## **Ukraine - Kryvyi Rih**

Ad hoc flood risk assessment after incident on 14 Sep 2022



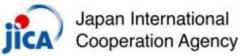
Affected areas and objects - Official reports from local

authorities and State Emergency Service of Ukraine;

Rivers - @OpenStreetMap contributors;

Streets - @OpenStreetMap contributors;

Administrative division - OCHA



On 14 September 2022, Karachunivske Reservoir dam was severely damaged due to a missile strike, which lead to the flooding of Tsentralno-Miskyi and Inhuletskyi districts of Kryvyi Rih [1], one of the largest cities in central Ukraine, with estimated pre-war population of 650,000.

Oblast administration informed that the water levels in the Inhulets River initially rose by twothree meters with maximum water discharge of 100 cubic meters per second. To lower the water level, a part of downstream dam on Chornohirka was blown up, and a temporal sluice gate was installed on the damaged dam. This helped to decrease the water level in the river by 40 cm. The evacuation was announced in several city neighborhoods, as local authorities informed about the flooding of more than 100 buildings along with several bomb shelters affected [2]. As of morning 16 September 2022, the water supply has been restored [3].

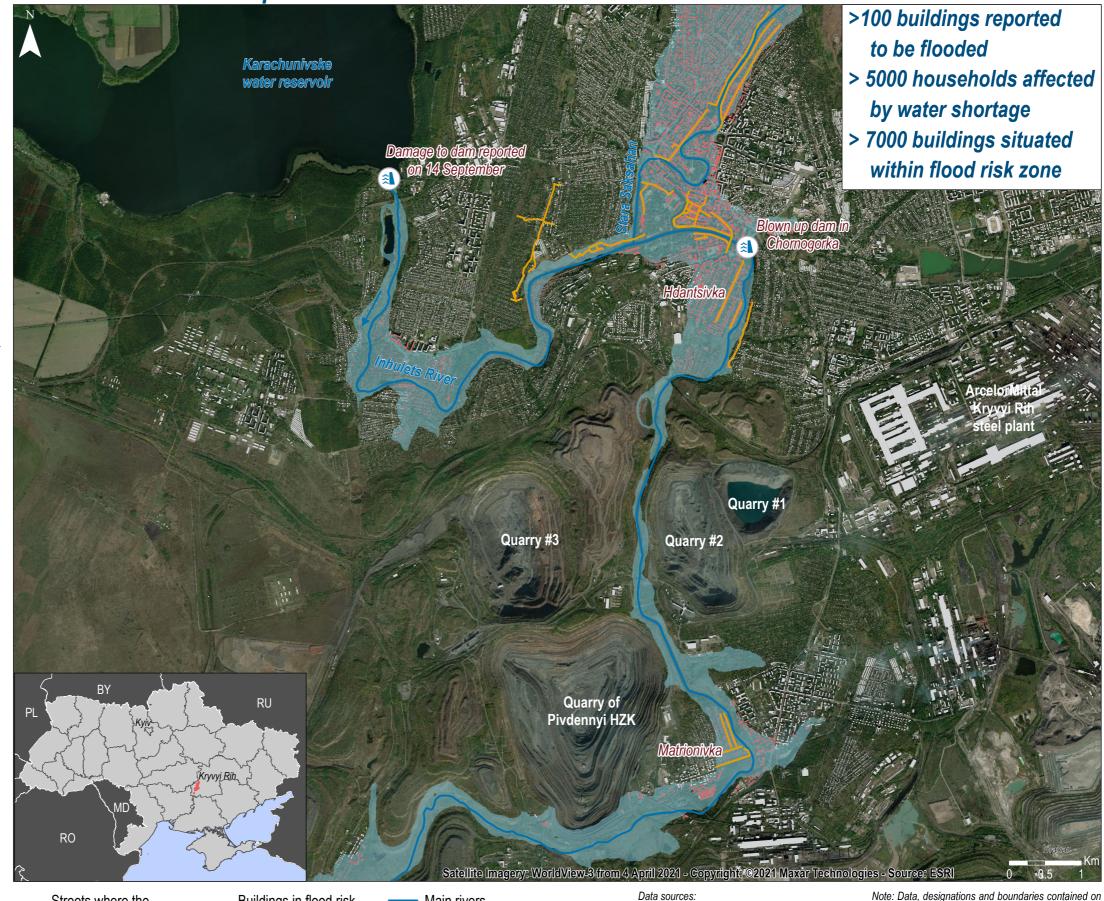
The Karachunivske reservoir is the main source of water supply for Kryvyi Rih. A part of the water supply network had been also damaged and 1,000 residents of Sofiivska hromada and 7,000 residents of Lozuvatska were cut off from water

To map the potential flooding area, IMPACT applied spatial analysis of the digital elevation model. The map shows flood risk zone by water level rose by +2 m, which covered an area of 13.7 sq km and may potentially affect more than 7,000 buildings, including 16 schools and kindergartens, and 3 hospitals (according to data from OSM).

The simultaneous damage of several dams on the water regulation system will lead to the impossibility of controlling the water flow and to the further increase of the flood risk. Moreover, the incident on the dam already impacted water quality downstream in the Inhulets River, due to utilization for restoration work slagheap material from local quarries and concentration factories [5]. An additional danger is associated with the location of several tailing storage facilities of mining enterprises next to the Inhulets River. Therefore it is necessary to monitor whether the tailings storage facilities would enter the flooding zone.

## Reference list

- http://www.golos.com.ua/article/364347
- https://t.me/dnipropetrovskaODA/1854
- https://t.me/vilkul/1919
- 4. https://dp.dsns.gov.ua/uk/news/nadzvicaini-podiyi/likvidaciya- naslidkiv-raketnoyi-ataki-na-krivii-rig-ta-vorozi-udari-po- nikopolskomu-raionu-yakminula-nic-na-dnipropetrovshhini
- 5. https://1kr.ua/ua/news-74357.html



Buildings in flood risk

Flood risk zone based

on elevation data

Main rivers

Hdantsivka - areas affected by flood

Flow direction

Streets where the

evacuation was

Other buildings

announced

this map are not warranted to be error-free and do not

imply acceptance by the REACH partners, associated,

donors mentioned on this map.