BLUE-GREEN CITIES IN THE SPOTLIGHT: GOTHENBURG

How Blue-Green Infrastructure (BGI) in Gothenburg became an engagement tool for climate awareness and education.

By the City of Gothenburg and Bax & Company

The city of Gothenburg has been working for many years on its blue-green vision. Although the use of BGI is well known within the planning departments of the city, there has been a lack of awareness among the general public. That's why the planning team opted for a social innovation approach that involves citizens through hands-on education.

Gothenburg's vision has been driven by the development of the Frihamnen (freeport) area, where blue-green infrastructure was planned to be built throughout. To demonstrate how the Frihamnen rainwater system would work, the city created an **outdoor classroom with different water tools** to educate people of all ages. It's a place for pupils, teachers and the general public to both play with and learn about water, rain and nature-based solutions.

Another pedagogical approach explored by Gothenburg is **digital twin technology.** A digital twin is a real-time digital copy of the city where you can virtually walk around. It is used to better predict the impact of new buildings and developments, as well as to simulate different climate impacts, like cloudbursts and flooding.

Read on to learn more about Gothenburg's efforts to become the *"best city in the world when it's raining."*

Jubilee Park (Jubileumsparken)

Jubilee Park, located in the Frihamnen area is part of Gothenburg's 400th anniversary celebration and a place that brings the city closer to water.

Citizens have been involved in the development of this meeting place on countless occasions, as envisioned in the *Rivercity vision* – a strategy to develop centrally located, post-industrial areas in Gothenburg. In fact, **Gothenburg's new city park by the water was a suggestion from citizens to commemorate the city's 400th anniversary.**

THE 'NOSE IN THE MUD' OUTDOOR CLASSROOM

An outdoor classroom, called 'Nose in the mud', was constructed during the spring of 2019 in Jubilee Park. The project was designed and built by Santiago Cirugeda and his team from Recetas Urbanas. They believe in involving the public in the development of such projects to empower them and transfer knowledge on building techniques. Over 100 Gothenburgians nailed, sawed and screwed the new meeting place together. The volunteers were of every age and had varied prior knowledge of construction.

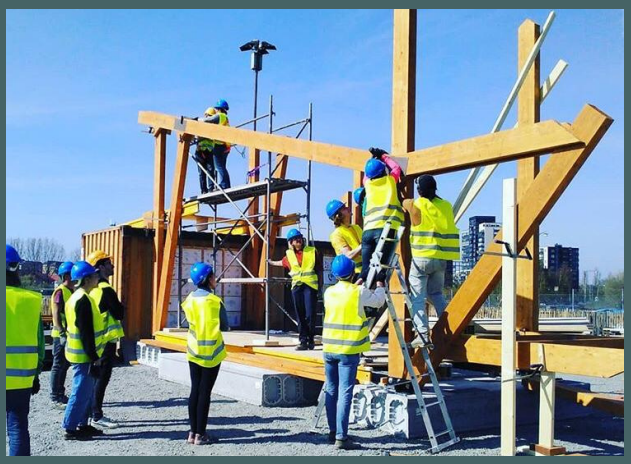


Photo: Constructing the classroom by @Jubileumsparken

The site was established in the minds of the public before being opened due to the inclusion of volunteers in the construction process. Prior to the classroom's launch, there was already quite some interest from the public as those who contributed to its creation invited others to enjoy and co-maintain the site.

> ***'Nose in the mud' is both an outdoor classroom and a water playground. Here, people of all ages can explore the wonders of water, how it feels, flows and disappears. It can also be used by schools and preschools for teaching.***

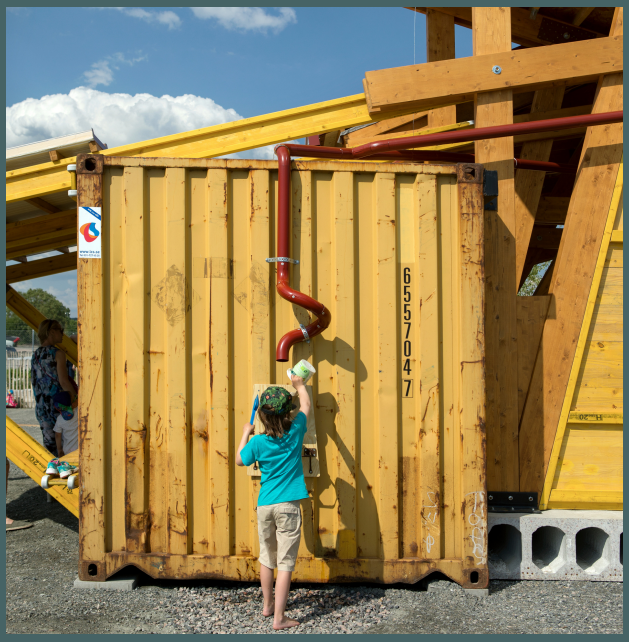


Photo: Making water fun by ©Marie Ulnert

The outdoor classroom was inaugurated in June 2019 with a big celebration involving live music and popsicles for all.

Since its opening, several activities have taken place – both arranged by the city and by the non-profit organisation Passalen, the main organiser of public programmes in Jubilee Park. Here are just a few examples:

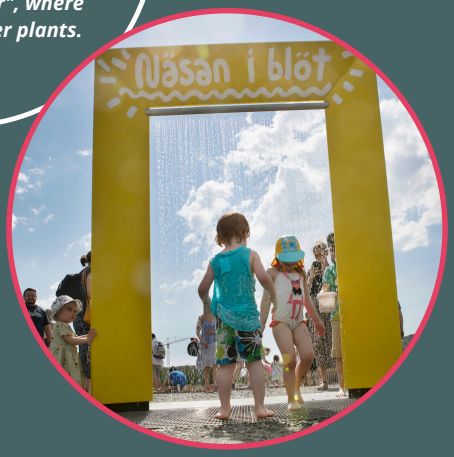
- Water-related workshops led by visual artists
- Water experiments, in collaboration with the Maritiman museum
- Constructions of temporary water systems
- Summer camps with sailing and learning about waste in the ocean

"Half pipe"

Here you can see how water flows and disappears, just as it does through gutters and sloping surfaces across the city - directing water from roads and roofs to flowers beds or lawns. The water's path can be controlled by rotating the parts.

"Rain curtain"

The perfect place to cool down on hot days! Below the curtain is a drain that the water travels through to the "Infiltrator", where it is used to water plants.



In 2019, a tutorial was published on the city's website to support teachers and provide guidance on teaching blue-green solutions.

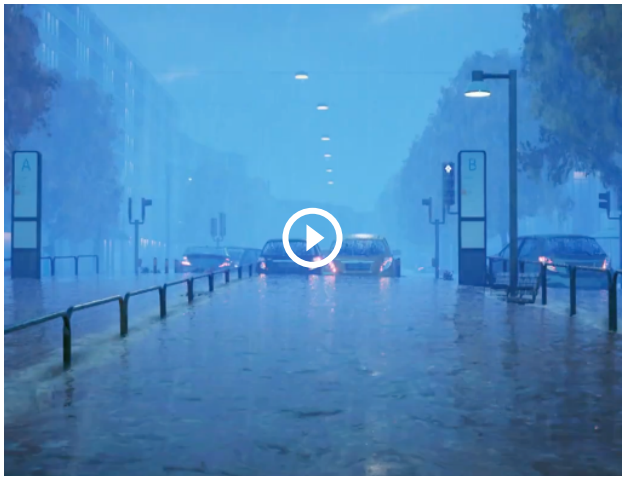
During 2020, the outdoor classroom was equipped with signs and a water library, making it easier for the public to understand the function of each water tool. The tools can be used in several ways, some just for fun *(like the rain curtain),* some to slow down water *(the Grand Canyon)* and some to demonstrate the principles of blue-green infrastructure (*the Infiltrator*).

During spring 2021, schools have been invited to take part in a 2-month water programme (from May to June) led by a local architect and design educator. The programme has been organised in collaboration between the city and Passalen. For the first half of the day, pupils will participate in a sailing program with Passalen and for the rest of the day they will be at the outdoor classroom learning about and experimenting with water in the urban environment.

Cloudburst visualisation raises climate awareness

Another way Gothenburg has managed to raise awareness of the effects of climate change – *specifically the risks of cloudbursts* - is by using digital twin visualisation.

As the climate continues to change, cloudbursts will occur more frequently, and there will be serious consequences. Flooded hospital areas, severe traffic breakdown and even life-threatening situations are potential outcomes, not to mention financial damage to property owners. Gothenburg is highly exposed to the consequences of climate change.



VIDEO: The downpour that could change Gothenburg

In fact, **calculations show that a cloudburst in Gothenburg could cost up to €2 billion.**

Both Copenhagen in Denmark and Malmö in Sweden have endured cloudbursts that have caused severe damage. This reinforced the importance of implementing the right preventative measures.

To raise awareness of the risks, a visualisation team at Gothenburg's city planning office has, on behalf of the Sustainable Waste and Water department, visualised the effects of a cloudburst at Linnégatan in Gothenburg. The visualisation team used a gaming simulator to make the scenario as realistic as possible.

Gothenburg's Sustainable Waste and Water team has been working with strategic cloudburst management for the past few years and has developed a set of strategic action plans to identify flood risk in different areas. To manage future cloudbursts, it will be necessary to make major investments in blue-green infrastructure according to the "best planning" in each catchment area. It is also vital that property owners are informed enough to take proper precautions. City planners, property owners, landscape architects, and others, all need to cooperate to prepare the city of Gothenburg for the future.

Rain Gothenburg

One of the several themes of Gothenburg's 400th anniversary is to become the best city in the world when it's raining.

That's why the city started the *Rain Gothenburg* project - a plan to embrace frequent rainfall and turn it into an asset.

The Rain Gothenburg project has received extensive international media coverage. *Read more about it on the Guardian.*

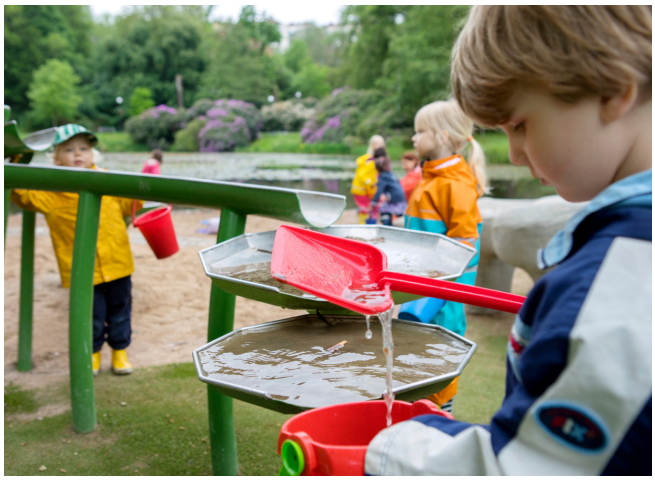


Photo: rain playground in Renströmsparken by ©Marie Ulnert

All of this work has been conducted in the framework of the **BEGIN project.**

Throughout 2021, the city of Gothenburg will continue running their school programme at 'Nose in the Mud' to educate children on water issues within the city.

The city is also looking forward to co-hosting a session on the importance of community engagement in the development of BGI, as part of BEGIN's City-2-City learning programme.

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