



Gothenburg (Donsö), Sweden, 3 September 2019

Document title	Results of the GREEN TEAM Reporting Mechanism survey
Code	3-2
Category	CMNT
Agenda Item	3 - GREEN TEAM Reporting Mechanism and Method
Submission date	20.8.2019
Submitted by	Secretariat
Reference	Document 3-1

Background

This document is a follow up to document 3-1, containing the results of the GREEN TEAM Reporting Mechanism survey.

The Finnish Maritime Cluster assisted the HELCOM Secretariat in developing the reporting tool which was published on the HELCOM Website as an [online survey](#) in June 2019. The survey will be kept continuously open for contributions by GREEN TEAM contact points, observers and other interested stakeholders. The intention is to consider results of the Reporting Mechanism annually at meetings of the GREEN TEAM and to be further reported to HELCOM MARITIME for action as appropriate.

As explained in document 3-1 and in the email sent by the Secretariat to GREEN TEAM and Maritime contact points and observers, responses received by 7 August 2019 are hereby submitted for consideration by GREEN TEAM 3-2019. The results of the survey are set out below and the survey questions are found in Annex 1 for information.

The Meeting is invited to identify the main obstacles hindering the development of the green shipping and alternative fuels deployment in the Baltic Sea area in the respect of the topics “Vessel, Infrastructure, Finance, R&D and Regulation”, as agreed as part of the establishment of the GREEN TEAM Reporting Mechanism and Method. The Meeting is also invited to further develop the survey for future reporting, as appropriate.

Action requested

The GREEN TEAM meeting 3-2019 is invited to:

- consider the results of the Reporting Mechanism survey presented in this document;
- discuss and agree the main challenges to be further reported to HELCOM MARITIME 19-2019 for action as appropriate;
- discuss and consider responses and initial experiences with the online survey with the view to its further improvement and development, as appropriate;
- agree on any identified needs for improvement of the survey;
- thank the Finnish Maritime Cluster for their assistance in developing the reporting tool and summarizing the results; and
- discuss the GREEN TEAM work plan in the light of responses under Agenda Item 4.

GREEN TEAM Reporting mechanism – results

The reporting mechanism is established to discover the main barriers, obstacles and challenges hindering the development and investments in green technology and alternative fuels in the Baltic Sea. The aim is to have structured and transparent collaboration among the public and private sector actors for a safer, more environmentally friendly and energy efficient transport by sea. The reporting will be used to share information and experiences, and to find common, workable and sustainable solutions.

The proposed reporting mechanism and method is based on the zero-vision-tool (ZVT) traffic-light reporting and further developed for the HELCOM GREEN TEAM purposes.

The reported issues and outcomes are from the following areas:

- Vessel (technology and design)
- Infrastructure (port development, alternative fuel infrastructure and fuel supply)
- Finance (financing, risk sharing, guarantees, co-funding and incentives to support investments)
- Regulation (new and updates)
- R&D (new identified areas and required pilots)

The traffic light approach is used in reporting:

- Red – when obstacles arise and actions are needed from the HELCOM co-operation (either industry, administrations and/or academia)
- Yellow – when guidance is required from the HELCOM co-operation
- Green – when the issues can be solved and results are shared

Knowledge and information is shared based on real-life cases i.e. on-going R&D, pilot and investment projects in the Baltic Sea region. The GREEN TEAM participants, HELCOM observers (e.g. port and shipping associations), the flagship projects of the EU strategy for the Baltic Sea Region and the identified platforms (e.g. ZVT, Green Ship of the future, Saint-Petersburg Initiative) as well as other maritime research and investment projects have been invited to report of their results, progress and the main obstacles related to green technologies and alternative fuels in the Baltic Sea shipping.

The first reporting for annual consideration of the GREEN TEAM Reporting Mechanism was opened on 28 June 2019 and the responses submitted by 9 August 2019 were taken into consideration for this report. The survey will be kept continuously open for contributions by GREEN TEAM contact points, observers and other interested stakeholders and future results will be analyzed annually at meetings of the GREEN TEAM.

Totally 31 responses were received by the deadline and in 22 of them answers to all the questions were completed. The responses came from Denmark (2), Estonia (1), Finland (15), Sweden (9) and the Russian Federation (1) (Figure 1).

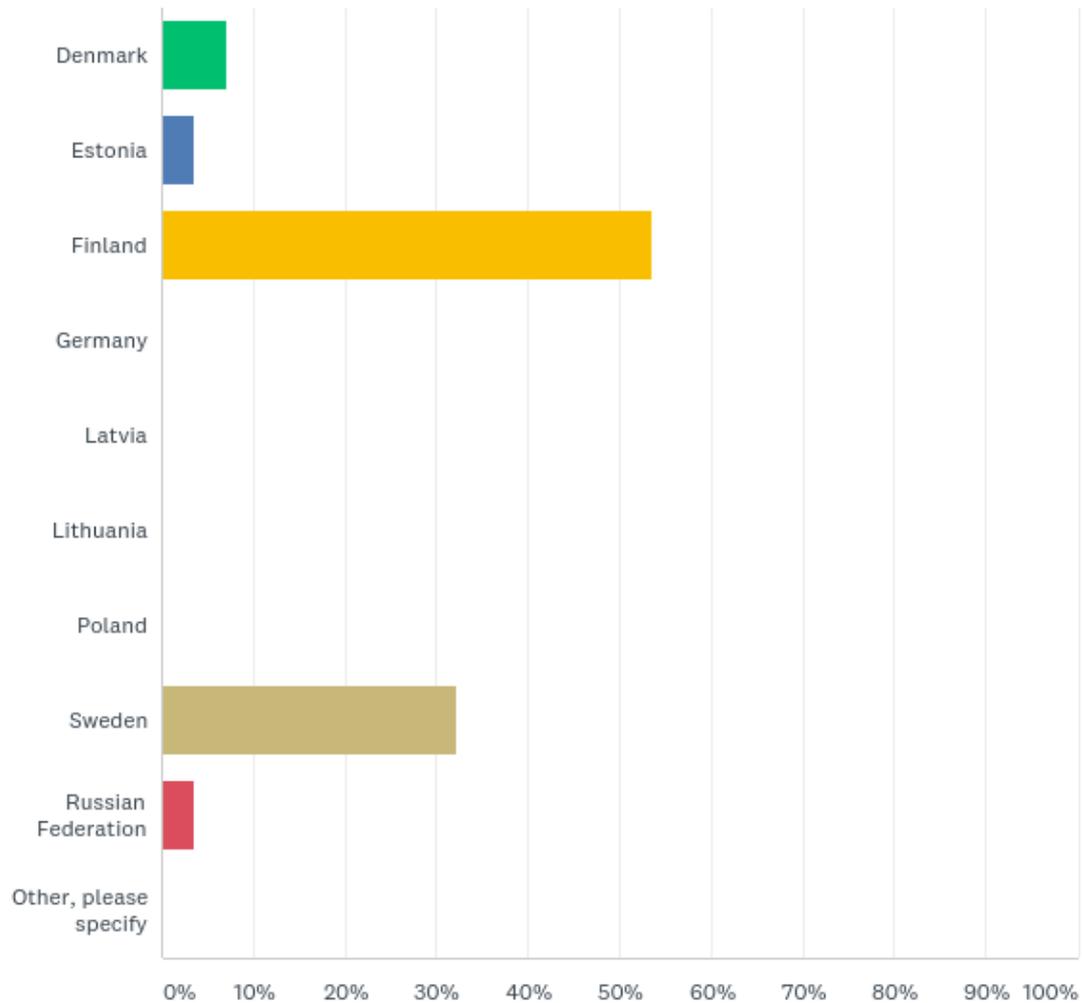


Figure 1. Countries the responses i.e. the projects, investments, developments or plans are based in.

Most of the responses were by shipowners (15) showing the interest of shipowners in the development of green technologies and alternative fuels investments. The other respondents were fuel supplier (1), port authority (5), port operator (1), Administration (1), NGO (1), research and development (2) and other (2, consultant and combined port and port operator) (Figure 2).

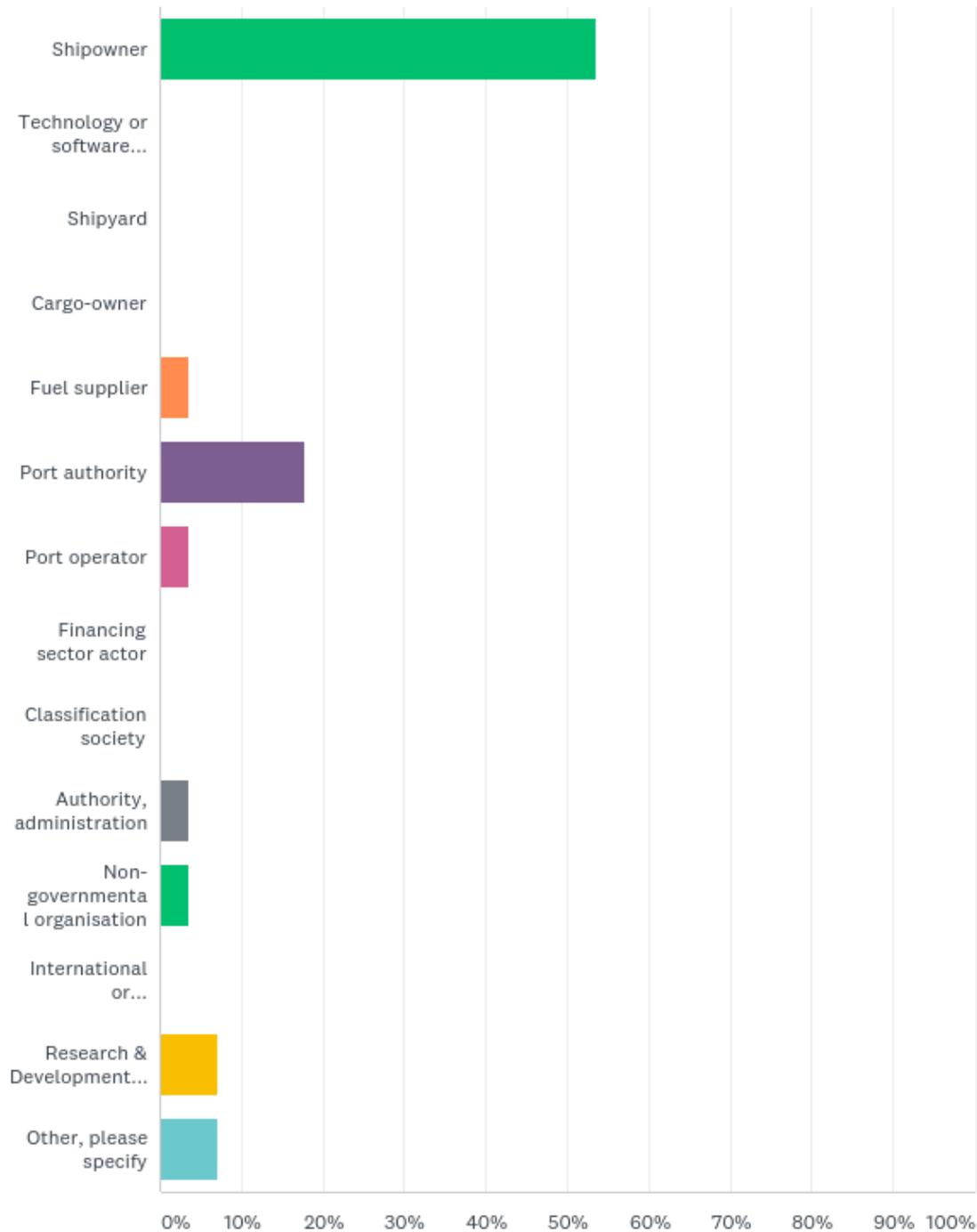


Figure 2. Organizations the respondents are representing.

The reported projects or investments were related to new-buildings (14), retrofit (6), piloting of new technology (3), port infrastructure (4), bunkering infrastructure (2), research (3) and other (5) (Figure 3).

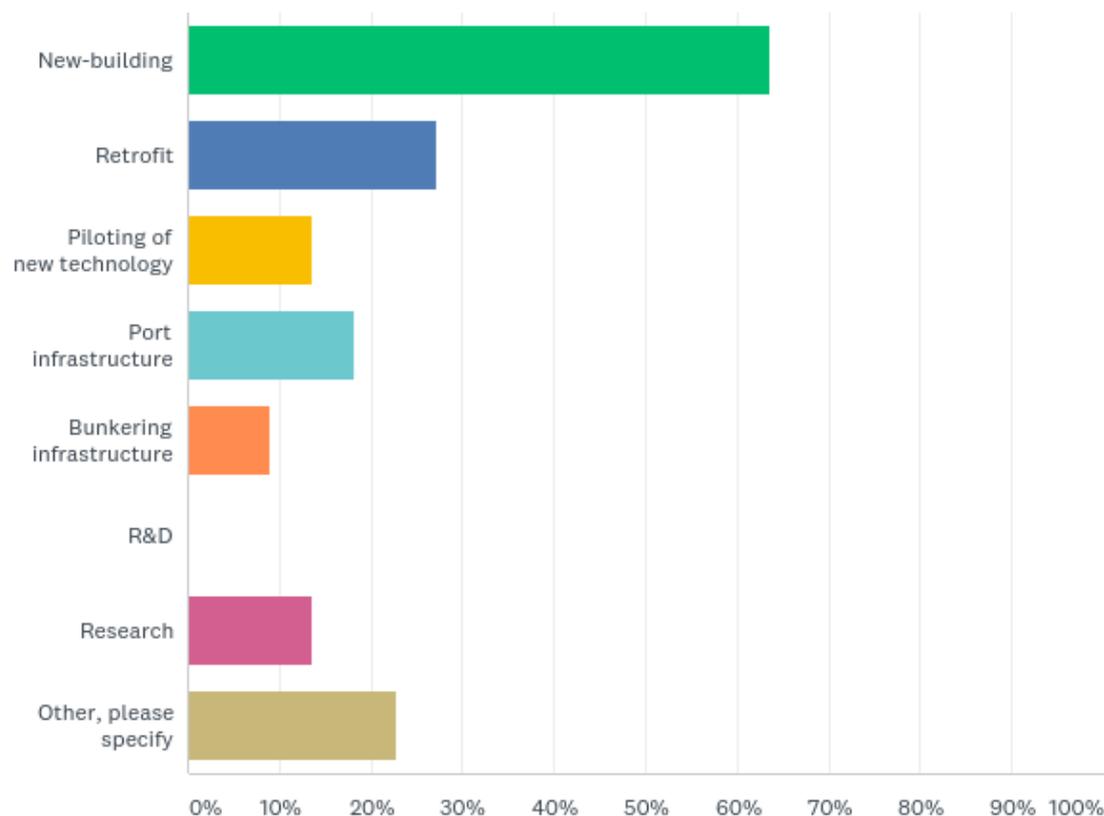


Figure 3. Type of the reported projects.

The results were divided to the five areas as shown in Table 1. Infrastructure and Finance were the areas where most of the challenges have been experienced.

Table 1. The areas where the challenges were experienced most.

ANSWER CHOICES	RESPONSES
Vessel (e.g. technology, design)	8.33% 2
Infrastructure (e.g. port development, port infrastructure, alternative fuels infrastructure and fuel supply)	33.33% 8
Finance (e.g. lack of financing, risk sharing, guarantees, co-funding, incentives)	33.33% 8
Regulation (e.g. regulation, recommendations, standards, guidelines)	16.67% 4
R&D (e.g. research and/or piloting new technologies or fuels)	8.33% 2
TOTAL	24

The main challenges reported as a red traffic-light were related to harmonized rules (Regulation) and lack of financing (Finance) (Table 2).

Table 2. Beforehand identified green technologies and alternative fuel technologies and related issues rated according to the traffic-light scale.

		GREEN	YELLOW	RED
Emission abatement technology	%	41	24	12
	n	7	4	2
Energy efficiency measures	%	50	28	6
	n	9	5	1
LNG	%	58	11	16
	n	11	2	3
Methanol	%	18	12	24
	n	3	2	4
Biofuels	%	11	39	28
	n	2	7	5
On-shore power supply	%	26	37	26
	n	5	7	5
Other alternative fuel or energy source	%	17	33	17
	n	3	6	3
Bunkering infrastructure	%	39	33	11
	n	7	6	2
Bunkering supply	%	39	28	11
	n	7	5	2
Port infrastructure (e.g. quay structure, draught)	%	44	28	6
	n	8	5	1
Port reception facilities	%	28	33	17
	n	5	6	3
Access to information (e.g. just-in-time arrival, optimisation, information sharing)	%	22	44	11
	n	4	8	2
Digital solutions	%	22	50	6
	n	4	9	1
Regulatory gaps	%	12	41	12
	n	2	7	2
Harmonised rules	%	16	37	37
	n	3	7	7
Lack of financing	%	10	35	35
	n	2	7	7

Furthermore, in the freely written (answers obstacles were reported related to biofuels (Regulation) and on-shore power supply (Infrastructure). The main obstacles described in the open answers are listed in Table 3.

Table 3. The main obstacles described in the open answers.

AREA	The main obstacles (red)	Responsible body addressing the challenge (if mentioned)
Vessel	Zero emissions at port	Port authority, EU, IMO
	Eco-efficient digital solutions:	Industry, Classification society, Port authority,

	<p>The challenges are the bottlenecks which are currently preventing eco-efficient operation of the vessels (and throughout their life-cycle); e.g. lack of</p> <ol style="list-style-type: none"> 1) customised solutions in digital performance monitoring, 2) harmonized processes in shipyard environment, 3) cargo stowaging optimization. <p>The industry-wide regulation, information sharing and harmonized rules which all require industry-wide transnational cooperation, thus top-down approach from the policy level in order to secure level (and sustainable) playing field for all.</p>	National administration, EU, IMO, HELCOM (Implementation needed in all levels)
Infrastructure	With the new demands of reducing CO ₂ emissions it will be a challenge to re-arrange the infrastructure and the demand of biofuel is increasing in all segments of transportation.	Industry, National administrations, EU, HELCOM
	Lack of LBG supply in ports. Future supply of fossil free fuel (LBG). Political pressure and support in order to kick start production of biofuel are needed. Supply of LBG is on the responsibility of industry and national administrations.	Industry, National administrations, EU, IMO, HELCOM
	With more and more looking to alternative fuels, it needs to be addressed on how to meet these demands.	Industry, National administrations, EU, HELCOM
	There are still technical challenges and a lack of existing solution for an on-shore power supply in a discharging port for a tanker due to a high power requirement. Industry and technology providers need to develop their OPS systems at discharging ports of liquid cargo to handle power requirement.	
	Lack of on-shore power supply in ports	
Finance	EU co-funding for green technologies and alternative fuels is getting more and more difficult to receive. It is moving towards blending which requires involvement of financial institution and the co-funding rates are expected to get lower. The very low co-funding rates do not encourage to apply co-funding due to the high bureaucracy. This development is hindering the new investments and risk taking.	EU
	There is a need to develop ship financing instruments to finance the additional costs to build more environmentally friendly ships beyond the existing environmental legislation. The environmentally friendly vessels are about 20 % more expensive than conventional ones. E.g. the Nordic banks have not signed the EIB's Green shipping guarantee programme and that causes problems for Nordic shipowners. The support for green ship investments should be developed (cheaper loans, guarantees, co-funding). Member states should guide national state-owned banks to develop solutions for green shipping and improve co-operate with EIB.	Financing sector

	On-shore power supply cost is not justifiable against the results gained.	IMO
	Better and easier ways for shipowners are needed to get funding for their projects.	
	Common banks are not interested in shipping or activities related to shipping.	Industry, Classification societies, Port authorities, National administrations, EU, IMO, HELCOM
	The bank and the finance world are not yet ready to fund less profitable projects in the beginning. Even if these ships income will be better in the future than the current old technology ships.	
	It is difficult for the authorities to release financial means for research projects.	
Regulation	There is conflicting legislation when it comes to port reception facilities.	National administrations, EU, IMO
	The status of biofuels and their usage is not very clear	EU, IMO, HELCOM
	Simultaneous cargo operations and LNG bunkering (SIMOPS) is not allowed in all ports. SIMOPS operations reduce time a ship is staying in a port and avoid operational delays. It increases efficiency of transport. The LNG bunkering guidelines should be harmonised and simultaneous cargo operations and LNG bunkering should be made possible in ports if not causing any safety risks.	Port authority
	GHG issue should be taken more seriously.	EU, IMO; HELCOM
R&D	<p>Content of greywater from ships and impact of greywater in the Baltic. It is usually quite difficult for the authorities to release financial means for research Projects.</p> <p>Vessel: the development of new technologies requires investments, supportive regulations and Incentives.</p> <p>Infrastructure: the development of port infrastructure and alternative fuels requires as well financial investments, research, but also co-operation of several stakeholders. Finance: The core problem for the development of new technologies and alternative fuels; More investments are needed; well-designed incentive mechanisms could also be helpful. Regulation: regulatory gaps should be eliminated; regulations should be simplified and harmonised. R&D: This are require financing and Incentives as well; piloting of new technologies would require in addition flexible regulations, that do not hamper new solutions.</p> <p>The challenges flagged with red traffic light concern e.g. the industry-wide regulation, information sharing and harmonised rules which all require industry-wide transnational cooperation, thus top-down approach from the policy level in order to secure level (and sustainable) playing field for all.</p>	Industry, port authorities, national administrations, EU, IMO, HELCOM, Academia, Financing sector

Additionally, the zero-emission hydrogen fuel cell powered vessel was also reported, but as its development is in such an early stage no specific challenges were identified yet.

Table 4 is showing the responsible actors according to the responses to tackle the challenges and showing the joint responsibility of all stakeholders involved.

Table 4. The responsible bodies for implementing the actions to tackle the main challenges.

ANSWER CHOICES	RESPONSES	
Industry	38.10%	8
Classification society	9.52%	2
Port authority	33.33%	7
National administration	47.62%	10
EU	66.67%	14
International Maritime Organization (IMO)	47.62%	10
HELCOM (e.g. Green Team, Maritime)	47.62%	10
Academia	9.52%	2
Financing sector	19.05%	4
Other, please specify	9.52%	2
Total Respondents: 21		

It was proposed in the freely written answers that HELCOM should give guidance on the implementation of new technologies related to the green technologies and alternative fuels. Ports and other stakeholders in the maritime transport sector should meet and exchange information of the best practices and agree upon certain standards. The same regulations and methods should be applied for the industry within the Baltic Sea region at least.

The survey has been attached to this report (Annex 1). The role of question 3 (Optional background information) could be discussed if necessary. With regard to the question 7 (Traffic light) e.g. the following issues could be added to the list: LBG (liquefied biogas), electric and hybrid ship and hydrogen fuel cells. The questions for open answers (6 and 8) could be made mandatory to answer to receive better and more accurate information.

HELCOM MARITIME GREEN TEAM - Reporting mechanism

The reporting mechanism is established to find out the main barriers, obstacles and challenges hindering the development on green technologies and alternative fuels in the Baltic Sea shipping. The results will be used to facilitate knowledge and information sharing among the public and private sectors, as well as decision making bodies, and to promote an early introduction of new technological solutions and alternative fuels.

The intention is to gather knowledge and information based on real-life cases i.e. on-going R&D, pilot and investment projects in the Baltic Sea region. HELCOM Green Team contact points, observers (e.g. port and shipping associations), the flagship projects of the EU strategy for the Baltic Sea Region and relevant platforms (e.g. ZVT, Green Ship of the future, Saint-Petersburg Initiative) as well as other maritime research and investment projects are invited to report of their results, progress and obstacles related to green technologies and alternative fuels in the Baltic Sea.

Based on the responses received, the HELCOM Secretariat will compile the results annually for consideration by the HELCOM Green Team meetings. The Green Team will discuss and analyze the results and identify the main obstacles as well as the respective stakeholders to be able to take appropriate action. The outcome will be reported to the HELCOM Maritime Working Group with proposals for further action to be taken by HELCOM Maritime. Reporting will provide support for knowledge sharing between decision-making bodies, the industry and academia.

Please give your valuable information and share challenges you have faced in e.g. a project, investment, development, plan or any other specific case related to green technologies and/or alternative fuels in shipping.

It takes approximately 10 minutes to complete the survey. Thank you for your contribution.

The individual answers are handled anonymously.

Further information about the HELCOM GREEN TEAM can be found at [HELCOM's website](#).

1. In which country is the project, investment, development or plan based in?

- Denmark
- Estonia
- Finland
- Germany
- Latvia
- Lithuania
- Poland
- Sweden
- Russian Federation
- Other, please specify

2. An organization you are representing

- Shipowner
- Technology or software supplier
- Shipyard
- Cargo-owner
- Fuel supplier
- Port authority
- Port operator
- Financing sector actor
- Classification society
- Authority, administration
- Non-governmental organisation
- International or intergovernmental organisation
- Research & Development organisation
- Other, please specify

3. Optional background information

(only for the use of the HELCOM Secretary/GREEN TEAM, not presented in the survey results)

Name of the project,
investment, development
or plan

Implementation time

Other project partners, if
any

Summary of the project,
investment or plan

Expected outcome

4. Type of the project mentioned above

- New-building
- Retrofit
- Piloting of new technology
- Port infrastructure
- Bunkering infrastructure
- R&D
- Research
- Other, please specify



HELCOM MARITIME GREEN TEAM - Reporting mechanism

Bottlenecks and challenges in green shipping investments

* 5. In which of the following areas have you experienced challenges the most?

- Vessel (e.g. technology, design)
- Infrastructure (e.g. port development, port infrastructure, alternative fuels infrastructure and fuel supply)
- Finance (e.g. lack of financing, risk sharing, guarantees, co-funding, incentives)
- Regulation (e.g. regulation, recommendations, standards, guidelines)
- R&D (e.g. research and/or piloting new technologies or fuels)

6. Please describe shortly the challenges above?

7. Regarding the area chosen in question 5, how would you specify the challenges and rate them according to a traffic light scale?

Green – issues can be resolved and results are shared within the HELCOM public&private co-operation

Yellow – guidance is required from the HELCOM public&private co-operation

Red – obstacles arise and actions are needed from the HELCOM public&private co-operation

	Green	Yellow	Red	N/A
Emission abatement technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy efficiency measures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
LNG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Methanol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biofuels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
On-shore power supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other alternative fuel or energy source	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bunkering infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bunkering supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Port infrastructure (e.g. quay structure, draught)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Port reception facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to information (e.g. just-in-time arrival, optimisation, information sharing)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Digital solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regulatory gaps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harmonised rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of financing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other, please specify

Actions to overcome the challenges

8. What would you propose should be done for addressing the challenges? Please identify in your answer which specific challenge(s) your proposals are related to.

9. In your opinion which is the responsible body for implementing these actions?

- Industry
- Classification society
- Port authority
- National administration
- EU
- International Maritime Organization (IMO)
- HELCOM (e.g. Green Team, Maritime)
- Academia
- Financing sector
- Other, please specify