

Flood Risk Assessment of Powisle City District in Warsaw, Poland

A 500-Year Flood Event Analysis

Purpose of the Analysis

The purpose of this analysis is to evaluate the flood risk in the Powisle City District of Warsaw, Poland, by examining the potential inundation depth during a 500-year flood event. This assessment includes identifying buildings by their functions and land cover types in relation to the flood risk zones. The results will help inform urban planning and emergency management strategies to mitigate flood impacts.

Summary of Data Sources

- Flood Risk Map: A detailed map of the Powisle City District indicating flood zones based on inundation depth (0-4 meters).
- Land Cover Data: Information on land cover types, including continuous and discontinuous urban fabric, green urban areas, roads, railways, and water bodies.
- Building Functions: Categorization of buildings by function, including residential, offices, industrial, historic, commercial, educational, sacral, transport, healthcare, and other non-residential uses.

Description and Results of Calculations

The calculations involved determining the number of buildings within different inundation depths and their functions. This was achieved by overlaying the flood risk map with building function data and analyzing the spatial intersection.

Calculation Results

The table below summarizes the number of buildings by function and their distribution across different inundation depths.

General function of buildings	Number of buildings				
	Outside the flood risk zone	Within the flood risk zone and potential inundation depth			
		0 – 1 m	1 – 2 m	2 – 3 m	3 – 4 m
All functions (1358)	758	123	364	112	1
Offices (169)	116	16	26	11	0
Residential (608)	298	62	177	71	0
Industrial (21)	5	6	10	0	0
Historic (233)	190	6	20	17	0
Outbuildings (41)	0	6	32	3	0
Commercial or service (48)	0	7	36	5	0
Other non-residential (19)	0	6	10	3	0
Education, science, culture or sport (39)	0	8	28	3	0
Sacral (3)	0	1	1	1	0
Storehouses and containers (6)	0	0	6	0	0
Transport or communication (51)	0	9	28	13	1
Healthcare or social care (14)	0	2	10	2	0

Cartographic Illustration

The cartographic illustration includes a detailed map of the Powisle City District showing:

- Flood Risk Zones: Indicating areas with inundation depths of 0-1m, 1-2m, 2-3m, and 3-4m.
- Building Functions: Locations of residential, office, industrial, historic, and other buildings against the flood risk background.
- Land Cover: Highlighting continuous urban fabric, green urban areas, roads, railways, and water bodies.

