



# Climate Adaptation & Biodiversity Strategy

Change and Variety

Saxion 2022 - 2030

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# Introduction

We hear a lot these days about plant and animal species threatened with extinction, extreme rainfall, floods and droughts, along with terms like heat stress and air quality. This is because our climate is changing and variation in plant and animal species is vital to our quality of life. There are challenges ahead to respond to climate change through climate adaptation and to preserve and restore biodiversity.

Dutch government information emphasises the importance of the challenges of climate adaptation and biodiversity. They have calculated that doing nothing will lead to climate damage running into tens of billions of euros. A Delta Programme and a National Climate Adaptation Strategy have been established to help protect the Netherlands. Biodiversity is recorded in the government's nature policy, which aims to preserve plant and animal species and create more nature in urban areas. Having more vegetation in built up areas helps counteract problems caused by climate change, such as flash flooding and extreme heat. Furthermore a green environment helps maintain and restore biodiversity.

Saxion recognises its social responsibility to contribute to meeting the climate challenges of our time including climate adaptation and biodiversity. Saxion signed up to the Sustainable Development Goals (SDGs) in 2018 and set out its sustainable ambitions for operations in autumn 2020. This contains our long-term ambitions and their translation into objectives and tasks for the period up to the end of 2024. One of the ambitions for 2050 states: "Outdoor spaces at Saxion are climate adaptive with specific attention to biodiversity". Saxion has set itself 10 concrete improvements to be carried out before the end of 2024 in order to help achieve this ambition.

This climate adaptation and biodiversity strategy provides clarity, insight and structure to Saxion's approach to achieving our ambitions to the end of 2030. In doing so we have taken account of our urban locations and our surroundings. This strategy helps us contribute to SDGs 11 and 15, namely Sustainable Cities and Communities and Life on Land.



This strategy firstly looks at the importance and our definitions of climate adaptation and biodiversity. There are several definitions in use so it is good to know which one Saxion uses. Subsequently our vision, approach and objectives to the end of 2024 are clearly described concerning climate adaptation and biodiversity. This strategy therefore forms the basis of Saxion's approach to climate adaptation and improving biodiversity.



# Importance and definition

The terms biodiversity and climate adaptation are used frequently these days. But what do they actually mean? And why are they so important? Having a correct definition of these two terms helps better understand their importance and why we as Saxion, want to contribute to them. A clear and comprehensible definition also ensures that we share a common vision of where we are heading in the coming years.

## Climate adaptation

Climate adaptation put simply means adapting to the changing climate. The definition used by Saxion states:

***“Taking measures to respond to the changing climate in order to prevent disruption.”***

Here the changing climate refers to things like increasing temperatures, drought and extreme rainfall. Without measures to combat them, disturbances caused by climate change will increase in coming years potentially causing financial climate damage running into billions. Climate adaptation is therefore a necessary intervention to prevent disturbance and maintain a pleasant learning and working environment for our students and staff.

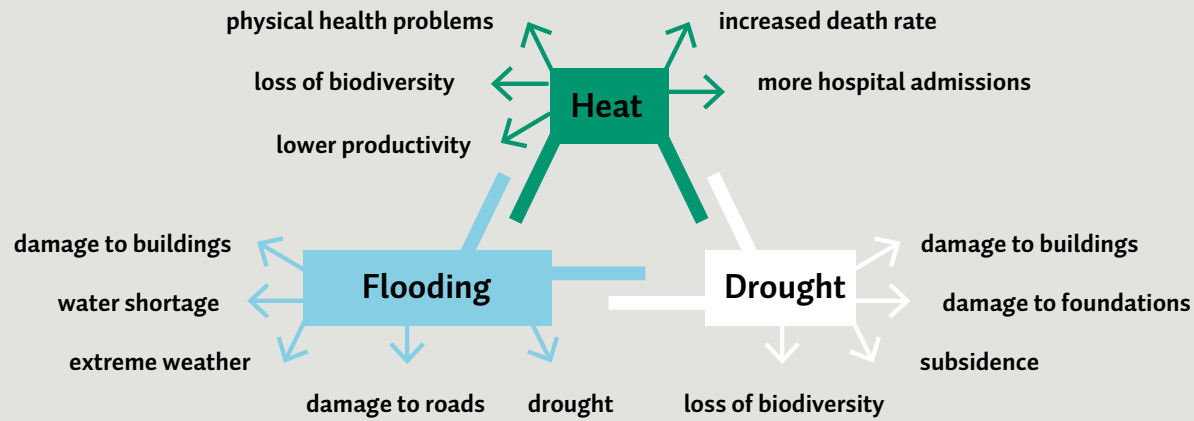


Figure 1: effects of climate change without climate adaptation (source: Inspiratiemagazine Natuurinclusief Bouwen 2020)

## Biodiversity

Biodiversity is such a broad term that even experts can't completely agree about what it does and does not include. This led us at Saxion to formulate our own definition namely:

**“Biodiversity is the variety of plant and animal species and their interdependence in ecosystems.”**

The interdependence between plant and animal species is more important than having a large variety of plant and animal species. Ultimately for example, flowers need insects for pollination. One can't exist without the other. At the same time a field with many species of flowers will not be pollinated if the insects living there can't recognise them.

The importance of biodiversity is essential to achieving the climate objectives embraced by Saxion. A rich biodiversity is crucial for the continued existence of plant and animal species, including us humans. Good biodiversity is essential to us as humans for our food, clean air but also for making essential products such as medicines. Improving biodiversity also leads to an attractive living and learning environment for our students and staff.

# Vision

As stated in Saxion's sustainable ambition, we aim to have climate adaptive outdoor spaces with specific attention to biodiversity. We will make use of all available space to achieve this. This means in addition to the land surrounding our buildings, our walls and roofs are also included in our plans and ambitions. By doing so we as Saxion, will show that despite our urban location there are still numerous opportunities and possibilities to contribute to meeting the challenges of climate adaptation and biodiversity.

## Ambitions translated into deeds

Climate adaptive outdoor spaces at Saxion means:

- Less and other types of hard-surfaces
- More and a greater variety of vegetation
- Creating more shade
- Detaching drainpipes and collecting rainwater
- Draining water during heavy rainfall

Having the right conditions is key to ensuring good biodiversity. This is why Saxion is focusing on improving these conditions expressed in **5 key priorities (KPs)**. These are **nutrition** through good working ecosystems, **moisture**, **protection** and the opportunity to **reproduce** and to **connect** with neighbouring ecosystems. The idea behind this is by facilitating the **5KPs** the diversity of plant and animal species will then increase by itself.

In addition to creating the right conditions, Saxion is also taking account of the kinds of vegetation. We choose native species and vegetation that is suited to the rising temperatures, plants that also occur in more southerly countries.



## Saxion's green credentials

Improvements to outdoor spaces will be visible to all and so contribute to Saxion's credentials as sustainable applied university. To ensure that this corresponds with the corporate identity this is linked to the house-style.

## Awareness

Improving outdoor spaces in relation to climate adaptation and biodiversity also provides an opportunity to raise awareness of the importance of these subjects. These opportunities shall be exploited with every improvement. This may be in the form of public information, but also includes more practical options such as a picking garden or vegetable garden for example. Furthermore, options are being explored for carrying out research and educational assignments among the greenery.

## Collaboration

The key to success in our vision to achieve our goals and objectives is collaboration, both within Saxion through our education and research, but also with our surroundings. This includes our partners, such as local authorities, De Kien, suppliers and consultants.



# Goals

Saxion has chosen a practical approach. We are going to improve the current situation through enhancement projects and changing our landscape management. We will also use the knowledge and enthusiasm both in and outside Saxion to help achieve our goals.

This horizon for this climate adaptation and biodiversity strategy is end 2030. We have set a number of goals for this period with September 2021 as point of departure. These goals focus on increasing biodiversity, improving climate adaptation and getting education and research involved.

## Increasing biodiversity

- 35% of vegetation on our campuses will be transformed from grass to a variety of flowers, plants and trees.
- 25% of vertical elements (pillars, screens, walls etc.) on and around our buildings will be adorned with plants.
- There will be greenery present at the front of every building consisting of a variety of flowers, plants and trees.
- In each Saxion city, 1 building will have a prominent green facade for all to admire.
- At every location there will be several sheltered spots to suit a variety of wildlife.

## Improving climate adaptation

- 30% of rainwater from our buildings will be collected on premises by detaching the rainwater drainage.
- 20% of hard-surfaces in our outdoor areas will be replaced by greenery.
- 20% of hard-surfaces in our outdoor areas will be turned into permeable hard-surfaces.
- 30% of our roof area will be covered in vegetation.
- Shaded spaces will be available at all our buildings created by either trees or plants growing on a frame under which people can relax and meet.

## Student and researcher involvement

- A minimum of 3 green experiments will be carried out at each location in collaboration with students.
- At every location, there will be opportunities for educational and research projects and assignments related to biodiversity and climate adaptation.
- Long-term awareness of students and staff will be an integral part of every project.
- Both online and physical information will be available regarding Saxion's practical approach to biodiversity and climate adaptation.



# Tasks

The 2030 goals have been translated into tasks. For practical reasons we have divided our outdoor spaces into four types, namely:

- Green outdoor spaces
- Hard-surfaced outdoor spaces
- Facades and other vertical elements
- Roofs

Every type of outdoor space has its own tasks as described here.

## Green outdoor spaces

Currently green outdoor spaces at Saxion are limited and consist mainly of grass with the occasional tree or planting bed. The tasks for this are:

- Transform at least 50% of grass into a variety of flowers, plants and trees.
- Mow the remaining grass less frequently to encourage other plant species.
- Together with students and/or the Green Office experiment with different types of greenery: plucking garden, vegetable garden, tiny forest etc.
- Improve the subsoil, if possible in combination with wadis to collect rainwater from buildings.
- Provide sheltered places for wildlife (insects, birds etc,) so they can establish themselves. This can be either natural shelter or man-made solutions such as a bee hotel, nest boxes etc.
- Make greenery attractive to give Saxion a sustainable appearance fitting of our ambitions.
- Connecting our outdoor green spaces with our surroundings so wildlife can use these green corridors to move easily from one place to another.

## Hard-surfaced outdoor spaces

Hard-surfaced outdoor spaces at Saxion can be divided into several functions. These areas are often used for delivering supplies, parking cars and bicycles, walkways to and from buildings and as leisure spaces to meet and relax. There are also outdoor spaces with a hard-surface for no functional reason. Rather for reasons of ease and limited maintenance.

The tasks regarding these are:

- Add greenery to non-functional hard-surfaces.
- Install a green zone of flowers, plants and trees in front of the street facade of every building.
- Give spaces for meeting and relaxing a mixture of greenery and hard-surfaces.
- Create shade along walkways and in meeting and relaxation spaces by adding vegetation.
- Make parking spaces permeable and apply measures such as water buffers.

## Facades and other vertical elements

Our facades and other vertical elements also provide opportunities for contributing to climate adaptation and increasing biodiversity. Since our outdoor spaces are limited due to our urban locations, it is vital that we make good use of these spaces. Furthermore Saxion's facades and outdoor spaces, are Saxion's physical calling card. We want to give this calling card a green look to make it obvious to all that Saxion is synonymous with sustainability. A green facade also creates a more pleasant indoor climate in buildings. It increases shade and cooling in spring and summer. The tasks for facades and other vertical elements are:

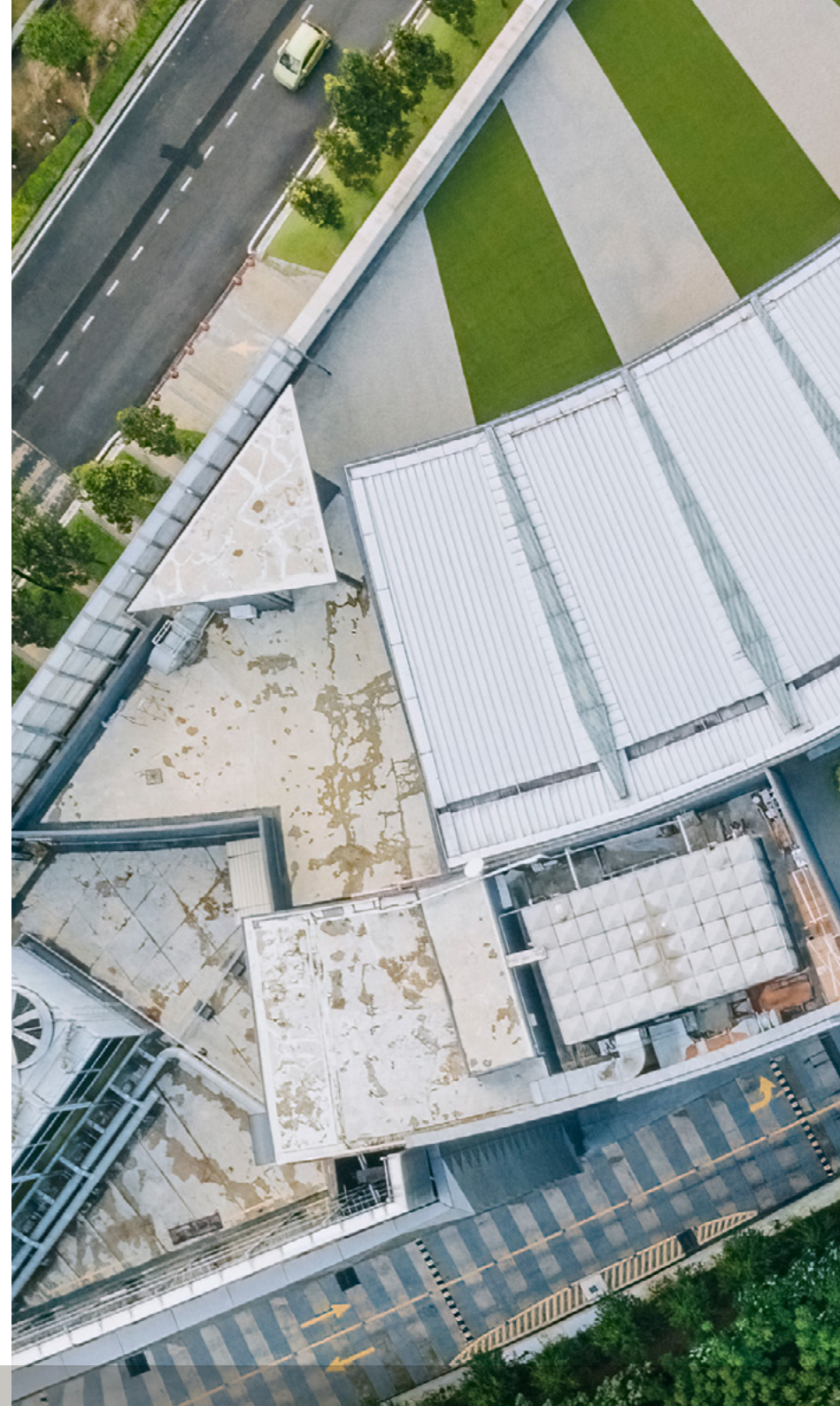
- At each location 1 prominent green facade.
- Gain experience with overhanging greenery from roof edges.
- Detach rainwater from mains drainage and make on-site water storage the norm. This is done together with the creation of underground areas that enable on-site water storage.
- Vertical elements are adorned in greenery. For example pillars, walls, partitions etc.
- Attaching bird, bat and insect boxes and other types of shelter in the green surroundings.

## Roofs

Several new buildings at Saxion have partial sedum roofs. This is still on a modest scale. Green roofs have multiple benefits. Sedum roofs provide water storage, protect the roof under it, provide cooling in summer and insulation in winter for the rooms below and also increase biodiversity.

The tasks for roofs are:

- Installing green (sedum) roofs with a diversity of native plant species.
- Provide sheltered places for wildlife (insects, birds etc,) so they can establish themselves. This can be either natural shelter or man-made solutions such as a bee hotel, nest boxes etc.





# Approach

Having a strategy is well and good, but it's all about results: improving climate adaptation and biodiversity.

The Saxion approach: just do it!

## From large to small

Lots of activities and projects are needed to achieve the desired results. The size and impact of these can vary greatly. Saxion will carry out one major project each year along with several smaller activities and projects. Examples of major projects include setting up a climate square and creating green roofs and facades. Small-scale projects and activities include for example changing grass-mowing policy, replacing grass with mixed flowers, getting a team to plant bulbs and plants, removing paving tiles and replacing them with vegetation and letting greenery grow along fences and pillars.

## Collaboration

Collaboration is the key to success. Which is why it is a core value at Saxion. Both internal and external collaboration is sought to help achieve ambitions and objectives. A link has already been established within Saxion with the Climate and Management Programme and we are also seeking collaboration with other programmes and research groups. Besides this there are also external collaborations including:



- Local authorities at Saxion locations

Saxion regards itself as a local authority partner contributing to the municipal biodiversity and climate adaptation agenda. Saxion also wants to be in line with local authority approaches. This means we don't have to invent our own wheel, but that we can still contribute to achieving the objectives within the municipality.

- Education and research

We utilise knowledge in education and research to improve biodiversity and achieve climate adaptation. We also use outdoor spaces for education and research. And we seek opportunities to work collectively with the wishes of education and research regarding outdoor spaces.

- Other Applied Universities and Universities

We share knowledge with other educational institutions and wherever possible work collectively to help generate momentum. For example jointly raising awareness for biodiversity on International Biodiversity Day. But also making the most of available expertise at other universities and applied universities in the subject, such as Larenstein and Wageningen.

- Gardeners

We regard our green maintenance suppliers as partners in improving biodiversity and achieving climate adaptation in the outdoor spaces that are already green. We also see them as our sparring partners when it comes to greening outdoor spaces that are not yet green. In addition to this there may well be collaborations with other landscape gardening businesses specialised in creating wall gardens and green roofs and realising new green projects.

- Water Authority

The water authority is of course a key partner when it comes to water storage. We are already collaborating with them in the Climate Square Project and this also needed for other projects.

- IVN (Institute for Environmental Education), reptile associations, bird watchers, etc.

Saxion hopes to cooperate with these associations in the future. They have considerable detailed knowledge about different plant and animal species. For example they can help with wildlife counts, share knowledge through educational walks and advise on projects.

## Knowing the score

In February 2021, Saxion became the first Dutch university of applied sciences to obtain BREEAM-NL In-Use certification. The international BREEAM In-Use methodology is used to determine and improve the sustainable performance of the built environment. Breeam In-Use gives insight into current performance and indicates where there is room for improvement. We deploy Breeam In-Use to measure our progress and show where there is room for improvement.

In addition we are going to work with NL Greenlabel. This is a good way of finding out in detail where we stand as an organisation, in terms of biodiversity. NL Greenlabel makes biodiversity measurable. This method also fits nicely with our vision of the **5 KPs** namely facilitating conditions that benefit biodiversity. A baseline measurement has already been taken in Enschede. The best approach can be determined by also doing this at the other locations. The starting point determines the degree to which different conditions need to be improved or restored.

Furthermore, full advantage should be made of possible contributions of education and research in measuring. What has already been specifically agreed is that students from the Climate and Management Programme will measure biodiversity on an annual basis. Several paving stones will be placed among the vegetation in green spaces. So that each year a survey can be made of wildlife living under these paving stones. This is just one of many possibilities.

## Awareness

Saxion is convinced that we can only achieve our sustainable ambitions when everyone who works and studies at Saxion does their bit to help. And that starts by increasing awareness among staff and students by informing them and making them enthusiastic about sustainable designs including climate adaptation and biodiversity.

This is why at all the outdoor spaces at Saxion there will be permanent on-the-spot information available about every project and activity. For example using QR codes linked to a website that explains what has been done at this spot to improve biodiversity and climate adaptation.



