



The Urban Lab of
Europe!

CASE STUDY

REPORT

Democratic Transitions
for All

PROJECT

GBG_AS2C - Blue, Green
& Grey_Adapting
Schools to Climate
Change

📍 Barcelona, Spain

TOPIC

Climate adaptation

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GBG_AS2C (Climate Shelters), Barcelona, Spain

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1. What has the project been about?

The project's context

Barcelona is a compact, densely built city with a hot and humid climate during summers and faces an increased risk of intense and prolonged heatwaves in the coming decades. Like most urbanised areas, the city's overbuilt environment and lack of green space create an Urban Heat Island (UHI) effect. This effect includes, on the one hand, elevated thermal discomfort & photochemical pollution leading to health risks, particularly for vulnerable populations, and on the other, increased energy consumption to cool indoor spaces.

The project's goals and vision

The GBG_AS2C project piloted the transformation of 11 school premises into green and climate-adaptive spaces. Situated in every neighbourhood, schools have the potential to become a popular shared green space for the broader local community after school hours. Exploiting the unique locations of schools within the urban fabric, the city's vision is to transform all public schools and, therefore, to provide an accessible and green space within walking distance for residents of all ages.

A different set of innovative blue (e.g., water points in the schoolyards), green (e.g., densification of vegetation, permeable surfaces) and grey (e.g., shading structures) solutions were applied to each of the selected schools. The solutions were developed by experts, but their selection, placement in the schoolyard, and the evaluation of the final interventions were based on a participatory process with the school community.

The project added these 11 schools to the city's existing network of 'Climate Shelters', which provides refuge to people of all ages during extreme heat. This network includes other public buildings, such as museums, libraries, and community centres. The goal is to replicate this approach in every school across the city and not only increase the number of climate adaptive public spaces and buildings but enhance the quality of those spaces from the children's wellbeing and educational perspective.

In parallel with the city of Barcelona, Paris shares the same vision of a dual use for school premises. Like the GBG_AS2C, the OASIS project re-designed schoolyards to offer both a climate-adaptive refuge in the urban context and to provide spaces that truly resonate with the needs of their users: children. Focusing only on the transformation of the schoolyard, OASIS also explored the potential of co-designing the overall space and the nature-based solutions together with the children.

Links to Just Transitions

The project came under Barcelona's [Climate Adaptation Plan](#) (2018-2030) as a priority action supporting the vision of increasing the urban green space by 1.6 km² in total, that's 1m² per resident, by 2030. At the same time, GBG_AS2C contributed to the city's effort to become climate-neutral by 2030, as was selected to be one of the hundred cities in the EU's Net Zero Mission.

It also supported the city's annual action plan for preventing the negative effects of heatwaves on human health. In line with this, the project's innovative work on the school premises enhanced the thermal comfort of the schools' everyday users and ensured better indoor and outdoor air quality. City policymakers anticipated that

these improvements would facilitate a just and democratic transition by (1) providing access to high-quality and healthy spaces for all and (2) designing and managing the newly transformed urban spaces collaboratively with their users.

2. What solutions for Democratic Transitions have been found?

Appointing community liaison managers to explain the project to everyone involved

A common challenge for participatory projects is managing expectations. It is reasonable that everyone involved in the project develops their own understanding of the scope and the process based on their interests, experiences, and needs. The GBG_AS2C project realised that having one permanent liaison manager to work with all the stakeholders (coordination team, school administration, families, designers, etc.) is one of the keys to overcoming the 'expectations challenge'. By appointing a specific person to explain the scope of the project and provide project updates builds both consistency in the communication between all participants and a common understanding of the process and its expected outcomes. Additionally, the liaison manager acts as the local coordinator for every school and is responsible for organising the participatory activities. This frees teachers and school directors who are not overwhelmed with an extra workload beyond their main role in the project.

Aiming for Inclusiveness

The GBG_AS2C project coordinated 4 participatory workshops with children per school, directly involving 50 pupils in the process using different child-friendly methods (e.g. photovoice). The pupils acted as the agents of the project and disseminated the outcomes to the entire school community to ensure that everyone was informed and engaged in the project. The participating schools were located in various city districts with different demographic characteristics. The project's pilot schools were selected based on their willingness to be actively involved. However, in the end, not all schools were equally engaged. The schools that showed deep dedication to the project's vision managed to expand the participatory process from the core team of pupils to the entire school community, while others limited the process to a small number of pupils who were directly involved.

The broader vision for GBG_AS2C was to provide a refuge to residents of all ages, specifically during periods of extreme heat, functioning as another type of the city's 'Climate Shelters'. Therefore, the project aspired to engage people well beyond the school community. However, the elderly were hard to attract to the schoolyards due to their different needs. The project team observed that schoolyards were chosen by elderly people only if they were accompanied by their grandchildren. In general, although the project targets the public for after-school hours, the space is used more by children and families.

Continuing the participatory process amid the pandemic

During the pandemic, schools in Spain were closed for an extended period. However, the impact of this unforeseen challenge was managed by developing online participatory sessions to keep the audience engaged. When the schools opened again, the format of the in-school participatory workshops needed to be adjusted to align with the new public health measures. GBG_AS2C created a new hybrid format for its participatory workshops. The experts and moderator were online and connected with the classrooms via a large screen and the teacher and the on-site facilitator were in the classroom with the pupils. Realising the effectiveness of this model, the project coordinators are already replicating it in other participatory projects in the city in combination with in-person events. By doing this, they accelerated the number of community activities as this model requires fewer resources and less time than full in-person events.

Co-deciding the interventions with the users

The GBG_AS2C team of experts prepared a set of blue, green, and grey solutions based on the spatial, environmental, urban, and social characteristics of the selected schools. This set of measures was then presented and explained to the school community, who in turn was responsible for discussing and deciding which combination of solutions would be implemented in their school. However, such a process requires sufficiently informed participants on both the functions of each proposed solution and the schools' spatial and environmental characteristics. For this purpose, the GBG_AS2C project provided architects, climate change

experts, and researchers on public health in every participatory session. The participation of these experts during the workshops empowered the pupils to make the final decision for their schools in an informed way

Mapping and reaching out to all beneficiaries of the interventions beyond the priority users

The city of Barcelona already had a framework for opening access to schoolyards after school hours for recreational activities. Many schools participate in this scheme by partnering with local NGOs and associations, which coordinate activities in the schoolyards in the evenings and during weekends by paying a fee to the city. Acknowledging these existing partnerships, the GBG_AS2C team prioritised the active involvement of those local stakeholders early in the process. It was crucial to inform and receive feedback from these local partners as equal users of the space. The interventions needed to take their activities - and the space they needed - into account as well. The school facilitated the communication between the project team and the local partners. As expected, some associations were more engaged than others. Associations that run sports activities initially made more objections to the transformations as nature-based solutions were 'taking up' more of their space. Therefore, their active involvement ensured their acceptance and support for the transformations and, ultimately, the sustainability of the project.

Understanding all the implications of the messages expressed to the audience

Climate change can be a vague term for audiences beyond scientists. In community participation activities, it is crucial to describe the impacts of climate change in ways and using terms that are thoughtfully tailored to the audience. The GBG_AS2C team encountered an unexpected challenge - of students and teachers terrified about what the future will look like with the impacts of climate change. The teacher was shocked, and a few pupils cried. That incident led to re-thinking the narrative of the project's environmental component and re-structuring it around messages of hope and of the great potential for collective action to change the future.

Educating for behavioural change

GBG_AS2C included a pedagogical dimension among its general objectives. Although being a technical project to re-design the school premises to be more adapted to climate change, it also provided educational modules that aimed to inform, engage, and educate pupils to pursue a more sustainable lifestyle. The participatory activities with the school community were designed to motivate the participants to expand the role of schools in the cities from being educational institutions to being agents of a sustainable future.

Involving the participants in measuring the project's impact

The GBG_AS2C expanded the participatory process beyond the design and construction of the project to the evaluation process. The goal was to motivate people to change their behaviours through their involvement in measuring the impact of the new infrastructures. The concept of involving the participants in a 'before and after' comparison aimed to raise their awareness of their physical environment and the agency they have to look after their personal health and the health of the community through participation and making informed choices. As part of this comparative evaluation, participant-end users were asked to wear sensors and measure their thermal comfort or air quality during their daily activities at school compared with outside school.

3. What can cities learn from the GBG_AS2C governance?

Keys to success

- Set clear and measurable goals and agree on the values to be communicated.
- Set specific roles for all the stakeholders involved (e.g., management team provide overall coordination, teachers are the facilitators within the classroom, pupils are the core participants of the process) to avoid conflicts or overlapping tasks.
- Develop a complementary educational programme to increase awareness about the topic in question and foster meaningful participation.
- Make it personally relevant (e.g., participatory health assessment process using sensors)
- Connect the project to a broader vision or to ongoing actions to ensure the continuity of the public participation processes.

- Create a steering committee to secure the alignment of every project milestone to the initial objectives throughout the entire lifecycle of the project.
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4. Scaling up and replication potential

Like Paris's OASIS project, the GBG_AS2C provides a participatory approach that could be applied by other cities across the world since the core target group is the school community, an established community with universally shared values and interests. The novelty of the GBG_AS2C is its active inclusion of the end-users in the project's evaluation process. This was achieved using methods that can easily be replicated in other cases (e.g., using wearable sensors). The participants were informed about the environmental issues and their impact on their health by experts. Then, they were invited to wear sensors and share their insights via questionnaires before and after the improvements. The user's involvement in the evaluation phase ensured that every user participated in identifying the problem, was meaningfully informed, and thus was capable of understanding and motivated to embrace the proposed innovative solutions. Such participatory processes are meaningful for achieving just transitions, as they ensure that information and solutions are equally transmitted to all users and, ultimately, the benefits reach everyone.

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