

## Executive Summary

In recent years, the United States has seen a sharp rise in the frequency and level of involvement in Humanitarian Assistance and Disaster Relief (HADR) missions. As the world population continues to rise, only increases in the number of future relief missions are forecast, yet the US does not maintain any ships in her inventory designed to effectively carry out such missions. The current doctrine for disaster relief response is to deploy the closest available ships to assist, with little regard to how capable the ships are to meet the needs of the mission. In many cases, ships are ill equipped to provide meaningful support and completely lack personnel trained in standardized disaster relief methods.

To overcome this deficiency, this paper proposes a conversion design utilizing the highly flexible LPD-17 platform as the basis of a purpose-built HADR ship, capable of providing fresh water, food, shelter, and medical care to a population of 50,000 displaced persons for 30 days.

The design leverages the useful attributes of LPD-17 such as her heavy lift helicopter and LCU capability, and eliminates unneeded and costly features such as high-tech weapons systems and sensors. By replacing the unneeded equipment with additional potable water production capability, fuel stores, medical facilities, cargo handling capabilities and surge bunking, an LPD-Disaster Relief (DR) variant is possible.

To test the viability of the concept, several analyses were conducted. Stability and seakeeping computer models were developed to verify the design meets Navy standards, and arrangement drawings were developed in order to prove the ship met needed space requirements. Finally, a comprehensive “maximum load-out” cargo manifest was generated and used in the stability analysis to ensure the ship would not fail under worst-case conditions. The conclusion drawn was that a vessel capable of conducting large-scale HADR missions could be created with minimal structural modifications to the existing LPD-17 platform.