

The Importance of Ferry Ro-Ro Transportation in Indonesia and Its Contrary to The Lack of Attention on Ferry Ro-Ro Safety, Which Cause High Rate of Accidents and Fatalities

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Abstract

Ferry Ro-Ro Transportation in Indonesia is very strategic and important considering that Indonesia is the archipelagic country and being the largest archipelago country in the world with 17,500 islands, transportation is playing a significance role to connect people and to move goods from one island to another island. Thus there are two important transportation modes in Indonesia, namely air transportation and sea transportation. Since a long time ago, traditionally sea transportation has become a dominant transportation in Indonesia, connecting people and goods among islands, which is producing an improved logistic chain. Ferry ro-ro transportation become popular transportation in Indonesia, because of its nature, ferry ro-ro transportation could transport goods in door to door service. In contrary, the frequent use of ferry ro-ro transportation is not in line with the attention of ferry ro-ro safety itself. The intent of this paper is giving the facts that ferry ro-ro is an important transportation in Indonesia, in contrary there is no concern about ferry safety, and as a result, ferry ro-ro accident in Indonesia has the high rate and high fatalities. Therefore, promoting ferry ro-ro transportation safety and overcoming problems in ferry ro-ro safety are very important. Ferry Ro-Ro transportation community stakeholders should be aware of the condition and pay an attention on safety measures of ferry ro-ro transportation since its function become the backbone of interisland transportation in Indonesia. This paper compiles information on 30 major accidents in Indonesia that occurred within 13 years between 2006 and 2018. It review and discussed mainly focused on the major type and cause of accidents. The conclusion of this paper is trying to identify how to overcome the major cause, and giving the recommendations on how to upgrade and maintain ferry ro-ro safety ship borne and shore based view.

Keywords: Ferry Ro-Ro, Ferry Ro-Pax, accidents, safety, fatalities, islands, transportation, passengers, vehicles.

INTRODUCTION

Ferry Ro-Ro is considered as the most successful sea transportation mode in Indonesia in the perspective of simplicity to transport goods. Ferry ro-ro service doesn't need a cargo handling and allowing trucks to deliver goods in a way of

door to door service. The total number of ferry vessels are 430 units and it serve over 195 crossings (PT.ASDP, 2017) which connect among islands. PT.ASDP or Indonesian State Owned Ferry Ro-Ro operates 39% out of the total ferry operation, private companies operate 54 % and local governments operate 7 % of the ferry ro-ro in Indonesia.

In addition there are ferry ro-ro pioneer services system operated in eastern part Indonesia, which is subsidized by Indonesian government, in order to ensure the existence of transportation among islands particularly between remote island and developed island; therefore ferry ro-ro becomes a major back bone in logistic services and in supporting regional and national economic activities. However, it is interesting also to note that the average age of those 430 ferry ro-ro operated in Indonesia is 28 years, while the average of the size of the vessel is 1,600 GT.

The most economical ferry transportation in the developing countries is Ro-Pax Ferry or Ro-Ro Passengers ferry vessel type, the type of ferry vessel which can accommodate passengers as well as vehicles and cargo at the same time. Ro-Pax Vessel is varied in type, size and capacity depending on the route; it is very flexible to deploy, depending on the load factor, type of the port, the sailing distance and the roughness of the sea. Therefore Ro-Pax Ferry is very economical and flexible in terms of commercial activities and it can be moved easily from one route to the other route. The Ro-Pax Ferry is used as the connecting bridge between islands, point to point service and considered as the most affordable transport modes,

However Ferry Ro-Ro safety is not taking care by the regulator and the ferry operator, there are 30 major accidents in Indonesia that occurred within 13 years between 2006 and 2018, means that in average there are more than 2 accidents happened every year. In addition during mid of 2018, June-August 2018, there were 4 ferry accidents and total fatalities.

METHOD

Method of this research paper is using qualitative and quantitative methods. The data series of ferry ro-ro existing condition, the total number of ferries, route/crossings, accidents and fatalities were collected through various sources information and media news. The data information and sources were collected from PT.ASDP (Indonesian State Owned Ferry Corporation), GAPASDAP (Indonesian Ferry Association) reports and KNKT report (Indonesian National Transportation Safety Committee) and media sources in Indonesia. The problem is still lack of updated data about ferry ro-ro condition, lack of total number of passengers and vehicles data (manifest), accident and fatalities data, accident cause and lack of recommendations to ferry ro-ro stakeholder on how to overcome the accidents and fatalities. However, those problems can be considered as a poor attention and understanding of ferry condition and ferry safety, since it indicates poor manifest, poor record-keeping and poor recommendation after the accident. The analysis description refer to the paper of: Contemporary issues in domestic ro-ro passenger ferry operation in developing countries, Identification of safety issues in domestic ferry operation based on accident investigation reports on ferry involved accidents in Indonesian waters, 2003 – 2013 by Nurwahyudy (2014) and Trends, Causal Analysis, and Recommendations from 14 Years of Ferry Accidents, Journal of Public Transportation, Vol. 19, No. 1, 2016 19, by Abigail S. Golden and Roberta E. Weisbrod Worldwide Ferry Safety Association and KNKT report on 11 years (2006-2017) of ferry accident in Indonesia.

DISCUSSION

Ferry ro-ro vessels in Indonesia is very important and strategic transportation which connect islands within the whole region of Indonesia, particularly within the islands area such as: Riau Islands, Nusa Tenggara Barat Islands, Nusa Tenggara Timur Islands, Maluku Utara Islands and Maluku Islands, and it also serve river transportation across the big islands in Indonesia such as

Sumatera and Kalimantan Island and also ferry ro-ro transportation which serve small islands to the nearest big island, such as from Java to Madura, Java to Karimun-Jawa Islands, Sumatera Island to Nias and Mentawai Islands. The total ferry vessels are 430 units, which serve over 195 crossings and the navigable inland waterways are 23,255 km and there are more than 15 navigable lakes that ferries are operated to convey people and goods. The importance and dependence of ferry transport in Indonesia can be seen from the modal split table below:

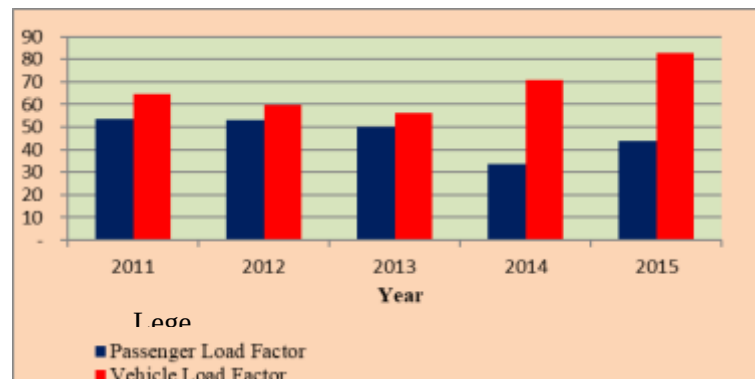
Table 1 CARGO MODAL SPLIT IN INDONESIA 2016

Mode	Road	Rail	Ferry	Sea	Air
% Split	91 %	0.63 %	1 %	7.07 %	0.05 %
Volume (Ton)	2.5 million	17,400	27,680	195,000	1,400

From Table 1 can be seen that although ferry roles only 1 % in the modal split, ferry ro-ro is the third largest mode of transport in transporting goods, after road and sea transportation.

Due to the flexibility and its capability to carry vehicles, Ferry Ro-Ro transportation becomes popular and reliable transportation. The reliability of Ferry Ro-Ro vessels can be seen from the increasing of load factor chart below in Indonesia.

Graph 1: LOAD FACTOR OF FERRY RO-RO



From the above graph it can be concluded that vehicle load factor is increasing year by year by about 10% and passengers load factor is decreasing. Passengers load factor is decreasing because of the air transportation, which is also link interisland. The shifting of the modes, from ferry transport into air transport could be understand because of the air ticket fare is competitive and it faster. While the load factor of vehicle transportation is increasing due to the increasing volume of cargo transport and logistics. By that graph it is proved that ferry transportation role is increasing in inter island services as a part of logistic chain distribution in Indonesia.

The current ferry transportation system in Indonesia has been developed, ferry ro-ro service mostly is connecting islands and worked for feeder and hub transport modes at the same time, and the load factor is increasing year by year because it's function in supporting logistic chain and functioned as the simple and easy mode of transportation.

The Ro-Pax Ferry Transportation is become the favorite transportation within island in Indonesia. Being the most reliable transportation and demanding transportation in Indonesia, in contrary ferry ro-pax operation and supervision do not pay an attention to safety, in terms of law implementation and law enforcement.

As we are understand that Ferry Ro-Ro Vessels considered less safety compare to regular vessels on maritime service. The difference between ferry ro-ro vessel and regular vessel in accordance to IMO could be described as: the lack of internal bulk heads, the weak spot of cargo access doors, the instability due to the movement of vehicle because the bad weather, the low free boards, not proper cargo stowage and securing and the higher side of life saving appliances stowed.

The difference design on ferry ro-ro made that ferry ro-ro vessels should be operated carefully and in professional ways, no tolerance on safety standard regulation and there is no room for error. If ferry ro-ro vessel sail in sudden rough seas condition, skilled, trained and professional crews are needed and the vessel must be always in good and fit condition.

In addition, Indonesia ferry ro-ro is still considered highly regulated; there are still problems such as: authorization duplication, route and schedule regulations, tariff is still regulated and issued by the government, high tax also still imposed. Therefore, contrary is still happened, highly regulated in one side and poor enforcement on the other side.

Refer to the paper of: “Trends, Causal Analysis, and Recommendations from 14 Years of Ferry Accidents, Journal of Public Transportation, Vol. 19, No. 1, 2016 19, by Abigail S. Golden and Roberta E. Weisbrod Worldwide Ferry Safety Association reports, during 200-2014 there were 232 ferry accident over 14 year period, there are 21,574 lives were lost, an average of 130 deaths per incident and 1,541 deaths per year. It is interesting to identify that Indonesia is among the top three countries in the world that responsible for the most frequent accidents. The accidents included occurred in 43 different countries around the world, with three countries—Bangladesh, Indonesia, and the Philippines—responsible for almost 50% of all accidents (Figure 1).

Figure 1
Proportion of Ferry accident in
The World occurring in top 3 countries during
2000-2014

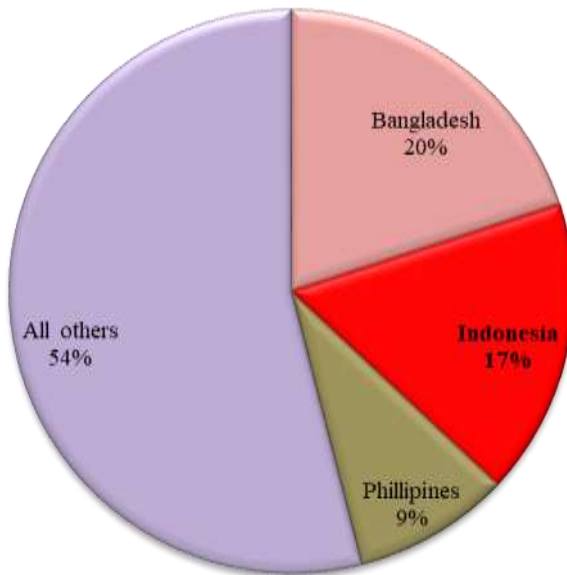
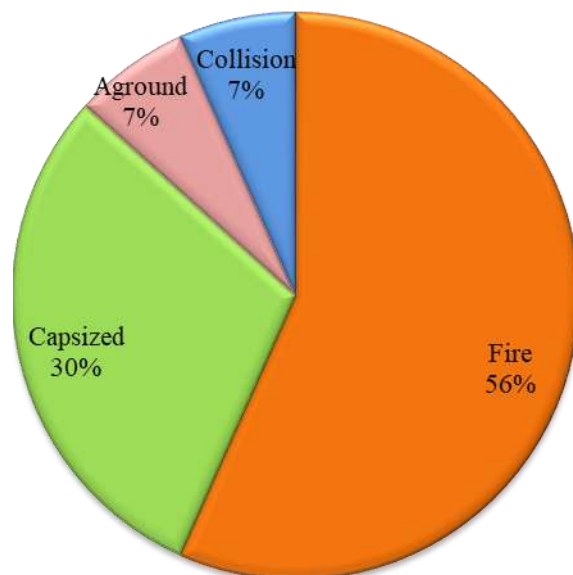


Figure 2
Cause of Accidents in Indonesia
during 2006-2018



During 13 years period, 2006 and 2018, there were 30 data accidents occurred in Indonesia (Figure 2).

From 30 ferry ro-ro accidents within 2006 up to 2018, the majority of the accidents or 17 accidents case was due to fire, 9 case was capsized and 1 case is collision, while the others minor accidents cause were 2 accidents due to the aground and 1 is minor accident. Those 27 major accidents caused are total loss. The recent accidents were happened in Indonesia during mid of 2018, June-August 2018, there were 4 ferry accidents occurred, and it resulted fatalities. In June 18, 2018, MV Sinar Bangun was capsized in Toba Lake, due to overcrowding and sudden bad weather, resulted total fatalities of more than 100 passengers and vehicles. In July 3, 2018, MV. Lestari Maju was aground in Selayar Strait, due to the ship leakage, resulted total fatalities of 34 passengers and 48 vehicles. In August 8, 2018, MV. Satya Kencana was fired due to the explosion in Java Sea, with 230 passengers and vehicles, resulted fatalities of 1 passenger. In August 15, 2018, MV. Bandeng was capsized in Loloda Sea, North Maluku due to the bad weather, resulted fatalities of 6 passengers and vehicles. All of the accidents investigation was made by Indonesian National Transportation Safety Committee, the cause of each accident and recommendations also produced, however those findings, hazards, precautions and measures recommendations are not enforced to the stakeholders.

It is important to note from Figure 2 that Fire is still the majority caused of accidents in Indonesia. Ferry ro-ro is surrounded by water and fire maybe the last item on the hazardous list on board, however fire is very dangerous and harmful for ferry ro-ro vessels due to the numbers amount of fire ignition in ferry ro-ro such as machinery, leaky pipe, fuel, exhaust gas, electronic wirings, dangerous and inflammable cargo carried by truck and the last but not the least, discarded cigarette.

CONCLUSION

Ferry ro-ro considered the most easy, fast and simple way of transportation in connecting islands in Indonesia. People like to use ferry ro-ro in transporting their goods, because of its nature of simplicity and door to door service. Ferry ro-ro does not need cargo handling, cargo storage and dwelling time in ordinary cargo vessels in sea port. Those ways will be costly and time consuming.

However the popularity of the use of ferry ro-ro transportation does not in line with concerns of ferry ro-ro safety. The high rate of accidents and fatalities should become a critical concerned by the ferry ro-ro stake holder community in Indonesia, such as Ministry of Transportation of Indonesia, KNKT (Indonesian National Transportation Safety Committee), GAPASDAP (Indonesian Ferry Ro-Ro and Inland Waterways Association), PT. ASDP (Persero) and also International Safety communities such as IMO and Interferry Committee. The measures should be focused on the cause and overcoming efforts in maintaining and upgrade ferry ro-ro safety transportation, so this important mode of transportation could be sustain and improving its services to serve people and in turns improving the logistic and regional economic development in Indonesia.

Efforts, actions and enforcements should be taken by the Indonesian Ferry Ro-Ro stakeholder to combat the accidents. Based on the above discussion and analysis of the 30 ferry ro-ro accident data series within 20016 up to 2018, the majority of the accident or 17 accident case was due to fire, 9 cases was capsized and 1 case is collision. Poor Ferry Ro-Ro safety management system, poor vessel, poor equipment and facilities condition, poor ship borne and shore supervision and human factors failures, those are the cause of all accidents and must be improved in order to increase ferry ro-ro safety. Indonesia has rainy season, during that season sudden bad weather happened all the times and bad weather can cause dangerous conditions for ferry ro-ro operation Indonesia should have a good weather reports in advances and good mechanism of shore supervision so no ferry roro is allowed to sail during bad weather and high wave time.

Fire is still the main cause of the ferry accident; therefore all of hazardous thing about fire must be treated in good manners. All of machineries, pipes, wiring must be maintained properly. Strong enforcement in prohibiting of dangerous and inflammable goods. Ferry crew must have an ability and competence skill to handle and maintain all of the vessel equipment that can be hazardous of fires.

Human Error is the important factor to be improved and ferry ro-ro stakeholders should play a strategic role to increase ferry ro-ro crews competence and ability in SOLAS rules and procedures. Not only the crews, the ferry ro-ro corporate culture and behavior should be change, ISM Code training and implementation should be taken as mandatory for all of the ferry ro-ro companies. All about hazardous and precaution matters in safety and security should be considered as very important and urgent things. Indonesian culture is very flexible and weak on safety precaution, they say as long as the accident is not happened, these cultures should be replaced and enforcement must be taken very hardly.

Monitoring and control of hazardous conditions must be taken in priority; low cost technology must be applied to control those matters by dashboard control panel on board. All of the hazardous, precaution and emergency alert must be controlled through the dashboards panel display.

MV. Sinar Bangun accident in Toba Lake with overcrowding and sudden bad weather condition is the example of poor shore based supervision and enforcement. Due to the number of ferry services in Toba Lake, the government should supervise and develop the ferry operation to become safe and secure ferry operation. Rules and regulation of the safe ferry vessel should be socialized regularly. Weather condition, Maximum capacity of the ferry and safety appliances in place should be familiarized among the ferry companies and crews. The authorities should be very strong to ban the ferry vessel which is not fulfilling the safety requirement and prohibit of overcrowding or bad weather condition to sail.

Clear fact finding recommendation of the cause of MV Lestari Maju should be revealed, rumors about controversy dispute between the owner and the

captain of MV. Lestari Maju, whether aground the vessel immediately to the shore or sailing up to the port couldn't avoid the accident and total fatalities. Regulatory compliance can prevent deaths in leakage of the ferry accidents as such as MV.Lestari Maju, and enforced their management and crew members to maximize its safety management by sailing in marginal conditions.

MV Bandeng accident also still in doubt, whether because of weather condition or leakage of the vessel. In fact, MV Bandeng has already instructed to dock for regular maintenance but the ferry ro-ro is still carry passengers and vehicles. This doubtful result of investigation should be not happen in the future. The Transportation Safety Committee should be very firm in the cause of the accident and the recommendation should be enforce to the entire ferry ro-ro stakeholders.

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