

SUSTAINABLE TRANSPORT. CURRENT AND FUTURE PROSPECTS
KLAIPEDA – APRIL 17-18 2019

MARITIME TRANSPORT AND ENVIRONMENTAL CHALLENGES

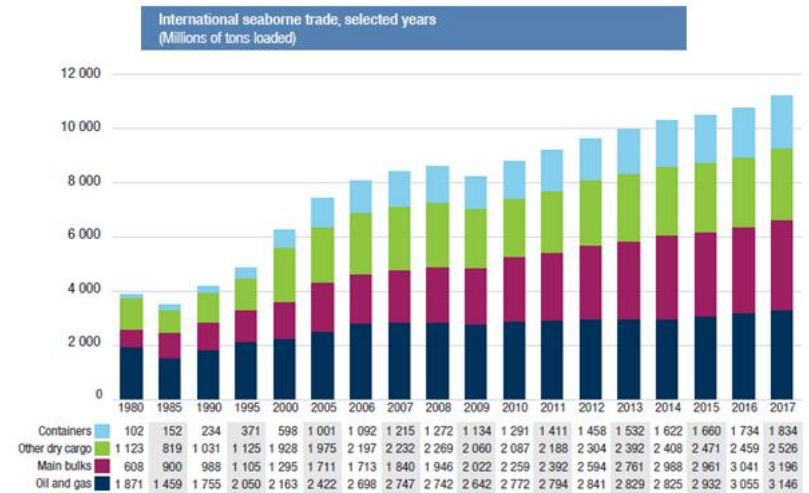
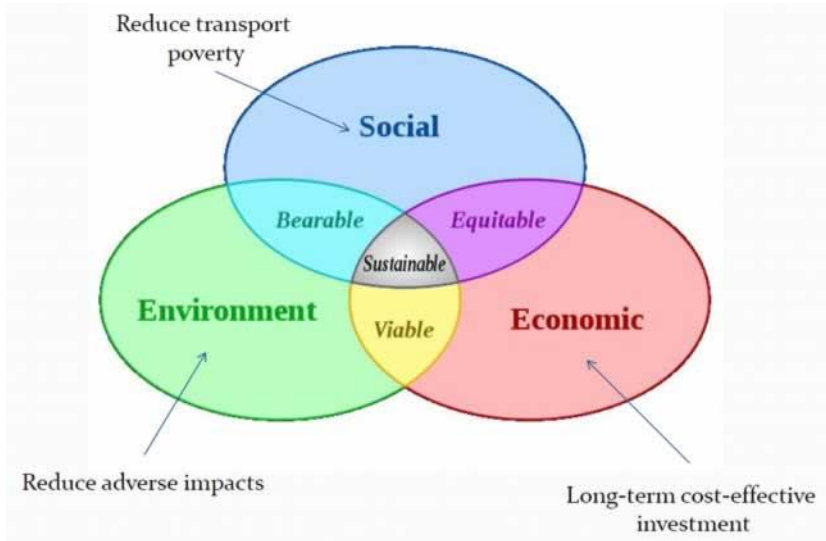
ARNAUD SERRY



INTRODUCTION

Background:

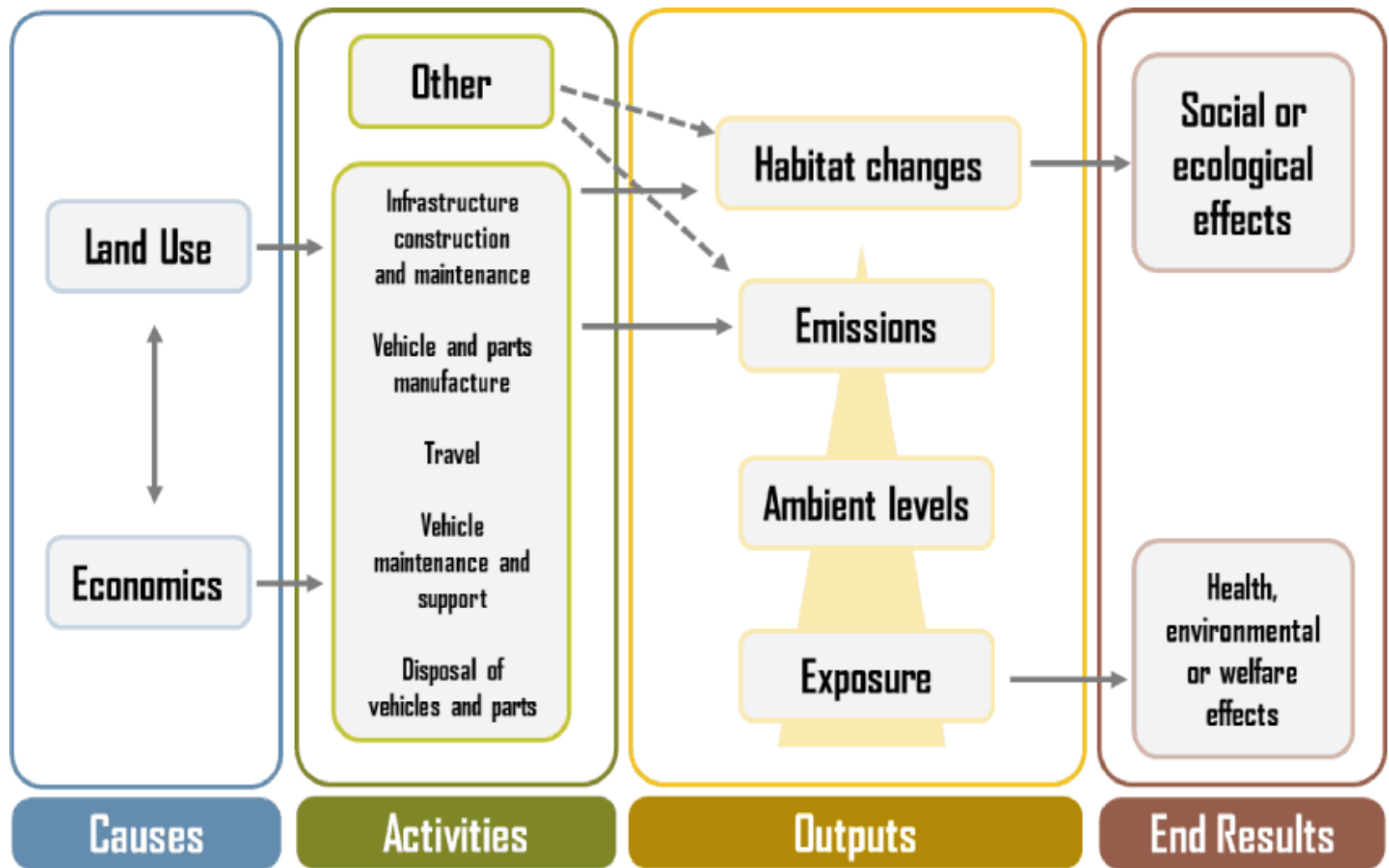
- Sustainable transport
- Important increase of maritime transport in recent years
- The Baltic Sea: 8 % of the world's maritime traffic



Source: Review of Maritime Transport, various issues. For 2006–2017, the breakdown by cargo type is based on Clarksons Research, 2018a.

Notes: 1980–2005 figures for main bulks include iron ore, grain, coal, bauxite/alumina and phosphate. Starting in 2006, main bulks include iron ore, grain and coal only. Data relating to bauxite/alumina and phosphate are included under “other dry cargo”.

ENVIRONMENTAL DIMENSIONS OF TRANSPORTATION



Source : <https://transportgeography.org>

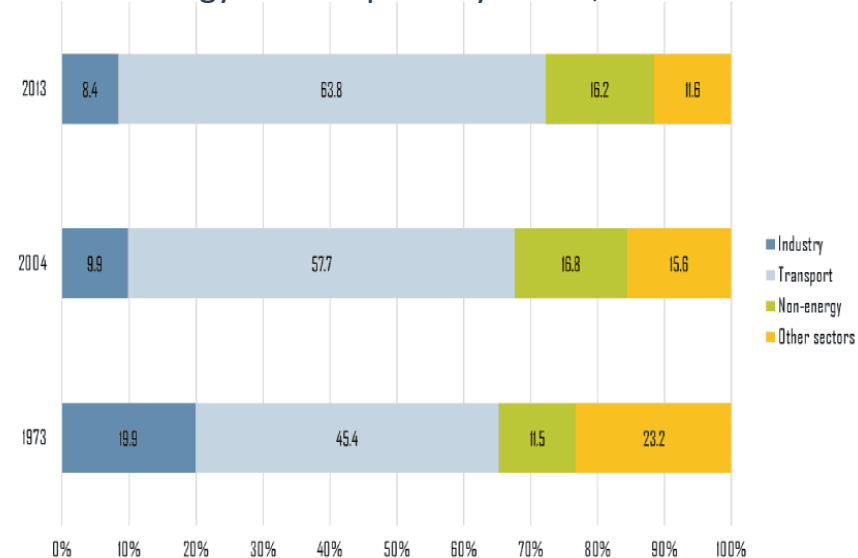
MAIN IMPACTS OF MARITIME TRANSPORT

Environmental Dimensions :

- Climate change
- Air quality
- Water quality
- Noise...
- Land Requirement and Consumption
- Energy Consumption



World Oil Energy Consumption by Sector, 1973-2013



Source : <https://transportgeography.org>

MARITIME TRANSPORT IN EUROPE

Trafic de marchandises en 2017 (en tonnes)
Plus de 20 000 000 tonnes

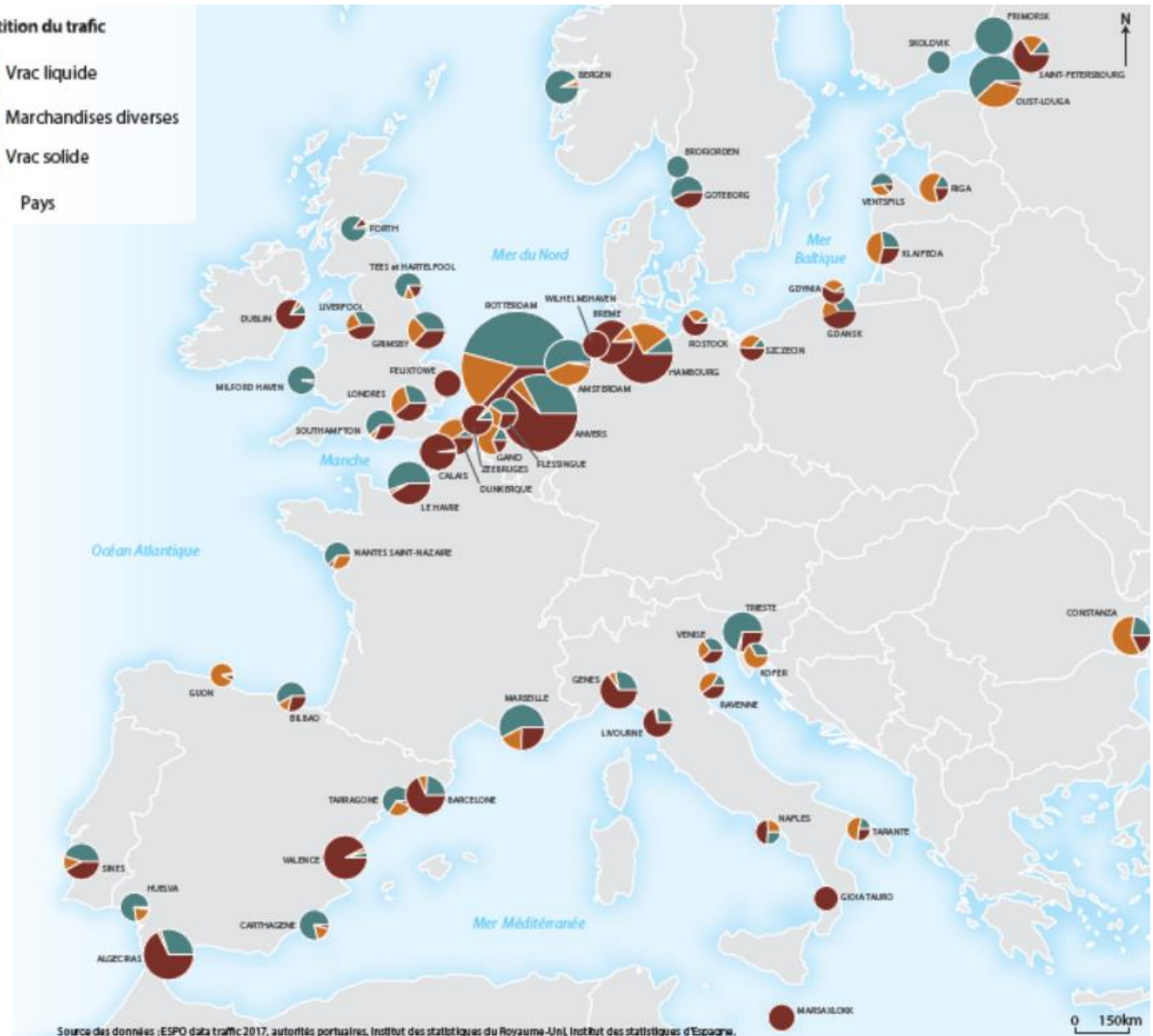
Répartition du trafic



467 354 235 (Rotterdam)
103 294 000 (Oost-Louga)
20 000 000 (Brafjorden)



3 909.9
millions tonnes
of goods in
2017

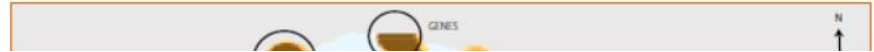


DENSITY & POLLUTION IN THE GULF OF GENOA

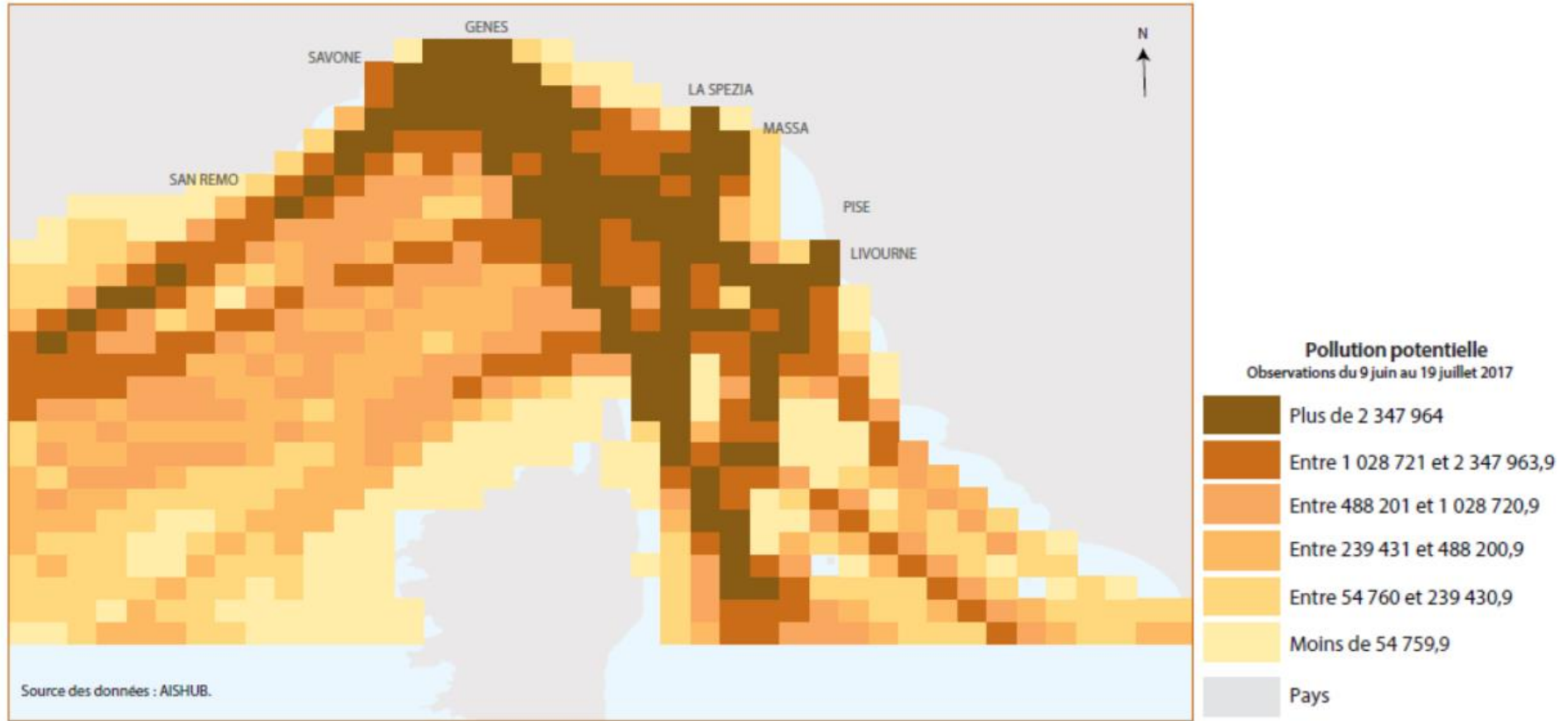
Routes maritimes des porte-conteneurs



Routes maritimes des navires de croisière



Estimation de la concentration spatiale des émissions



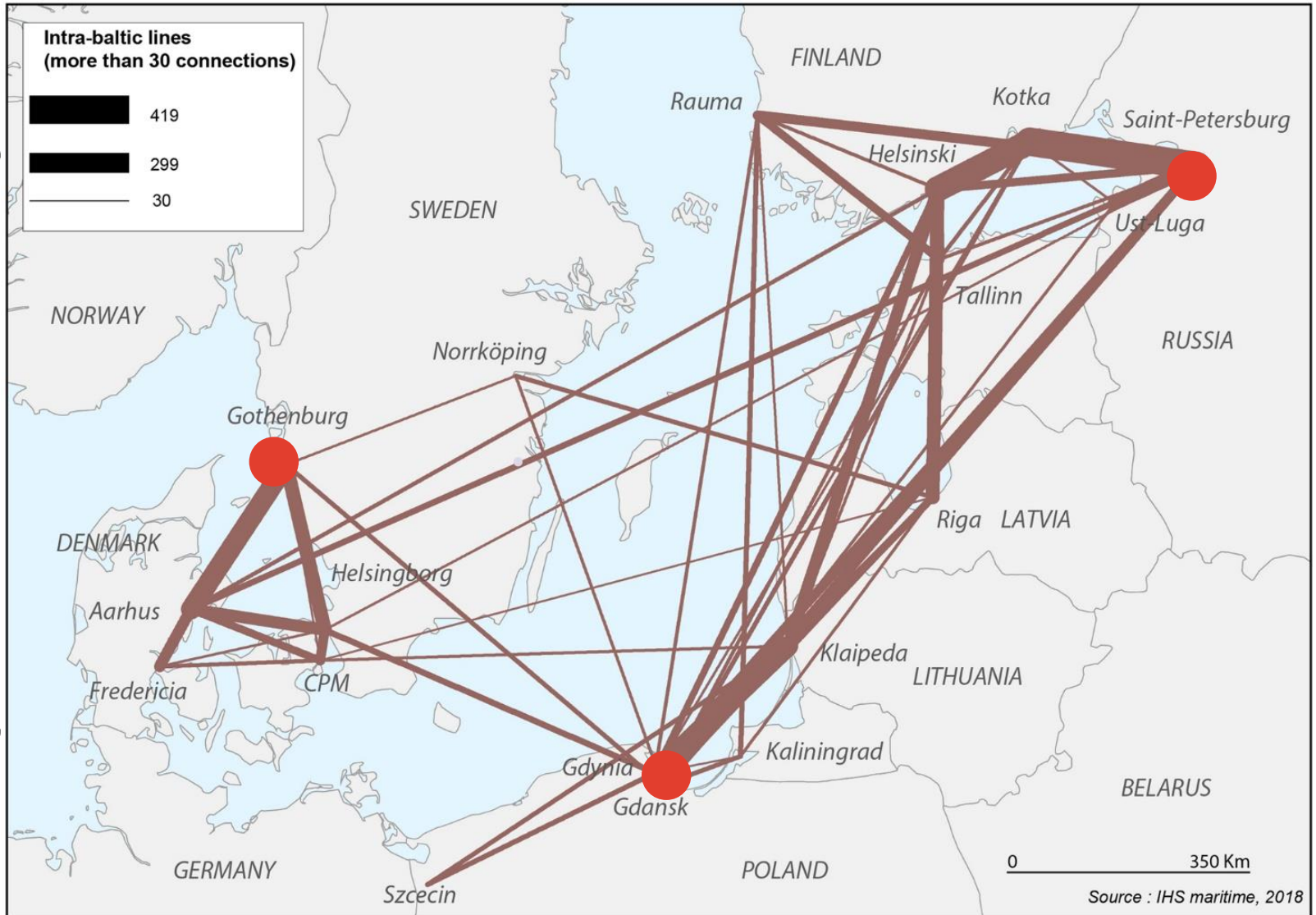
Source des données : AISHUB.

2018) en collaboration avec Laurent Lévêque.

0 50 100 150 200 250
Emissions de CO2 (en millions tonnes)

Source des données : IMO - MARINE ENVIRONMENT PROTECTION COMMITTEE
REDUCTION OF GHG EMISSIONS FROM SHIPS
Third IMO GHG Study 2014

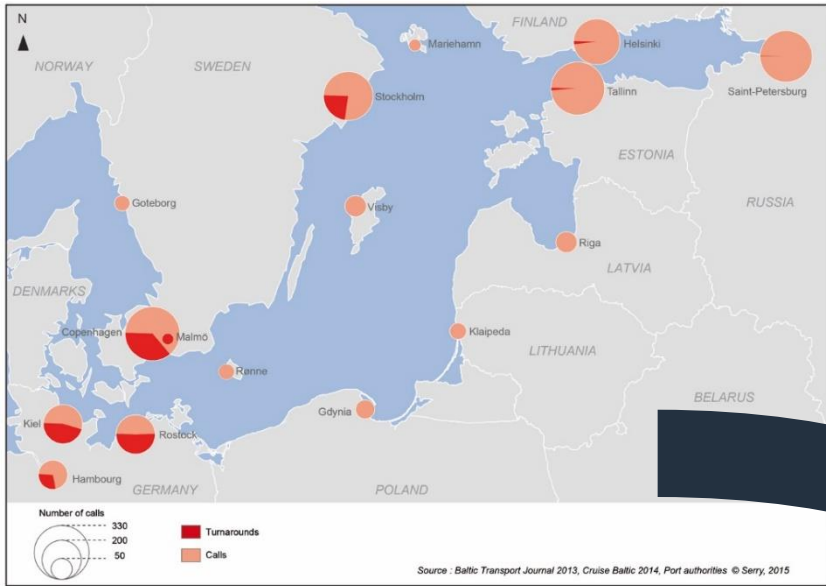
NETWORK AND EMISSIONS



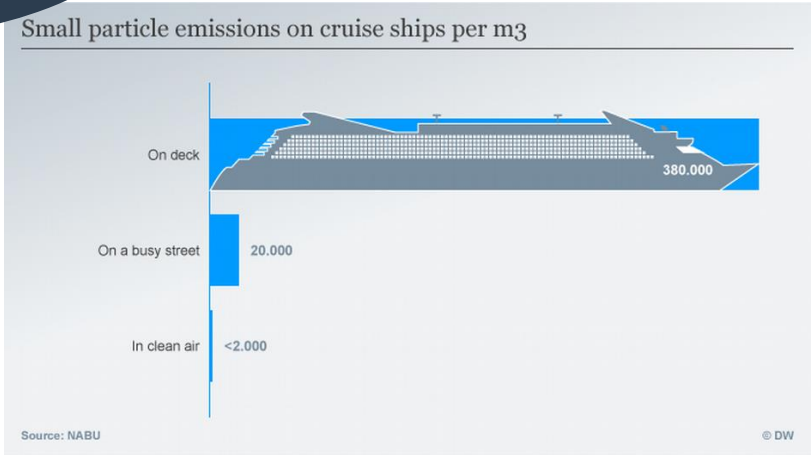
LOCAL IMPACTS & TRANSPORTED GOODS



EMISSIONS IN PORT : CASE OF CRUISE SHIPPING

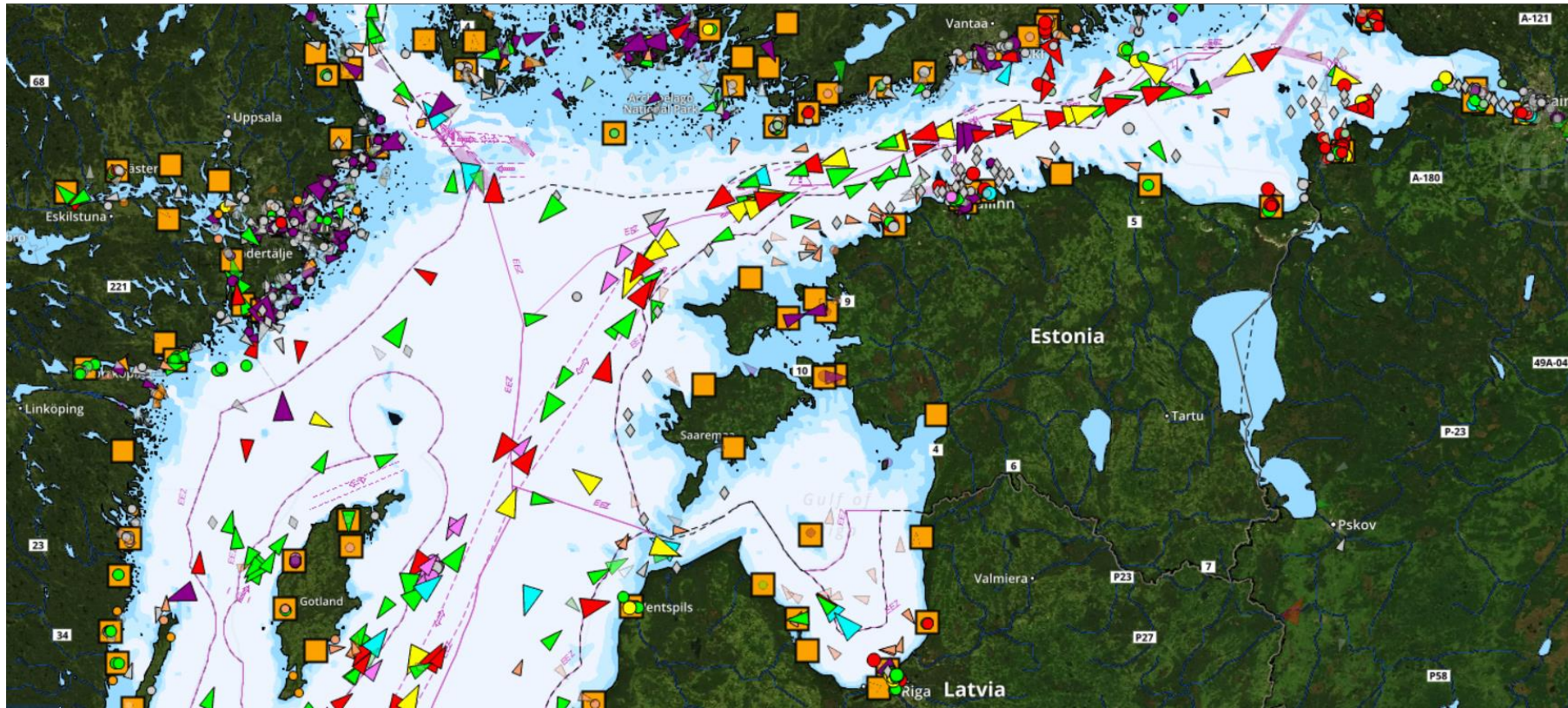


Shore power



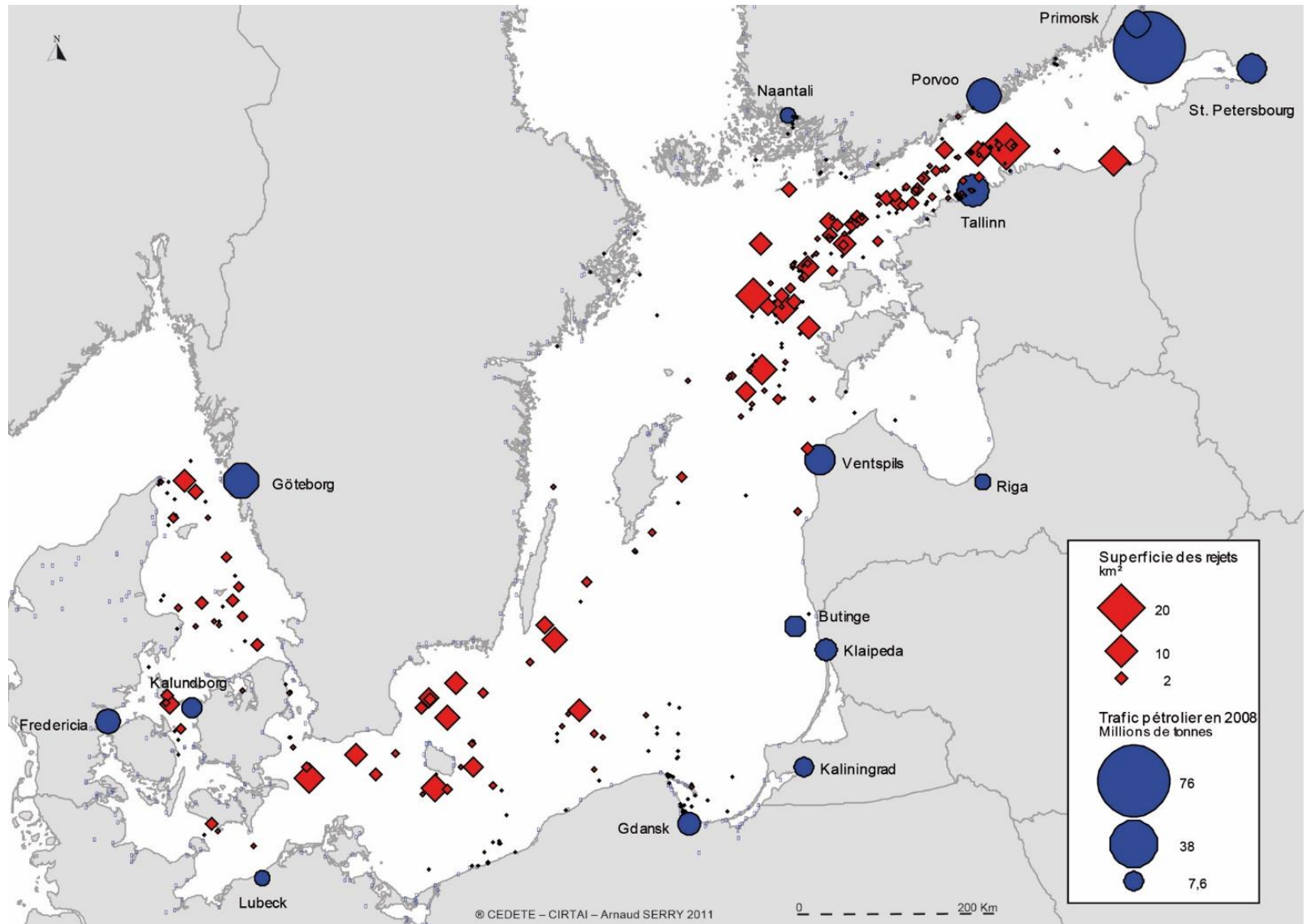
NUMBER OF VESSELS AND POLLUTION

Traffic in the BSR, April 15, 9 am



Source : maritime.ihs.com

ILLEGAL REJECTS IN THE BSR



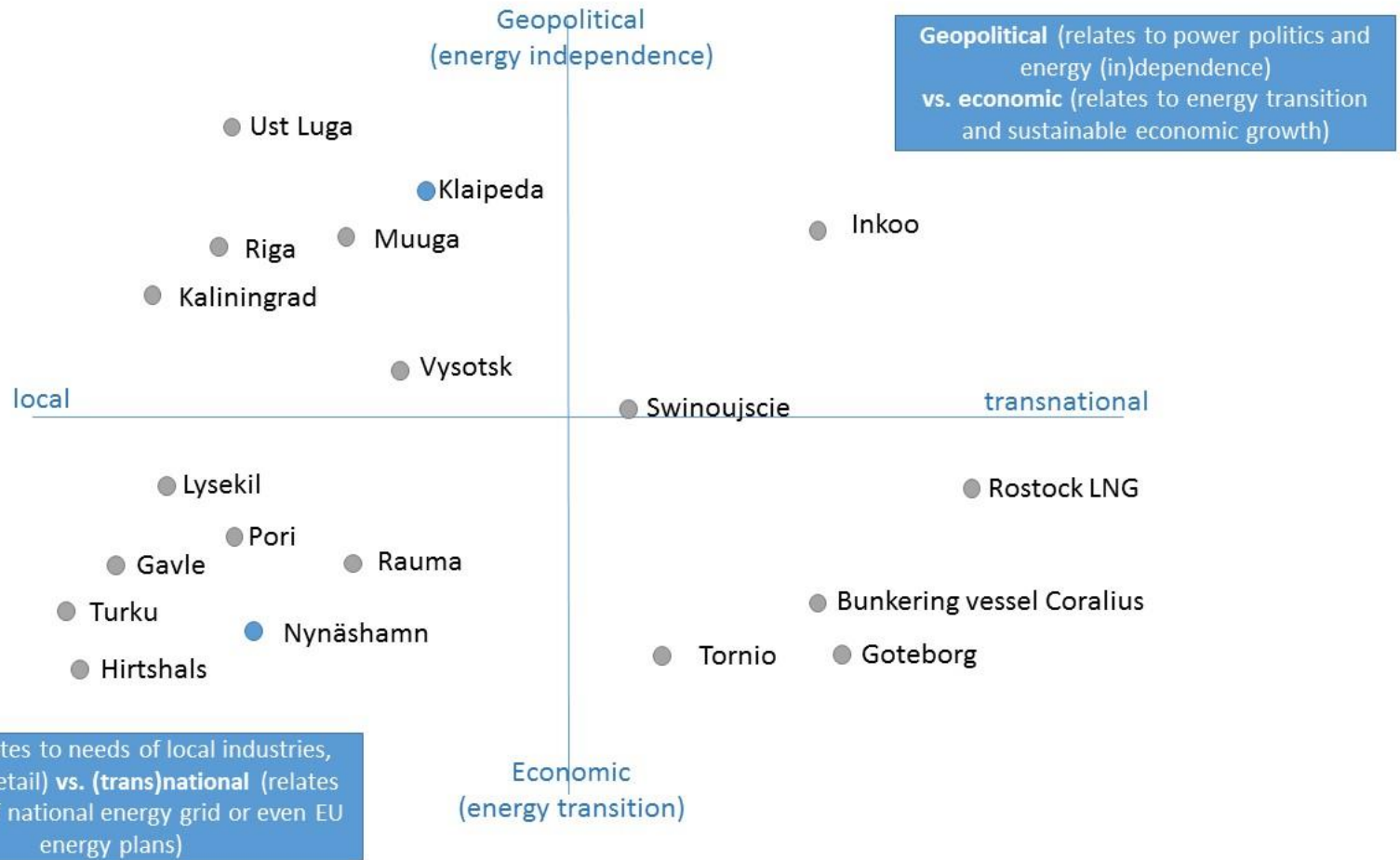
LNG IN EUROPEAN PORTS



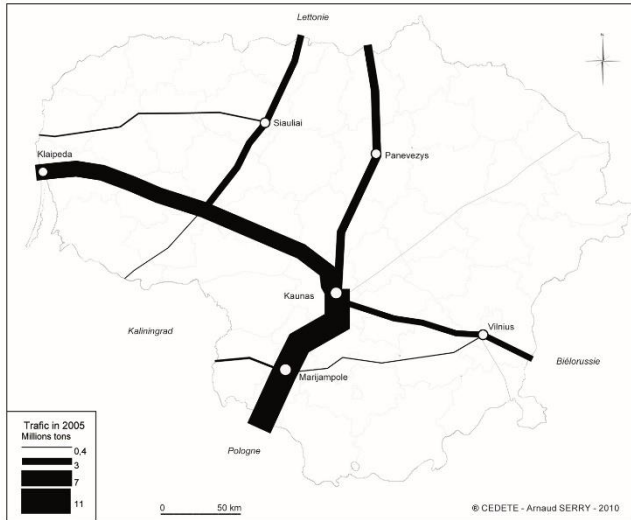
Terminal d
Capacité de st
plus de

- 10
3
- Absence
la capaci
- △ Terminal

MAPPING THE LNG TERMINALS IN THE BSR

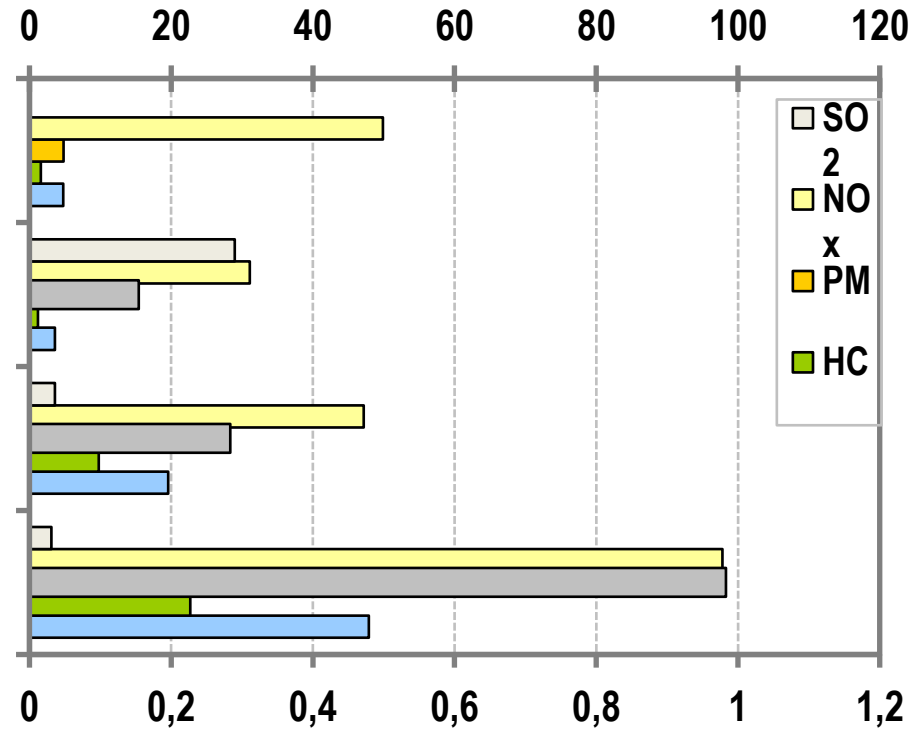


WHAT ABOUT INLAND TRANSPORTATION ?



Emissions par mode (grammes / ton-km)

Ocean shipping
Short sea shipping
Rail
Route



CONGESTION IN EUROPEAN PORT-CITIES

Rotterdam

CONGESTION LEVEL

19%

EXTRA TRAVEL TIME

—0% no change since last year

| | |
|--------------|-----|
| Morning Peak | 27% |
| Evening Peak | 42% |
| Highways | 9% |
| Non-highways | 28% |

Antwerp

CONGESTION LEVEL

30%

EXTRA TRAVEL TIME

↑4% increase since last year

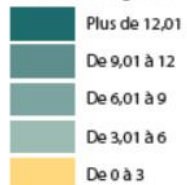
| | |
|--------------|-----|
| Morning Peak | 51% |
| Evening Peak | 62% |
| Highways | 28% |
| Non-highways | 31% |

Typologie des villes

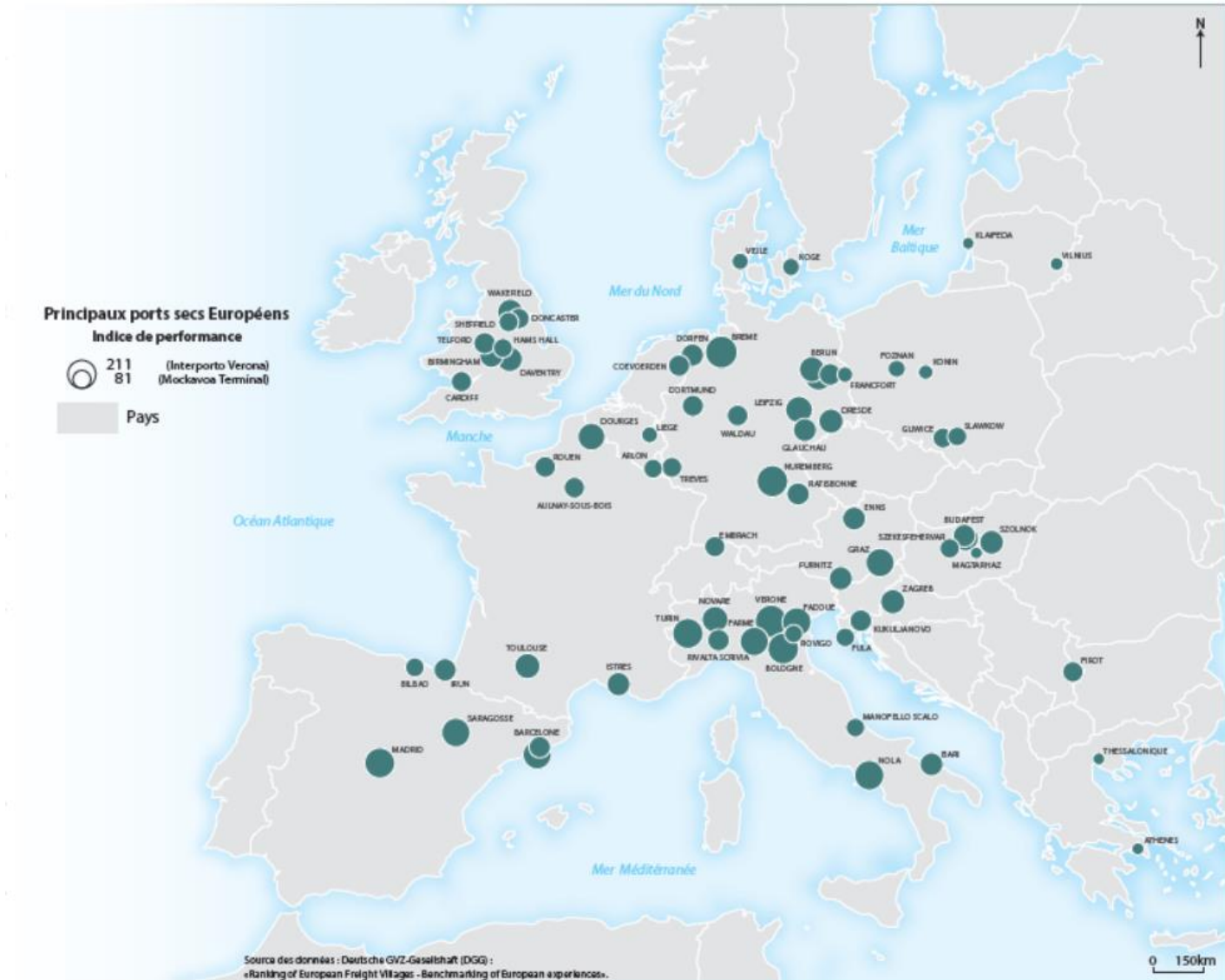
- Ville portuaire
- Autre ville européenne

Pays

Indice de congestion*



DRY PORTS IN EUROPE



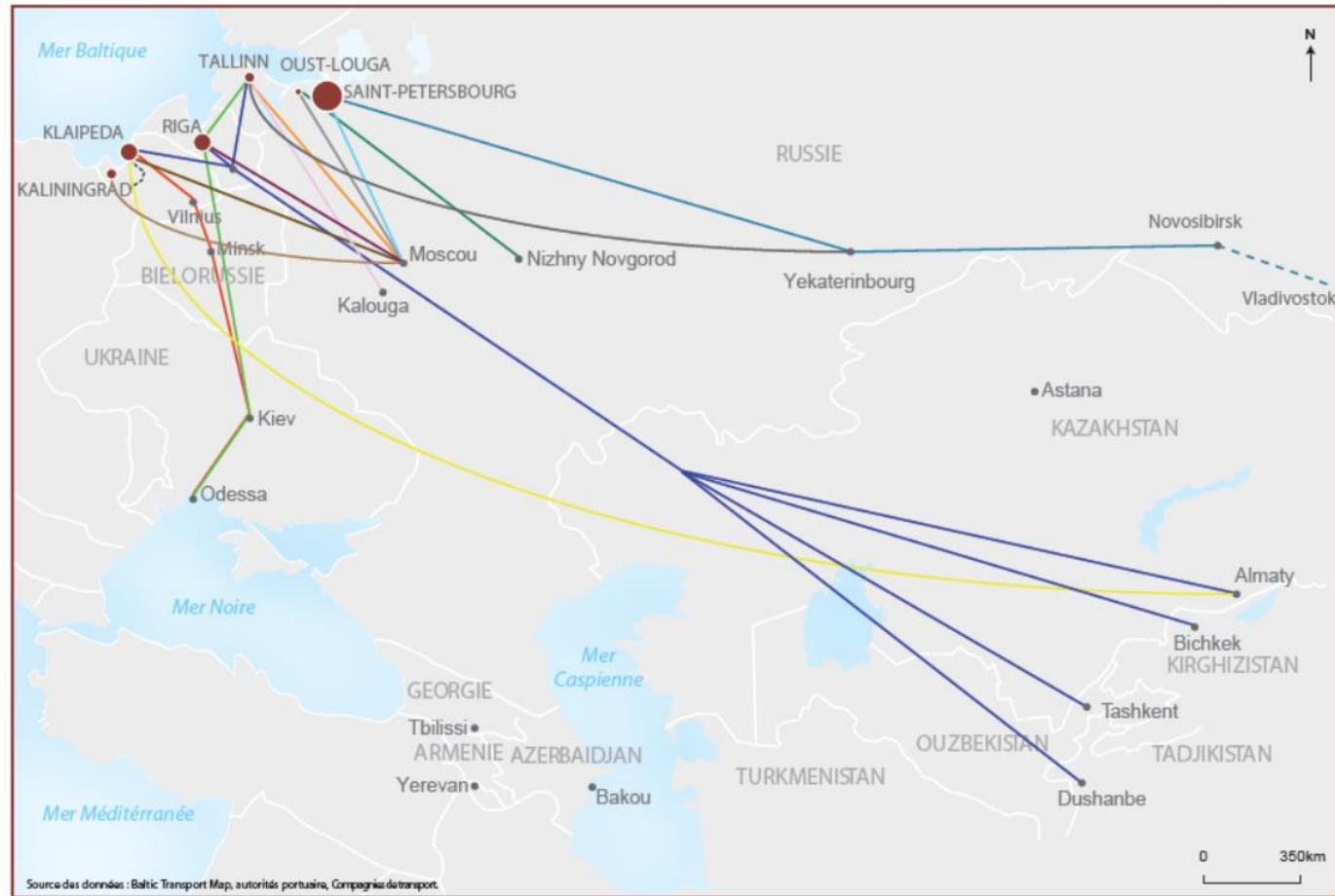
BLOCK TRAINS TO CONNECT PORTS & HINTERLAND

Trains de conteneurs réguliers

- Muuga - Kalouga
- Train Saule
- Train Viking
- Baltic Transit
- Train Zubr
- Moscow Express
- Train Mercury
- St-Petersburg Express
- Oust-Louga / Nizhny Novgorod
- Oust-Louga Express
- Riga Express
- Tallinn / Yekaterinbourg
- St-Petersburg / Irkoutsk / Vladivostok
- Kaliningrad / Moscou

Trafic conteneurs en 2017 (en EVP)

○ 1 920 650 (St-Petersbourg)
○ 215 451 (Tallinn)



CONCLUDING INTERROGATIONS

- Reinforcement of environmental regulations
- Increasing integration of sustainability in ports' development
- Circular economy development in ports...



Thank You for your attention

serryarnaud@gmail.com



UMR IDEES CNRS

Université du Havre / 25, rue Philippe Lebon / Le Havre

 [Projet Devport](http://www.projet-devport.fr/) <http://www.projet-devport.fr/>