

Conference Paper

Ship Accident Analysis in Toba Lake

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Abstract

Lake transportation by boat in Indonesia is still the favorite transportation mode used by people in the area. Lake transportation is used for various purposes including the distribution of goods and marine tourism activities. These are facilitated by ships that must comply with national/non-convention ship standards (rather than international conventions). The availability of a ferry must be supported by other considerations, such as shipping lanes which are considered safe for navigation in terms of depth, width and other shipping barriers. This article considers the sinking of the Sinar Bangun ship, during which 3 people died, 164 people were missing and the ship destroyed.

Keywords: Sinking; Ship; Accident.

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Published: 12 January 2021

Publishing services provided by
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Selection and Peer-review under the responsibility of the IWPOSPA Conference Committee.

1. Introduction

Lake transportation by boat in Indonesia is still the favorite transportation used by people around the island and the coast from the surrounding land. Lake transportation is able to move the movement of people for activities including distribution of goods including marine tourism activities facilitated by ships that must follow national/non-convention ship standards (not following international conventions) (Regulation of the Minister of Transportation Number PM. 65 of 2009 concerning the Standard for Indonesian Flagged Non-Convention Vessels). One of the main drivers of the maritime sector, especially in lake waters, is the availability of ships as a mode of transportation. The Indonesian National Shipping Act states that the term ship includes water vehicles of certain shapes and types, which are driven by wind power, mechanical power, other energies, towed or suspended, including vehicles with dynamic support, underwater vehicles and floating equipment and floating structures which do not move (See Article 1 paragraph (36) of Act No. 17 of 2008).

The availability of a ferry must be supported by other supports, such as shipping lanes, which in terms of depth, width and other shipping barriers are considered safe and safe

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to navigate (Ibid. paragraph (45)). The availability of human resources who understand the safety of shipping, including crews who have competency and proficiency must be met so that ships and manning comply with the provisions of laws and regulations and to prevent ship accidents, especially by human factors, which according to research the contributing factors reach 70-90 percent (Michael R, Adams. (2010) Shipboard Bridge Resource Management, Nor Easter Press-6 Water Street, Eastport, Maine 04631 USA. p. 2).

The regulatory characteristics of lake freight shipping are different from sea freight. The scope of lake transportation is limited and the pattern of local conditions with the influence of weather and the nature of the waters is within a limited scope. With the nature of shipping areas and short shipping times, in a safety perspective it makes a different character with the handling of ship certification systems/schemes and crew certification (Op.Cit. paragraph (40)).

On June 18, 2018 at around 16.00 WIB, *Sinar Bangun* prepared to depart from Simanindo Port, Samosir Regency to Tigaras Port, Simalungun Regency. The atmosphere of the Simanindo pier was crowded with passengers going to Tigaras. At the same time, several other ships were docked. The embarkation of passengers to *Sinar Bangun* began and passengers who were already at the dock began to enter the ship via the bow. The crew arranges the motorbikes that will use *Sinar Bangun* transportation. Most of the motorbikes are placed on the outside of the accommodation and some are inside the accommodation space (main or lower deck). The captain stated that there were about 70 units of two-wheeled vehicles (motorbikes) on board and a number of passengers and two crew members, namely the captain and the kernet.

All passengers are passengers using motorbikes. On deck 1 there are passengers sitting at the stern and prow of the ship, precisely in front of the line of motorbikes. Most of the passengers were on Decks 2 and 3 (middle and top decks). When *Sinar Bangun* will depart from Simanindo Port, there are still passengers who are at the dock and cannot board the ship. This is because the ship can no longer be loaded with passengers and motorbikes. The passengers who were not transported by *Sinar Bangun* were planned to be transported by the North Sumatra II ship which would follow behind *Sinar Bangun*.

At around 16.50 WIB, the ship began to depart from the Simanindo Port dock. The weather in the waters of Toba Lake at that time was getting cloudy and a little drizzle. Weather information has previously been broadcast by the Meteorology, Climatology and Geophysics Agency (BMKG) via online media Telegram from the Silangit Airport

station, that the waters of Toba Lake are raining with moderate-to-heavy intensity which can be accompanied by lightning and strong winds.

As usual, the captain directed the ship to the northeast with the Hotel Garoga building in Tigaras as reference. Then the bow will be diverted eastwards towards Tigaras Port when the ship is approximately approaching Tigaras. In the middle of the cruise, kernet collects passenger fees. Payment is made in cash and without getting proof of payment. The journey from Simanindo to Tigaras as far as 3 nautical miles under normal conditions is taken for approximately 30 minutes at a speed of 6-7 knots. By the time *Sinar Bangun* had traveled about 20 minutes, there was a change in the weather in the waters of Toba Lake. Passengers had time to convey their concerns to the kernet about the condition of the waters. However, Kernet assured that such conditions were common.

Around 17.10 WIB, strong winds (heading south) accompanied by waves of around 1.5-2.0 meters that hit the ship's left hull made the ship bobbing on Toba Lake. The ship tilted to the right and then immediately capsized until the keel of the ship came to the surface.

The reversal of *Sinar Bangun* was accompanied by the fall of some of the passengers who were on deck 3 and the outer side of the ship into the waters of Toba Lake. Meanwhile, some of the passengers who entered the water at the same time as the ship managed to get out of the ship by following the bright light and some by breaking the porthole.

After *Sinar Bangun* capsized, passengers were divided into two groups. The first group of passengers were above the keel and hull of *Sinar Bangun* which had risen to the surface of the water. The second group of passengers floated around *Sinar Bangun* by relying on several objects floating around them, such as helmets, pieces of wood, and dead passengers who had floated. None of the passengers and crew of the *Sinar Bangun* ship were wearing life jackets. Over time, part of the second group of passengers began to sink. The first group helps to pick up other passengers who are still floating on the water surface. A few moments later, a big wave came back and swept away all the passengers on the hull and the hull of the ship.

2. Research Methods

This type of research is a qualitative method. According to stating that qualitative research methods are the most appropriate type of research method in capturing human perceptions only with direct contact and an open mind and through inductive processes

and symbolic interactions, humans can recognize and understand something (Semiawan, C. R. (2010). *Metode Penelitian Kualitatif: Jenis, Karakteristik dan Keunggulannya* (Arita L (ed.)). Grasindo. p.23). The data collection technique used in this research is participatory observation with an exploratory step, namely doing one of the qualitative data collection techniques that is recommended to obtain descriptive data (Gunawan, I. (2017). *Metode penelitian kualitatif*. In Bumi Aksara (5th ed.)). Sources of data used are primary data in the form of observations and secondary data in the form of data collected, processed and presented by other parties in the form of books and previous research results.

3. Results and Discussion

3.1. Search and Help Process

At the same time, the North Sumatra II passenger Roll-On Roll-Off (Ro-Ro Pax) ferry which was sailing from Simanindo Port to Tigaras Port helped the evacuation process of *Sinar Bangun* survivors by throwing life jackets with ropes and life jackets. The crew of the North Sumatra II ship tried several times to throw the life jackets and life jackets but the survivors failed to catch them, so they had to be pulled and thrown back. The throwing of the life jacket also experienced many failures because the life jacket was carried away by the waves. After successfully rescuing three survivors, North Sumatra II continued the journey to Tigaras Port.

The rescue was then continued for about 15 minutes by several ships that happened to be near *Sinar Bangun*, namely North Sumatra I (a type of North Sumatra II) and Sinta Dame II (a type of *Sinar Bangun*). Sinta Dame II managed to save fourteen survivors, while North Sumatra I managed to save one survivor and one victim died.

The Toba Lake National Search and Relief Agency (BNPP) post, located in Parapat, received reports of the sinking of *Sinar Bangun* from the community at around 17:40 WIB and immediately prepared the team to carry out rescue work. Twenty minutes later, the rescue team had left for the scene. At around 18.45 WIB, the BNPP team together with the Water Police and the local community helped the evacuation process.

The location of the incident is about 3 km from Tigaras Port, precisely at coordinates 02°47' 01" North Latitude - 98° 46' 34" East Longitude. The location of the incident from the Parapat SAR Post is around 12.19 NM to the northwest (308°). The administrative area of the ship accident is located in Tigaras Village, Dolok Pardamean District, Simalungun Regency, North Sumatra.

From the overall results of the evacuation and search, 21 survivors were rescued (including the skipper and kernet) and 3 bodies were found including those rescued by North Sumatra I on the day of the incident. According to BNPP data, 164 people⁷ have been reported missing by people who feel that their family members or relatives were missing in the sinking of *Sinar Bangun*. However, no one can confirm the exact number of victims who were lost in this accident. (L Tobing, Y. P. (2019). Analisis framing berita kecelakaan km sinar bangun di surat kabar harian analisa (Doctoral dissertation, Universitas Islam Negeri Sumatera Utara). State Islamic University of North Sumatra)).

3.2. Operation of Search and Rescue (SAR)

The joint search and rescue operation led directly by the Head of BNPP was attended by various elements such as the TNI, Polri, BPBD, Regional Government and the community who volunteered to take part in SAR operations. The SAR operation for the search for *Sinar Bangun* took 16 days and the SAR post was placed at Tigaras Port, Simalungun Regency (https://id.wikipedia.org/wiki/Pencarian_dan_penyelamatan accessed on 17 oktober, 2020).

3.3. Due to an accident

As a result of this accident, 3 people died, 164 people were missing and the ship was a total loss. A total of 19 victims including 2 crew members were rescued by the Cinta Dame ship and the ships of North Sumatra 1 and North Sumatra 2. (http://knkt.dephub.go.id/knkt/ntsc_maritime/Laut/2018/FINAL%20KNKT-18-06-18/03%20Sinar%20Bangun%204-Final%20PrintA.pdf. accessed on 17 oktober, 2020).

3.4. Regulations Related to the Safety of Operation of Ships of the Type Sinar Bangun

Before discussing regulatory aspects related to shipping safety, a definition of shipworthiness is first presented. Shipworthiness is the condition of the ship that meets the requirements of ship safety, prevention of pollution from ships, manning, loading lines, loading, crew welfare and passenger health, legal status of ships, safety management and prevention of pollution from ships, and ship security management for sailing in waters.

Ship safety is the condition of the ship that meets the requirements for material, construction, building, machinery and electricity, stability, arrangement and equipment including auxiliary equipment and radio, ship electronics, as evidenced by a certificate after inspection and bleaching. Every element of safety is examined by the relevant authorities and after it is declared that it meets the required conditions, the ship will be given a letter or related certificate (PURBA, P. S. A. (2019). Analisis kepatuhan transportasi kapal penumpang/penyeberangan terhadap standart keselamatan transportasi air dalam mendukung pariwisata di danau toba 2019 (Doctoral dissertation, Universitas Negeri Medan)).

3.5. Aspects of Legal Status and Operating Licensing

1. Act No. 17 of 2008 concerning shipping is the main reference for the provision of national shipping operations. With regard to river and lake transportation, Article 18 paragraph 1 states that the implementation of river and lake transportation is carried out by Indonesian ships that meet the ship's marine eligibility requirements and are manned by Indonesian crews.
2. Act No. 23 of 2014 regulates Regional Government. In its attachment, it is stated that the function of implementing shipping safety and security as well as protection of the maritime environment is the responsibility of the central government. Act No. 23 of 2014 repeals Act No. 32 of 2014 on Regional Government.

In the attachment, it is stated that the functions of safety and protection of the maritime environment are handed back to the functions of the central government.

Based on the above provisions, every transportation in Indonesian waters must be carried out by Indonesian vessels that meet maritime requirements (Mahendra, Z. I. (2020). Sistem Defensif Terhadap Keberadaan Penumpang Ilegal untuk Keselamatan Pelayaran dalam Perspektif UU No. 17 Tahun 2008 dan Sadd Al-dzari'ah (Doctoral dissertation, uin ar-raniry)).

3.6. Aspects of Shipping Operational Safety Supervision

Decree of the Minister of Transportation number KM. 73 of 2004 concerning the implementation of river and lake transportation has been updated with a Decree of the Minister of Transportation number KM. 58 of 2007. In article 5, paragraph 1, it is stated that for ships with gross tonnage size equal to or more than GT 7 (\geq GT

7) which are operated only in inland waters (rivers and lakes), ship measurements are carried out, ship safety supervision, radio inspection/ship electronics, issuance of inland water passes, construction inspection, ship machinery, ship equipment, and ship manning issuance. Manning certificates and documents as well as the issuance of SIB. In this provision it is also stated in Article 5 paragraph 2 that the implementation of the provisions in paragraph 1 shall be carried out by the Governor. Regulation of the Minister of Transportation PM number. 52 of 2012 concerning Rivers and Lakes. Article 131 paragraph (2) states that river and lake inspectors as referred to in paragraph (1) shall be certified by the Director General.

Furthermore, in 2015, the Minister of Transportation issued the Minister of Transportation Regulation no. 25 of 2015 concerning River, Lake and Ferry Transportation Safety Standards. In the regulation the minister of transportation referred to still refers to KM 73 of 2004 and KM 58 of 2007. The implementation of the activity of granting a sail permit (SIB) for GT 7 ships is carried out by officers holding the safety function of river and lake transportation at the Provincial Office. And this regulation also summarizes and reaffirms a series of river and lake transportation regulations that have been issued through laws and regulations. Related to the supervision of safety aspects, the Director General of Land Transportation issued a Regulation of the Director General of Land Transportation no. SK.1818/AP.403/DRJD/2015 concerning guidelines for implementing traffic safety inspections in the river and lake transportation sector.

In 2017, the Ministry of Transportation issued PM. 39 of 2017 concerning Registration and Nationality of Ships. The second part of article 71, up to article 74 states about the provisions for registration and the provision of small passes for vessels transporting rivers and lakes. In article 72 paragraph 1.d it is stated that the activity of issuing national certificates or small passes is carried out by the local harbormaster. This ministerial regulation is further explained through the Director General of Sea Transportation's decree number: UM.002/58/10/DJPL-17 regarding the determination of small pass codes and river and lake pass, and Circular Letter UM.003/59/9/DJPL-17 issued on August 7, 2017 (Dewantoro, B., & Hartanto, C. F. B. Peran vessel traffic services (vts) untuk meningkatkan kelancaran dan keselamatan pelayaran di pelabuhan tanjung emas semarang. In seminar nasional. p. 62).

3.7. Managing Aspects

In accordance with Act No. 17 of 2008 concerning Shipping, article 135 states that every ship must be manned with a sufficient number of crew members and who meet the

qualifications requirements. In relation to river and lake transportation operations, the provisions regarding the skills of seafarers are regulated in Government Regulation No. 7 of 2000 concerning Voyage article 46. In relation to the Skills Certificate (SKK), this government regulation mandates to formulate a ministerial regulation to regulate the procedures for obtaining an SKK. The ship's master stated that he had a certificate of proficiency. However, the person concerned cannot explain when and from which institution the skill certificate was obtained (Cultural, ship marine kpd as a condition to issue a sail approval at the kesyahbandaran office and pontianak class ii port authority).

3.8. Supervision of Loading to Ship

The presence of passengers with a number of more than 150 passengers and the loading of vehicles about 70 units on board are the impact of the monitoring function that is not running well at the Toba Lake crossing port. At least two things are missing in the passenger loading system on the Toba Lake cruise, namely tickets - related to local retribution and accident insurance premiums - and a passenger list (manifest).

A clear passenger manifest will provide details on the number of passengers and their identification. The system of recording that is not implemented in the waters of Toba Lake causes unclear numbers, names, addresses, and ages of passengers who are passengers on the ferry. The list of missing persons reported by family and relatives who feel that their closest person is missing on the *Sinar Bangun* voyage is an example of confusion over the passenger list on the crossing on Toba Lake. In the absence of a cargo list, whoever took part in the voyage could not be clearly ascertained, unless after it was found safely or the body could be ascertained.

The passenger list also provides certainty regarding the capacity of the ship. The condition of the ships on Toba Lake, which do not have hull lines, makes it difficult for supervisors to determine whether a ship is overloaded or not, except relying on the maximum number of passengers allowed. Ticket-based calculation of the number of passengers on Toba Lake has not been carried out for quite a long time, so it has become a generally accepted habit. In the past, a ticketing system was implemented, but it did not last long due to objections from ship owners and crew. This habit makes crossing tickets that are actually available, not being utilized properly (Sunardi, S., & Pamungkas, R. S. (2019). Studi kapal kecil dengan tenaga penggerak listrik untuk pengawasan kawasan konservasi sungai dan muara. *Jurnal Kelautan: Indonesian Journal of Marine Science and Technology*, 12(1), 1-11).

3.9. Ship Technical Aspects

Ship engine and rudder are important elements in determining the ship's motion. The ship engine is a land engine that is modified in such a way as to be installed on a ship and operated in lake waters. Unsafe placement of the fuel tank has the potential to pose other risks such as oil spills and even fire (Lalu, A. (2018). *Optimalisasi Keterampilan Anak Buah Kapal Dalam Persiapan Pengopersian Alat Lifesaving Appliances And Fire Fighting Appliances Serta Mekanisme Perawatannya Di Kapal Mt. Layar Arthawibawa*. Karya Tulis).

In connection with the findings on the technical aspects above, the following things can be done:

1. A thorough technical study of their stability is carried out on the existing vessels so that operational limits are known and determined, such as the number of passengers that can be transported and their arrangement on each deck. This includes determining the load line size which can be used as a reference for the operator to find out whether the ship is overloaded or not.
2. For the construction of the next new ship, it is necessary to give a discourse regarding the improvement of a good main size ratio if it is to be used to transport passengers up to the 3rd deck. Furthermore, it can also be given input to the shipbuilders regarding the shape of the hull for better ship stability.
3. The use of mixed materials needs to be re-examined, taking into account the ship's stability conditions. Use of metal material above the load line
4. Limitation on the number of motorbikes that can be transported or the creation of a special space for motorbikes that do not intersect with passenger accommodation
5. The placement of waterproof transverse bulkheads needs to be considered to prevent leaks along the hull.

3.10. Crew Skills

Sinar Bangun masters do not have maritime education and only have a Certificate of Proficiency (SKK) obtained in 2014 which did not need to take any training when they got it. The master has absolutely no knowledge of ship stability and knowledge of facing emergencies. The ability to navigate and the minimum skills that should be possessed by a ship captain is not possessed by *Sinar Bangun* masters, even though he has more

than 10 years of experience in piloting a similar ship. So that in the operation of the ship, the captain is guided by habits and routines only.

When *Sinar Bangun* carried more than 150 passengers and about 70 motorbikes, the master was not aware of and knew the dangers that would arise to ship safety due to not having knowledge of ship stability problems. Because before the sinking incident, *Sinar Bangun* had several times brought passengers and motorbikes with almost the same number of conditions as when the ship sank. Based on this habit and experience, the master considers that the ship sailing will always be safe in the waters of Toba Lake without paying attention to weather factors which are sometimes quite extreme in the waters of Toba Lake and change suddenly.

On the way, the master did not take any action to avoid waves from the left side of the ship. Knowing that there were strong winds and strong currents, the master remained in the same direction to the east as the habit he had practiced for years without any problems. Although the Master has repeatedly performed these actions without any significant problems, at the time of the incident the Master's actions were not appropriate considering the unusual wave and wind conditions.

In conditions of strong currents and high waves, the captain should have changed the direction of the direction of the Bangun 4 beam as far as possible the direction of the ship facing or backwards from the waves, so that the hull was not hit directly by the waves. Actions like this will cause the ship's trajectory to be a little farther away, but avoid the risk of the ship toppling over.

The captain's decision to follow habits and not try to avoid being hit by waves from the side of the hull is an indication of a lack of basic knowledge in marine education for crews operating in Toba Lake. From the results of interviews with several crew members of other ships, it is known that there is no requirement for the skippers to have certain diplomas — for example, a Certificate of Proficiency for 30 or 60 nautical miles. The Kernet who helps the skipper also does not require any diploma, even the appointment can be instant (voluntary). In busy conditions (peak season), the kernet will be assisted by several volunteers to manage passengers and two-wheeled vehicles. Without supervision at the Toba Lake crossing port, anyone can become a skipper or Kernet, depending on the approval of the ship owner.

The idea to provide training for boat crews working in the waters of Toba Lake actually already exists, but it has obstacles. To be able to attend the training, the crew must come to the Province of Nangroe Aceh Darussalam at their own expense. With no need to have a diploma and various sacrifices during training — even though the training fee is free — of course this training idea becomes unattractive to the crew. With

the condition of the crew's knowledge that is so lagging behind, it is appropriate that training be carried out in the Toba Lake area, before finally those who become skippers are required to have a skills diploma (<https://www.bisnisnews.id/detail/berita/nakhoda-traditional-cruise-wajib-memiliki-dokumen-kecakapan> accessed on 17 oktober, 2020).

3.11. Emergency Measures on Ships and Evacuation of Passengers

3.11.1. Emergency Access

After undergoing a second modification in 2015, *Sinar Bangun* does not have emergency access on Decks 1 and 2. Each deck only has a door that is used to enter/exit the deck. Only one room has emergency access, namely the skipper's room which has a door to the right of the wheelhouse.

Emergency access can be emergency doors and windows. The emergency door must be able to be opened quickly without being obstructed by any objects as well as adequate width and location depending on the number of people in the room. For windows, as far as possible can be opened/broken as soon as possible as an exit and without being blocked by other objects.

Sinar Bangun has a trellis installed along the windows of Decks 1 and 2. Its original purpose was to protect the window glass from motorbikes on Deck 1 and protect the collision of the heads of passengers on Deck 2. However, even though at that time there were no passengers in the accommodation space Deck 1, this actually hinders emergency access from the window to get out of the ship if any time needed.

The *Sinar Bangun* window was not designed to be used for emergency access. All porthole made of glass. The risk from the glass material is contact with the skin causing bleeding wounds as experienced by a number of passengers and crew. An eye witness said that a number of passengers who eventually drowned experienced bleeding in their bodies and heads after leaving the ship. Naturally, the material used as a window for emergency access is a kind of polymer which can be easily and quickly removed from the window frame when needed.

The mismatch between the need for emergency access and the conditions of *Sinar Bangun* is a realization of the absence of regulations related to emergency access. Although every year every ship has to undergo inspection, emergency access is never included in the inspection officers' observation points (<https://www.coursehero.com/file/p2fmcfv/kemampuan-awak-kapal-untuk/mendemonstrasikan-cara-mengenakan-jaket-penolong/> accessed on 17 oktober, 2020).

3.11.2. Emergency Telecommunications

The annual inspection of wooden ships on Toba Lake does not cover telecommunications issues. Vessel Inspection Minutes as annual inspection documentation do not include items on radio or other telecommunication tools. The absence of a telecommunication radio installed at *Sinar Bangun* indicates that local regulations have not included telecommunications as an important subject in supporting shipping safety.

The existence of telecommunication radio has many benefits in shipping, especially when an accident occurs. The crew can make calls to other ships in the vicinity and to government offices regarding weather information. When an accident occurs, a ship that is aware of an accident can disseminate the information to anyone who can hear the information, especially to the local BNPP.

The absence of regulations regarding telecommunications on the Toba Lake crossing is closely related to the absence of a technical implementation unit (UPT) that handles radio telecommunications. In this case, the Navigation District - under the Directorate General of Sea Transportation, Ministry of Transportation - is an agency that specializes in dealing with radio and shipping navigation issues. However, the UPT has not yet reached the waters of Toba Lake.

Without a telecommunication system in the form of a radio, the ships in Toba Lake have only relied on cell phones belonging to the crew. Usually they use cell phones to communicate with other ships, ship agents, ship owners, and with passengers. Communication using cell phones has many drawbacks in terms of signal and cost. For signal problems, for example, the signal from cellular operators at Tigaras Port is generally not supported for making voice calls. In addition, if the ship gets further away from the mainland the signal disappears. In addition, telecommunications using cell phones will of course be burdensome for the crew because it requires costs to be borne by themselves.

3.11.3. Monitoring of Toba Lake

In Act No. 23 of 2014 concerning Regional Government, the division of authority in the transportation sector clearly states that the safety function is returned to the central government. In this case, it can be interpreted that all aspects related to shipping safety and security are under the control of the central government, including and not limited to the provision of safety certificates, operational supervision and control, the legal status of ships and their manning aspects. However, this law does not yet have implementing

regulations such as government regulations or ministerial regulations. With the repeal of Act No. 32 of 2004 concerning Regional Government, the derivative regulations become invalid as is the Government Regulation Number 38 of 2007 concerning the Distribution of Government Affairs between Governments,

The issuance of provincial and municipal regulations related to safety, operation and transportation of rivers and lakes after the enactment of Act No. 23 of 2014, shows that local regulations are still not in sync with central regulations. The regional government considers that the function of monitoring the safety of ships similar to *Sinar Bangun* is still within its authority. However, this is contrary to what is mandated by Act No. 23 of 2014. From the point of view of the central government, the safety supervision authority regarding lake transport vessels is also not explained in detail. Thus, there is a vacuum of safety supervisory function administratively for river and lake transportation vessels. Ministerial regulations related to river and lake transportation safety also still refer to Act No. 32 of 2014.

The lack of clarity regarding the party responsible for monitoring safety aspects can lead to the omission or absence of safety supervision. This is also proven by the operation of ships similar to *Sinar Bangun* with conditions that are not much different. For this reason, it is necessary to realign and elaborate in detail the fulfillment of the regulations stated in the highest provisions for further implementation in the implementing regulations. Consistency and seriousness in its application are also needed, so as to improve the safety of river and lake transportation.

3.11.4. Supervision of Shipworthiness

The ship has a shipworthiness certificate which is integrated with the river and lake ship nationality certificate. The River and Lake Shipworthiness and Nationality Certificate was issued by the Transportation Office of North Sumatra Province on 23 April 2018 and is valid until 22 April 2019. The certificate of eligibility issued does not clearly state the status of the ship. It only states that the ship has the right to sail by flying the Indonesian flag. The status of the shipworthiness certificate itself does not specifically state the requirements that must be met by the owner of the ship in meeting the shipworthiness criteria.

Meanwhile, for the certificate of manning, *Sinar Bangun* does not have a certificate of manning. The minimum requirements for a certificate of expertise that must be possessed by a ship master are not specifically regulated.

3.11.5. Supervision of Ship Operational Safety

Based on the Certificate of Feasibility and Nationality of the River and Lake *Sinar Bangun* Ship, it states that the ship only has 1 deck, but the facts on the ground state that the ship has been modified by the owner to become 3 decks since 2015. And the extension of the certificate is always given for one year and it must be renewed every year on the condition that the ship must fulfill the conditions stated in the certificate of the ship. And if there is a discrepancy, the ship certificate will not be extended. However, in fact the ship every year still gets the certificate extension by stating that the number of decks is still one deck even though the ship has been changed to 3 decks.

Approval Letter for Operation of Lake and Ferry Transportation Vessels number 551.41/147/UPT.ADP/PHB/2018 and Registration Letter and Completeness of Lake and Ferry Transportation Number 551.41/146/UPT.ADP/PHB/2018 which was issued on 23 April 2018 as well stated that *Sinar Bangun* is only intended for the transportation of passengers with the maximum number allowed is only 45 people plus 3 crew members. However, at the time of the incident the ship was carrying more than 180 passengers and about 70 motorbikes. No Sailing Approval Letter (SPB) given to the ship before the ship departs also shows that there is no control over the condition of the ship's suitability to sail.

As for this explanation, the potential for accidents in water transportation can be suppressed and water transportation in Indonesia will be better. (liputan6.com) Evaluation and Improvement of Water Transportation In response to the sinking of KM *Sinar Bangun* in the waters of Toba Lake, the Directorate General of Sea Transportation of the Ministry of Transportation (Ditjen Hubla Kemenhub) issued a Circular No. KL.202/1/14/DN-18 concerning Instructions for Supervision of Sailing Approval Letter Control for Ships Sailing in Toba Lake Waters dated June 25, 2018 which is intended for ship owners/operators and skippers. According to the Director of the Sea and Coast Guard Unit (KPLP) Junaidi, the circular contains instructions for supervising the issuance of a Sailing Approval Letter (SPB) for ships sailing in the waters of Toba Lake. With this circular, the skipper is obliged to make a statement letter and must attach documents or documents of the ship and manifest and passenger list before the issuance of the SPB. (kompas.com, 2018) This Circular Letter is an attempt by the government to make improvements, especially ensuring safety and security in water transportation. Unfortunately, this circular letter is only partial in nature because it is only intended for ships sailing in the waters of Toba Lake, while problems in water transportation occur in almost all Indonesian territorial waters. 2018) This Circular Letter is an attempt by

the government to make improvements, in particular ensuring safety and security in water transportation operations. Unfortunately this circular letter is only partial in nature because it is only intended for ships sailing in the waters of Toba Lake, while problems in water transportation occur in almost all Indonesian territorial waters. 2018) This Circular Letter is an attempt by the government to make improvements, in particular ensuring safety and security in water transportation operations. Unfortunately, this circular letter is only partial in nature because it is only intended for ships sailing in the waters of Toba Lake, while problems in water transportation occur in almost all Indonesian territorial waters.

The Indonesian government must conduct a comprehensive evaluation of water transportation operations which often cause passenger casualties. This evaluation must be followed by improvements in water transportation operations in Indonesia. The evaluation of the condition of water transportation operations must be led directly by the Minister of Transportation in order to find out what problems are the obstacles in the implementation of water transportation in Indonesian waters and find solutions to these problems. Some of the problems that pose challenges in efforts to improve water transportation operations in Indonesia include: the incomplete regulations regarding the delivery of water transportation, particularly regarding cargo limits and security and safety equipment; the ineffective application of existing legal rules is indicated by weak supervision of the application of legal rules and the low compliance of parties related to water transportation administration to existing regulations; lack of awareness of security and safety in water transportation operations. Improvements to water transportation operations in Indonesia can be started by improving cargo materials in every regulation relating to water transportation. The DPR and the Government can make improvements to the Shipping Law. Improvements to the Shipping Law need to be carried out by confirming the provisions regarding security and safety guarantees such as ship load limits and the obligation of ship owners to provide security and safety equipment during water transportation operations. lack of awareness of security and safety in water transportation operations. Improvements to water transportation in Indonesia can be started with improvements in cargo materials in every regulation relating to water transportation. The DPR and the Government can make improvements to the Shipping Law. Improvements to the Shipping Law need to be carried out by confirming the provisions regarding security and safety guarantees such as ship load limits and the obligation of ship owners to provide security and safety equipment during water transportation operations. lack of awareness of security and safety in water transportation operations. Improvements to water transportation in Indonesia can be started with improvements

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Regulating the provisions regarding the limits of ship cargo and the provision of equipment is very important to support the operation of safe water transportation. In addition, the effectiveness of implementing legal regulations regarding water transportation operations must be increased. This effectiveness can be increased by increasing the compliance of all parties involved in water transportation operations. The government can supervise the compliance of each party with the applicable legal rules. On the other hand, the DPR can also supervise all water transportation practices and compliance with legal regulations related to water transportation. Other steps that can be taken by the government are, disseminating information to all parties related to water transportation on the importance of compliance with regulations relating to water transportation and the importance of guaranteeing safety and security in water transportation operations in Indonesia. The party in question is not only the owner of the transport vessel and the officer, the users of water transportation must also understand very well the importance of obeying the rules.

4. Conclusion

The National Transportation Safety Committee (KNKT) has completed an investigation and issued a final report on the *Sinar Bangun* Motor Ship accident in Toba Lake on June 18 2018. From this incident, the latest data obtained by the NTSC, the number of survivors was 21 people, the number of victims found dead was as much as 3 people, the number of victims who have not been found is 164 people. Chairman of the KNKT Soerjanto Tjahjono said based on the results of the analysis of the data and information obtained in the investigation process, the sinking of the *Sinar Bangun* ship was caused by the ship carrying passengers and vehicles beyond its stability capabilities. The ship's stability got worse when the ship sailed in waters with waves up to 2 meters high. To prevent accidents with the same cause, the NTSC conveyed safety recommendations addressed to regulators and operators of traditional passenger ships on Toba Lake, including reviewing various applicable regulations and ensuring that the technical aspects of shipping were met.

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