DaGoB – Safe and Reliable Transport Chains of Dangerous Goods in the Baltic Sea Region

Supply Chain Analysis of Dangerous Goods in the Baltic Sea Region – Multiple Case Study of 14 Supply Chains

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DaGoB Challenge

- Over 300,000,000 tons of goods classified as Dangerous Goods transported annually in the Baltic Sea Region (BSR).
- Yet a very small number of DG specialists work in each BSR country, and the administrative capacity is extremely limited.

DaGoB Strategic Focus

- DaGoB diffuses best practices across authorities and industries in line with EU transport policy, Safety and Security issues and Competitiveness of Transport Chains.
- DaGoB strengthens the competence of dangerous goods professionals in the Baltic Sea Region, and improves the efficiency and safety of transport chains involving DG.

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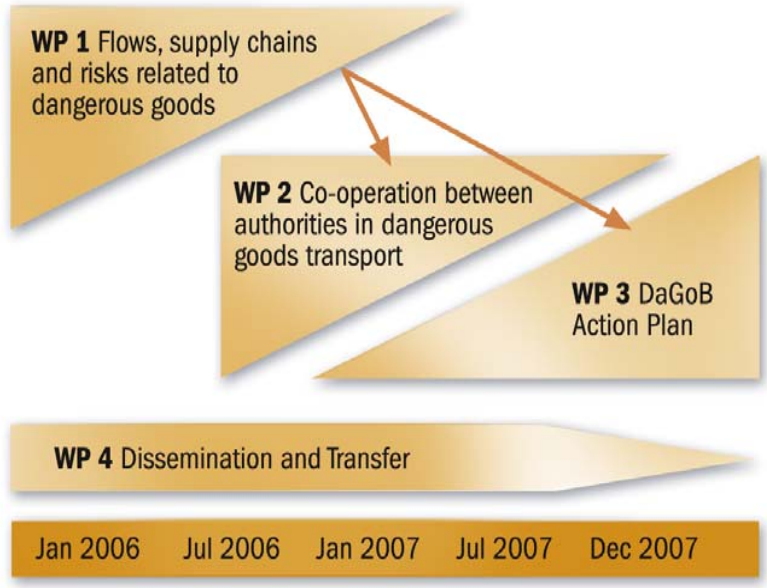
DaGoB builds capacity by…

•…providing up-to-date information on cargo flows, supply chain efficiency and risks related to dangerous goods (DG) transport in the BSR.

•…enhancing co-operation between authorities involved in transport of dangerous goods.

•…improving safety, reliability and efficiency of DG transport chains through best practice dissemination.

•…producing a pragmatic Toolkit for public and private sector DG stakeholders in the Baltic Sea Region.



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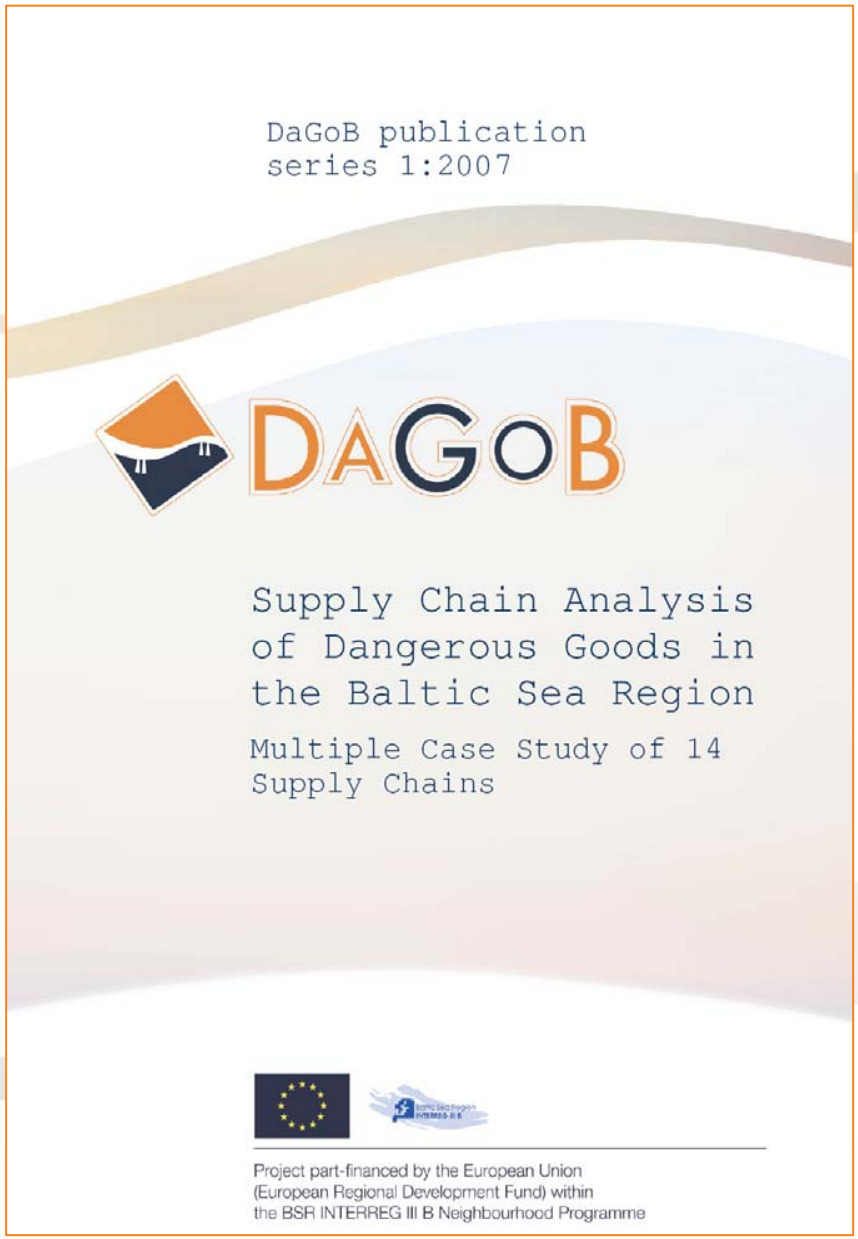
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Objectives of the study

- To describe the dangerous goods supply chain as a process
- To have one uniform process for all cases
- The process focuses on operative tasks
- To collect a broadest possible spectrum, considering our resources, of DG transport chains in the Baltic Sea Region.
- The preliminary selection of cases has been identified through a) the most transported DG classes, and b) the most common DG transport modes.
- To provide an insight into how DG supply chains work, with an overview of problems which the actors face.

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Objectives of the study

Process description of selected dangerous goods supply chains

Analysed issues:

- 14 selected SC cases
- Industry sector emphasis
- Information flows in chain
- Material flows in chain
- Liabilities between parties
- Supply chain partners
- Terminal operations
- Development areas

Covered criteria:

- Type of goods:
  - Liquid and dry bulk; unitized; general cargo
  - Key DG classes
- Route:
  - All BSR countries
  - For each SC, two or more BSR countries
- Transport mode:
  - Road, rail and maritime
- Transport unit:
  - Container, semi-trailer, road vehicles, rail wagon

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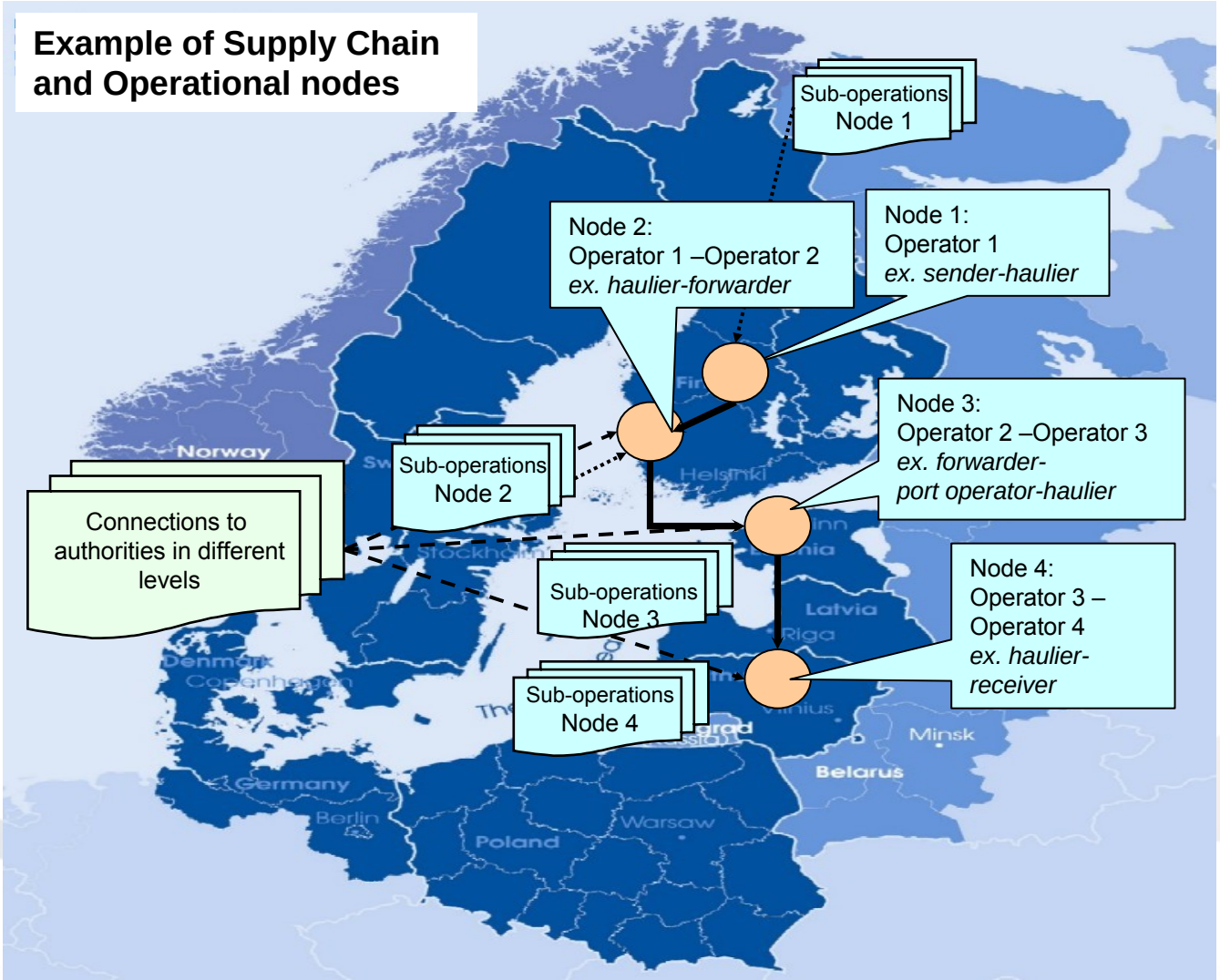
Example of Supply Chain and Operational nodes



Research areas

- Operators and operations
- Type of goods
- Documents
- Time and place
- Information exchange
- Operational information
- Risk analysis
- Effectiveness & efficiency

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Supply Chain cases

Case	Name	IMDG Class	UN no.	Packing group	Route
1	Hydrogen	2.1	1049	-	Finland -> Estonia
2	Methane	2.1	1972	-	Finland -> Sweden
3	Argon	2.2	1951	-	Finland -> Russia
	Nitrogen	2.2	1977	-	Finland -> Russia
	Oxygen	2.2 (5.1)	1073	-	Finland -> Russia
4	Cereclor	3 (6.1)	1993	III	France -> Finland
5	Paratoluen sulphonic acid	8	2586	III	France -> Finland
6	Mixed cargo	--	--	--	Finland -> Estonia
7	Printing ink	3	1210	II	Finland -> Russia
8	Printing ink	3	1210	II	Finland -> Ukraine

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Supply Chain cases (cont.)

Case	Name	IMDG Class	UN no.	Packing group	Route
9	Paint	3	1263	II	Finland -> Estonia
	Paint	3	1263	III	Finland -> Estonia
	Tripropyleneglycol diacrylate	9	3082	III	Finland -> Estonia
10	Paint	3	1263	II	Finland -> Latvia
	Paint	3	1263	III	Finland -> Latvia
	Zinc oxide	9	3082	III	Finland -> Latvia
11	Paint	3	1263	II	Finland -> Lithuania
	Paint	3	1263	III	Finland -> Lithuania
	Isophoronediamine	8	2289	III	Finland -> Lithuania
	Epoxy resin (mw < 700)	9	3082	III	Finland -> Lithuania
12	Ammonia, anhydrous	2.3 (8)	1005	-	Russia -> Finland
13	Fluorosilicic acid	8	1778	II	Finland -> Sweden
14	Ammonium nitrate based fertiliser	9	2071	III	Finland -> Estonia

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Cross-case analysis

Communication process

- Lack of common language causes some problems
- Information from ferry company whether it is possible to carry DG onboard comes very late
- In long-term relationships the communication is fluent

Authority involvement

- Some problems with the multimodal transportations, when interpreting different regulations

Document process

- Document practice seems to be well-established and stable

Liability process

- Each of the supply chain partners appeared to be well aware of the issues involved

Time

- Transportation time for dangerous goods doesn't seem to be different than for non-dangerous goods
- Lack of temperature regulated containers can sometimes cause delays

Other findings

- DG companies don't like to give too much information to the public

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Conclusions

- There are some differences between the regulations of different transport modes.
- The large amount of legislation causes some overlapping in few of the cases.
- In the summertime the ro-ro and ro-pax ferries carry so many passengers that the amount of DG cargo has to be decreased compared to the wintertime. This limits the total amount of DG transported in the BSR.
- Requirements of the DG transport stretch far beyond those of a normal shipment. That is why it is imperative to have system-controlled operations, up-to-date equipment, well-trained personnel and an approved quality system.
- No major problems occurred in the DG supply chains presented in this study. This is because of the familiar logistics providers and well-known trading partners.

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Some suggestions for remedial actions

- Decision-makers should be actively supplied with accurate information on dangerous goods transport.
- Coordination between different authorities is needed in the field of safety.
- Regulations must be adapted to the Baltic Sea Region conditions whenever possible.
- The human factor can be affected only by high-quality education and training, practice, up-to-date knowledge and the use of modern equipment.
- Work to improve safety of dangerous goods transportation has to be actively continued. Emphasis should be put on transport safety measures that prevent accidents from happening.
- The public needs to be better informed about the research conducted in the field.

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Thank you!

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