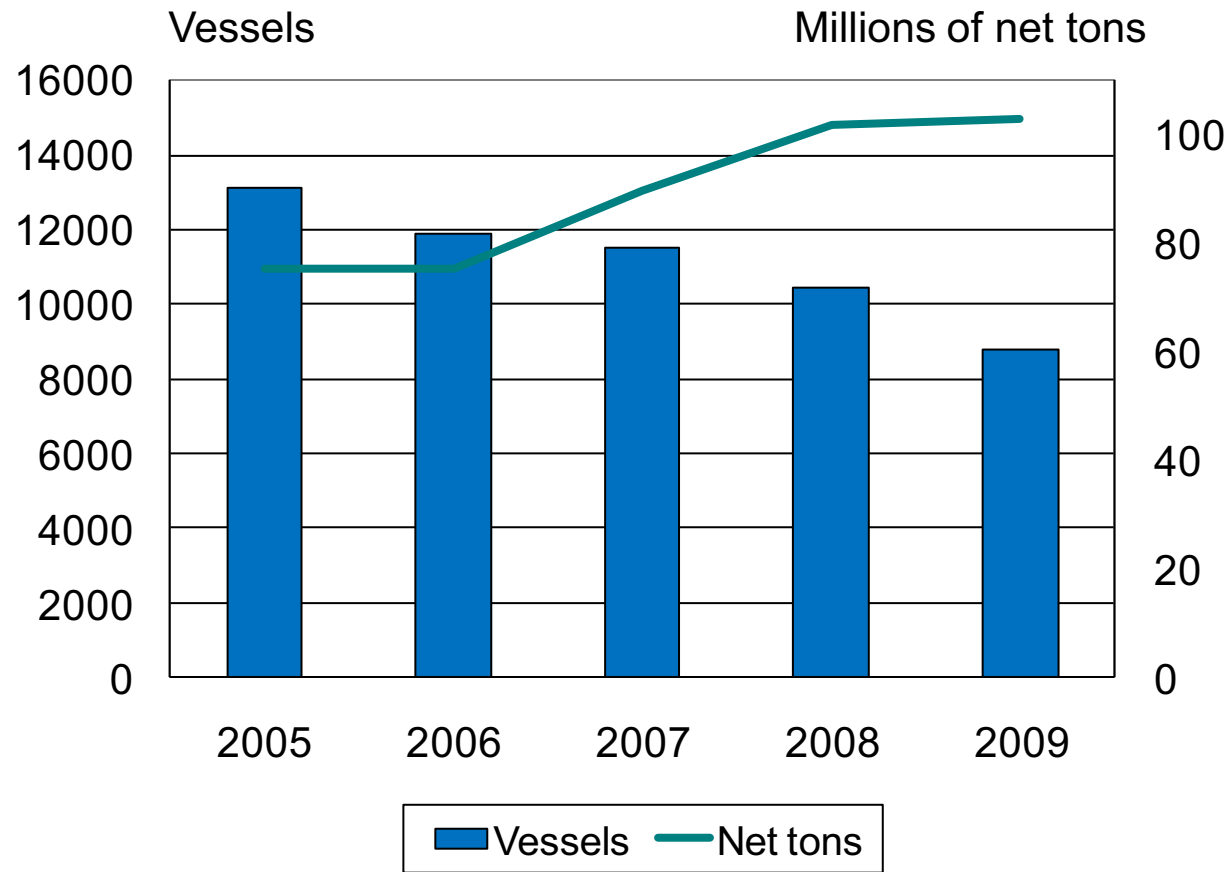
Passengers 74%  
(Mainland)



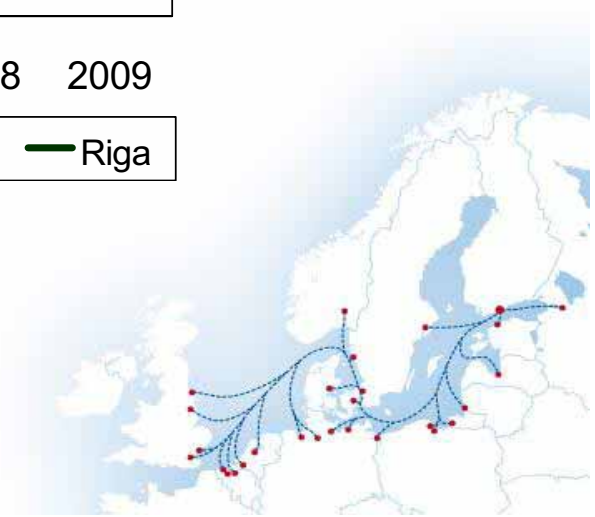
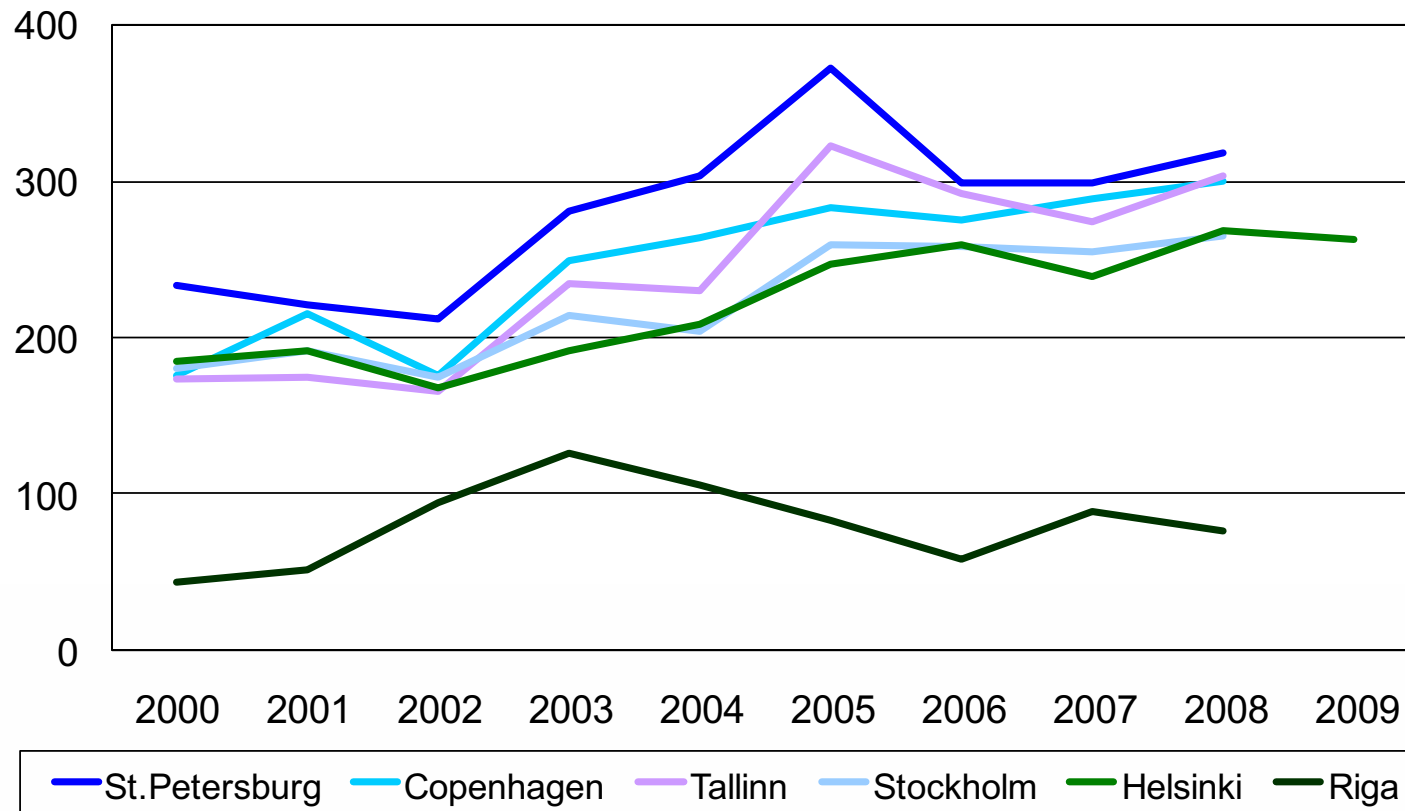
# Logistic Zone and Hinterland Connections



# Vessel Traffic



# Cruise Vessel Calls in the Baltic



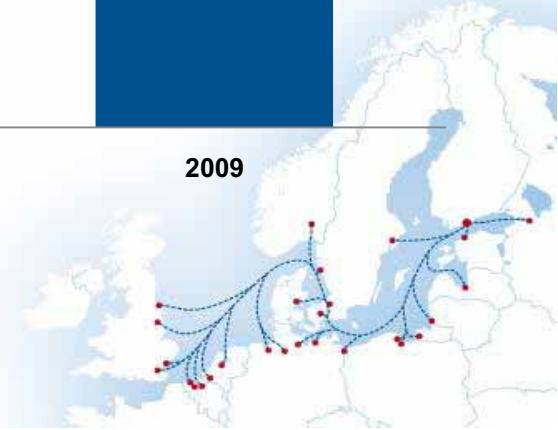
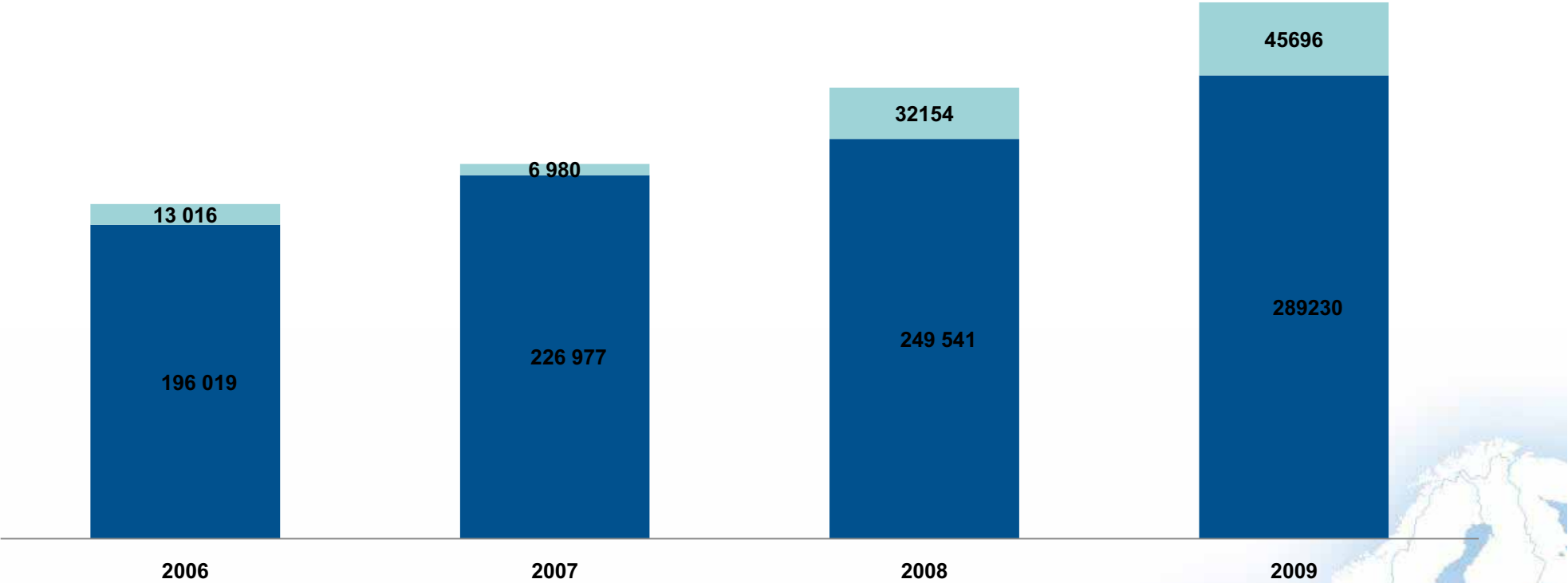
# Wastewater reception facilities in Helsinki

- Started in 1997 in South Harbour ( Silja Line)
- Next Viking Line
- => problems with smell while pumping wastewater to the sewage
- => pretreatment in the ship
  
- Now all berth (ferries, cargo vessels and cruise vessels) have reception facilities
- Vuosaari cargo harbour has a treatment unit for ship generated wastewater ( possibilities for aeration or chemical treatment) as well as measure instruments

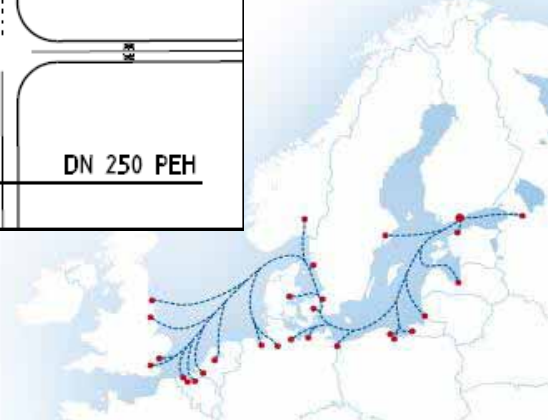
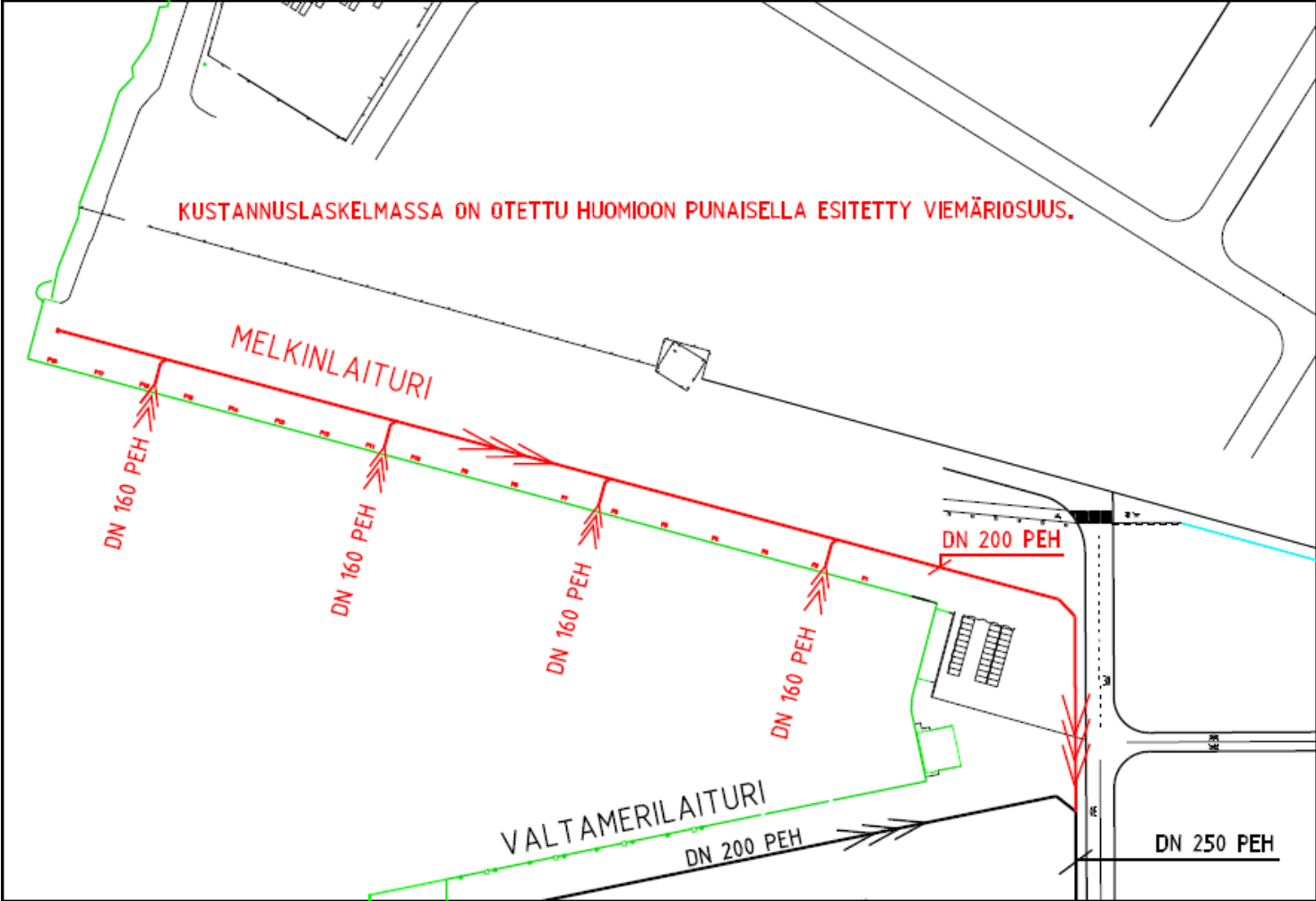


# Total received wastewater

■ Passenger ships ■ Cruisers



# Technical arrangements for the new cruise berth in West Harbour



# Operational overview

- 4 electrically heatable connection point at berth. All connection points are fitted with back flush valve and closing valve.
- Wastewater will be discharged from the vessel by using vessels pump.
- Hoses are used between the vessel and connection point.
- From the connection point 160 mm plastic piping are used until the main line is reached. The underground main line is 200 mm steel piping. (later on 250 mm)
- The underground main line (pressurised) is connected to pumping station, where the wastewater is directed to city sewage treatment plan via drain piping (800mm).



# New berth in West Harbour and connection point



# Costs of the wastewater facilities in the new cruise berth 2009 ( 450 m)

Excavation	31 000 Euro
Using of trucks	31 000 Euro
Backfilling	22 500 Euro
New asphalt	32 000 Euro
Employees salaries (Port of Helsinki)	21 000 Euro
Piping material and fittings	33 500 Euro
Installation cost for piping	9 000 Euro
Canopy for connection points	8 500 Euro
Planning for electrical heating	3 000 Euro
Electrical heating installation	8 000 Euro
<b>TOTAL</b>	<b>199 500 Euro</b>



# Challenges

- Smell (challenge for piping system and ventilation) Ferries must use pretreatment
- Permeate, bio sludge or fats may block the piping system and back flush valves
- Cruise vessels has invested money for their own treatment plants
- The capacity of sewage system is 100 m<sup>3</sup>/hour



# Cruise Terminal

## Receiving Black and Grey Water



## Directive 2000/59/EC on port reception facilities for ship generated waste

- Article 2 "Ship-generated waste" shall mean all waste, including sewage .....
- Annex IV from Marpol: Treated sewage > 3nm (Finland 4nm) and untreated sewage >12 nm (min speed 4 kn)
- What is the definition of sewage ? Black water/ Grey water.



## ” No special fee” article 8.2

- Each ship calling at port shall be charged a fee for delivery of ship-generated oily waste, garbage and sewage irrespective of whether the ship delivers the waste or not. Each ship is charged a ”No special fee” for delivery .....



# Welcome to the Port of Helsinki



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