



## **Tsunami disaster risk management capabilities in Greece**

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Greece is vulnerable to tsunamis, due to the length of the coastline, its islands and its geographical proximity to the Hellenic Arc, an active subduction zone. Historically, about 10% of all world tsunamis occur in the Mediterranean region. Here we review existing tsunami disaster risk management capabilities in Greece. We analyze capabilities across the disaster management continuum, including prevention, preparedness, response and recovery. Specifically, we focus on issues like legal requirements, stakeholders, hazard mitigation practices, emergency operations plans, public awareness and education, community-based approaches and early-warning systems. Our research is based on a review of existing literature and official documentation, on previous projects, as well as on interviews with civil protection officials in Greece.

In terms of tsunami disaster prevention and hazard mitigation, the lack of tsunami inundation maps, except for some areas in Crete, makes it quite difficult to get public support for hazard mitigation practices. Urban and spatial planning tools in Greece allow the planner to take into account hazards and establish buffer zones near hazard areas. However, the application of such ordinances at the local and regional levels is often difficult. Eminent domain is not supported by law and there are no regulatory provisions regarding tax abatement as a disaster prevention tool. Building codes require buildings and other structures to withstand lateral dynamic earthquake loads, but there are no provisions for resistance to impact loading from water born debris. Public education about tsunamis has increased during the last half-decade but remains sporadic.

In terms of disaster preparedness, Greece does have a National Tsunami Warning Center (NTWC) and is a Member of UNESCO's Tsunami Program for North-eastern Atlantic, the Mediterranean and connected seas (NEAM) region. Several exercises have been organized in the framework of the NEAM Tsunami Warning System, with the Greek NWTC actively participating as a Candidate Tsunami Watch Provider. In addition, Greece designed and conducted the first tsunami exercise program in the Union Civil Protection Mechanism in 2011, which also considered the attrition of response capabilities by the earthquake generating the tsunami. These exercises have demonstrated the capability of the Greek NWTC to provide early warning to local civil protection authorities, but warning dissemination to the population remains an issue, especially during the summer season. However, there is no earthquake or tsunami national emergency operations plan, and we found that tsunami disaster planning and preparedness activities are rather limited at the local level.

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