It's raining harder and harder, and our city can't handle it

What's wrong?
We increasingly have to deal with extreme rainstorms. They make our city vulnerable. As the city fills up with buildings and paved surfaces, there's nowhere left for the rainwater to go. The result: increasing flooding and damage, also near you.

Copenhagen
2 July 2011
Extreme downpour
160 mm of rain fell in just 2 hours that day. The result: 1 billion euros in damage.

Amsterdam
28 July 2014
Major downpour
30 mm fell from the sky within a few hours. Streets overflowed, houses flooded, and traffic came to a standstill as tunnels filled with floodwater.

Rainwater seeps into houses across town, and basements and cellars turn into cisterns.

Such heavy rainfall causes major traffic disruptions. Streets are submerged and many tunnels become impassable as water levels rise.

Heavy rainfall
20 mm in an hour is the volume of rainwater that our sewers can process. When it rains harder, the water finds a different route.

Drizzle
1 mm is a whole day of drizzle, but even that represents 219 million litres of water falling in Amsterdam – enough to fill 232 swimming pools!

What you can do
Everyone can contribute by introducing smart solutions, big and small, to prevent damage, and by using rainwater for example to water your garden. And it makes your neighbourhood more beautiful. Join in! Every drop counts. Increase our city's sponge capacity and make Amsterdam Rainproof.

Roof
A green roof helps hold onto rainwater. It suits lots of different roof structures and helps keep the building cooler to benefit biodiversity, and if you add an extra water storage layer, a tile roof is even better for storing rainwater.

Building
Rainwater capture systems, a green or blue roof, green roofs, or green walls, and rainwater storage basins in the basement all these measures help prevent damage and make your house more rainproof.

Neighbourhood
Less pavement and more green, no ditches, little gardeners along the building fronts, and wetlands plants near your home make your neighbourhood more beautiful. Greenery holds lots of water and creates a better microclimate.

Garden
If you have a garden, biainy, or roof terrace, set up a rain barrel with a tap on the roof so you can water your plants for free. Remove some pavement from your garden and replace it with an oak or pond, or lay permeable paving.

Street
Rainproofing a street is as easy as buying a hollow road and installing it outside. Urban infiltration strips, swales, and open gutters bring rainwater drainage out into the open and make the city more beautiful.

Square
Rainwater-fed fountains, open gutters and more greenery transform a city square into a place to play with water – and make it easier to accommodate heavy rainfall.

Park
Green parks, swales and ponds make key contributions to temporary water storage and slow down infiltrator drainage from the surrounding area. They are good for plants and animals and contribute to a cooler neighbourhood.

Make Amsterdam Rainproof. Visit rainproof.nl to see what you can do.
Make your neighbourhood rainproof. How? Use these tips!

1. **Green / blue roof**
   A green roof serves several purposes, including water storage and temperature control. It also stores some of the precipitation that falls on the roof but does not have a layer of green vegetation. So a blue roof costs less to install and maintain. Rainwater is buffered, since the drain flows not have a layer of green vegetation. So a blue roof can store some of the water that currently flows directly into the sewers. The extreme rainstorms class damage, primarily because they are increasingly paved in buildings, asphalt and paved gardens – no raindrops can seep through.

2. **Small front garden**
   Grass concrete blocks can be built into the soil beneath, the infiltration percentage for grass concrete blocks can go as high as 100%. A great rainproofing solution to use in your garden.

3. **Open gutter**
   Open gutters are simple above-ground drainage solutions that can be used in a garden, along the street and on the city squares. Rainwater can flow through open gutters to run off into retention or infiltration zones. This facilitates even more efficient land use.

4. **Urban infiltration strips**
   Urban infiltration strips temporarily store rainwater from the surrounding area and then drain it away slowly. The vegetation in the grass strip helps to store rainwater on a temporary basis.

5. **Infiltration zones**
   Infiltration zones can also be combined with a closed-off drainage network. Instead, some pavement along the front of your house and plant a garden strip. This allows rainwater falling along the road to filter directly into the ground. A small front garden can also be combined with a closed-off drainage network. Instead, some pavement along the front of your house and plant a garden strip. This allows rainwater falling along the road to filter directly into the ground.

6. **Green between the tram rails**
   The space between the tram rails can also be used for a grass strip. If it is not being used by other traffic, rainwater can easily drain into the soil through this grass strip. Grass is easy to maintain and allows the soil to store rainwater for a longer period of time, reducing the impact of flooding right after heavy rainfall. The grass strip can easily be combined with a closed-off drainage network.

7. **Water-permeable paving**
   Paving stones with open grouting allow rainwater to seep into surrounding soil. The vegetation in the grass strip helps to store rainwater on a temporary basis. The impact of flooding right after heavy rainfall can be diminished by strategic placement of speed bumps, helping direct the water towards open water or green areas. The water can also be stored temporarily in green squares, water squares, water storage tanks or infiltration zones. Even better, water squares, water storage tanks or infiltration zones.

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9. **Grass concrete blocks**
   Less frequently travelled parking lots, roads, access streets to garages, old gardens can be made water-permeable. Rainwater can then be absorbed by the ground and not enter the public sewers. The water can also be stored temporarily in green squares, water squares, water storage tanks or infiltration zones.

10. **Water square**
    A water square is a sunken section of public space that usually consists of a water basin. A water square can be combined with a closed-off drainage network and allow rainwater to seep into the soil and supplement groundwater. Depending on the soil beneath, the infiltration percentage for grass concrete blocks can go as high as 100%. A great rainproofing solution to use in your garden.

11. **Infiltration crates**
    Infiltration crates are a solution for temporary underground water storages, allowing quick disposal of stormwater to soil as well as reducing water levels in low-lying areas. Grass concrete blocks can go as high as 100%. A great rainproofing solution to use in your garden.

12. **Rainwater pond**
    Rainwater ponds have a capacity to accommodate higher water levels, allowing them to store rainwater for a longer period of time. Rainwater ponds are easy to maintain and can be combined with a closed-off drainage network.

13. **Rainproof utilities**
    In high flood risk areas, public utilities like sewers, drains, drinking water, energy, and communications facilities need to be protected from flooding. The water supply network is often protected by raising the utility network to protect them from flooding.

14. **Detached downpipe**
    By rerouting the connection between the downpipes on your building or house and the public sewers, you can cut down on stormwater damage. It is crucial to direct rainwater away from your building or house. Make sure your system has sufficient reserves and infiltration capacity, for example by providing rainwater ponds or infiltration zones. Rainwater can also be reused.