Nature-based solutions for
NOISE MITIGATION :: WATER QUALITY IMPROVEMENT :: BIODIVERSITY :: EDUCATION
Learning from:

REGREEN
NATURE-BASED SOLUTIONS

Adressed SDGs:

GREEN NOISE BARRIER OF SACHSENHEIM

Image: Helix Pflanzen

> OBJECTIVES

The green noise barrier by the Municipality of Sachsenheim, Germany, in collaboration with the company Helix PflanzenSysteme was initiated in 2014 with the aim of delivering a certified instant green noise barrier. The idea was to create a noise barrier which improved noise mitigation whilst offering other benefits such as managing rainwater flow-off, promoting biodiversity including nesting opportunities and overall an aesthetic structure.

> DESCRIPTION

At the beginning of this project, the possibility of a noise barrier having multiple ecological benefits was not known. This has drastically changed over the past few years and now the local government and residents are much more aware of the potential of nature-based solutions. In Germany, planning for a housing area starts with assessing the noise situation, based on which a decision is made whether noise barriers need to be installed. Additionally, compensation measures are necessary when setting up a housing area: a certain percentage of land needs to be allocated to greening to compensate for the housing area being built. Vertical greening projects can also be considered as compensation measures, hence the green wall could be put in place to act as a noise barrier and count towards compensating the housing development. Therefore, instead of using other material sources, the city council decided on using the budget for a green noise barrier.

The green noise barrier was procured from the regional SME Helix PflanzenSysteme, who pioneer vertical nature-based solutions. The chosen product provides a vertical green habitat of 557 m^2 and 49 m^2 floor size and is mainly planted with Hedera helix. This ivy covers the wall well, offering green coverage throughout the year. In addition, Parthenocissus quinquefolia, a creeper, is used mostly on the roadside, which adds another layer of leaves in summer. Towards the residential area, there are different flowering perennials. The vegetation is a source of food and shelter for birds, insects and other pollinators, particularly flowering periods. Due to aesthetic specification by the city council of Sachsenheim no emphasis was laid on specific habitat types. Yet, this type of green noise barrier can be adapted to suit local needs and purposes, e.g. the vegetation can be chosen specifically to attract certain target species. Apart from that, the wall also cools its immediate surroundings via evapotranspiration in plants and is irrigated by using the rainwater collected from nearby buildings such as a supermarket. Usually, water shortage is not an issue, since the collected rainwater is ample which is stored for use in times when there is a water shortage.

The maintenance of the green noise barrier is shared: Helix PflanzenSysteme, who provided the technical expertise, does one part while the city does the rest with budget from the greening department. Overall, this is a nature-based solution with multiple benefits and is an innovative, aesthetic and easy to replicate product in other communities.

> CHALLENGES

The quality of the maintenance as well as its costs have been an issue. There is a lack of willingness by the city to pay for professional services to maintain the noise barrier, which leads to ill management of the green wall. There have been accounts when much of the greenery was cut down and the wall had almost no leaves during the winter months, due to lack of proper care and maintenance.

> OPPORTUNITIES

It is important to point out that there was political buy-in right from the start and the local government wanted to see this project go through. One major supporting factor for the design, planning and implementation of the green noise barrier in Sachsenheim was the support and willingness to commit by the person in charge at that time, who was convinced of the added value of the ecosystem services such a nature-based solution offered.

> LESSONS LEARNED

As in Germany, the decision for constructing noise barriers has to be taken before developing new housing areas or individual residential complexes, such a nature-based product has an easy entry point already. However, this green noise barrier was made possible by the political support garnered at the time of decision-making. It is also important to note that a water supply for irrigation is ensured, e.g. by using rain-water. Such synergies need to be planned and implemented to actively use this sustainable source of water. Another element which came into play was the acquisition of a professional maintenance service from the start to ensure consistency in the multiple purposes of the green noise barrier, in terms of providing a habitat for birds and insects, regulatory ecosystem services like cooling as well as noise mitigation itself.

> INSPIRATION FOR OTHERS

This nature-based solution can be applied given that the same laws apply for noise mitigation for developing new housing areas. One other major factor to keep in mind is the provision of rainwater management in the surrounding area to ensure irrigation of the green noise barrier since water shortage can usually pose a challenge for the successful implementation and especially maintenance of such a project. When it comes to implementing noise barriers next to train tracks, it might be more difficult to establish green noise barriers dueto the high speeds of trains, which lead to faster air flow and major disturbances to the ecosystem of such a green noise barrier.

Image: Helix Pflanzen

FURTHER INFORMATION

All fact sheets were produced from questionnaires and interviews conducted by the ICLEI team. Contact ICLEI Europe for more information or access Oppla: https://oppla.eu/casestudy/21938

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