

Preparing for extreme weather events with smart blue – green infrastructure in Gdańsk

16.09.2021

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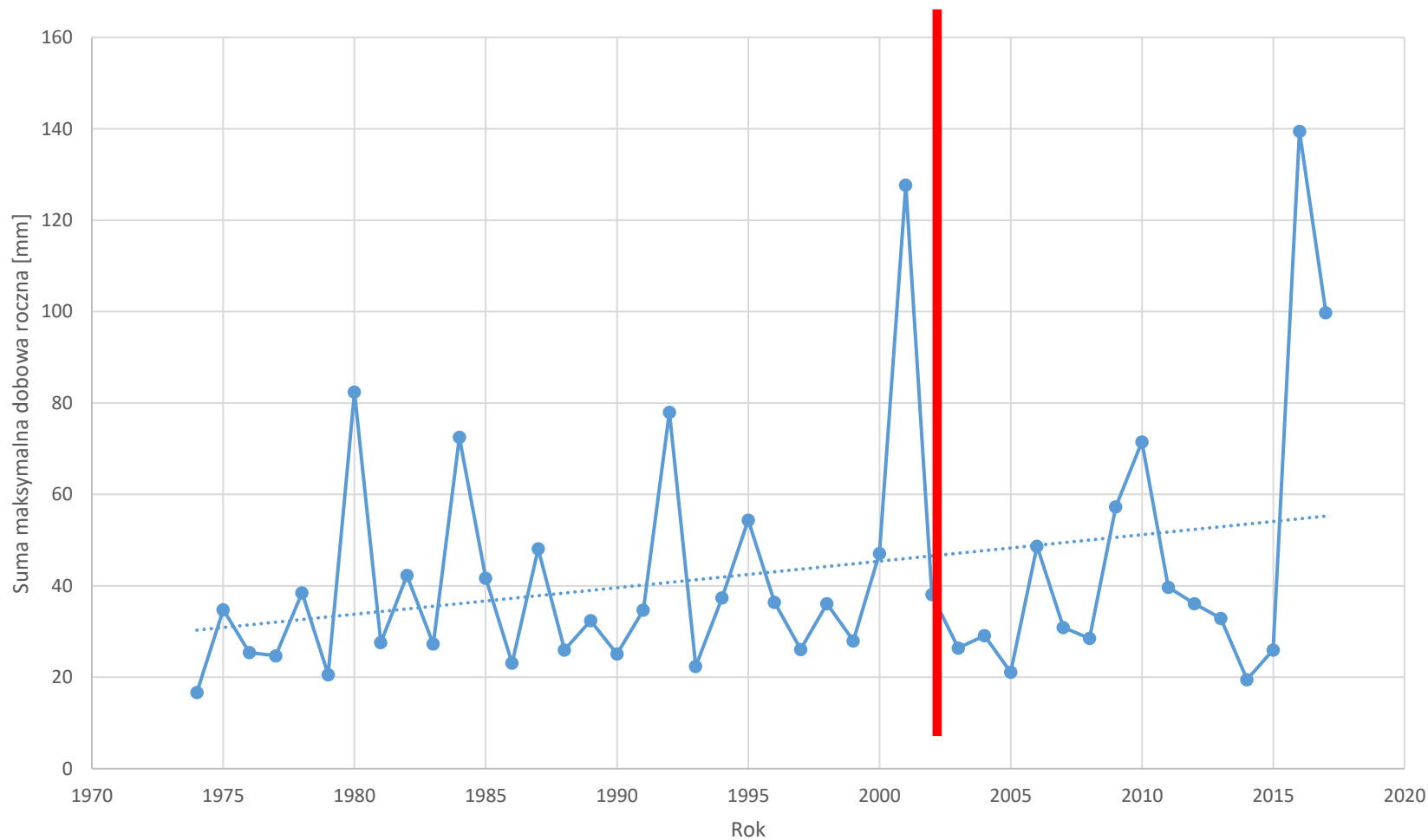
Flood in Gdańsk - 2001



Flood in Gdańsk - 2016



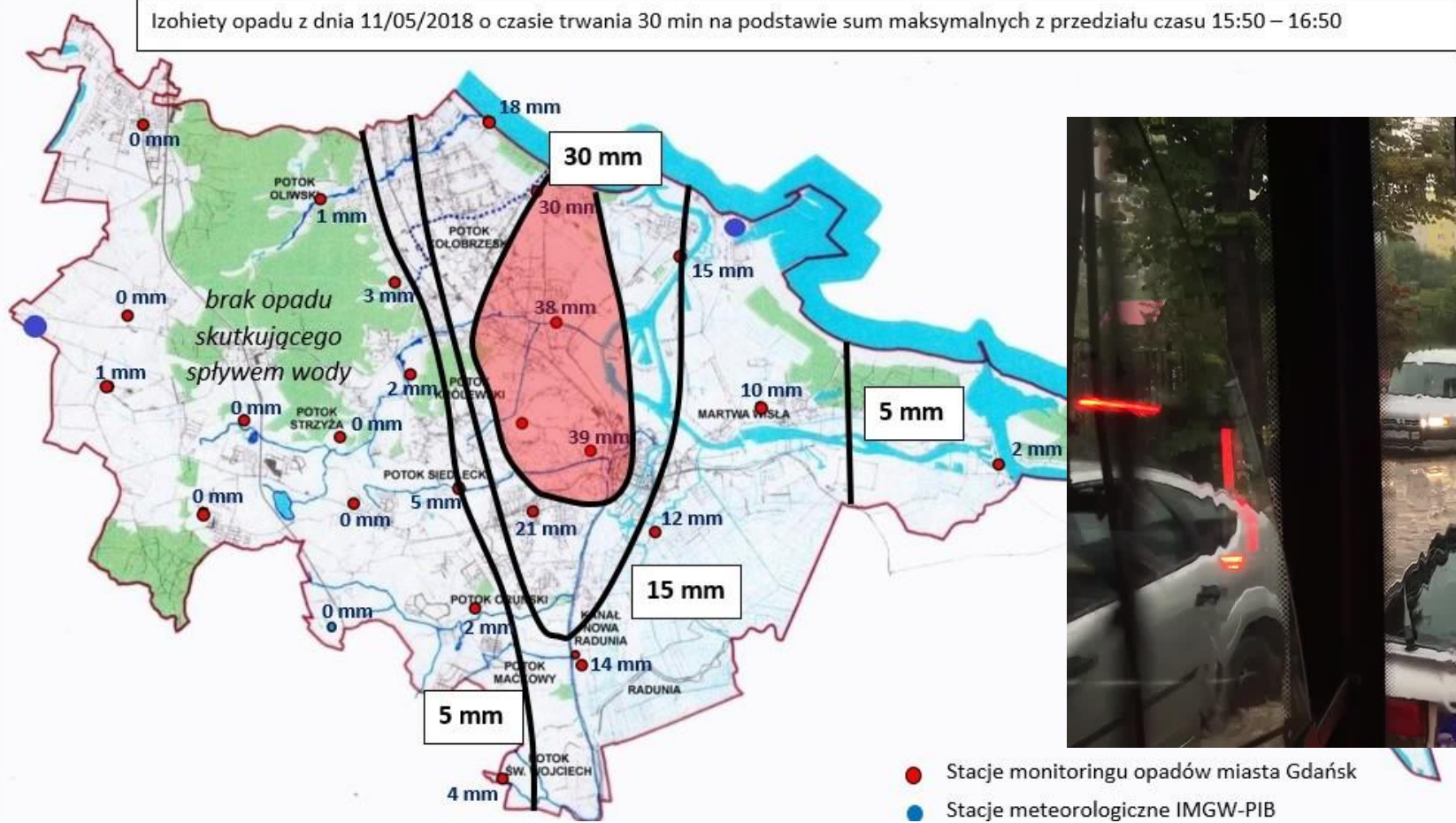
Climate change – Increase in rainfall intensity in Gdańsk



Stacja IMGW – Rębiechowo, max doba

New phenomenon – microburst and flashfloods

Izohiety opadu z dnia 11/05/2018 o czasie trwania 30 min na podstawie sum maksymalnych z przedziału czasu 15:50 – 16:50



What does it mean?

Adaptation to climate change



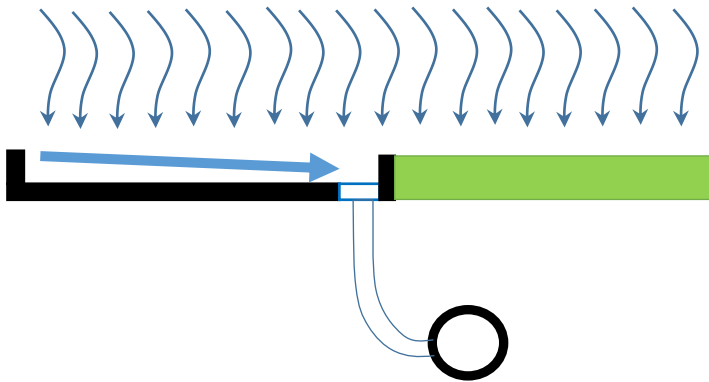
Rainwater system - change of approach

- **Relieve the rainwater drainage system**
- **Stop, delay the flow**
- **Retention as much as possible water close to the place it rains**
- **Use rainwater for greenery watering**
- **Use nature based solutions to treat the rainwater**

Rainwater system - change of approach

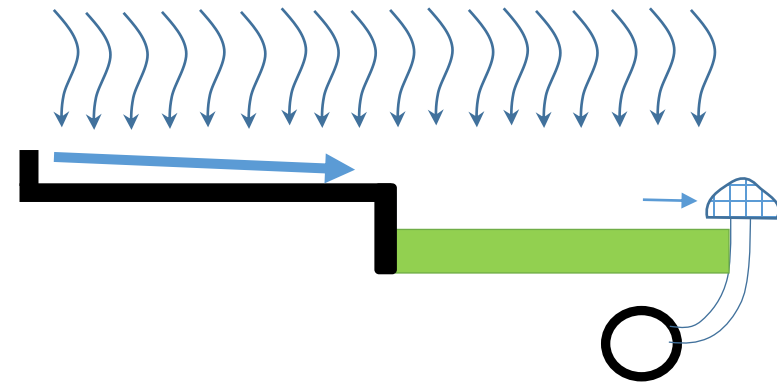
PREVIOUS APPROACH

- fast collection of rainwater by means of street inlets
- quick drainage of water through rainwater drainage system



NEW APPROACH

- holding the precipitation in the place when it rains
- drainage of excess rain to the rainwater drainage system



Three levels of rainwater management in Gdańsk



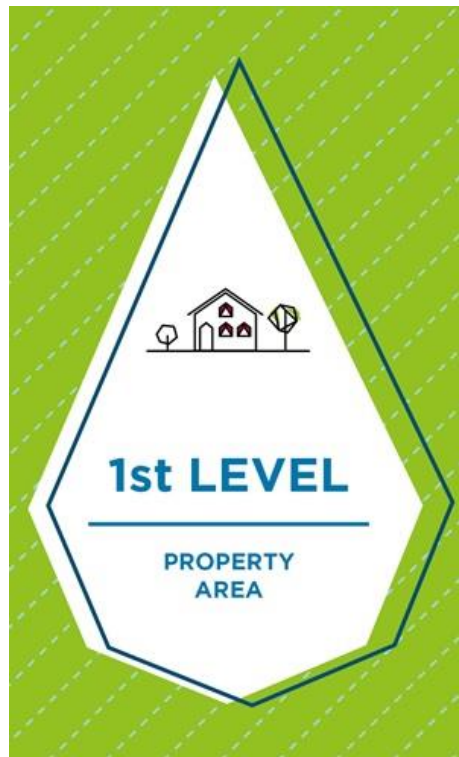
Three levels of rainwater management in Gdańsk

Retention at property area- owners:

30 mm – when property has the connection to the rainwater system

60 mm – when no connection to the system or difficult catchment area

Green infrastructure retention – roads and public places



Fot. J. Rayss



Implementation of nature based solutions as demo sites

- raingardens, bioswales, retention parks



MULTI LEVEL URBAN RETENTION

GREENERY



PROPERTY



DISTRICT



STREET



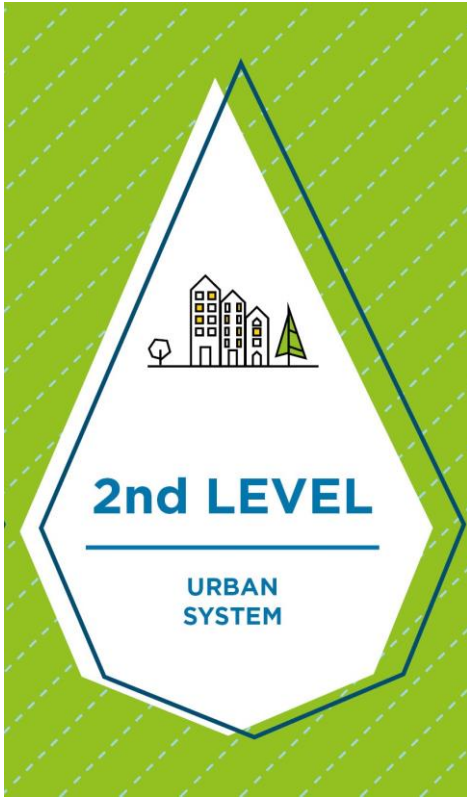
RESERVOIR



Three levels of rainwater management in Gdańsk

Retention of stormwater in urban water reservoirs

- **Excess water from the 1st level**
- **Stormwater from roads and public places (not stopped by the greenery)**
- **Excess water from the properties not covered by the 1st level**



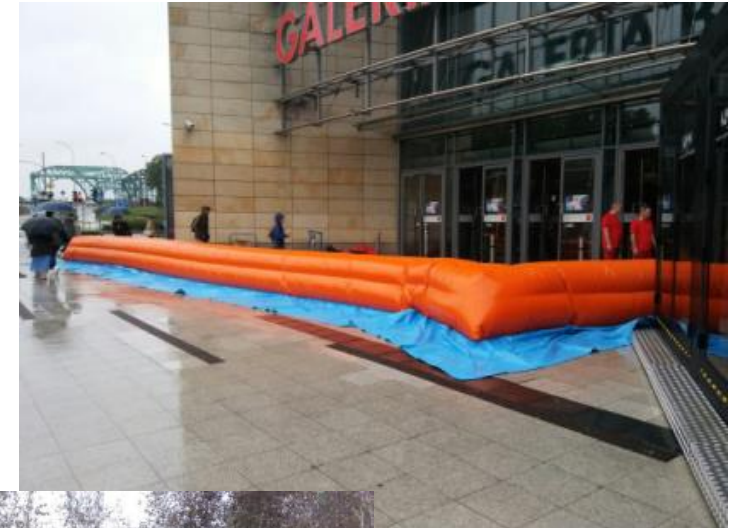
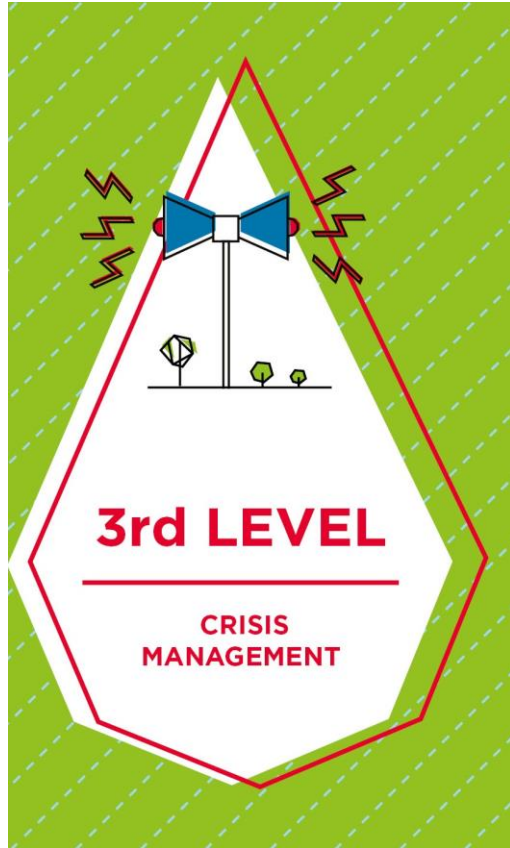
53 retention reservoirs in Gdańsk – 800 tys m3 capacity



Three levels of rainwater management in Gdańsk

Crisis management – quick response of services

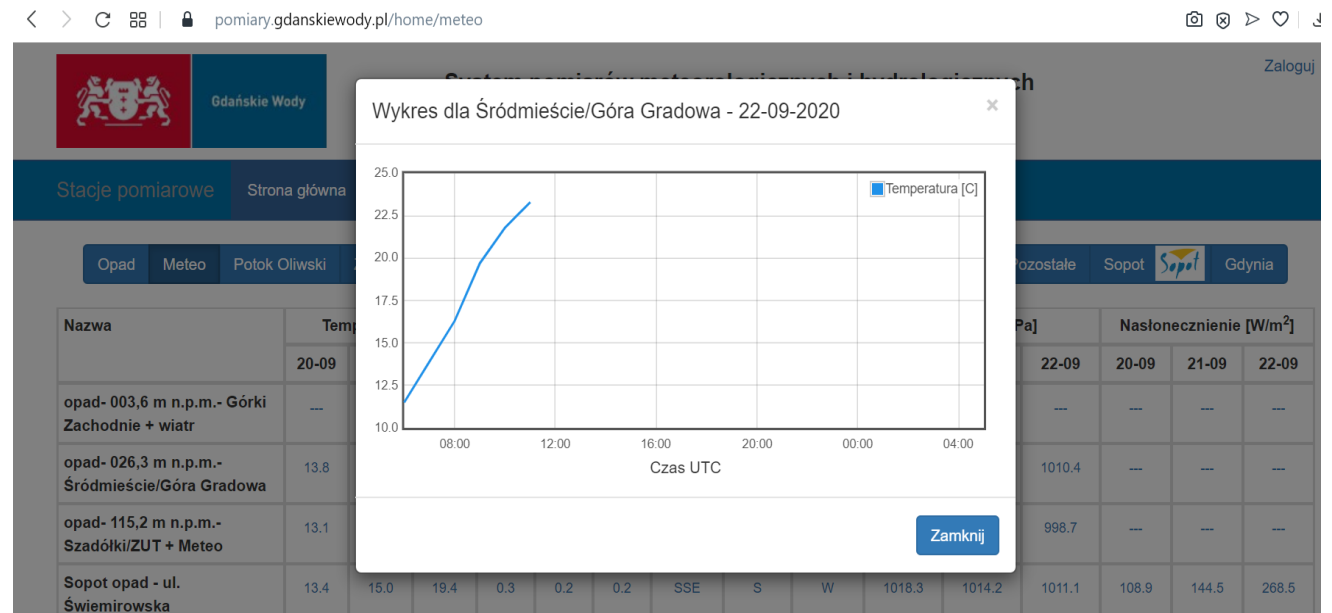
Protection of buildings against flooding
Pumping water from flooded places
Unblocking grates and inlets
Protection of reservoirs



Meteorological and hydrological urban monitoring system



- 26 pluviometers Gdańsk, 3 Gdynia, 4 Sopot
- 77 water level probes Gdańsk





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Thank you for your attention

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