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# Disaster impacts in a port-city; learning from Beirut's Port explosion

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On 4 august 2020, one of the biggest non-nuclear explosions the world has seen in recent times took place in the Port of Beirut. Caused by the detonation of 2,750 tons of ammonium nitrate, inadequate stored in a warehouse in the port, the blast destroyed much of the city's port and the surrounding infrastructure and severly damaged the dense residential and commercial areas within 5 km of the explosion site. The impact of the explosion, which registered as a 3.3 magnitude earthquake according to the U.S. Geological Survey, was felt as far away as the island of Cyprus.

Athough the event was an technological hazard, the impact of the explosion is similar to a standardised natural disaster.

According to UNDP, a total of 200 000 residential units were affected with an estimated of 40 000 buildings damaged; 200 people lost their lives, around 6 000 individuals were injuried and around 300 000 people were displaced.

Such figure are comparable to other large-scale disasters such as Cyclone Vayu in India, which occured in June 2019 or the displacement caused by the Typhoon Vongfong, in the Philippines.

The frequent increase of the natural disasters puts pressure on the critical infrastructure of the cities. The disruption of the transportation system, which is vital for the sustainable daily operations, are having a big impact on the economical, enviromental and social dimension of a city system. Among the various types of transportation system, ports are a focal point because of its strategic role for the economic growth of cities,regions and global network. In addition, they are nodal points for the social and economical activity of the inhabitants.

Although the ports have played a key role in the development of their host cities, they are also vulnerable to a broad range of risks and threats because of a particular spatial character: the location at the intersection of land and sea.

The study of the Beirut's Port explosion examines the impact of port failures on the host urban enviroment and the relationship between hazards, vulnerability and the impact. The vulnerability of the port to disasters results to the vulnerability of its host city. A context –based understanding of the impact of the disaster and the elements at risk is essential to identify appropriate risk management strategies. The location of the port within the urban environment, in densely populated area, as in case of Beirut are some of the characteristics of the port cities that can

magnify the impact of disasters to which they are prone. The study will focus on a collection of data that records the impact and allows visualisation of the complex patterns of the disaster risk reduction.

The impact caused by the Beirut's port explosion reminds us about the important role of the ports in their host cities and how fundamental is to identify the port's infrastructure exposure to hazards and risks. Lessons learned from such event may be useful to reduce disaster risks in the port cities.