



Contemporary Challenges and Regulatory Improvements Regarding “Temporary Passengers” on Ro-Ro Ships: A Case Study from South Korea

Junghwan Choi

Law School, Dalian Maritime University, China

Sangseop Lim

*Division of Navigation Convergence Studies, Korea Maritime & Ocean University, Busan, Republic of Korea,
limsangseop@kmou.ac.kr*

Follow this and additional works at: <https://jmstt.ntou.edu.tw/journal>



Part of the [Public Affairs Commons](#), [Public Policy Commons](#), [Transportation Commons](#), and the [Transportation Law Commons](#)

Recommended Citation

Choi, Junghwan and Lim, Sangseop (2024) "Contemporary Challenges and Regulatory Improvements Regarding
“Temporary Passengers” on Ro-Ro Ships: A Case Study from South Korea," *Journal of Marine Science and
Technology*. Vol. 32: Iss. 2, Article 3.

DOI: 10.51400/2709-6998.2738

Available at: <https://jmstt.ntou.edu.tw/journal/vol32/iss2/3>

This Research Article is brought to you for free and open access by Journal of Marine Science and Technology. It has been accepted for inclusion in Journal of Marine Science and Technology by an authorized editor of Journal of Marine Science and Technology.

Contemporary Challenges and Regulatory Improvements Regarding “Temporary Passengers” on Ro-Ro Ships: A Case Study from South Korea

Acknowledgements

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea [NRF-2022S1A5A2A03052887].

RESEARCH ARTICLE

Contemporary Challenges and Regulatory Improvements Regarding “Temporary Passengers” on Ro–Ro Ships: A Case Study From South Korea

Junghwan Choi ^a, Sangseop Lim ^{b,*}

^a Law School, Dalian Maritime University, China

^b Division of Navigation Convergence Studies, Korea Maritime & Ocean University, Busan, Republic of Korea

Abstract

The coastal shipping industry plays a crucial role in Korea's industrial development by transporting essential goods for citizens and bulk shipments that are the backbone of national key industries from 28 trade ports and 22 coastal ports nationwide to inhabited islands. Since the revision of the Ship Safety Act in 2007, cargo truck drivers have been boarding the Ro–Ro (Roll-on, Roll-off) cargo ships along with the cargo as temporary passengers. However, persistent concerns have been raised about the human and cargo safety aspects of this practice in coastal shipping. This study aims to examine these issues and propose improvements to the system of temporary passenger boarding on coastal cargo ships to enhance the logistics efficiency of coastal maritime transportation. Further, it explores issues in the temporary passenger system and suggests institutional improvements based on a literature review, interpretation of international maritime conventions, and case studies on other shipping countries. The findings indicate that as status of temporary passenger, allowing individuals other than crew members and passengers to board Ro–Ro ships can lead to impeding maritime safety, and domestic laws should be amended to ensure compliance with international maritime conventions such as SOLAS Convention.

Keywords: Inland transport, Domestic passenger, Temporary passenger system, SOLAS convention, Ship safety act

1. Introduction

1.1. Aim of research

Safety of ships at sea cannot be emphasized enough in light of numerous incidents. Since the 2014 Sewol ferry disaster, the implementation and supervision of laws related to ship safety have become more stringent, prioritizing safety in traditional practices [1]. In particular, the Maritime Safety Act has adopted the maritime safety supervisor system, which guides the inspection and supervision of coastal passenger ships and coastal cargo ships to ensure safe passage [1]. Further, efforts have been made to enhance the supervision of ship inspection agencies to secure Korean vessels'

seaworthiness. Precious lives have been lost in major and minor maritime accidents, including the Sewol ferry disaster [2].

Since the introduction of Article 5 Clause 9 of Enforcement Rule of the Ship Safety Act, cargo truck drivers have been boarding the Ro–Ro (Roll-on, Roll-off) cargo ships along with the cargo as temporary passengers [3]. This deviates from international maritime conventions and the established practices of major shipping countries. The question arises as to whether both material and human safety are possible when passengers board coastal cargo ships.

As mentioned earlier, according to Article 5 of the Enforcement Rule of the Ship Safety Act, the term “temporary passengers” significantly differs from the “other persons” stipulated in International

Received 11 January 2024; revised 9 May 2024; accepted 9 May 2024.
Available online 21 June 2024

* Corresponding author.
E-mail address: limsangseop@kmou.ac.kr (S. Lim).



Convention for the Safety of Life at Sea (SOLAS). Ever since “other persons” as stipulated in the convention has been accepted into the Enforcement Rule of the Ship Safety Act, international agreements and domestic laws have developed into the direction of substantial inconsistency. The term “other persons” in the Ship Safety Act adopted in 1987 has been continuously amended, and the term has changed to “temporary passenger,” which is defined as “individuals temporarily boarding a ship during its passage period.” This amendment differs in direction from the requirements specified in international agreements for employing and engaging individuals on ships [3].

At the 97th Maritime Safety Committee (MSC) in 2016, the International Maritime Organization (IMO) recognized the need for regulations to enhance the safety of ships transporting industrial personnel (IP) because of the resurgence of offshore plants and related industries. Recognizing the need for regulations to enhance the safety of vessels that transport such personnel, the IMO established the IP Code (International Code for Safety for Ships Carrying Industrial Personnel) [4]. IP Code is mandated through a new Chapter XV in SOLAS, which will enter into force on 1 July 2024. In order to ensure safety, the IMO classified special personnel (SP) and industrial personnel separately from “other persons.” international maritime conventions exclude industrial personnel from “other persons,” who are defined as individuals who are employed or engaged on ships. In this light, the SOLAS defines industrial personnel (IP) as persons transported or accommodated on board for the purpose of offshore industrial activities performed onboard other ships and/or offshore facilities (such as wind farms and oil rigs).

SP are also classified separately though they have some relevance to employment and engagement. The fact that SP and IP are included under temporary passengers, as stipulated in Enforcement Rule of the Ship Safety Act, does not conform to international maritime conventions. Against this backdrop, this study reviews the temporary passenger system as regulated by the Ship Safety Act based on the review of the status of domestic temporary passenger boarding, the analysis of case studies of shipping countries, and the review of new international standards, such as the IP Code and the SPS Code (Code of Safety for Special Purpose Ships 2008), and international maritime conventions, such as the SOLAS and PAL Conventions (Athens Convention relating to the Carriage of Passengers and their Luggage by Sea). This study also identifies material and human safety issues related to temporary passengers currently aboard vessels and propose institutional improvements to ensure coastal passengers' and cargo ships' safety. This paper concludes by recommending the need for amending the term “temporary passenger” in Enforcement Rule of the Ship Safety Act to “other persons” for consistency with international agreements.

1.2. Research questions

Considering the geographical characteristics of Korea and based on the significance of coastal cargo, this study performs an in-depth analysis of improvement measures in the temporary passenger system to secure the safety of coastal cargo transportation. Therefore, this study seeks to answer the following research questions through Fig. 1 diagram, which shows the structure of the study.

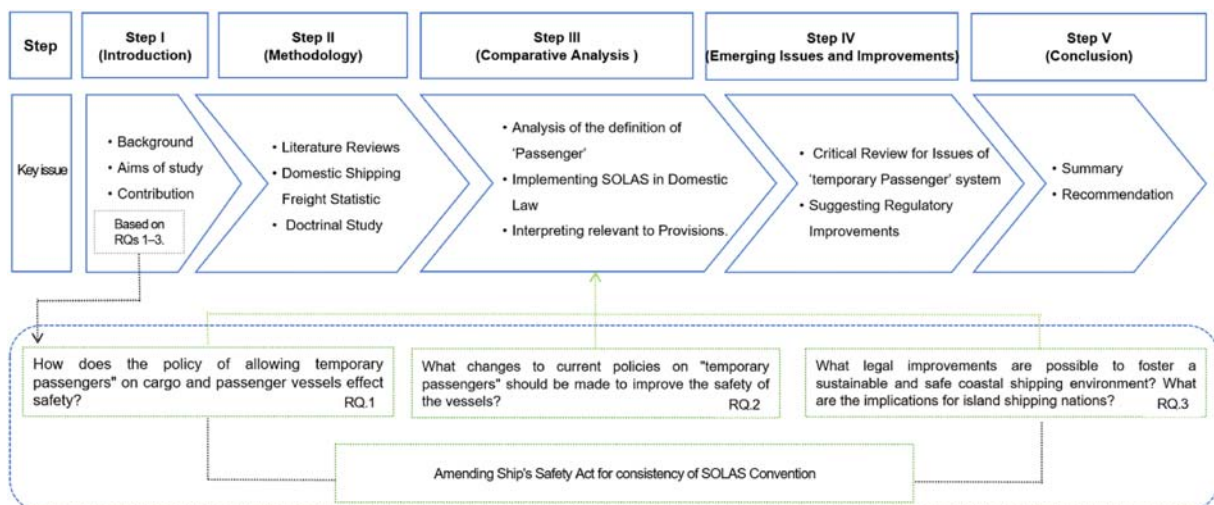


Fig. 1. Research design and research questions.

- 1) How does the policy of allowing temporary passengers” on cargo and passenger vessels effect safety?
- 2) What changes to current policies on “temporary passengers” should be made to improve the safety of the vessels?
- 3) What legal improvements are possible to foster a sustainable and safe coastal shipping environment? What are the implications for island shipping nations?

1.3. Research methodology

This study examined existing studies and literature on securing the safety of coastal passenger ships and marine transportation, which have been published since the 2014 Sewol ferry disaster [5–17]. The studies were conducted with diverse perceptions. First, some studies approach maritime accidents from the perspective of maritime safety. Second, some of them approach marine traffic from the perspective of establishing a safety navigation system. Third, some studies focus on material and human aspects in terms of securing ship safety. Fourth, some studies address the establishment of safety management systems in areas like ports, shipping, and information systems. Fifth, studies were conducted on responses to safety incidents, such as maritime salvage. Sixth, some studies focus on administrative organizations or administrative actions responsible for safety management in the maritime domain. Additionally, 69 international maritime conventions are handled by the IMO. Korea's legislation on maritime safety consists of more than 20 laws in such areas as marine traffic, ships, crew, and disaster at sea. There are more than 70 legal bases including various rules, notices, directives, and regulations. However, Korea operates the temporary passenger system in coastal marine transportation, unlike what is stipulated in international maritime conventions. Therefore, operational safety and normative issues continue to be raised.

This study focuses on the “temporary passenger” system, comprehensively analyzing the system, the arising issues, and institutional improvement measures. Besides the literature review, the study employs the research methodology of a doctrinal study, involving a legal analysis of boarding personnel in international maritime conventions and case studies on shipping countries. First, this study will examine the logistics status and cargo volume of Jeju-mainland coastal cargo, which holds a significant proportion of Korea's coastal cargo. To discuss the importance of coastal cargo, considering Korea's

geographical characteristics, this study will present the current status of coastal cargo and the boarding status of temporary passengers, such as cargo supervisors, on cargo ships and car ferry passenger ships. Thus, this study identifies human rights, safety, and operational and normative issues of cargo truck drivers who board coastal cargo ships.

To conduct a study on institutional improvements, based on the interpretational considerations of the provisions of international maritime conventions and case studies on legislations of shipping countries, this study will analyze how the term “other persons” is interpreted in international maritime conventions and how key shipping countries classify boarding individuals in their domestic legislations. This will provide implications for issues with Korea's temporary passenger system and improvement measures.

1.4. Contribution of research to enhancing the domestic shipping landscape

This study contributes to the development of a safe and sustainable environment for coastal cargo transportation. The function and role of Korea's coastal cargo transportation is as important as other transportation methods within the national logistics system [18]. Coastal cargo ships are responsible for the transportation of essential goods to island areas [19]. Therefore, coastal marine transport stably transports cargo essential for national economic development, thereby greatly contributing to Korea's economy. Despite the role and importance of coastal shipping in terms of national logistics efficiency and vitalization, there are considerable challenges in establishing and realizing a comprehensive coastal shipping system. In particular, the issue of temporary passengers encompasses various concerns related to maritime safety, security, and accident compensation system, and has been regarded as an impediment to the modernization and systemization of coastal cargo transportation [3]. This study carefully examines the safety and operational, and legislative issues of the temporary passenger system and propose measures for enhancement. Based on the findings, this study hopes to create a sustainable environment for coastal shipping. Further, this study will present measures to reform domestic law to align it with international maritime conventions, which will remove the problematic aspects of domestic law that are different from international maritime conventions and provide legal predictability for domestic and foreign shipowners and crew. Further, this study contributes to the expansion of maritime safety in the field of coastal

shipping and play an important role in coastal shipping and securing and enhancing material and human safety in coastal passenger ships that are not covered by international maritime conventions. Given the geographic characteristics and geopolitical situation of Korea, the nation conducts trade with China, the world's greatest trading nation, through cargo ships including container ships and passenger ships, including car ferries. Owing to the expansion of electronic commerce in China, the quantity of goods transported by car ferries is increasing, and the findings of this study will provide important implications for the safety management of coastal cargo ships and coastal passenger ships.

Finally, this study provides implications for countries that transport cargo to island areas. This study hopes to raise awareness of countries that have a system similar to Korea's temporary passenger system on the importance of the systematic management of boarding members for maritime safety and provide insights into the necessity of conforming to international maritime conventions to ensure the safety and security of coastal cargo and passenger ships.

2. Current status and issues of domestic transport of goods by sea

2.1. General consideration of “temporary passenger”

2.1.1. Definition of “temporary passenger”

Article 2 Section 10 of Korea's Ship Safety Act limits the number of passengers, as it uses the term “passenger ship” to mean a ship which can transport at least 13 passengers [20]. However, there is an exception to this regulation. Article 2 (9) of the Ship Safety Act defines a “temporary passenger” as “a person prescribed by the Enforcement Rule of the Ministry of Oceans and Fisheries, who is temporarily on board.” Therefore, the article allows individuals other than crew members to board temporarily. Specifically, Article 5 of the Enforcement Rule of the Ship Safety Act defines temporary passengers [20] as individuals who temporarily board a ship during the ship's navigation period, and includes in the definition “family members living aboard with crew members;” “shipowners (including ship supervisors and ship charterers); employees at the ship company engaged in work related to the ship; workers engaged in the repair operations of the ship; individuals boarding the ship to perform tasks related to the ship's testing, investigation, guidance, regulation, inspection, and practical training; individuals performing non-crew duties such as harbor pilots,

navigation managers, customs officials, quarantine officials, ship examiners, and ship inspectors; employees of floating hotels, floating restaurants, and floating performance venues, and individuals consuming them”; individuals touring ports using public agency ships; and cargo supervisors (drivers may also serve as cargo supervisors) of vehicles transporting agricultural and fishery products emitting unpleasant odors, vehicles transporting repugnant livestock, and vehicles transporting explosive or inflammable material” [20]. According to Article 5 of the Enforcement Rule of the Ship Safety Act, cargo vehicle drivers may also serve as cargo supervisors and are allowed to board coastal cargo ships as temporary passengers [21].

2.1.2. Legal status under ship safety act

The Ship Safety Act classifies individuals boarding a ship into two: crew and temporary passengers. As waterfront developments in ports increase and more people utilize port facilities, activities related to maritime development, utilization, and conservation are expected to rise, consequently increasing the frequency of temporary passengers boarding the ship [22]. As more temporary passengers, who are individuals other than the crew, board ships, the more risk factors there are to human safety, which set the requirement that the ship's structure must also be enhanced, such as arranging life-saving equipment including firefighting equipment on ships and ensuring ships' resilience. The reason is that temporary passengers do have specific knowledge for maritime education and training or familiarization for ships.

The boarding of temporary passengers is a matter directly related to human safety, and therefore, it is strictly regulated under SOLAS Convention. According to SOLAS Convention, if the total number of passengers, excluding the crew, exceeds 12 individuals, the vessel is classified as a passenger ship, subject to enhanced safety standards. The system of temporary passengers under the Ship Safety Act evolved from the previous definition of the term as non-passenger individuals on board who are not part of the crew to the current regulation with the amendment of the Enforcement Rule of the Ship Safety Act in November 2008 [22]. Under the Ship Safety Act, the boarding of temporary passengers is allowed within the maximum boarding capacity of the ship, including crew and passengers.

While temporary passengers do not fall under the category of the crew, they are clearly distinguished from passengers based on their purpose and frequency of boarding. In terms of boarding purposes, the family members of the crew, users of floating

hotels, port tour inspectors, and cargo supervisors have low relevance to the operation of the ship, whereas employees of ship companies, harbor pilots, and navigation managers are highly relevant. In terms of boarding frequency, the family members of the crew, shipowners, users of floating hotels, and port tour inspectors have lower boarding frequencies, while officials conducting testing, investigation, guidance, regulation, inspection, practical training, customs checks, employees of floating hotels, and cargo supervisors regularly board ships for the operations of these ships.

In terms of public nature, individuals conducting testing, investigation, and regulation tasks; harbor pilots; operations managers, and port tour inspectors are highly public in nature, while the rest have strong private purposes. Therefore, the categorization of temporary passengers under the Ship Safety Act is meant for allowing necessary individuals or individuals who customarily board the ship. It is difficult to say that this regulation prioritizes the ship's safety.

2.2. Current status of domestic vessels accommodating “temporary passengers” on board

2.2.1. South Korean domestic shipping freight

Island areas, because of their uniqueness, rely on roads as there are no railways. Roads are more crucial facilities for the logistics activities of island areas than for those of inland areas. To transport fresh products produced in the island areas, such as tangerines, abalones, agricultural products, and farmed fish, refrigerated vehicles and live-fish transportation vehicles are mostly used because temperature control within the vehicle is crucial [23]. To cite the case in point, to transport goods from Jeju Island to the mainland, Ro–Ro cargo ships and car ferry passenger ships are loaded and then unloaded onto the mainland and transported to their destinations [23]. The term “automatic cargo” is used in accordance with the logistics characteristics of Jeju Island, referring to a

transportation method where products are loaded onto a ship directly from the loading point, and the loaded vehicle arrives at the destination on land or on Jeju Island without further processing [22].

Jeju Island is Korea's representative island area and comprises the majority of coastal cargo. Table 1 demonstrates the current status of cargo transportation in Jeju through coastal cargo ships and coastal passenger ships [24]. Starting in 2016, transportation via Jeju's coastal cargo ships increased significantly. This trend saw a slight decrease in 2020 but showed an upward trend until 2022. The overall average annual growth rate over the past 10 years is 24.3%. Cargo transportation by coastal passenger ships has experienced fluctuations since 2010, and showed a significant increase (83.2%) in 2019 compared to 2018. However, starting from 2021, there was a –9.1% decreasing trend in 2022, with an overall average annual growth rate of 17.8% over the past 10 years. This trend is attributed to the fact that the proportion of cargo transportation through coastal cargo ships has become larger than the cargo transportation through coastal passenger ships (see Table 2).

Furthermore, the trade volume in the Yellow Sea states has consistently increased because of China's economic development and the signing of the Korea-China Free Trade Agreement (FTA). Trade is conducted through cargo ships, including container ships, and passenger ships, such as ferries [25]. Based on shipping agreement they signed in 1993, Korea and China have made efforts to develop the maritime market and enhance industrial competitiveness. Car ferries, which simultaneously transport both cargo and passengers, enable quick small loading of various cargos without lengthy marine cargo handling or customs clearance, thereby making it useful for the transportation of high-value cargos that require rapid delivery. This also significantly contributes to the local economy [26]. With the recent expansion of e-commerce in China, the volume of goods transported through car ferries has

Table 1. Current status of cargo transportation in Jeju.

Year	Total	Growth rate	Coastal cargo ship	Growth rate	Coastal passenger ship	Growth rate
2015	4,769,453	37.6	4,164,803	43.2	604,650	8.7
2016	11,731,007	146.0	11,101,972	166.6	629,035	4.0
2017	13,362,093	13.9	12,770,061	15.0	592,032	–5.9
2018	15,309,233	14.6	14,908,916	16.7	400,317	–32.4
2019	16,176,598	5.7	15,443,108	3.6	733,490	83.2
2020	16,004,384	–1.1	15,110,520	–2.2	893,864	21.9
2021	17,855,651	11.6	16,860,094	11.6	995,557	11.4
2022	19,993,101	12.0	19,087,717	13.2	905,384	–9.1

Table 2. Current Status of passengers, crew, and temporary passengers by Recognized Organizations (RO).

Category	Passengers (exceeding 12)	Temporary passengers (exceeding 12)	Mixed (less than 12 passengers/temporary passengers each)	Total
KOMSA	N/A	69	40	109
KR	N/A	49	12	61
BV	N/A	0	1	1
Total	N/A	118	53	171

Source: Recreated by Authors based on internal data from KOMSA and KR.

increased. Accordingly, the Korean government has implemented policies, such as that of supporting reverse direct purchases with the aim of vitalizing car ferry transportation. As of 2019, there were a total of 16 car ferry routes in the Yellow Sea region originating from Incheon Port, Pyeongtaek Port, and Gunsan Port. Incheon Port has 10 routes; Pyeongtaek Port has five routes, and Gunsan Port has one route in operation [27]. These three ports are located close to China, one of Korea's largest trading partners, and have formed a competitive structure to attract more volume of transported goods. With the increase in the volume of goods transported following the growth of China's e-commerce, the influence of car ferries is expected to grow even further.

2.2.2. Transportation of freight through Ro–Ro cargo ships

Recognized Organizations (ROs), such as the Korean Register of Shipping and Bureau Veritas, and the Korea Maritime Transportation Safety Authority (KOMSA) apply the criteria stipulated in Article 8 (Regular Inspection) of the Ship Safety Act and Article 18 (Calculation of Maximum Passenger Capacity) of the Enforcement Rule of the Ship Safety Act when designating the maximum number of passengers on ships (see Table 2). The number of passengers, crew, and temporary passengers are calculated in terms of the maximum passenger capacity and ship inspection certificates are issued accordingly. For general cargo ships that are not

passenger ships, a total of 171 ships exceeds 12 temporary passengers and as many passengers [28].

Table 3 illustrates the current status of cargo vehicle transportation by RORO cargo ships. Currently eight vehicle-only cargo ships (RO RO cargo ships, operated by six shipping companies), other than passenger ships carry vehicles (10 ships), in operation on the route between Jeju and the mainland (Busan, Mokpo, Incheon, etc.). Table 3 also shows the transportation status of the eight RORO cargo ships that go between Jeju and the mainland from April 2022 to July 2023. From July 2022 to June 2023, eight ships conducted a total of 58,855 unloads and 62,114 loads, in terms of the number of vehicles transported. Seaworld Marine and Hermes 5 transported the highest number of vehicles during this period [29].

2.3. Key issues concerning “temporary passenger” system

According to the Ship Safety Act, Korea-flagged ships determine the maximum number of persons allowed on board by considering the type of passengers and passage zones [8]. Recognized Organizations do not systematically manage the records of calculations, including area measurements, during the initial regular inspection of ships, because inspection certificates lack distinction or details about whether the ship is approved for temporary passengers or passengers, or whether the ship complies with the maximum passenger capacity. Such

Table 3. Current status of cargo vehicle transportation.

-	Company	Region	Ship's Name	Total tons	No. of vehicles loadable (5 tons or more)	Year ship was launched	Route of operation
1	Sungwoo	Jeju	Sungwoo YJ	3560	125 (32)	1992	Jeju → Busan
2	Seju	Busan	Seju Frontier	4416	153 (54)	1988	Busan → Jeju
3			Seju Pioneer	4401	153 (54)	1988	Busan → Jeju
4			Seju Shinkwang	5310	91 (91)	1996	Busan → Jeju
5	Sungwoo Shipping	Jeju	Sungwoo Jeju	6562	218 (54)	1999	Jeju → Mokpo
6	JL Ocean	Jeju	KS Hermes	5901	145 (124)	1999	Jeju → Incheon
7	Daeyang Shipping	Jeju	KS Hermes 5	9349	158 (109)	2001	Jeju → Mokpo
8	Seaworld Express Ferry	Mokpo	Seaworld Marine	5682	310 (111)	1996	Mokpo → Jeju

practical issues related to temporary passengers can be summarized as follows.

First, some ships load 26 individuals (12 passengers, 14 temporary passengers) and use mattresses instead of bed facilities in cabins. The hygienic conditions and rest environment are quite inadequate, because basins are installed in cabins. This impacts drivers' human rights [22]. Moreover, as temporary passengers do not have the same status as crew members, they are not subject to labor or human rights protection on the ships by the Seafarers Act or the Maritime Labour Convention. Owing to their status as temporary passengers, they do not get legal protection at sea.

Second, the safety of cargo vehicle drivers is significantly lower than that of passenger ships for the following reasons. For damage stability, passenger ships have numerous watertight compartments that can delay the sinking of the boat in the event of flooding, ensuring sufficient time to make an emergency evacuation. Cargo ships, conversely, lack watertight compartments, making it difficult to evacuate passengers [22]. Furthermore, passenger ships are required to install voyage data recorders and CCTVs for monitoring vehicle areas, indicator lamps for monitoring the opening and closing of vehicle area access doors, and audible alarms [22]. Meanwhile, RORO cargo ships are exempt from mandatory installations of voyage data recorders, while they are required to install CCTVs, indicator lamps, or audible alarms if they have closed vehicle areas [22]. Emergency drills on passenger ships are conducted every 10 days, and departures are strictly controlled under domestic law (Appendix 10 of the Enforcement Rule of the Maritime Safety Act) during storm and tidal warnings. However, cargo ships are required to conduct emergency drills monthly, and ships that are larger than 250 tons and 35 m in length are not subject to strict departure controls during storm and tidal warnings [22].

Third, compensation standards for accidents differ. Passenger ships adhere to international standards under the PAL Convention [30]. However, RORO cargo shipowners are required to conform, though not compulsorily, to the Korea Shipping Association's Shipowner's Liability Deduction (P&I Insurance), to which 100% of the shipping companies have subscribed [31].

Lastly, the biggest issue is related to the failure of securing coastal cargo ships' safety. Over the last three years, Korean Coast Guard has identified over 20 cases of Jeju coastal ships exceeding the maximum passenger capacity [32]. Korean Coast Guard has noted that safety hazards, such as the overloading of cargo trucks on Ro–Ro ships,

continue to occur. In response, they are stepping up enforcement to address these maritime safety violations [32]. This seems to be because same-day deliveries are needed to maintain the freshness of agricultural and fisheries products, and cargo ships are used for the purpose, even if overloading happens because passenger ships or flights are unavailable. To hide overloads, it is presumed that passenger lists and reports may be frequently omitted, causing a safety issue as it is difficult to determine actual passengers' numbers in the event of an accident. Therefore, legalization should be revised, and cargo vehicle drivers should raise their safety awareness, such as acquiring emergency response education in the event of an accident because of an overload. Passenger ships are required to have enhanced safety facilities, operational controls, and high passenger compensation limits. Thus, crew members and cargo drivers should also understand that using cargo ships to transport a large number of people is not appropriate in terms of safety and fairness.

3. Comparative analysis of the definition of “other persons” in international regulations and regulations of major countries

3.1. International regulations

3.1.1. SOLAS convention

SOLAS Convention distinguishes passengers, shipmasters, crew members, and those employed or engaged in any capacity aboard a ship for purposes of the business of that ship from the category of “other persons” and infants under one year of age (A passenger is every person other than: (i) the master and the members of the crew or other persons employed or engaged in any capacity aboard a ship for purposes of the business of that ship and (ii) a child under one year of age). SOLAS Convention provides a fundamental definition of “passenger” in relation to other international conventions, and the interpretation of this term is crucial. The definition of “other persons” in SOLAS Convention specifies that being “employed or engaged in any capacity aboard a ship for purposes of the business of that ship” is a mandatory condition. Specifically, “other persons” must have the nature of a worker related to the business of that ship. Additionally, they must have an employment relationship (there must be a labor contract) with the user of the ship. Even if it is not an employment relationship, there must be a level of dependence or reliance on the user, similar to that of an employment relationship. In other words, depending on the scope and purpose of

SOLAS Convention, the term “other persons” is interpreted to mean individuals who have labor contracts with the ship’s workers, shipowners, or ship supervisors. For example, “other persons” would be individuals who are hired to conduct ship business by the shipowner under special circumstances. Therefore, cargo vehicle drivers who are boarding a ship to manage the cargo that has been loaded on their vehicles are not considered “other persons” stipulated in SOLAS Convention, as they lack relevance to the ship’s work or explicit or implicit employment contracts. Cargo vehicle drivers are under the cargo transportation contract and thus have a higher relevancy with shippers rather than shipowners.

3.1.2. SPS code and IP code

SPS Code has been adopted in the 13th session of the IMO General Assembly through Resolution A.534 (13) to establish standards for the structure and equipment of ships operating for purposes other than those to which SOLAS is applicable, and has been amended at the 84th MSC [33]. The SPS Code’s regulation defines passengers and special personnel as follows. The number of passengers should not exceed 12. If more than 12 passengers are on board, that ship is deemed a passenger ship (Wherever in this code the number of special personnel appears as a parameter, it should specify that the number of passengers carried on board may not exceed 12) [33].

In response to the increasing number of IP transported through ships following the revival of offshore plants and related industries, the IP Code was adopted at the IMO’s 97th MSC through the Interim Recommendations on the safe carriage of more than 12 industrial personnel aboard vessels engaged on the international voyage (MSC.97/22) [33]. Simultaneously, the new Chapter 15 of the SOLAS Convention is under consideration [34]. At the IMO’s 106th MSC in 2022, a new mandatory code was adopted for ships transporting IP, including personnel transported to work at offshore facilities, such as wind power facilities, to ensure their safety. This code will enter into force on July 1, 2024 [34]. The IP Code provides the minimum safety standards for ships carrying IP and the personnel themselves and resolve the risks of maritime operations in the marine energy sector, such as the offshore transportation of the said personnel [4]. According to Part I General, Reg. 2 Definitions of the IP Code, IP means all persons transported or accommodated on board for the purpose of offshore industrial activities performed aboard other ships and/or offshore facilities [35]. The IP area is defined

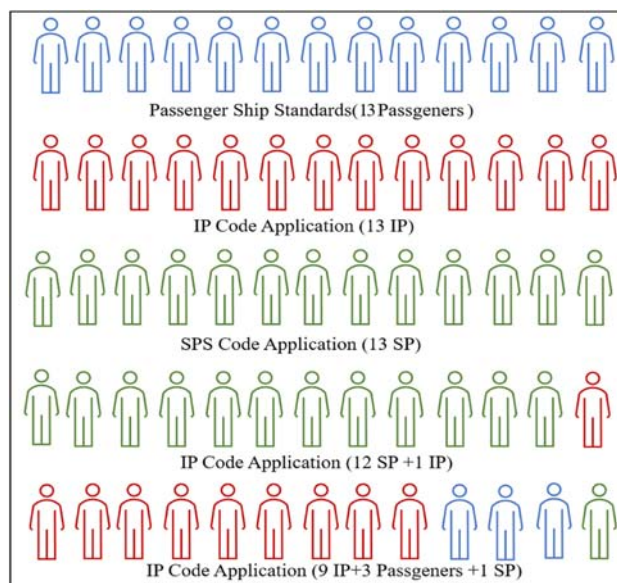


Fig. 2. Number of IP, SP and passengers on board in SOLAS [35].

as an area or space where IP is normally intended to stay during the voyage or are allowed to access [4]. Offshore industrial activities mean the construction, maintenance, decommissioning, operation, or servicing of offshore facilities related, but not limited, to exploration and exploitation of resources by the renewable or hydrocarbon energy sectors, aquaculture, ocean mining, or similar activities [4].

Through the adoption of the SPS Code and the IP Code, the IMO presents a standard for classifying ships based on the composition of persons on board as shown in the Fig. 2. These codes, which are to be applied to passenger ships and ships that carry IP and SP, specify the classification criteria for safety when 13 or more passengers are on board [35], when the ship is classified as a passenger ship. The classification as passenger ships is contingent upon the boarding of at least 13 passengers. If 13 or more individuals, including special personnel or industrial personnel, are on board, the safety and facility standards for passenger ships will be applicable, which may pose significant challenges for shipowners. For example, if 12 SP are on board and one IP is added, the safety standards that prioritize the protection of the relatively unfamiliar IP can be applied with the application of the IP Code. Diagram showing number of IP, SP and passengers on board in SOLAS.

3.1.3. PAL

The Athens Convention relating to the carriage of Passengers and their Luggage by Sea (PAL) is a unified international agreement on the judicial responsibilities regarding passengers’ transportation.

Considering the PAL Convention as an agreement on unified responsibility and compensation related to passengers' transportation, it is necessary to refer to the definition of passengers. A “passenger” means any person (a) who is carried aboard a ship under a contract of carriage, or (b) who, with the consent of the carrier, is accompanying a vehicle or live animals which are covered by the contract for the carriage of goods not governed by this Convention. The protocol amendment in 2022 requires that carriers have financial proof, such as compulsory insurance of up to 250,000 Special Drawing Rights (SDR) per passenger for each incident, in order to cover the carriers' liability for personal injury of passengers (Article 5 of the Protocol). The entity actually subscribing to such insurance is the individual who is conducting the actual transportation according to the contract of maritime carriage, regardless of whether the contracted carrier conducts the transportation personally or the actual carrier conducts the transportation. The entity responsible for liability related to the contract of maritime carriage is distinguished from the entity required to subscribe to the mandatory insurance. In other words, a separate definition is provided for the person “actually carrying out the transport, in whole or in part,” and this person is designated as the subject obligated to subscribe to the mandatory insurance. In Korea, maritime passenger transport operators under Article 4-3 (Purchase of Insurance) of the Marine Transportation Act are required to subscribe to insurance or join an association in preparation for damages to passengers and others, as prescribed by the Enforcement Rule of the Ministry of Oceans and Fisheries.

3.2. Case studies for the regulatory status in shipping countries

3.2.1. EU

Directive 2009/45/EC of the European Parliament and the Council of 6 May 2009 on safety rules and standards for passenger ships is a safety regulation and standard for passenger ships [36]. Article 2 provides definitions of crew members and passengers [46]. Just as in the SOLAS Convention, the directive distinguishes between passengers, the captain and the crew, “other persons” employed or engaged in any capacity aboard a ship for the purpose of business of that ship, and infants under the age of one. Similarly, Article 4 of the Regulation (EC) No 392/2009 of the European Parliament and

the Council of 23 April 2009 on the liability of carriers of passengers by sea in the event of accidents, aligns with the definition of passengers provided by the PAL Convention [37].

Moreover, in line with DIRECTIVE 2009/42/EC on statistical returns with respect to the carriage of goods and passengers by sea, the EU enforcement agency requests member states to provide statistical data on maritime cargo and passenger transport to promote a common maritime transport policy [38]. Notably, cargo loaded and transported on cargo vehicles and consigned cargo transportation are all carried by Ro–Ro type ships. When the drivers of cargo vehicles accompany the cargo, car ferry passenger ships are used, while Ro–Ro cargo ships are used when cargo vehicle drivers do not board the ship and consign the transportation of the cargo. The cargo type of the ferry company P&O shows that it transports cargo as Driver Accompanied Unit [39].¹

3.2.2. US

In the US law, “riding gang member” is similar to Korea's “temporary passenger.” “Riding gang member,” refers to an individual who boards a vessel but is not considered a crew member and has a limited role of typically performing tasks designated by the cargo ship owner within a specified scope [40].

According to 46 U.S. Code § 2101 (36), a “riding gang member” is an individual who has not been issued a merchant mariner document; does not perform watch standing, automated engine room duty watch, personnel safety functions, cargo handling functions, or operation of cargo-related equipment; does not handle mooring lines; does not complement the crew's work; or does not perform supporting roles, such as cooking or cleaning. In a broader sense, it can be regarded as synonymous with the Korean term, “temporary passenger.” According to the code, “riding gang members” do not serve as part of the crew complement required under section 8101, either. They are not members of the steward's department and not citizens or temporary or permanent residents of a country designated by the United States as a sponsor of terrorism or any other country that the Secretary, in consultation with the Secretary of State and the heads of other appropriate United States agencies, determines to be a security threat to the United States [39].

As part of requirements of riding gang members in the CFR Title 48, section 252.247–7027 (c) (3) mentions provisions regarding the exemption

¹ Driver Accompanied Unit means when the driver and any passengers travel with the vehicle.

conditions for “Super Cargo Personnel,” who are clearly defined as individuals who board the ship to transit, supervise, and maintain unit equipment. When a cargo driver is engaged in cargo management tasks (transit, supervision, and maintenance work), they may be considered “Super Cargo Personnel.” The following are the criteria for exemption: (1) An individual is exempt from the requirements of paragraph (b) of this clause and shall not be treated as a riding gang member for the purposes of section 8106 of title 46, if that individual is on a vessel for purposes other than engaging in the operation or maintenance of the vessel and is—(i) one of the personnel who accompanies, supervises, guards, or maintains unit equipment aboard a ship, commonly referred to as supercargo personnel; (ii) one of the force protection personnel of the vessel; (iii) a specialized repair technician; or (iv) an individual who is otherwise required by the Secretary of Defense or designee to board the vessel [41].

According to 46 U.S. Code § 8106, each riding gang member is identified on the vessel's crew list. Further, the number of riding gang members cannot exceed 12. In other words, it ensures to the Secretary that the sum of—(A) the number of riding gang members aboard a freight vessel, and (B) the number of individuals in addition to crew permitted under section 3304—does not exceed 12 [42]. Riding gang members must also complete the basic safety education as prescribed by the STCW agreement. It ensures that each such riding gang member is familiar with basic safety and has received basic safety training approved by the Coast Guard according to the requirements for such training under the International Convention of Training, Certification, and Watchkeeping for Seafarers, 1978. The duties of riding gang members are limited to preparing the ship for entry into a shipyard located outside the territorial limits of the United States, or residual repairs after the ship leaves that shipyard, or technical repairs during navigation that exceed the capabilities of the crew on board [42].

The International Transport workers Federation (ITF) pointed out that “riding gang members,” despite their status as port workers, are regarded in some states as part of the crew and work full-time rather than part-time. These workers may not benefit from collective agreements on wages and working conditions, or from international agreements, which may compromise their safety [43]. Therefore, the ITF states that the status of full-time riding gang workers should be recognized equally as crew members [18]. However, the current US law makes it very clear that riding gang members are

not considered crew members. It specifically limits their work scope to operations in the harbor or shipyard, and not “within the ship.”

3.2.3. Australia

Similar to regulations in the UK and Europe, Australia's Navigation Act 2012 regulates the following categories of people: other persons employed or engaged in any capacity aboard a ship for the purpose of the business of that ship, infants who are one year old or younger, persons taken on board because of distress or shipwreck, and special persons. The specific definition of SP is provided in Marine Order 50—Special Purpose Vessels, a domestically enforced regulation of the SPS Code [44].

Definitions of “temporary passengers” or “other persons” are not specifically provided for in Australian law. According to the definition provided in the Navigation Act 2012, the distinction is made between passengers, individuals employed in the ship's operation or engaged in a capacity aboard a ship, individuals who have been taken on board because of wreckage or danger, infants who are one year old or younger, and SP. Cargo vehicle drivers are not classified under the above categories and are, thus, considered as passengers.

3.2.4. Japan

In Japan, detailed regulations regarding the Enforcement Regulations of the Ship Safety Act recognizes “other persons” as distinct from crew members or passengers. In content, it is most similar to “temporary passengers” recognized by Article 5 of the Enforcement Rule the Ship Safety Act of Korea and stipulates that other persons are equipped with the necessary ship facilities. “Other persons” in the bylaws related to the Enforcement Rule of the Ship Safety Act are as follows. “Other persons” refer to individuals who are parallel with crew members, such as shipowners on board (including ship supervisors and ship lessees), cargo supervisors who are boarding the ship and perform tasks related to guarding, security, testing, research; who are not customs officials, inspection officials, or other crew members; and who are engaged in duties of the ship. These include customs officials, quarantine officers, and persons other than seafarers who work aboard the ship. “Passengers” refer to persons other than “sailors” and “other passengers.” “Passengers” are individuals who are not “crew” or “other persons” [45].

Chapter 1 Section 2.0 (a) of the bylaws regarding the Enforcement Rule of Ship Safety Act of Japan also establishes provisions for “other persons” who

are distinct from passengers and crew, just as in the SOLAS Convention and the EU regulations.

Like European countries, Japan's logistics system is well organized, and because most cargo vehicles are owned by logistics companies, cargo ships typically transport only cargo vehicles, and separate arrangements are made for the drivers at every entry/exit.

Article 8 of the Enforcement Rule of the Ship Safety Act mandates passengers, crew members, and other persons to comply with the Ship Equipment Regulations (Ministry of Communications Enforcement Rule No. 6 of 1930). Equipment regulations are also established for other persons aboard fishing boats as well. When cargo vehicle drivers board ships, the ship equipment must comply with the regulations [45].

In Korea, the logistics system is not as well-organized as in Europe or Japan. Furthermore, a substantial amount of cargo loaded on the cargo vehicles are agricultural products, seafood, livestock, or explosive and inflammable materials. A significant portion of these vehicles are privately owned, paid-in vehicles (approximately 80% of the total), and drivers typically do not consign their vehicles to a third person, which leads to the creation of a new category called the temporary passenger.

3.3. Implications for comparative analysis

Considering the international agreement of the SOLAS Convention (including the SPS Code and IP Code), passengers boarding a ship are classified into five: crew, SP, IP, and other persons. According to the IP Code and SPS Code, the “other persons” category does not include IP, SP, or passengers.

The international conventions define “passengers” primarily in relation to agreements related to material and liability compensations. The human element of the SOLAS Convention, which is a representative material standard, distinguishes individuals on board into passengers, captain, and crew, other persons employed or engaged in any capacity aboard a ship, regardless of qualifications, and infants under the age of one. According to the PAL Convention, a “passenger” means any person (a) who is carried aboard a ship under a contract of carriage, or (b) who, with the consent of the carrier, is accompanying a vehicle or live animals that are covered by a contract for the carriage of goods not governed by this Convention.

The definition of “other persons employed or engaged in any capacity aboard a ship for the business of that ship” is interpreted by international maritime conventions as individuals who are not

classified as passengers and who possess the ship worker status. In other words, they must have relevance to the ship's labor, or have a labor contract (explicit or implicit).

Based on international conventions, the current situations in shipping countries are as follows (Also see above Table 4). Even Japan, which has a temporary passenger system similar to that of Korea, rarely has cargo vehicle drivers aboard ships. Even if they do, they strictly adhere to the maximum capacity of 12 passengers. Most shipping countries, particularly those under the Anglo-American legal system, adopt fundamental regulations regarding the implementation of the SOLAS Convention. Accordingly, the definition of “passengers” conforms to that of the SOLAS Convention and the PAL Convention. In European countries, the US, and Canada, the transportation of cargo vehicles is predominantly made by Ro–Ro passenger ships, and never by general cargo ships. In the case of Korea, the SP and IP included in the category of temporary passengers must be treated separately, and the standard should be strict when temporary passengers other than passengers board cargo ships.

4. Improvements for safe and sustainable domestic shipping environment

4.1. Need for consistency between international regulations and domestic laws

The establishment of fundamental principles for the application of safety and facility standards for the different types of ships for individuals other than the crew boarding ships is difficult owing to differences in domestic and international laws. In domestic law, the international standards for the size and type of individuals boarding a ship are not applied. Therefore, securing effective safety measures for ships with 13 or more passengers on board is important. Particularly, among “temporary passengers,” “cargo supervisors” do not fall under the category of passengers in the Marine Transportation Act, which lowers their compensation limits in the case of damages, such as accidents. According to the PAL Convention, cargo supervisors are classified and compensated as passengers, unlike in Korea [3].

While the definition of “other persons” did not change but was maintained after the adoption of the SOLAS Convention, the domestic law changed “other persons” into “temporary passengers” and showed a tendency to expand its applicability [22]. Such an expansion without ensuring safety and facility standards are met is inconsistent with international agreements, leading to its inconsistency

Table 4. Comparative practices in Korea and other maritime nations for handling 'temporary passengers' on RO-RO ships.

Contents	South Korea	Japan	EU	US	Australia
Status of Cargo Truck Drivers	Ro-Ro Passenger Ship Ro-Ro Cargo Ship	Passenger Passenger	Passenger Passenger	Passenger Riding gang member (Cargo Personnel) or Passenger	Passenger Passenger
Legal Basis for Interpretation of "Other Persons"	<ul style="list-style-type: none"> Enforcement Regulations of the Ship Safety Act 	<ul style="list-style-type: none"> Enforcement Rule of Ship Safety Act of Japan 	<ul style="list-style-type: none"> Directive 2009/45/EC 	<ul style="list-style-type: none"> 46 U.S. Code § 2101(36) 46 U.S. Code § 8106 CFR Title 48, section 252.247–7027 (c) (3) 	<ul style="list-style-type: none"> Navigation Act 2012
Remarks	South Korea allows Cargo Truck Drivers to onboard Ro-Ro cargo Ship as 'temporary passenger'. The transportation of cargo vehicles is primarily conducted via Ro-Ro passenger ships, and it is rare for them to be transported by general cargo ships. Based on the regulations regarding 'passengers' in major maritime countries, it can be seen that the status of cargo truck drivers should be considered not as 'other persons' but as 'passengers'.				

regarding the safety and compensations of temporary passengers with international agreements [22]. The definition of "other persons" in the SOLAS Convention clearly states that they must be individuals employed/engaged on the ship. However, Korean law has been amended to include all individuals who are not crew, passengers, or infants under the age of one. This divergence calls for a reevaluation of principles for "temporary passengers" to set standards in line with international trends and in harmony with international agreements. For the safety of ships, the criteria for "other persons" other than crew, passengers, and infants under the age of one must be aligned with international agreements, and SP and maritime IP that are not categorized as "other persons" must be addressed by adopting the SPS Code and IP Code into domestic law.

4.2. Regulatory improvements

In the case of Korea, the temporary passenger system classified all individuals who are not crew, passengers, or infants under the age of one as a temporary passenger, unlike SOLAS Convention and foreign practices. This expansion of the scope results in a distortion of the original purpose of the law. Therefore, the term "temporary passenger" must be modified to "other persons" to limit the scope for consistency with SOLAS Convention. The temporary passenger system was initially implemented to permit the inevitable boarding of individuals necessary for the ship's operations. Nonetheless, the expansion of the scope makes the system deviate from its original purpose. This inconsistency with international laws calls for a reevaluation.

For the ship's safety, Korea must minimize the boarding of individuals other than the crew, referring to key cases of foreign nations and international agreements such as the SOLAS Convention, which strictly mandates the boarding of individuals other than the crew to be less than 12 persons. The currently implemented temporary passenger system includes individuals who have purposes other than that intended by the adoption of SOLAS Convention. The term "temporary passengers" must be modified to "other persons," and their boarding status should be modified to include passengers, IP or SP, as shown in Table 5. Clarifying the ambiguous scope of temporary passengers and establishing legal procedures for onboard management systems, including capacity control, are necessary for the effective implementation of the temporary passenger system.

Table 5. Revision of definitions of temporary passengers and other persons based on SOLAS convention.

Temporary Passengers as prescribed by the Ship Safety Act	SOLAS
Family members of the crew living on board with the crew	Passenger
Individuals touring the harbor with ships owned by national/local governments or public institutions	Passenger
Individuals participating in an event for public benefit	Passenger
Shipowners (including ship supervisors, ship lessees), employees of ship companies engaged in ship-related operations such as ship maintenance, cargo management, and safety management, or workers involved in repairs of the ship	Other persons employed or engaged in any capacity aboard a ship for the business of that ship
Individuals engaged in non-crew duties, such as pilots, operations managers, customs officials, quarantine officials, ship examiners, and ship inspectors	Other persons employed or engaged in any capacity aboard a ship on the business of that ship
Employees of floating hotels, floating restaurants, and floating performance venues, and individuals using them	Other persons employed or engaged in any capacity aboard a ship for the business of that ship
Cargo supervisors of livestock transport vehicles, animal transport vehicles, vehicles transporting live marine products using oxygen-supplying equipment, and vehicles transporting materials with high risks of explosion or fire, such as explosives, flammable liquids, or combustible materials	Classified as passengers as they are not employed on the ship
Individuals boarding a ship that is used for tasks related to testing, investigation, guidance, regulation, inspection, and practical training in order to perform such tasks	Special Personnel

With the adoption of the SPS Code and IP Code by the SOLAS Convention, domestic law should be aligned with the scope of applicability for temporary passengers with international maritime conventions. However, a few prerequisites exist for the redefinition of temporary passengers. First, the definition of individuals who board and navigate the ship should be limited. Second, individuals who are not counted as part of the maximum boarding capacity should be excluded. Third, “other persons” should be individuals employed or performing labor on the ship, just as stipulated in the SOLAS Convention.

4.3. Enhancing domestic shipping environment

As transportation of goods to and from Jeju is limited to airplanes and ships, large cargoes or cargoes that need supervision can only be transported by ships. It is predicted that vehicle cargo via ships will only continue to increase in the future [46]. Vehicle drivers who cannot board Ro–Ro ships must use air travel or passenger ships, resulting in the separation of cargo and drivers, which is inefficient in terms of logistics. This situation will be aggravated by an increase in vehicle cargoes.

The mainland's cargo transportation industry is advocating the necessity of the temporary passenger system for reasons, such as impossible prompt response to any anomalies that may occur to the cargo vehicle that need supervision when drivers are separated from the vehicle and additional travel

time occurs for drivers, and the loss expenses burdened by vehicle drivers owing to damages to the cargo. Currently, Korea's logistics system mostly consists of paid-in vehicles where the drivers own their vehicles (80%) [47]. Given the challenging logistics situation between Jeju and the mainland and difficulties in driver recruitment or travel, the Korean logistics system must gradually transition into a similar system of the other advanced nations, such as Japan or the UK, where the logistics companies own cargo vehicles. There must be efforts to enhance the logistics system into one that is similar to advanced logistics models by revising the temporary passenger system to align with international agreements.

5. Conclusion

Many maritime accidents impact ships, crew, and shipping companies and have significant repercussions on the entire nation and society. Accidents of coastal passenger ships and coastal cargo ships can result in substantial loss of life, which underscores the paramount importance of prevention. Since the tragic sinking of the Sewol ferry in 2014, efforts have been underway to amend and update legislation related to the safety of coastal passenger ships to prevent the recurrence of such incidents. For instance, regulations were established concerning the maintenance of equipment and the body of the ship to maintain seaworthiness; the enhancement of crew education and training; and the improvement

of the safety management system of coastal passenger ships. However, South Korea operates that allows cargo vehicle drivers to temporarily board Ro–Ro ships as temporary passengers for coastal cargo transportation to island areas since 2007. As the answer to Research Question 1, the research examined that this is directly connected to potential safety issues in coastal shipping and connotes normative issues that do not align with International maritime conventions. Therefore, this paper points to the problems of the temporary passenger system and propose the following measures for improvement. Allowing individuals other than the crew and passengers to board a ship for navigation is not appropriate for safety unless they have received appropriate STCW safety training. Individuals who should be classified as passengers are using the temporary passenger system to board a ship without being counted as passengers. This system must be revised as it currently increases the likelihood of safety accidents. To harmonize with the SOLAS Convention and the practices of major shipping countries that have ratified the SOLAS Convention, Korea must strictly minimize the number of people boarding the cargo ship as “other persons.” The currently implemented temporary passenger system includes individuals who have purposes other than that intended by the adoption of international agreements. For the effective implementation of the temporary passenger system, individuals boarding ships should be classified into crew, passengers, IP and SP, and only those who fall under the criteria provided in international agreements as “other persons” should be classified as such. In other words, given the IMO’s SOLAS Convention (including the SPS Code and the IP Code), individuals boarding a ship must be classified into five: passengers, crew, SP, IP, and other persons. However, “other persons” must be directly employed or engaged in the ship’s operations. Moreover, “other persons” should not include IP, SP, or passengers. This could serve as a response to Research Question 2 and 3, which is the main argument of the study.

This study provides implications about the importance of systematically managing the number of onboard persons for maritime safety in nations that focus on marine transportation, among all types of coastal cargo, to island areas. Additionally, this study indirectly underscores that the alignment of domestic laws with international maritime conventions will contribute to the maritime safety of coastal cargo ships and coastal passenger ships. There may need to conduct future research that focus on examining how the Korean logistics system can be

enhanced and gradually aligned with those of other shipping countries.

Conflict of interest

There is no conflict of interest.

Acknowledgement

This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea [NRF-2022S1A5A2A03052887].

References

- [1] Kim SK. The Sewol ferry disaster in Korea and maritime safety management. In: *Maritime Disputes in Northeast Asia*. Boston: Brill Nijhoff; 2017. p. 183–99. https://doi.org/10.1163/9789004344228_011.
- [2] Choi J, Lim S, Park S, Roh H, Jin H, Lee C. The Serious Accidents Punishment Act of South Korea and its impact on the shipping industry: toward sustainability. *Sustainability* 2022;14(14):8936. <https://doi.org/10.3390/su14148936>.
- [3] Choi SY, Hong SH, Ha CW. A Study on the Issues of Interpretation to the Vehicle Cargo Driver and Temporary Passengers in the Ships Safety Act. *Maritime Law Rev* 2018;30(3): 113–40.
- [4] IMO Resolution MSC.527(106) (adopted on 10 November 2022) International Code of Safety for Ships Carrying Industrial Personnel (IP CODE). 2022.
- [5] Kim TE, Nazir S, Øvergård KI. A STAMP-based causal analysis of the Korean Sewol ferry accident. *Saf Sci* 2016;83: 93–101. <https://doi.org/10.1016/j.ssci.2015.11.014>.
- [6] Kim TE, Nazir S. Exploring marine accident causation: A case study. *Occup Saf Health* 2016;IV:369–73.
- [7] Zhang S, Wang J. Analysis of South Korea Sewol sunken ferry accident based on behavioral safety. *J Coast Res* 2015; (73):611–3. <https://doi.org/10.2112/SI73-106.1>.
- [8] González JA. Maritime Accidents in Passenger Ships and Derivative Liability: Costa Concordia and Sewol. *J Marit Res* 2017;14(1):67–76. <https://www.jmr.unican.es/index.php/jmr/article/view/541/564>.
- [9] You JS, Park YM. The Legacies of State Corporation in Korea: regulatory capture in the Sewol ferry tragedy. *J East Asian Stud* 2017;17(1):95–118. <https://doi.org/10.1017/jea.2016.32>.
- [10] Bang HS. The Enhancement of Maritime Safety in Korea: from Risk Management and Safety Culture to Legislation. *Jew Lawyer* 2018;38(4):213–39.
- [11] Bang HS. Korean Ship-Safety Laws: With Special Reference to the M/V Sewol. *Int’l J. Marine & Coastal L.* 2016;31: 720.
- [12] Kim IH. The Sewol Accident and Its Legal Implication. *Hong Kong LJ* 2015;45:547.
- [13] Pusa R, Lin L, Bolbot V, Vassalos D. Unravelling causal factors of maritime incidents and accidents. *Saf Sci* 2018;110: 124–41. <https://doi.org/10.1016/j.ssci.2018.08.001>.
- [14] Lee S. The Sewol Ferry Disaster in Korea: Liability and Compensation Issues. *Int J Mar Coast Law* 2017;32(1): 173–81.
- [15] Suh JJ. The failure of the South Korean national security state: The Sewol tragedy in the age of neoliberalism. *The Asia-Pacific J* 2014;12(40):1–9.
- [16] Jeon C, Knowles SG, Park SE. Disaster (continued): Sewol Ferry investigations, state violence, and political history in

- South Korea. *Hist Technol* 2022;38(1):84–106. <https://doi.org/10.1080/07341512.2022.2094700>.
- [17] Bang MS, Kim Y. Collaborative governance difficulty and policy implication: Case study of the Sewol disaster in South Korea. *Disaster Prev Manag* 2016;25(2):212–26. <https://doi.org/10.1108/DPM-12-2015-0295>.
- [18] Park SY, Woo SH, Lai PL. Market structure of short sea shipping in northeast Asia. *Marit. Bus. Rev.* 2021;6(4):414–29.
- [19] KSA, Ship&Cargo information center. https://www.theksa.or.kr/site/eng/content/sub02_03_01.
- [20] Ship Safety Act of Republic of Korea. https://elaw.klri.re.kr/eng_service/lawView.do?hseq=9172&lang=ENG.
- [21] Article 5 of Enforcement Rule of Ship Safety Act of Republic of Korea. https://elaw.klri.re.kr/eng_mobile/viewer.do?hseq=62712&type=lawname&key=ship+safety+act.
- [22] Lee SI, Doo HW, Jeon YW, Jung M. A Study on the Clarification of Legal Status of Temporary Passengers in the Ship Safety Act. *Ocean Policy Res* 2020;35:1. <https://doi.org/10.35372/kmiopr.2020.35.1.003>.
- [23] Prohibition of Provisional Passenger onboard at Jeju Car Ferries. Jeju, Republic of Korea: Jejusori News; Jul. 23rd 2018. <https://www.jejusori.net/news/articleView.html?idxno=208038>.
- [24] Ministry of Oceans and Fisheries (MOF) Republic of Korea, PORTMIS. <https://new.portmis.go.kr/portmis/websquare/websquare.jsp?w2xPath=/portmis/w2/main/intro.xml>.
- [25] Lee NY, Pak JY, Yeo GT. A study on measuring the efficiency of Korea-China car ferry routes by using data envelopment analysis. *J Navig Port Res* 2013;37(2):187–93.
- [26] Oh YS, Koo KM. A Study of the Change in Market Conditions in the Korea-China and Korea-Japan Car Ferry Routes. *J Korea Port Econ Assoc* 2015;31(2):1–21.
- [27] Lee AY, Kim DJ. A Study on the Port Competitiveness of Korea-China Car-Ferry Routes: Focused on the Ports of the Yellow Sea. *J Int Trade Comm* 2019;6:713–29.
- [28] Ministry of Oceans and Fisheries. MOF) Republic of Korea, PORT-MIS. <https://new.portmis.go.kr/portmis/websquare/websquare.jsp?w2xPath=/portmis/w2/main/intro.xml>.
- [29] KOMSA. Ship's Search. https://www.komsa.or.kr/prog/frtVessel/kor/sub03_0101/form.do.
- [30] Article 770 of the Commercial Law of Republic of Korea. https://elaw.klri.re.kr/eng_service/lawView.do?hseq=29875&lang=ENG.
- [31] Article 3(4) of the Enforcement Rule of the Marine Transportation Act of Republic of Korea. https://elaw.klri.re.kr/eng_service/lawView.do?hseq=9242&lang=ENG.
- [32] Korean Coast Guard, Notice. <https://www.kcg.go.kr/jejuclgh/na/ntt/selectNttInfo.do?mi=2712&nttSn=43221>.
- [33] IMO Resolution MSC.266(84) (adopted on 13 May 2008) Code of Safety for Special Purpose Ships. 2008.
- [34] IMO. New code of safety for ships carrying industrial personnel adopted. <https://www.imo.org/en/MediaCentre/PressBriefings/pages/MSC106.aspx>.
- [35] International Marine Contractor Association (IMCA). Further Development of the IP Code and Associated Guidance Draft Guidance on the IP Code, IMO Sub-Committee on Ship Design and Construction (SDC). 17 November 2022. <https://imcaweb.blob.core.windows.net/wp-uploads/2023/02/SDC-9-INF.3-Draft-Guidance-on-the-IP-Code-IMCA.pdf>.
- [36] Directive 2009/45/EC The European Parliament and the Council of 6 May 2009 on safety rules and standards for passenger ships. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:163:0001:0140:EN:PDF>.
- [37] Mandaraka-Sheppard A. *Modern Maritime Law* (Volume 2): Managing Risks and Liabilities. New York: Informa Law from Routledge; 2013.
- [38] Directive 2009/42/EC on Statistical returns in respect of carriage of goods passengers by sea. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009L0042>.
- [39] 46 U.S. Code § 2101(36)- General Definitions. <https://www.law.cornell.edu/uscode/text/46/2101>.
- [40] Smita. Seafarers and the Issue of Riding Gangs, Marine insight. Feb. 8th 2019. <https://www.marineinsight.com/marine-safety/seafarers-and-the-issue-of-riding-gangs/>.
- [41] CFR Title 48, section 252.247-7027 (c)(3). <https://www.law.cornell.edu/cfr/text/48/252.247-7027>.
- [42] 46 U.S. Code § 8106. <https://www.law.cornell.edu/uscode/text/46/8106>.
- [43] ITF. Riding Gangs. <https://www.itfseafarers.org/en/issues/riding-gangs>.
- [44] Navigation Act 2012 of Australian Maritime Safety Authority. <https://www.amsa.gov.au/about/regulations-and-standards/navigation-act-2012>.
- [45] Detailed regulations regarding the Enforcement Regulations of the Ship Safety Act of Ministry of Transport Enforcement Rule Japan. https://jci.go.jp/english/pdf/en_regulations.pdf.
- [46] Ministry of Oceans and Fisheries (MOF) Republic of Korea, PORT-MIS. <https://new.portmis.go.kr/portmis/websquare/websquare.jsp?w2xPath=/portmis/w2/main/index.xml&page=/portmis/w2/cm/sys/UI-PM-MT-001-021.xml&menuId=0045&menuCd=M4735&menuNm=%EC%82%AC%EC%9D%B4%ED%8A%B8%EB%A7%B5>.
- [47] Korea Transport Institute. Cargo Transport Market Information Center. https://www.koti.re.kr/user/bbs/frghtSrvOneView.do?bbs_no=55448.