



UNIVERSITY OF SZCZECIN
INSTITUTE OF MANAGEMENT



Maritime University
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Seaports as Nodal Points of Circular Supply Chains: the port of Szczecin

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The main outcome of the study: Mańkowska, M., Kotowska, I., & Pluciński, M. (2020). Seaports as Nodal Points of Circular Supply Chains: Opportunities and Challenges for Secondary Ports. *Sustainability*, 12(9), 3926.

THE MAIN TOPICS:

1. The circular economy (CE) and the circular supply chain (CSC) concept in seaports strategies
2. The CSC: opportunities and challenges for secondary ports
3. The case study of CSCs via port in Szczecin
4. Recommendations for secondary port authorities and stevedores

CIRCULAR ECONOMY CONCEPT IN SEAPORTS STRATEGIES

1. There are different ways of seaport transition towards a CE model (Notteboom et al. 2020):
 - the promotion of industrial ecology
 - the use of renewable energy sources
 - **the development of seaports as hubs for recycle flows (CSCs)**
2. In the CSC cargo flows, involved waste or by-products, are delivered, transformed into new products, and re-exported around the world

THE CSCs AND SUSTAINABLE DEVELOPMENT OF SECONDARY PORTS

Opportunities, in the context of:

- decrease in traditional bulk cargo groups in port transshipment
- limited competitiveness vs major ports

Challenges (Bressanelli et al. 2019), related to:

- return-flow uncertainty
- transportation and infrastructure
- availability of suitable supply chain partners
- coordination and information sharing
- product traceability
- cultural issues

THE CASE STUDY OF SECONDARY PORT IN SZCZECIN

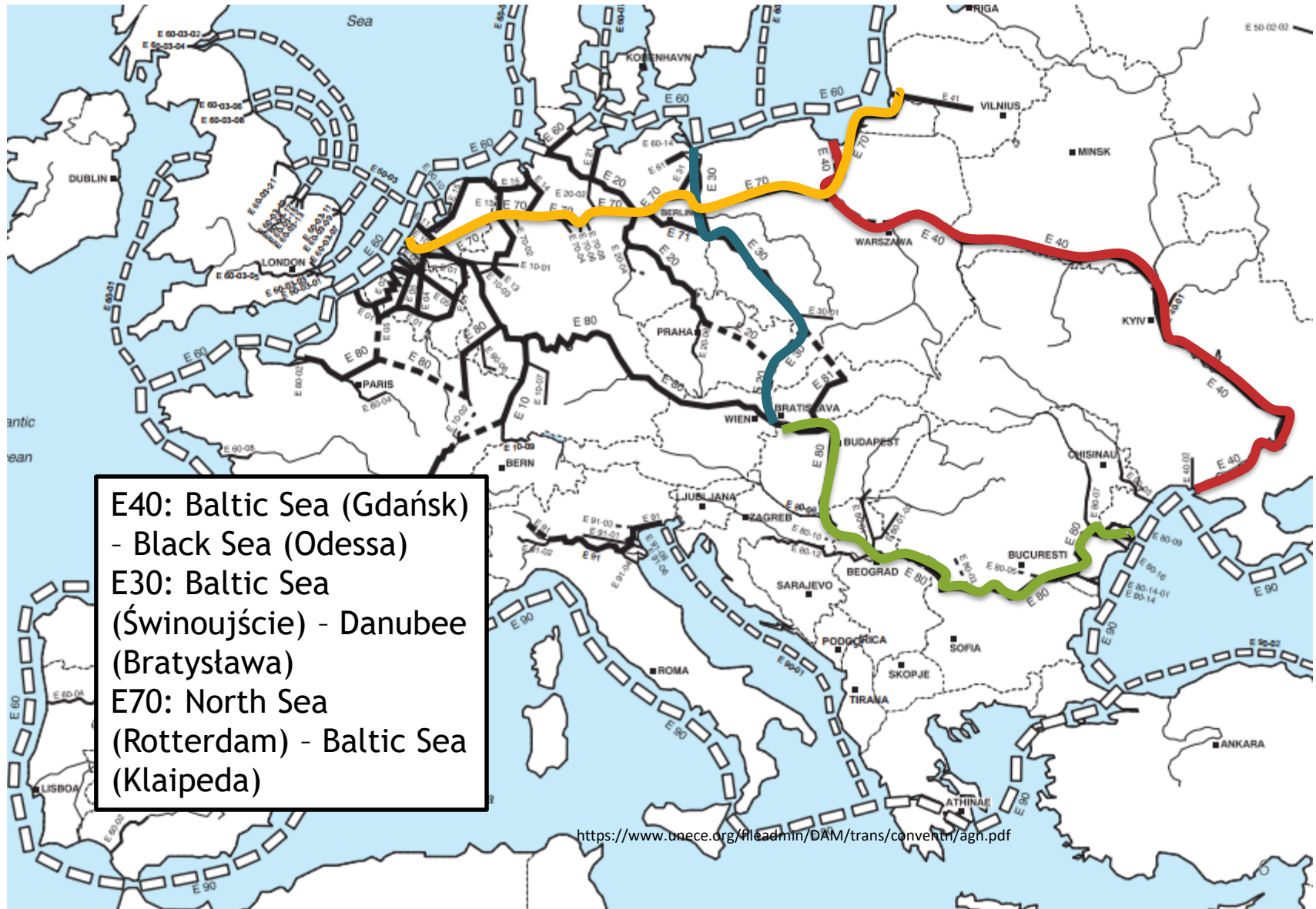
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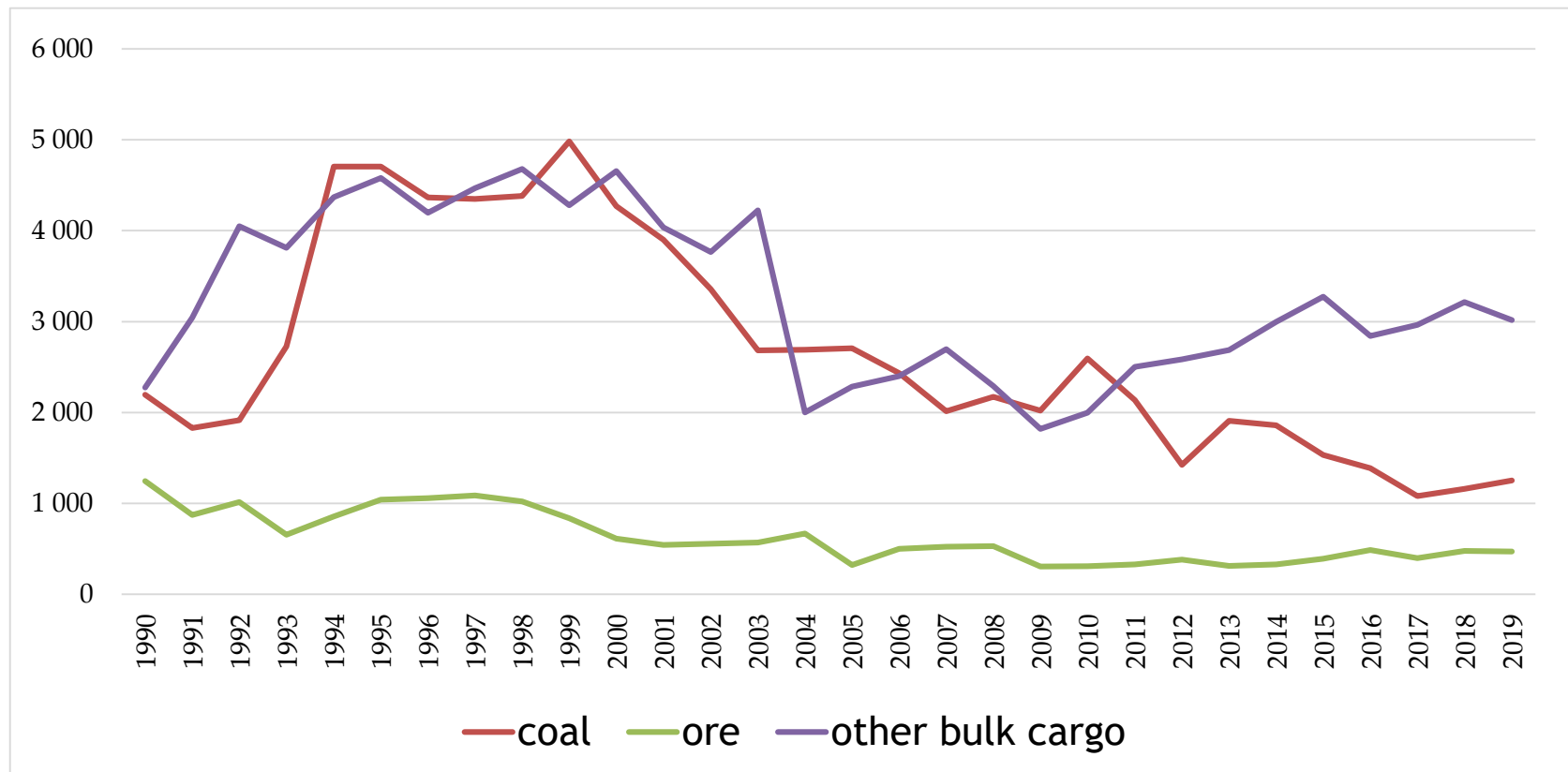
RZGW-Kraków

PORT OF SZCZECIN AS A PART OF THE E WATERWAY NETWORK



CSCs VIA THE PORT OF SZCZECIN

Changes in the port transshipment volumes in the analysed sea-land circular chains
(‘Other bulk cargo’) compared to the transshipment of coal and ore (k tonnes)



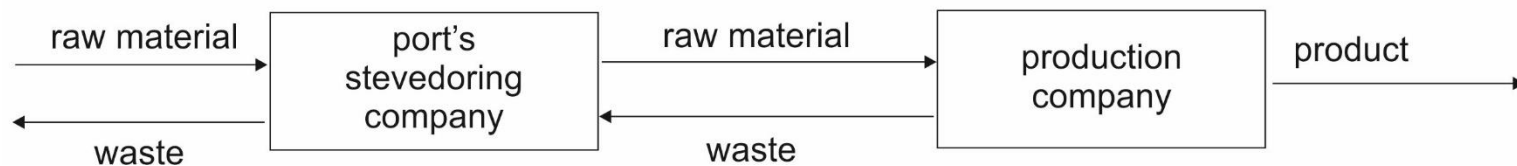
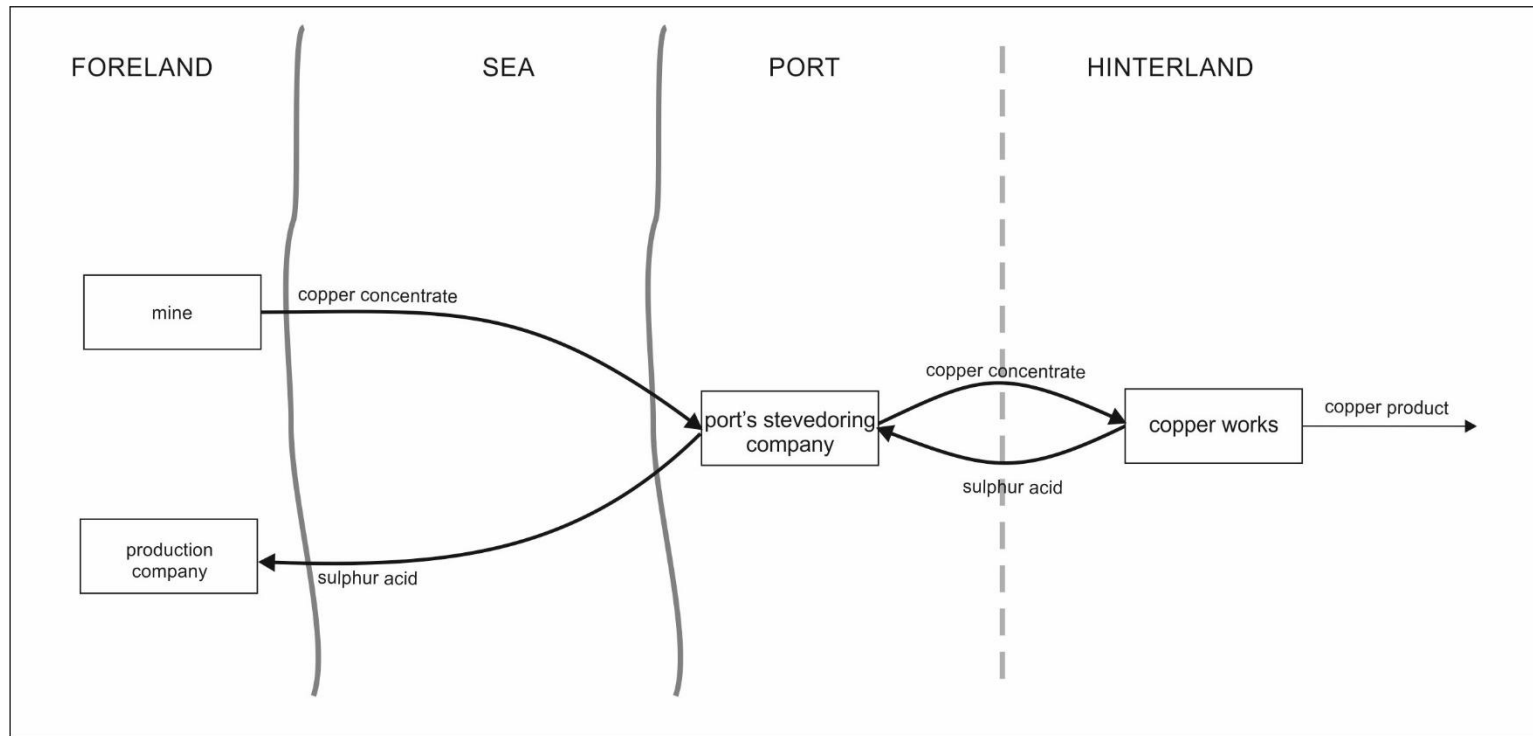
OVERVIEW OF THE STUDY

	Stevedores	Port Industries
Total number of entities active in the port in Szczecin	12	8
Number of entities selected for further study	4	4
Number of entities fully examined (in-depth interview)	4	3

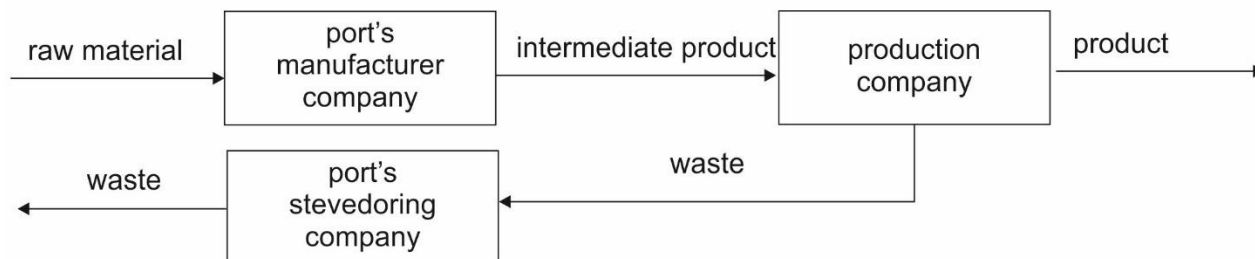
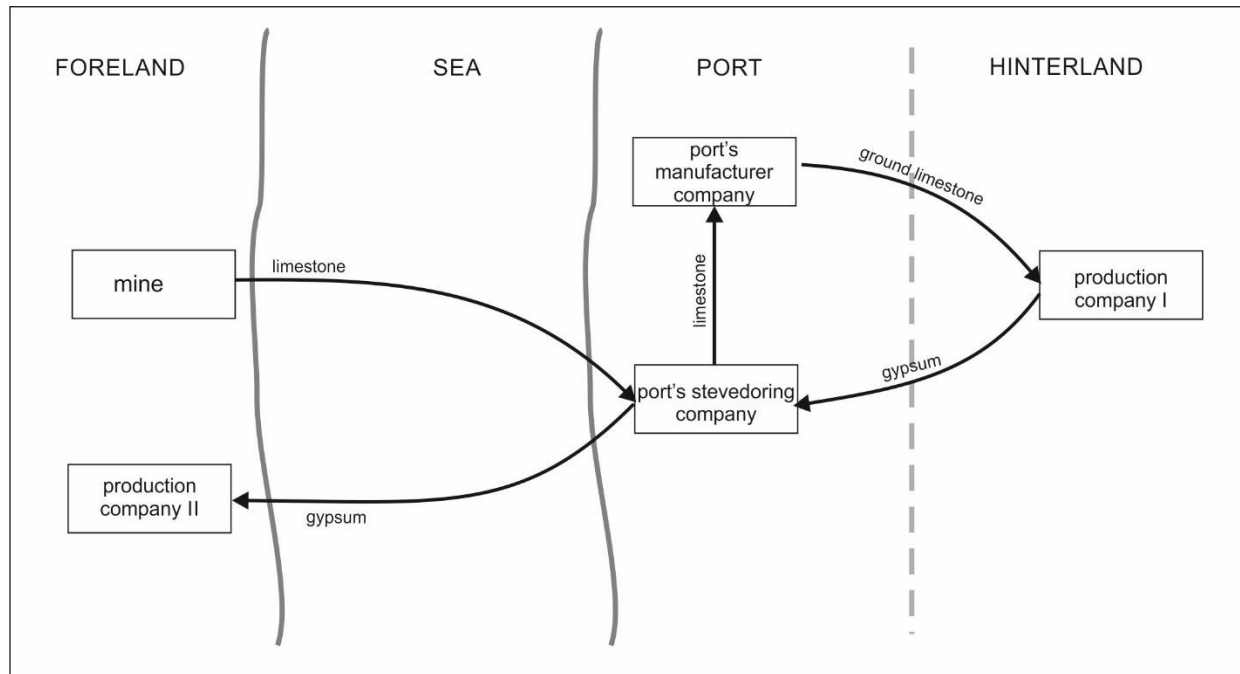
CSCs VIA PORT IN SZCZECIN

- | | |
|--------------------------------------|-------------------------------------|
| 1. Copper concentrate-sulphuric acid | 4 (a,b). Steel products-scrap metal |
| 2. Limestone-gypsum | 5. Wood waste-ground wood waste |
| 3. Car tyres-oil, soot | |

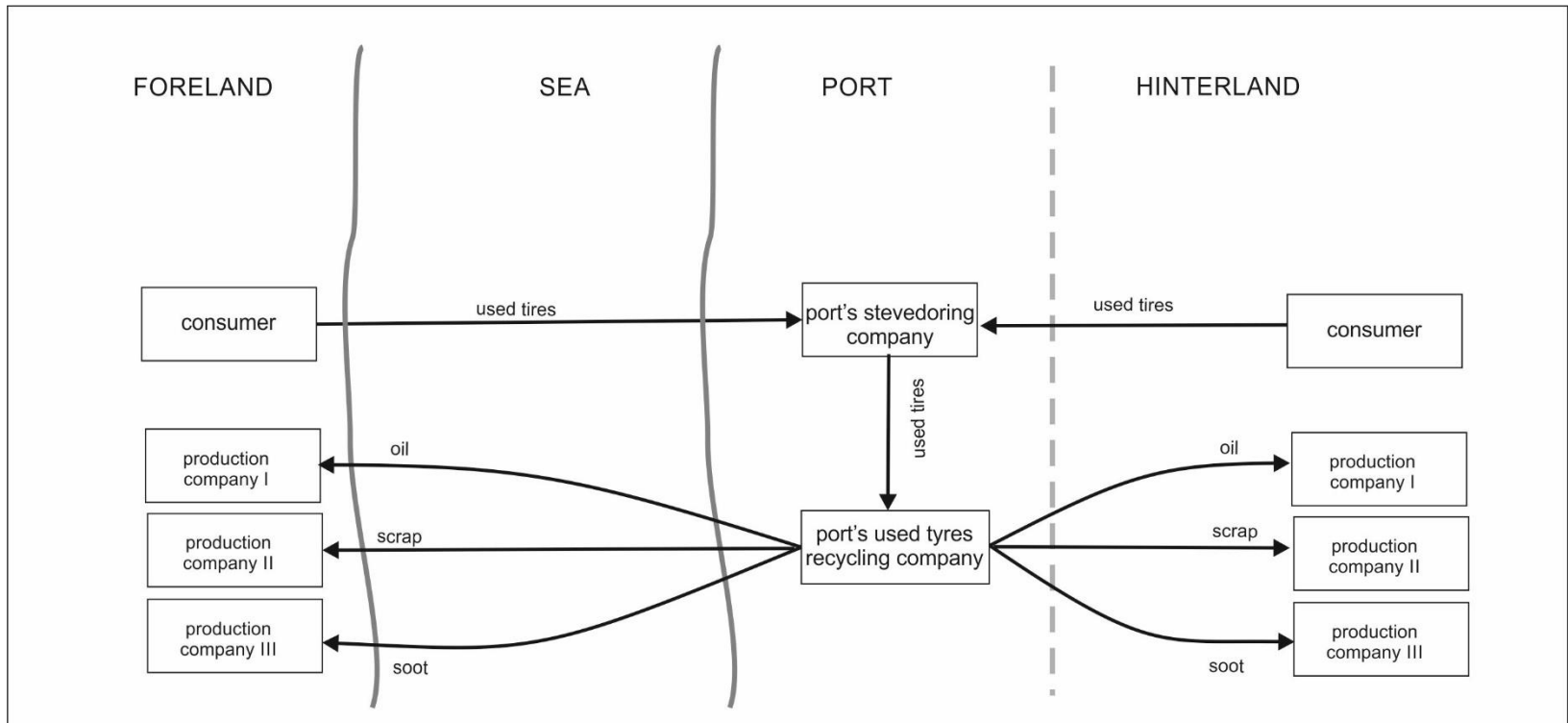
1. Copper Concentrate-Sulphuric Acid



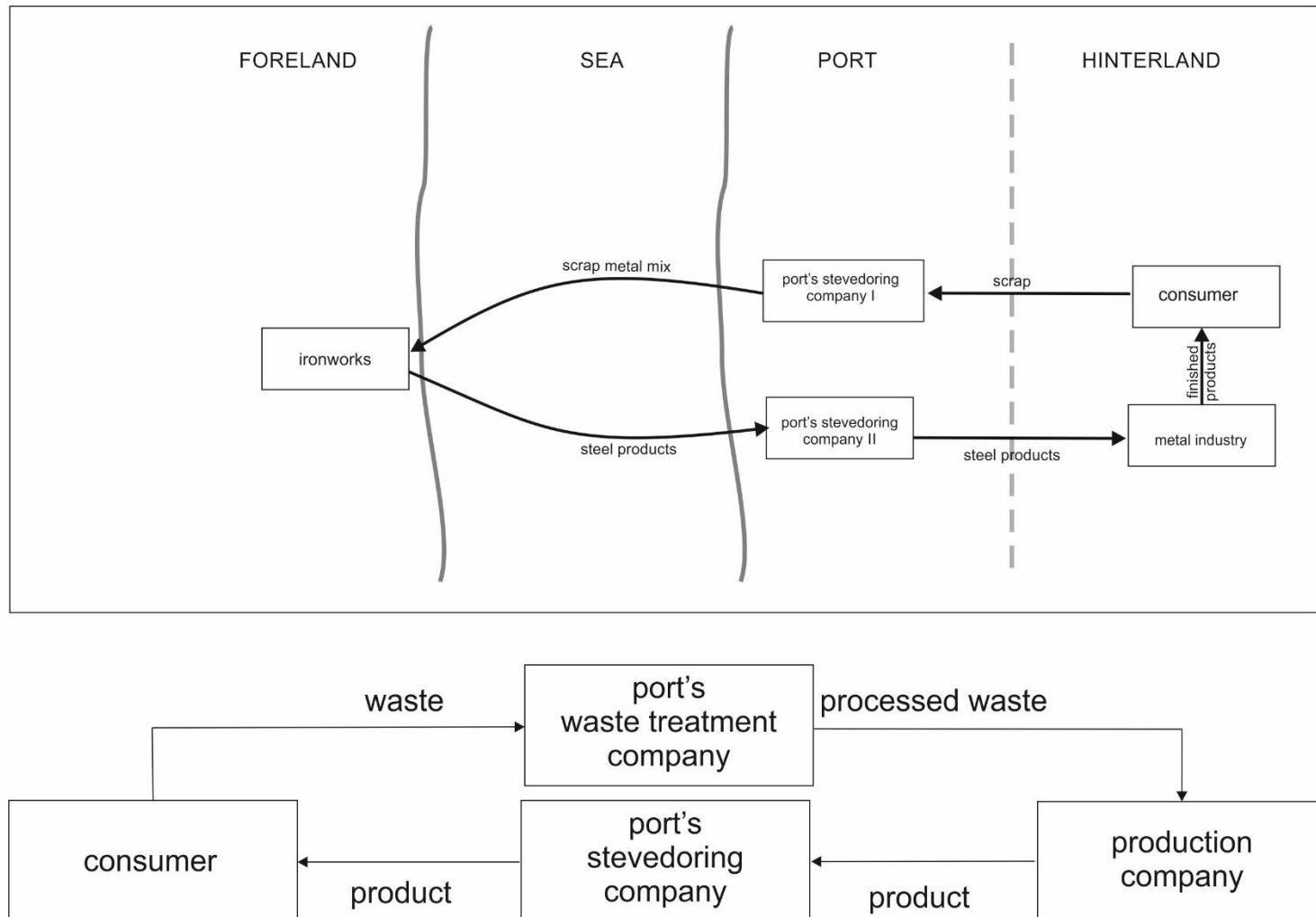
2.Limestone-Gypsum



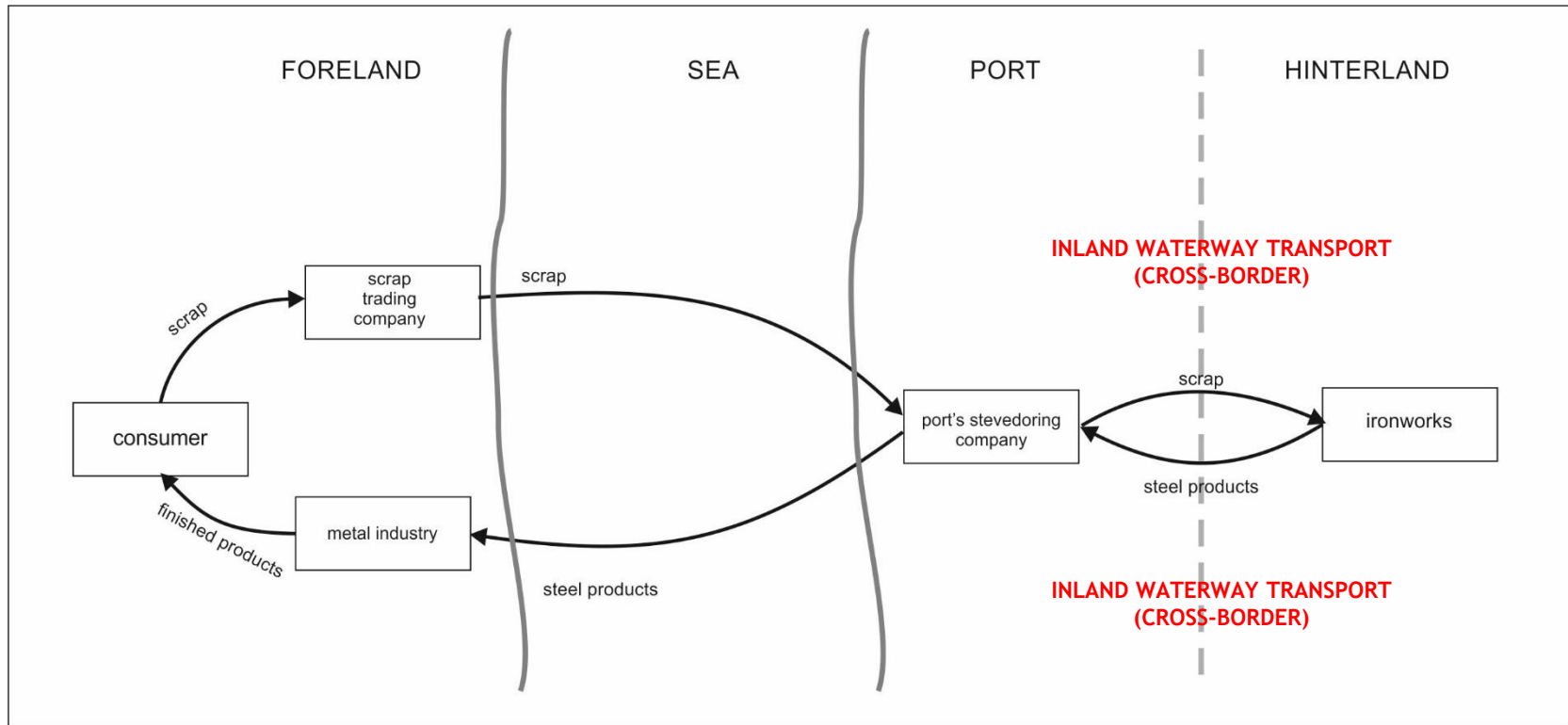
3. Tyres-Oil, Soot, Scrap Metal



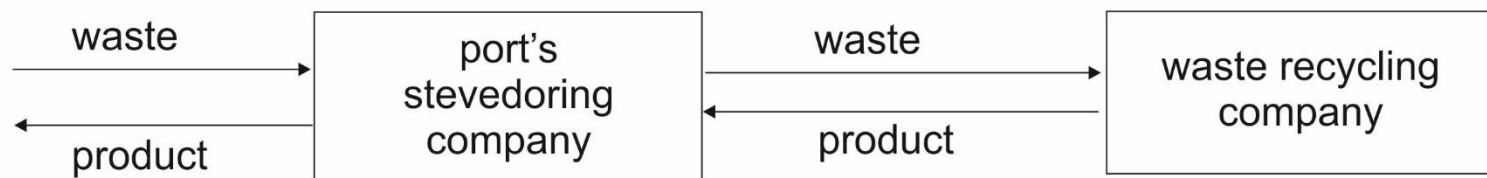
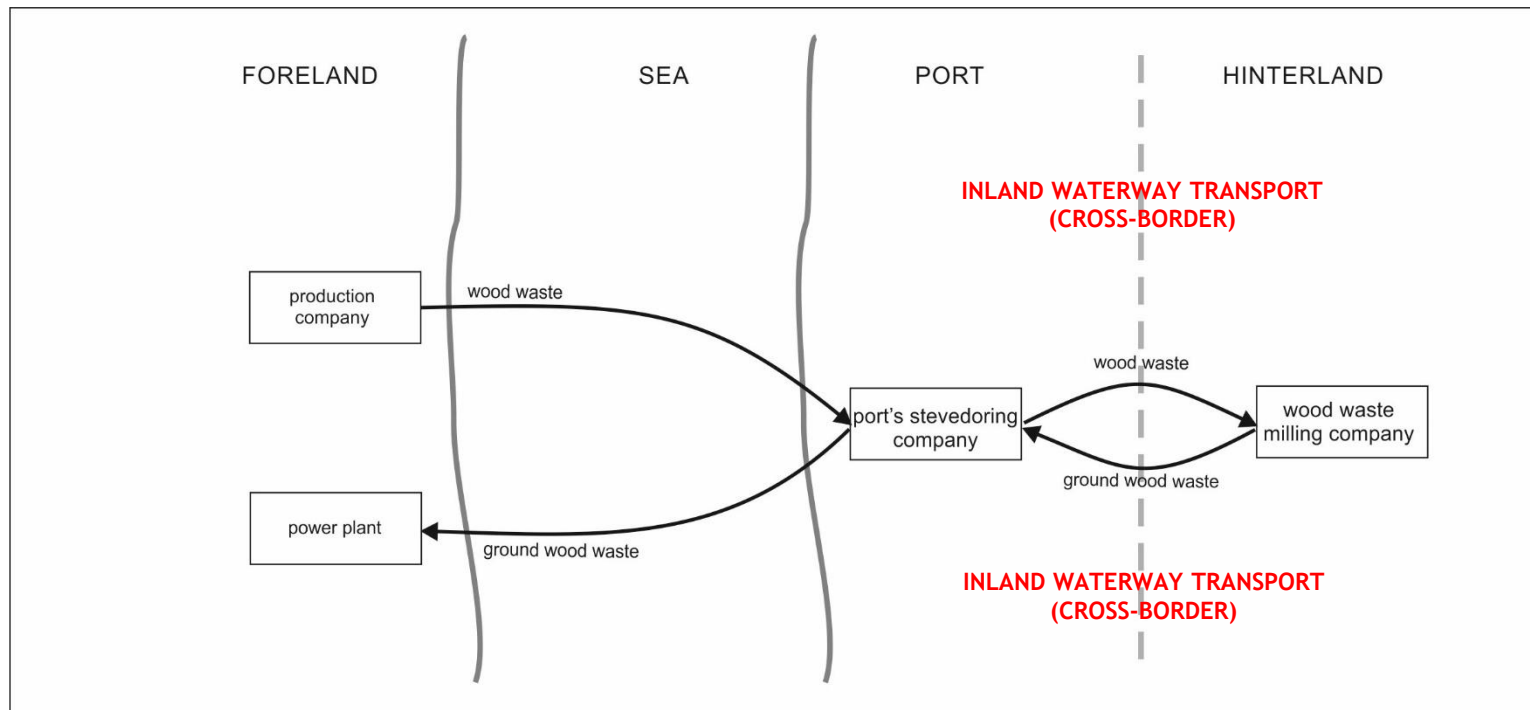
4a. Steel Products-Scrap Metal



4b. Steel Products-Scrap Metal



5. Wood waste-ground wood waste



RECOMMENDATIONS FOR SECONDARY PORT AUTHORITIES

THE MAIN CHALLENGE: THE TRANSITION FROM A LINEAR TO CIRCULAR MINDSET

- 1. The appropriate policy for investor assessment (besides total turnover):**
 - the value of cargo services, or
 - the amount of waste used in the process
- 2. The utilisation of any available areas within the port premises:**
 - synchronization of the port infrastructure development with the providing utilities to undeveloped port areas
 - encouraging CSCs participants to invest in and develop their business in port area
- 3. The appropriate communication with the external stakeholders (the local environment and the other CSC participants)**

RECOMMENDATIONS FOR STEVEDORES

THE MAIN CHALLENGE: DEVELOPMENT OF COMPETITIVE SERVICE OFFERS TO THE CSCs

1. **More comprehensive service offers**
2. **More added-value services**
3. **Services dedicated to handling hazardous waste (meeting legal requirements)**
4. **Closer cooperation with the other CSCs participants (dedicated distribution terminals and industrial plants)**



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