

The Sinking of the MV Doña Paz – A Critique on Maritime Disaster Preparedness in the Philippines: Policy Implications

Anthony R. Perez,¹ Carl Abelardo T. Antonio² and Rafael J. Consunji^{3,4}

¹Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery,
College of Medicine and Philippine General Hospital, University of the Philippines Manila

²Pasay City Health Office, Pasay City, Philippines

³Division of Surgical Critical Care and Trauma, Department of Surgery,
College of Medicine and Philippine General Hospital, University of the Philippines Manila

⁴Study Group on Injury Prevention and Control, National Institutes of Health,
University of the Philippines Manila

ABSTRACT

Objective. To discuss the various factors contributory to maritime disaster preparedness in the Philippines, in the context of the sinking of the MV *Doña Paz* and formulate recommendations to address these factors.

Method. Review of the state of maritime preparedness in the pre-disaster setting and the post-disaster response following the sinking of the MV *Doña Paz* by the government and responsible agencies. A scrutiny of the state of preparedness of concerned agencies and subsequent response to the disaster was conducted with the objective of formulating recommendations which may lead to prevention and mitigate loss of lives.

Results. Multiple factors accounted for the occurrence of this tragedy. These factors include an inherent risk due to the geography of shipping lanes in the Philippines, the economic problems besetting the shipping industry and its labor force. Economic conditions prevent both the industry and government agencies from upgrading vessels and communications equipment. Lack of enforcement of existing regulations allows vessels to sail overloaded and at times manned by less-than-qualified crew. Delayed response and deficient post-disaster medical response may have led to a disproportionately high mortality.

Conclusions. The systems inadequacies of the Philippine maritime disaster response mechanism are highlighted by the *Doña Paz* tragedy. Many of the factors contributing to the disproportionately high incidence of maritime disasters in the Philippines and the resulting loss of limb may be preventable. Recommendations on regulation and enforcement, disaster preparedness, search and rescue, and medical response are discussed.

Key Words: *drowning, Philippines, maritime industry, disaster response, disaster preparedness*

Corresponding author: Anthony R. Perez, MD
Department of Surgery
Philippine General Hospital
University of the Philippines Manila
Taft Avenue, Ermita, Manila 1000 Philippines
Telephone: +639209703622
Email: tonyperez92@yahoo.com

Introduction

Maritime travel is a major mode of transport between the Philippines' more than 7,000 islands, owing primarily to its low cost. Regulation of this industry, however, appears to be inconsistent at best, as can be gleaned from the numerous maritime disasters and sinkings in the history of the Philippine domestic shipping industry, the worst of which was the sinking of the MV *Doña Paz* in 1987, claiming the lives of more than 4,000 people.

The first paper in this series dissected the events before, during and after the sinking of the *Doña Paz*, discussing existing maritime industry regulations and the response evoked by the disaster, both in the immediate and long-term periods (Table 1). The policy implications of these with respect to prevention, rescue, and emergency medical response are the focus of the second paper in this series.

Methods

References^{1,2,3} dealing with disaster management and disaster preparedness were used as bases for the analysis of the pre-disaster, disaster and post disaster events. The 1st cited reference recommends an analysis of physical factors (vessel, equipment and crew) which may have been relevant to the occurrence of the event. Emphasis will be placed on factors contributing to the occurrence of the event in the hope of primary prevention. The 2nd cited reference was used to identify existing systems in the local setting established for disaster preparedness and response. Factors contributing to the immense loss of lives will likewise be analyzed to minimize loss of lives in similar events in the future (secondary prevention). Equal emphasis will be placed in the medical care of casualties, both in addressing actual medical problems and in prevention of further injury and possible sequelae (tertiary prevention).³

Results and Discussion

The sinking of the Titanic pales in comparison to the tragedy that is the MV *Doña Paz*, and yet the history of the maritime industry in the Philippines is notable for numerous

Table 1. The Haddon Phase-Factor Matrix

	Human Individual	Agent and Carrier	Environment	
			Physical	Social
Pre-Event (Will an injurious event occur?)	<ul style="list-style-type: none"> ▪ Qualification of vessel crew (i.e. license, training) ▪ Passenger density (overloading and overcrowding) ▪ Capability of passengers to swim 	<ul style="list-style-type: none"> ▪ Seaworthiness of maritime vessels: Navigational (radar, rudder) and communications (radio) equipment. 	<ul style="list-style-type: none"> ▪ Gangway obstruction ▪ Passenger density ▪ Frequent typhoons along shipping lanes ▪ Inconsistent weather reports ▪ Inadequate or non-functional navigational aides (i.e. buoys, lighthouses) 	<ul style="list-style-type: none"> ▪ Lax enforcement of maritime regulations (i.e. passenger load, non-sailing of vessels found unseaworthy) ▪ Lack of government support to the shipping industry (i.e. low budget allocation for Coast Guard rescue equipment). ▪ High cost of refueling/purchase of new vessels ▪ No safety culture (pre-boarding safety and security instructions ignored, passengers purchasing tickets from scalpers)
Event (Collision) (Will an injury occur?)	<ul style="list-style-type: none"> ▪ Number and location of passengers ▪ Crew – state of inebriation during the event, training 	<ul style="list-style-type: none"> ▪ Flammability of vessel cargo 	<ul style="list-style-type: none"> ▪ Life preservers in locked-in cabinets ▪ Sprinkler system in ships present and working 	
Post-Event (Post-event, what will the outcome be?)	<ul style="list-style-type: none"> ▪ Ability to swim ▪ Crew’s ability to provide at least basic life support 		<ul style="list-style-type: none"> ▪ Burning seas ▪ Inadequate, and late, disaster response (i.e. organized search and rescue team, on-site emergency care, on-shore triage, transport from shore to proper hospital) 	<ul style="list-style-type: none"> ▪ Minimal or no penalties for ship owners for violation of maritime regulations

Source: Haddon W. Jr. *The changing approach to epidemiology, prevention and amelioration of trauma: the transition to approaches etiologically rather than descriptively based.* *Am J Public Health Nations Health.* 1968 Aug;58(8):1431-8.

mishaps, and this tragedy is but a footnote in a long litany of misfortunes. In fact, from 1972 to the time of the *Doña Paz*, there were 80 collisions, 177 sinkings and 53 shipboard fires resulting in the deaths of more than 4,000 people.

A lot of factors will account for this dismal record, and many of these can be corrected. The geography and location of the Philippines within the typhoon belt and frequent but difficult to predict tropical storms puts its domestic maritime vessels at significantly increased risk of storm damage, vessel grounding, overturning or outright sinking.

The majority of navigational aids, including buoys and lighthouses in the Philippines are obsolete, non-functioning or defective. Correcting these will require an increase in budgetary allocation of the Coast Guard, which sorely lacks ships and equipment not only for patrolling the seas but for mounting search and rescue operations as well.¹

Both vessels, the *Doña Paz* and the *MT Vector*, were definitely not state of the art ships. Steel-hulled ships in the Philippines average 22 years of age. The *Doña Paz* was 24 years old at the time of the accident.⁴ Though it is easy to

recommend that only new, seaworthy ships should be allowed to carry cargo and passengers, the Conference of Interisland Shipowners and Operators (CISO) will immediately contend that the poor economic conditions in the country, in addition to the high tariffs imposed on them, will render refueling with new ships impractical from an economic and return-on-investment (ROI) standpoint.

Poor communication systems have often figured in previous sea disasters. Not only does this hamper communications between ships, this also delays the emergency response to disasters when they occur.¹

The National Telecommunications Commission (NTC) has difficulty going after ships without functional radio equipments. A 1988 NTC report cited inadequately trained personnel, underequipped radio monitoring stations and lack of police power to implement radio laws. The lack of communication compounded the problems from the time the two ships sailed to the time the last survivor was rescued.⁵

Another practice that frequently compounds loss of lives during sea mishaps is overloading. Overloading occurs due to laxity on the part of those tasked to enforce regulations and the ship-owners' desire for profit. Coast Guard officials are required by law to inspect all ships before they sail. Unfortunately, even some Coast Guard personnel acknowledge that corruption at times causes officials to turn a blind eye to overloading. Some bend rules to allow as many passengers as possible. Ship personnel allow children to board without listing them in the manifest. Passengers boarding without tickets are allowed to pay personnel selling unregistered tickets on the ship. It is no surprise that the *Doña Paz* may have been carrying 4,000 people when it sank that fateful night.¹

The Coast Guard is tasked to inspect the ships and attest to their seaworthiness and to make sure they are not overloaded. It was remiss in all its duties in the case of the *Doña Paz*. It was allowed to sail grossly overloaded, with an expired certificate of inspection and with defective communications equipment. Unfortunately, the impact of law enforcement is only as strong as the law itself. The biggest fine that can be imposed on a ship-owner for sailing an unregistered vessel is 1,000 pesos. The maximum fine for sailing without a valid inspection certificate is 200 pesos. The fine for overloading is 100 pesos for every passenger in excess of the authorized capacity. A Navy Coast Guard commander admitted that they allow as many passengers as possible for as long as the water does not reach the loadline mark, a line along a vessel's hull which drops below water level when a ship is overloaded. It becomes clear that even if the laws are strictly imposed, ship-owners can clearly get away with violations with minimal consequences to them. Unfortunately, the consequences for the unknowing passengers are uniformly fatal.⁶

Although the role of human error in the occurrence of this particular catastrophe is debatable, prevention of future mishaps will definitely involve the people riding these vessels, both crew and passengers. Coast Guard Chief Commodore Carlos Agustin and the CISO agreed that at least 80 percent of all sea accidents between 1984 and 1990 involved human error and the limited competence of crewmen. A study of the Maritime Industry Authority (MARINA) by the Barlindhaug Og Fuglum A/S of Norway supports this observation. Of the 27 maritime schools in the country, most are ill-equipped and use substandard teaching methods to instruct the thousands of ill-prepared seamen they graduate yearly.⁷

Juan Nolasco, Vice President of the Philippine Merchant Marine School, the biggest marine school in the country, however, dismissed the claim. Most local graduates of maritime schools land jobs abroad and most major international shipping companies at one time or another employ Filipinos as crewmen. CISO president acknowledges that PRC records show passing rates as high as 90 percent

plus for seamen. It is acknowledged that Filipino seafarers are known worldwide and are major revenue earners for the country.⁷

Unfortunately, a lot of these qualified seamen leave for greener pastures, leaving the local shipping industry to newcomers and less skilled crewmen. In the case of the *Vector*, the vessel's crew at the time of the accident was led by a seaman with a 2nd mate's license instead of a chief mate's license. The exodus of qualified seamen can only be stemmed by improving economic conditions. In this particular case however, simple enforcement on the part of authorities and compliance on the part of the *Vector's* owners could have affected the outcome.³

The public utilizing water transportation must do its share. Self-discipline must be exercised so that overloading and overcrowding can be avoided. Attention must be given to pre-boarding safety and security instructions, commonly ignored in the mayhem of trying to find comfortable spaces in the crowded ships. A culture that puts a premium on safe rather than swift and/or cheap travel must be created amongst the domestic maritime market. They must be educated that it is their basic right to demand safe travel that meets international standards from all domestic maritime industry stakeholders.

Much can be said about the response to maritime disasters when they occur. In the case of *Doña Paz*, a coordinated response to the accident on board the ship was virtually nonexistent. No one directed evacuation efforts on board and this was compounded by the unavailability of life vests—they were under lock and key in deck lockers. No one among the crew had the time to react to the collision, and no distress signal was sent out.

These maritime disasters have a high mortality, with very few long-term sequelae in terms of having to deal with health problems resulting from the initial incident. The majority of the fatalities died on the spot. In incidents such as these, injuries come in the form of burns, drowning, smoke inhalation, blunt trauma and occasionally penetrating trauma. Secondary injuries may theoretically come from shark attack. In this particular incident, although the ships sank in shark-infested waters, there was no way to verify the cause of death of the fatalities since those who were rescued only had minimal injuries.^{2,3}

This brings to the fore the response to the disaster. There was no coordinated response at the time of the incident, as with many other maritime disasters in the country. The ships that were in the vicinity of the disaster conducted the only search and rescue effort that bore fruit and this is directly attributable to a breakdown in communication. Improving the communication systems will not only contribute immensely to prevention of these accidents, but also to the rapidity of response when they occur. One thing to focus on is the capability of the responding units to extract as many survivors as possible

from the water and to attend to any immediate life-threatening conditions among them. This will entail a well-equipped Coast Guard with ships and aircraft capable of extracting survivors from hostile environments and with sufficient facilities and trained personnel to provide them with the necessary emergency care. Search and rescue teams must be capable of conducting resuscitation since many of those who will be extracted from the site may have survivable injuries. Personnel on board must at least be certified with Basic Life Support (BLS) Training if not higher levels of expertise.

It is worth noting that many of the maritime disasters actually happened a few kilometers from the shores of cities that have hospitals and that it is usually local fisherfolk, in indigenous bancas, who are the "first responders" to these maritime incidents. Another strategy that is worth considering is the establishment of medical units or camps very near the shore which will be capable of receiving the survivors extracted by first responders and providing immediate emergency care for victims. They can also serve as triage centers from which victims will be directed to local hospitals, to tertiary centers in Manila or to other specialty centers. Those with minimal injuries can be directed to centers where they can undergo counseling and be provided assistance for contacting relatives and/or acquaintances. This strategy will necessitate rapid transport from the site, ideally through high-speed Coast Guard vessels or via air transport. Such transports are actually available at present. Unfortunately, majority of the victims of maritime accidents, as in the *Doña Paz* tragedy, have to be ferried all the way to Manila. The victims who were brought to Manila were not received by an organized emergency medical team. Those who were ambulatory had to secure their own transport and proceed to their destinations on their own. Those who were found to have injuries had to be transported to tertiary hospitals on private ambulances contracted by relatives, or by public transportation. In fact, even the injured passengers received very minimal medical attention prior to being brought to the hospitals where they were brought for definitive medical care. Establishing a system whereby those involved with the actual search and rescue can immediately perform triage will save precious time and prevent secondary injuries. Patients who have to be brought to Manila can be attended to properly by informing those in Manila of the precise nature of the injuries. The capabilities of the hospitals in the provinces in proximity to the shipping lanes must be well defined. There are several hospitals capable of attending to victims, which will negate the need for transport to Manila. There are primary and secondary hospitals capable of rendering immediate care to drowning, burns and trauma. Upgrading the capabilities of these hospitals may not necessarily mean spending for additional equipment but simply holding workshops for preparedness in attending to victims of these disasters. Local governments

can be tasked with creating teams capable of establishing the camps or units for initial evaluation and treatment. There must likewise be a point person or agency (such as the Philippine Disaster Coordinating Council or PDCC) that will transmit to the receiving hospitals the condition of the victims.

In this particular incident, we can only surmise that more could have been saved if an organized search and rescue mission was dispatched immediately. It is being claimed by the government that ships are available to the Coast Guard along with air support provided by the US Air Force in the form of helicopters and reconnaissance planes. Improving communications will allow optimal use of these resources. Saving lives does not end with finding survivors alone. Immediate medical attention must be made available to attend to the needs of the injured and to resuscitate those who may yet be saved. This will entail providing Basic Life Support training for people on the ground, and Advanced Trauma Life support for those in the hospitals receiving the injured if feasible. Post-incident counseling must be made available to the victims.

Much has been said about the socioeconomic, political and legal factors surrounding this case. Focus on improving the medical standpoint must now be given attention, knowing the complexity of trying to address the other issues. A coordinated medical response will necessitate that all involved have a thorough understanding of their particular roles and the interdependence of these roles.

Initial knowledge of the incident must trigger a mechanism that relays information to the PDCC. The Coast Guard will be dispatched immediately for search and rescue operations. The responding ships will be the site of first contact between the victims/patients and the responders/caregivers. The initial triage unit will necessarily be aboard the responding ships. Responding teams must immediately notify the receiving medical teams of the nature of injuries they should be expecting. If feasible, it would be ideal to have a doctor or other medical personnel on board the responding vessels. However, knowing the usual problems of manpower shortage, workshops may be conducted to provide some amount of training to non-medical personnel responding to these emergencies. In the absence of a medically trained person, training in basic life support becomes a necessity. If logistical support permits, facilities for resuscitation like ambubags, oxygen tanks, intravenous fluids and a code cart must be on hand. Splints, cervical collars and warmers should be available to prevent secondary injury. Those directly involved in the initial search and rescue will likewise play a crucial role in the dissemination of information. These teams will need the skills to assess the situation, determine the logistical requirements, process and relay the necessary information to the relevant receiving parties.

Medical teams will play a crucial part after the initial search and rescue operations. The National Disaster Coordinating Council must come up with a list of hospitals that are capable of handling casualties in the event of a maritime disaster. The Department of Health may assist in mapping out these hospitals and rating their capabilities in handling specific injuries expected in maritime accidents. These hospitals will be tasked to organize teams that will receive the casualties. These teams may be situated very near shores in makeshift staging areas or may receive patients directly in their hospitals. Workshops must be conducted to maintain a certain level of preparedness in the hospitals identified as receiving areas for maritime casualties. Medical transport must be arranged to ensure that no secondary injuries are sustained during transport. These hospitals will likewise be expected to serve as triage in multiple/mass casualty accidents. Medical teams, whether situated in the staging areas or in the hospital itself, will be expected to perform triage, initial resuscitation and treatment (if not done on the rescue vehicles), onsite care, and injury evaluation. A team will provide definitive care if the capabilities of the hospital permit. Previous experience with maritime disasters have shown that victims of maritime disasters sustain injuries secondary to burns, asphyxiation, drowning, blunt thoracoabdominal trauma, and potentially infected traumatic wounds. Assessment of the capabilities of the hospitals and the staff in handling mass casualties and providing definitive care to victims will have to put these injuries in focus. Doctors and support staff must undergo training through short courses or workshops to be prepared to handle the initial management of patients sustaining these injuries, providing definitive care when possible, and recognizing the need for referral and transport as needed. Staff must be updated on Basic Life Support and Advanced Cardiac Life Support when possible.

Conclusions and Recommendations

It has been several years since the *Doña Paz* sank, taking more than 4,000 lives. Several more maritime accidents have occurred since that time, highlighting the need for everyone to once and for all take a harder look at this manmade

phenomenon. Prevention will need to involve not only the government agencies but the riding public as well. Laws must be strictly implemented, people well educated and resources spent to improve equipment and systems already in place. Response to these incidents must be well organized, and this will again involve not only the government agencies but the public as well. They must be wary that such incidents may and do occur, and when these happen they must be well oriented as to how they should react. The medical response to this disaster must likewise be well organized. Response must be initiated at the scene of rescue if possible, or at nearby centers established to accommodate survivors. Personnel, both medical and paramedical, must be trained to respond to these disasters when they occur, and transfer of victims to more competent centers facilitated when necessary. Care of these victims must be continuous, extending beyond the primary medical attention to involve all aspects including post-traumatic counseling.

We have by no means heard the last of these Philippine maritime disasters. We can only hope that the next time such an incident occurs, more lives will be saved and we are better prepared to take care of our Filipino brothers who have no choice but to ride these vessels that may be sailing their last voyages.

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