

ENSURING SHIP'S FRESH WATER FOR SEAFARERS

OaSeas



INDEX

- Background
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Background



Background

1) Term



Drinking water



Fresh water

cleaning, bathing, washing

Background

2) Main problem of water quality

구분	평균선령(년)		
	1996	2006	2021
그리스	19.7	17.4	12.8
중국	17.9	20.2	12.8
일본	9.3	9.0	9.0
한국	12.6	16.0	14.2
독일	10.8	8.9	14.0
노르웨이	15.4	20.1	15.1
싱가폴	16.5	16.6	12.9
미국	17.7	12.8	15.9
대만	13.6	13.7	12.9
이탈리아	17.3	15.6	16.3
10개국	-	-	-
세계	16.4	17.4	15.8



Average ship age

15.8 YEAR

. Corrosive pipes and tanks from **aging ships**

1)ISL, SSMR January-February issue of each year, based on the nationality of shipowners over 1000g, Korea Shipping Newspaper 2022.04.25 :

<http://www.maritimepress.co.kr/news/articleView.html?idxno=30963>

2)https://www.flaticon.com/freecon/loupe_751463?term=search&page=1&position=7&page=1&position=7&related_id=751463&origin=search

Background

2) Main problem of water quality

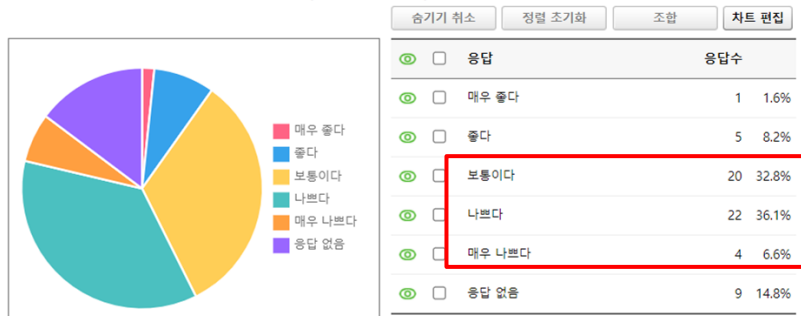
- If water moves through **rusted pipes**, rust may occur as shown in the picture below



Background

2) Main problem of water quality

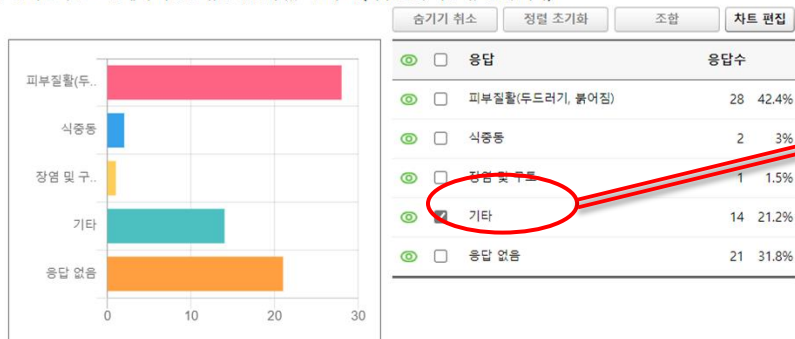
1-8. 생활용수의 질을 어떻게 느꼈나요?(세척, 샤워, 청소 등)



Survey result: 61 seafarers

Of the 61 respondents, 52 have been on board the ship, and **48 out of 52 (more than 90%)** said the quality of Fresh water is not good.

1-9. 나쁜 수질로 인해 부작용을 겪은 경험이 있으신가요?(피부질환, 식중독, 장염, 기타)



hives, respiratory diseases,

Teeth discoloration, gum disease, hair loss

Background

3) Accident due to water

Table 2-1 Pathogens and toxins linked to outbreaks of waterborne disease associated with ships, 1 January 1970 – 30 June 2003

Pathogen/toxin	Number of outbreaks	Number of passengers and crew members affected
Enterotoxigenic <i>Escherichia coli</i>	7	2917
Norovirus	3	788
<i>Salmonella typhi</i>	1	83
<i>Salmonella</i> spp.	1	292
<i>Shigella</i> spp.	1	690
<i>Cryptosporidium</i> spp.	1	42
<i>Giardia lamblia</i>	1	200
Unknown agent	5	849
Chemical water poisoning	1	544
Total	21	6405

Source: Rooney et al. (2004).



6405

200

1/3



1)WHO:Guide to ship sanitation third addition(Geneva 2011) 2.1.4 Health risks associated with potable water on ships(p.16)

2) https://www.flaticon.com/freeicon/danger_752691?term=poisoning&page=1&position=22&page=1&position=22&related_id=752691&origin=search

Background

3) Accident due to water

The Korea Times

2 Sailors Die of Food Poisoning



By Kim Se-jeong
Staff Reporter

Two Korean sailors were found dead from what appears to be food poisoning in a vessel headed for Korea from Kandala port in western India, the Indian Embassy in Seoul said Monday.

According to a press release, "Four crewmen appeared conscious and were able to move, the medical team found many other unconscious and four of them dead in their cabins."

Bin Jo-bin, 23, and Gaal Go-seong were the dead, along with two people of Burmese descent, it said.

The Korean vessel of 20 sailors was carrying fodder.

The Indian Coast Guard suspected tinned meat and fish to be behind the deaths. "It is understood that a meal of tinned meat and fish on the night of Feb. 10 resulted in all of them developing stomach (pains), diarrhea and vomiting."

2009.2.13

two Koreans and two people died while showing symptoms of **food poisoning**

**-contaminated water
-contaminated utensils
-water with viruses**



**Not only spoiled food,
But also "water" is
the cause.**

Splash

Food poisoning kills 12 onboard Chinese bulker

Adis Ajdin · October 1, 2022

1547 1 minute read



2022.10.1

Twelve crew members have died of suspected **food poisoning** onboard bulk carrier

Background

4) IMO: ASSEMBLY 32nd session Agenda item 9(a)



E

ASSEMBLY
32nd session
Agenda item 9(a)

A 32/9(a)
12 November 2021
Original: ENGLISH
Pre-session public release: ☒

STRATEGY, PLANNING AND REFORM

(a) Strategy and planning

Revised Strategic Plan for the Organization for the six-year period 2018 to 2023

Note by the Secretary-General

SUMMARY

Executive summary: This document invites the Assembly to consider and adopt the draft Assembly resolution on the revised *Strategic Plan for the Organization for the six-year period 2018 to 2023*, including the revised table of performance indicators and the list of outputs for the 2022-2023 biennium

Strategic direction, if applicable: 7

Output: 7.8

Action to be taken: Paragraph 7

Related documents: Resolutions A.1110(30); A.1111(30); A.1131(31); C 125/D; C/ES.34/3(a) and C/ES.34/D

4) IMO: ASSEMBLY 32nd session Agenda item 9(a)

A 32/9(a)
Annex, page 7

SD 6: Address the human element

31 The human element is recognized as a key element of the safety of life at sea and the protection of the marine environment. Furthermore, the human element is an overarching principle for the Organization, particularly when developing and implementing new and existing requirements to ensure the safe, secure and environmentally sound operation of ships.

32 Although shipping continues to experience a transformation with the development of new and advancing technologies, including digitalization, the human element continues to play a vital role in the maritime sector both on board and ashore.

33 The necessity to take into account the human element in the work of the Organization, accompanied by synergies with the work of the United Nations (UN) system have resulted in the need for increased focus on the human element in the rule making process.

34 In its role as the global regulator of shipping, IMO will build on work already completed to address the human element and will take the human element into account in the review, development and implementation of new and existing requirements. This includes the provision of machinery for cooperation among Governments on practices concerning the human element in the maritime sector. To address human element related issues, the Organization will develop or amend provisions, including but not limited to training, certification and watchkeeping, including consideration of new technologies; human-centred design; safe manning; drills and exercises; fatigue management; operational safety, security, and environmental protection; and fair treatment of seafarers, taking into account the important role of gender equality.

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Background

4) IMO: ASSEMBLY 32nd session Agenda item 9(a)

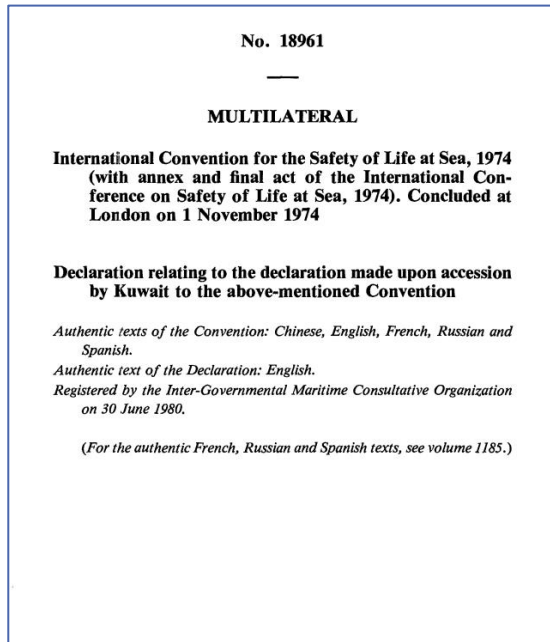
SD 6 Address the human elements	6.1	Role of the human element	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW
	6.2	Validated model training courses	Continuous	MSC/MEPC	III/PPR/CCC/SDC/SSE/NCSR	HTW
	6.3	Reports on unlawful practices associated with certificates of competency	Annual	MSC	HTW	
	6.4	Consideration of reports on the application of the joint IMO/ILO Guidelines on the fair treatment of seafarers and consequential further actions as necessary	Annual	LEG		
	6.5	Development of measures to facilitate mandatory seagoing service required under the International Convention on Standards of Training Certification and Watchkeeping for Seafarers (STCW)	2023	MSC	III	HTW

I:\ASSEMBLY\32\A 32-9(a).docx

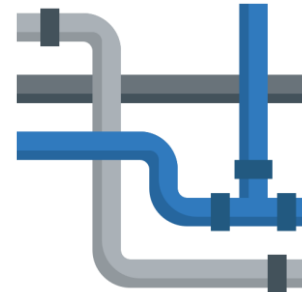
Problem Analysis

Problem Analysis

1-1) Absence of regulation : SOLAS 1974



SOLAS 1974



No regulations
for fresh water pipelines

Problem Analysis

1-2) Absence of regulation : MLC 2006

Guideline B3.1.7 – Sanitary accommodation

1. Washbasins and tub baths should be of adequate size and constructed of approved material with a smooth surface not liable to crack, flake or corrode.

2. All toilets should be of an approved pattern and provided with an ample flush of water or with some other



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suitable flushing means, such as air, which are available at all times and independently controllable.

3. Sanitary accommodation intended for the use of more than one person should comply with the following:

(a) floors should be of approved durable material, impervious to damp, and should be properly drained;

(b) bulkheads should be of steel or other approved material and should be watertight up to at least 23 centimetres above the level of the deck;

(c) the accommodation should be sufficiently lit, heated and ventilated;

(d) toilets should be situated convenient to, but separate from, sleeping rooms and wash rooms, without direct access from the sleeping rooms or from a passage between sleeping rooms and toilets to which there is no other access; this requirement does not apply where a toilet is located in a compartment between two sleeping rooms having a total of not more than four seafarers; and

(e) where there is more than one toilet in a compartment, they should be sufficiently screened to ensure privacy.

4. The laundry facilities provided for seafarers' use should include:

(a) washing machines;

(b) drying machines or adequately heated and ventilated drying rooms; and

(c) irons and ironing boards or their equivalent.

MLC 2006



No regulations
for fresh water supply facilities

MLC, 2006 - Maritime Labour Convention, 2006 (MLC, 2006) / <https://krcon.krs.co.kr/>

Photo : [https://www.flaticon.com/free-](https://www.flaticon.com/free-icon/shower_3096630?term=shower&page=1&position=35&page=1&position=35&related_id=3096630&origin=search)

[icon/shower_3096630?term=shower&page=1&position=35&page=1&position=35&related_id=3096630&origin=search](https://www.flaticon.com/free-icon/shower_3096630?term=shower&page=1&position=35&page=1&position=35&related_id=3096630&origin=search)

Problem Analysis

2) No fresh water inspection for seafarer



**Fresh water
for machines**



**NO REAL INSPECTION
FOR SEAFARER**

Problem Analysis

3) Poor pipeline management

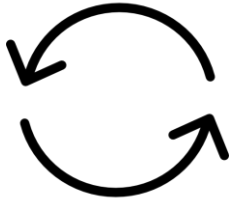
PSC Regular Inspection

Every 5 years



Problem Analysis

3) Poor pipeline management



Pipeline Replacement Cycle

15~20 YEARS



Average Demolition
of Three Major Vessels
(Bulk, Container, Tanker)

27.7 YEARS

Almost none replacement

Problem Analysis

4) Poor knowledge of fresh water



**Difficult to judge
about pollution**

Solutions

Solution

1) Amend SOLAS II-1 : regulate fresh water pipeline

< SOLAS 1974 >

Chapter II-1

INSERT new regulation 58

Standards for Shipbuilding for Fresh Water Pipeline

1. This Regulation shall apply to vessels constructed on or after 1 January 2025.
2. All freshwater pipelines shall be designed, manufactured and installed to withstand corrosion that they may receive.
 - .1 The material of the freshwater pipeline shall be stainless in accordance with the pipeline performance standards recognized by Administration or the national standards of the Administration with equivalent safety levels.
 - .2 The freshwater pipeline shall be regularly maintained and maintained to ensure proper maintenance of fresh water supplied to the seafarers.

Solution

1) Amend SOLAS II-1 : regulate fresh water pipeline

Table 1 RELATIVE CORROSION RESISTANCE OF AISI STAINLESS STEELS								
AISI TYPE Number	UNS Number	Mild Atmospheric and Fresh Water	Atmospheric		Salt Water	Chemical		
			Industrial	Marine		Mild	Oxidizing	Reducing
201	(S20100)	X	X	X		X	X	
202	(S20200)	X	X	X		X	X	
205	(S20500)	X	X	X		X	X	
301	(S30100)	X	X	X		X	X	
302	(S30200)	X	X	X		X	X	
302B	(S30215)	X	X	X		X	X	
303	(S30300)	X	X			X		
303 Se	(S30323)	X	X			X		
304	(S30400)	X	X	X		X	X	
304L	(S30403)	X	X	X		X	X	
	(S30430)	X	X	X		X	X	
304N	(S30451)	X	X	X		X	X	
305	(S30500)	X	X	X		X	X	
308	(S30800)	X	X	X		X	X	
309	(S30900)	X	X	X		X	X	
309S	(S30908)	X	X	X		X	X	
310	(S31000)	X	X	X		X	X	
310S	(S31008)	X	X	X		X	X	
314	(S31400)	X	X	X		X	X	

2) Installing a cleaning checklist

1. This Regulation shall apply to vessels constructed on or after 1 January 2025.
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[illegible]

Solution

3) Amend STCW to educate seafarers about fresh water

STCW Code Part A/ Section A-VI/4-1

Specification of a minimum standard of competence in personal safety and social responsibilities



Solution

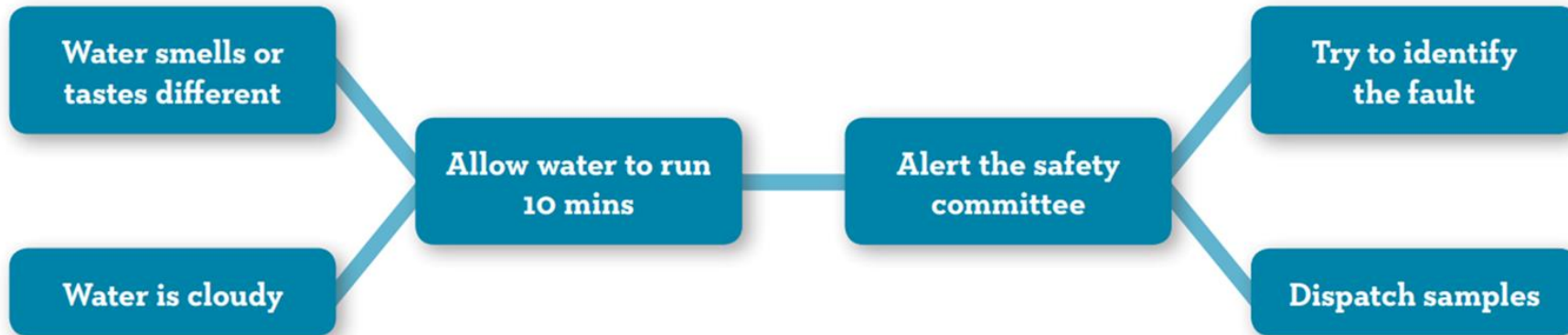
3) Amend STCW to educate seafarers about fresh water

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Effective management of cleanliness	Recognition of the danger of dirty fresh water on board Types of contamination situations that may occur such as rust, bacteria, etc. Actions to be taken on board ship Importance of using clean fresh water	Assessment of evidence obtained from approved instruction or during attendance at an approved course	Understand and judge the condition of fresh water correctly

Solution

3) Amend STCW to educate seafarers about fresh water

When should we check the water - apart from regular checks?



Solution

3) Amend STCW to educate seafarers about fresh water

Minimum Recommendation Criteria for Seafarer Training

<Record Keeping>

- The outcome of routine inspections and incident investigations on the ship
- Details of training program and courses for seafarers or other personnel
- Details of fresh water safety certifications (for materials, equipment, chemicals, etc.) kept on the ship
- The monitoring program for the ship
- Calibration records of equipment used to monitor the main control measures and the operational equipment used at the control measures
- Operational and maintenance procedures

*Freshwater safety records should be kept for at least 12 months on board and be available for inspection

Conclusion

Conclusion

Ensure seafarer's human rights

PART II. GENERAL PRINCIPLES

Article 7

All premises used by workers, and the equipment of such premises, shall be properly maintained and kept clean.

Sub-committee



SDC(Ship Design and Construction),
HTW(Human Element, Training and Watchkeeping)

Thank You
