



# Environmental and Climate Programme 2014–2023

Adopted by Uppsala City Council on 24 February 2014

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Extended under a City Council decision on 28 May 2018 – additional climate change adaptation and two new Milestones, numbers 9 and 10.



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# The Environmental and Climate Programme – a part of the work for ecological sustainable development

Uppsala's Environmental and Climate Programme is part of the municipality's long-term work for sustainable development as described in the Policy for Sustainable Development.

The Environmental and Climate Programme is based on the challenges described in Planetary Boundaries, the national environmental quality goals, the situation in Uppsala as described in the municipality's Sustainability Audit and its equivalents, and on Uppsala Municipality's comprehensive plan.

The programme follows the priorities, principles and work methods described in the Framework for Ecological Planning and Programmes<sup>1</sup>.

## Purpose

The Environmental and Climate Programme has two main purposes.

One overall purpose is to create a cohesive and comprehensive platform for the strategic work with climate change and a toxin-free environment, and in that way achieve the municipality's long-term environmental, climate and development goals.

An external purpose is to demonstrate the municipality's aims, cutting-edge skills and broad competence in environment and climate work, and in that way to utilise the commitment of citizens, companies and organisations for the environment and climate issue.

## Communication

The Environmental and Climate Programme is, together with the Policy for Sustainable Development and the Ecological Framework, communicated both inside the municipality organisation and externally for the best implementation results. More easily accessible versions and more background material are to be produced as support.

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<sup>1</sup> DNR KSN 2012-1129

## Follow-up

The long-term environment and climate goals, as well as the sub-goals, are followed up annually. The programme as such was evaluated in 2016-17. It is to be evaluated again in 2020. It may then be revised. The follow-up is presented to the City Council. Final evaluation takes place in 2024. Notably, the national environmental quality goals have 2020 as their target year. The City Executive Board is responsible for coordinating and compiling follow-up and evaluation.

# The Long-term Environment and Climate Goals

*Uppsala – A fossil fuel free city contributing solutions for global ecological recovery and prosperity.*

## Fossil Fuel Free Uppsala 2030 – Climate Positive Uppsala 2050:

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### **Goals:**

- No later than the year 2030, emissions of greenhouse gases from energy use, transport and work machines within the geographical area of Uppsala Municipality shall be zero and based on renewable energy sources.
  - The total emissions of greenhouse gases shall:
    - by the year 2020 have decreased by about 30 %
    - by the year 2040 be close to zero, i.e. have decreased by about 90 %
    - by the year 2050 have decreased with the equivalent of more than 100 %
    - by the year 2070 have decreased with the equivalent of about 110 %
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All goals are relative to the year 1990 and are measured in absolute numbers.

The climate goal is in line with the findings of the UN Panel on Climate Change in its fifth Assessment Report in 2013–14, but with its time horizon brought forward. The more rigorous goal horizon has two purposes: first to show the need of climate policies with greater safety margins, and secondly to take responsibility for historical emissions. It also assumes responsibility for emissions from the production, in the rest of Sweden and other countries, of goods and food that are consumed or used in Uppsala, but are not included in Uppsala's emission estimates. The biggest items are judged to be construction and installation materials and food.

### **Responsibility**

The City Executive Board, all boards and committees.

### **Responsible for follow-up**

The City Executive Board.

### **Follow-up**

Greenhouse gases or climate impact are calculated in carbon dioxide equivalents, according to the International Climate Convention. The collected emission sources include energy use and transport, as well as non-energy related emissions from among other things agriculture and industry, within the municipal boundaries, business trips by Uppsala inhabitants from Arlanda Airport and long distance holiday travel in general. Additions are made using standardised sums for emissions from production and distribution of electricity, fossil and renewable fuels.

### **Municipal geographic level**

Follow-up is carried out by the City Executive Board through compilation and adaptation of data from the Environmental Protection Agency, energy providers, Statistics Sweden and others. It is presented to the City Council twice annually.

### **Conditions for goal achievement**

In Uppsala's Climate Roadmap (2015) future scenarios were set out and an assessment of the possibilities of achieving the climate goals. It is estimated that the goal for the year 2020 can be reached in cooperation with other local players, above all in the Uppsala Climate Protocol, and with a somewhat strengthened national climate policy. It assumes that the Interim Targets in the programme are achieved, together with other goals in the municipality's plans and programmes relevant to climate, for example the waste management plan. One basic precondition is that town planning in the comprehensive plan and its transport emission goals are achieved. Transport emission goals are manifested in several policies and plans within the transport sector which complement the Environmental and Climate Programme. A large part of goal achievement 2020 is the planned investment by Vattenfall in a new bio-fuel plant replacing the large peat-fired heating and power plant. A final precondition is a more moderate growth in overseas holiday flights by the people of Uppsala compared to today's strong growth trend.

To achieve the long-term goals for 2030, 2040, 2050 and 2070 requires considerable reorientation in most areas of society. A climate roadmap is being produced within the framework of cooperation of Uppsala Climate Protocol.

# A Toxin-free Environment 2050

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**Goal:** The occurrence of substances that are created or extracted by the community, in the indoor and outdoor environment, shall not threaten the health of people or biodiversity.

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To reduce the risks from, and exposure to, chemicals is one of the greatest global and local environmental challenges of our time. Substances with dangerous properties occur in places where they do not belong – in people’s bodies, in plants, animals, seas, lakes and in the ground. Children are particularly vulnerable and sensitive.

Work is ongoing at many levels of society for a toxin-free environment. It can be a question of legislation, of developing new environment- and health-friendly methods for producing chemicals (so-called green chemistry) and through making demands when buying a product. As a municipality we are to aim high in our work, using a spectrum of actions to increase awareness and caution and to reduce the use of dangerous chemicals in our society.

## **Responsibility**

The City Executive Board, all boards and committees.

## **Responsible for follow-up**

The City Executive Board.

## **Follow-up**

Follow-up is carried out via overall assessments of the Interim Targets related to the toxin-free environment.

# The Effects of Climate Change in Uppsala

Global climate work, based on the UN Climate Convention, aims to limit dangerous human impact on the climate. The work on climate impact which is carried out globally, in Sweden and by Uppsala Municipality, aims to achieve this joint climate goal. The goal is to limit the rise in the global mean temperature to a maximum of 2°C.

At the same time, society must handle and adapt to the consequences that existing and future climate change inevitably leads to. The mean temperature rose by approximately half a degree in Uppsala County during the period 1991–2013. It is expected that the temperature will continue to rise throughout the century. Even if the climate goal is achieved through significant reductions in the emission of greenhouse gases, we will not be able to prevent the climate changes that are already happening and which will continue. Climate change adaptation is therefore a necessary complement to the work on reducing climate impact. Uppsala, like most towns and communities, is designed in such a way that the effects of climate change are often strengthened. There are for example many solid surface areas and densely built-up areas, which can exacerbate the effects of floods and heatwaves.

## Climate factors, risks and consequences to Uppsala Municipality

The climate factors which above all affect Uppsala Municipality are:

- Raised temperatures with milder winters and longer growth periods
- More heatwaves and a greater risk of local heat islands<sup>2</sup>
- Increased drought risk
- Increased precipitation and heavier downpours
- Increase risk of flooding and changed flows in watercourses (including The Fyris River)

Flooding in connection with increased precipitation and downpours means that properties or critical community functions can be inundated. Local heat islands and heatwaves can reinforce each other and lead to heat stress and increased mortality, especially among risk groups. Furthermore, an increased need will arise of agricultural irrigation during dry periods. There is an increasing need in towns of more greenery, which reduces temperatures and provides shade. A need will arise to utilise and store water for watering trees and other green areas in towns and built-up areas.

The quality and quantity of drinking water is affected by a changed climate. The extent is currently unclear, but changes in the form of less re-formation of groundwater and changed quality of surface water infiltrating soil layers are significant. In privately-owned wells, water shortages can arise and the quality and quantity of groundwater reservoirs can be affected. One consequence that is already noticeable is a changed need of de-icing, since temperatures often alternate above and below freezing point. Agriculture is affected by a longer growing season and changed climate zones. At global level, changed conditions for food production

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<sup>2</sup> Local heat islands are areas in a town or built-up area which are considerably warmer than the surrounding land areas. This is due among other things to towns having more hardstand areas that absorb a large proportion of solar irradiation instead of reflecting it, which means the temperature rises. The temperature difference can be more than 10°C.

mean a need of increased regional food production. Increased numbers of climate refugees can have consequences both locally and regionally.

The above summary analysis is based on the background report *Climate change in Uppsala Municipality – an overview of effects and actions*.

## Uppsala works preventively and uses ecosystem services to handle climate change

Uppsala Municipality is growing. To create a flexible and robust community, Uppsala Municipality is planning for new and existing structures and infrastructure to be climate adapted. Several actions taken within the framework of climate change adaptation work can give major positive synergies with other areas such as a pleasant and more attractive urban environment, increased recreation amenities, increased air cleansing, reduced noise and better management of run-off water. Vice versa – many actions the municipality takes to develop a good environment and more attractive town also make the town better adapted to climate change. This applies especially to work with social and ecological green values.

Uppsala Municipality has for a long time handled high water flows in The Fyris River where it runs through the town centre. The variations in water levels are natural, but they are reinforced by how the town is built around The Fyris River. These variations are now further increasing as a consequence of climate change. Measures to respectively prevent and reduce risks and damage coincide with work to adapt society to a changed climate. Besides flooding, the focus of climate change adaptation has been on handling increased quantities of precipitation in newly built-up areas and the burden on the surface run-off system along with infrastructure measures, in particular water treatment plants. Some work has also been done with regard to existing structures, public health related to heatwaves and local heat islands.

The municipality has worked to a lesser extent with climate change adaptation within the natural environment, cultural environment and agriculture. Within these areas, it is instead the County Administrative Board that has provided input. The municipality needs to be more active in those areas in the future.

Work on climate change adaptation within existing built-up areas is a challenge. This can best be carried out within already ongoing collaboration with property owners, which can be expanded into more collaboration forums. In 2018, work is ongoing to plant trees in the urban environment within the framework of Urban Tree Year. It is necessary to both continue expanding the work on climate change adaptation into more areas and to continue to manage the effects of increasing quantities of precipitation. Also the risks of water shortage and low groundwater levels need to be addressed, and issues regarding the use of clean water and how rainwater can be stored and used are increasingly coming into focus.

Uppsala Municipality was voted the climate change adaptation municipality of the year in 2017, largely because the climate change adaptation that is being carried out is integrated in the municipality's other operations and done in close cooperation with the County Administrative Board. For a summary of the reports and actions carried out for Uppsala Municipality, refer to the background report *Climate Change in Uppsala Municipality – an Overview of Effects and Actions*.

## Purpose of, and approach to, climate change adaptation work

The work to realign the community to lower climate impact is integrated with adaptation to a changed climate. Climate work is orientated towards prioritising measures to reduce climate impact. It is assumed that the global 2° C target will be achieved. In that way, the risks and consequences to community and nature from climate change are minimised. The starting-point for the planning of climate change adaptation is that the climate target is achieved.

The purpose of climate change adaptation work in Uppsala Municipality is to reduce the risks and minimise the consequences of climate change. The goal is for Uppsala to be a resilient community adapted to the climate changes that are taking place today and which cannot be prevented in the future. In planning for climate change adaptation, it is necessary to take into account climate changes judged to be likely when the world achieves the 2°C target or almost achieves the target. In some cases, the probability of other climate scenarios needs to be considered.

The work is aimed to:

- choose as far as possible preventive actions where the problem is remedied at source
- choose actions that reduce or avoid increased climate impact
- choose actions that give several advantages in several aspects, for example in the form of more greenery and a more attractive urban environment.

### **The goals and actions for municipality are found in the comprehensive plan and other written policies**

Overall control of climate change adaptation work is provided by the municipality's land use plan except for what is set out here in the Environmental and Climate Programme. In the Comprehensive Plan 2016 the aims for climate change adaptation are clearly set out, which is reflected among other things in the land use map. There are a number of prioritised efforts, and climate change adaptation is part of the general guidelines for all land and water areas.

In the municipality's water programme, nature preservation programme, run-off water programme, park plan, architecture policy and town centre strategy there are goals, actions and approaches partly aimed at or interacting with climate change adaptation. Also other written policies may be of importance.

### **Responsibility**

Overall responsibility for planning and actions rests with the City Executive Board, the Planning and Building Board, the Traffic and Community Environment Board, Uppsala vatten och avfall AB, and the Rescue Services Board. The Environment and Health Protection Board's work is integrated in the supervisory work on climate change adaptation.

All city boards and companies are affected by a changed climate in their work. The city's property companies Uppsalahem (residential), Skolfastigheter (school buildings) and Sport- och rekreationsfastigheter (recreational amenities) have a special responsibility to be leaders in this area.

Climate change adaptation is to be integrated within all operations in the city organisation and in relevant programmes and plans

**Collaboration**

Active collaboration with the County Administrative Board in Uppsala County and the Region of Uppsala is important. Cooperation is needed with property and construction companies operating in the municipality, with major employers, companies and landowners in the municipality. The universities in Uppsala are an important source of knowledge.

**Follow-up**

Follow-up is to take place within the municipality operating plans.  
Follow-up at an overall level is developed during the programming period.

**Implementation**

Mapping and knowledge of the risks that exist and where they are the highest is a basic need. The prerequisite for successful implementation of climate change adaptation is that there is awareness of the possibilities to take action that gives positive values for people and nature, at the same time as society is becoming adapted to climate change. Resources need to be allocated, both for planning and implementation of actions. Abutment, with knowledge sharing and skills development within the organisation, is required to achieve satisfactory results. Since the work is integrated in municipality operations, and actions are carried out based on several different programmes and plans, it is important to have all-embracing coordination. The municipality is reviewing the possibility to develop information for companies, organisations and other players in Uppsala, with the purpose of giving more people the opportunity to contribute to climate change adaptation work.

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# Ten Milestones for Environment and Climate

The ten milestones for environment and climate shall act as a driving force for a rapid development into a sustainable society and support the overall environmental and climate goals.

**Milestone 1:**

Renewable and climate-neutral heating by 2020.

**Milestone 2:**

Solar energy – from pilot to everyday use: 30 MW solar energy by 2020

**Milestone 3:**

Fossil fuel free municipal vehicle fleet by 2020. Fossil fuel free working machines and climate-neutral procured transportations by 2023

**Milestone 4:**

25% more energy-efficient municipal operations by 2020

**Milestone 5:**

Sustainable procurement for a toxin-free environment by 2020

**Milestone 6:**

100% organic food within the municipality organisation by 2023

**Milestone 7:**

Increase sustainable construction and management

**Milestone 8:**

Sustainable business models, operations and green jobs

**Milestone 9:**

Only bio-based or recycled plastic by 2030 within the municipality organisation, and no new fossil plastic

**Milestone 10:**

More wood and other climate-neutral materials in the construction process by 2030

# Milestone 1:

## Renewable and climate-neutral heating by 2020

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**Target:** Uppsala and Uppsala Municipality's heating energy comes from renewable energy sources or is produced climate neutral/is climate compensated by 2020.

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Fossil fuel oil for heating private homes, residential buildings and premises through stand-alone oil-fired boilers has been almost completely phased out. Remaining oil-fired boilers are estimated to be phased out by around 2020 without further stipulations. The few remaining oil-fired boilers in the city organisation are being phased out in the short term. Increasingly, in the smaller communities, bio-fuel based district heating is installed, through dedicated cooperative work by municipally-owned Uppsalahem and the other municipal companies.

The remaining fossil fuels (transportations excluded) in Uppsala are in Vattenfall's facilities. District heating and cooling are produced there, as well as process steam and electricity. Vattenfall is investing in a new bio-fuel boiler, due for completion around 2020. It replaces the current large peat-fired boiler. The installation in Uppsala will then be mainly fossil fuel free, with two residual items. One is the fossil plastic in the waste that is combusted. Waste is otherwise considered bio-fuel. The other item is the oil-fired boilers providing back-up power when the two large installations are not operational, as well as providing back-up to meet peak demand on days when it is extra cold. Oil use can thus be relatively extensive. The oil-fired boilers are to be converted into bio-oil before 2020.

Plastic content is reduced by increased recycling, waste minimisation and use of renewable materials in the city organisation, as well as the introduction of bio-plastic.

Vattenfall aims for carbon dioxide neutral production in Uppsala by 2030. The city sees a possibility of this happening much earlier – in cooperation with Vattenfall and Vattenfall's other energy customers.

To reduce peak energy demand is a prioritized goal in the council energy plan for a sustainable society. It is both resource efficient and reduces climate impact. Users and producers can share the responsibility. The city organisation therefore seeks cooperation with other major energy customers and Vattenfall to develop and implement methods that reduce peak energy demand.

### **Responsibility**

The City Executive Board. All property owning companies in cooperation with their tenants, and the Traffic and Community Environment Board.

All boards and committees regarding reduced plastic use.

### **Follow-up**

*Community level:* The proportion of heating production based on renewable energy sources compared to total use (MWh) of heating in Uppsala Municipality.

The City Executive Board follows up in cooperation with heating providers.

*City organisation:* The proportion of heating use based on renewable energy sources compared to total use (MWh) of heating energy in the city organisation.

Follow-up is carried out with the municipal software for energy and climate statistics.

### **Conditions for implementation**

It is estimated that plastic comprises about 35–40 % of the heat content in the waste that is combusted. It should be possible to reduce this through further source separation and recycling and by stimulating the introduction of more bio-plastic on the market; but above all by using renewable materials and reusable articles. Waste minimisation and recycling are goals in the waste management plan for Uppsala Municipality, where Uppsala Vatten och Avfall AB has the overall responsibility. Plastic phase-out will take a long time. Regarding the built up stock of fossil plastic, the best alternative is combustion. Therefore in the City Council goals, fossil plastic is undefined. Nonetheless, the municipality and the community shall work to reduce the use of fossil plastic and increase source separation.

Vattenfall uses electricity in its operations and production, for example when recycling waste heat from the water output from the city water treatment plant. If Vattenfall or some other heating provider buys its own produced electricity or product-specified renewable electricity, this part of the heating production can also be considered renewable.

The municipality's buildings are primarily heated through district heating. In some cases electricity is used to extract geo-energy and in a few cases there is only electric heating. The last installations with direct-acting electricity are being phased out in the short-term. The municipality buys certified (Bra Miljöval) electricity or product-specified renewable electricity and is therefore fossil fuel free regarding the existing electric heating. Others are encouraged to do the same.

Vattenfall offers its customers climate-compensated district heating. Today that product comprise heat from waste combustion, where the plastic content is compensated by Vattenfall increasing the proportion of bio-fuel in the peat-fired boiler corresponding to the customer's share. The city administration and municipal companies should consider an agreement on climate-neutral district heating, analogue to how electricity is bought, to become fossil fuel free and to support the overall renewable and climate-neutral goals in cooperation with Vattenfall and other major stakeholders. When peat has been replaced by bio-fuel and Vattenfall's production is thereby essentially fossil fuel free, the municipality in cooperation with Vattenfall should find a new way to compensate for the plastic content and remaining fossil oil if any.

# Milestone 2:

## Solar energy – from pilot to everyday use: 30 MW solar energy by 2020

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**Goal:** By 2020 about 30 MW solar energy effect has been installed, and about 100 MW by 2030.

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Uppsala has a proud tradition in solar energy research – which will now also be seen on buildings and other places with solar cells for electricity production and solar panels for heating production.

One clear planning goal supports long-term work and the aim to achieve a higher degree of solar energy in Uppsala. The goal means both that the municipal companies and boards are to work for the development in their own property stock, and that the municipality is to work for development in the community in general. To achieve the goal all major property owners are required to make a systematic inventory of all roofs and other possible surfaces and build several major installations every year. The contributions of all stakeholders are needed, house owners, tenant owner associations, companies that have their own properties and so on.

The city organisation shall take the lead and a proportionately larger share of the planning goal. The different sub-organisations within the municipality, however, operate under different conditions and may have different target levels.

### **Responsibility**

Those responsible for development within the city organisation are the municipality companies, and the Traffic and Community Environment Board. Boards and committees that are primarily tenants can request solar energy installations.

The City Executive Board and the Planning and Building Board are responsible for the overall planning goal.

### **Follow-up**

*Community level:* Installed effect (MW) solar electricity and solar heating. The City Executive Board.

*The city organisation:* Installed effect (MW) and production (MWh) of solar electricity and solar heating.

The City Executive Board coordinates. Each organisation measures and reports.

Joint reporting and follow-up is carried out via the municipal IT system for energy and climate.

### **Conditions for implementation**

Technical measurement methods must be established in cooperation with electricity grid owners, buyers and installers among other stakeholders. Alternatively, non-compulsory presentation of produced solar energy on a public website, or a combination of them.

Installed effect of 30 MW and 100 MW respectively produces about 30 GWh and 100 GWh respectively. This can be compared to the total energy use in Uppsala which as of the start of the programme was about 1 300 GWh. This would mean using about 3 and 10 percent respectively of the total roof surfaces in Uppsala. This is if only roofs are used – other areas and structural surfaces can and should also be used.

# Milestone 3:

## Fossil fuel free municipal vehicle fleet by 2020. Fossil fuel free working machines and climate-neutral procured transportations by 2023

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**Goal:** The city's own vehicles are fossil fuel free by 2020, the vehicle fleet and procured transportations are fossil fuel free or climate-neutral no later than 2023.

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The municipality has a relatively large number of private cars and light trucks. The proportion of fossil fuelled cars has increased in recent years, since diesel cars, if they are economical and environmentally classed, are replacing older ethanol cars. The existing ethanol cars are to a considerable extent being fuelled incorrectly with petrol instead of ethanol. More gas powered vehicles could be used, since the municipality produces its own bio-gas. The introduction of electric cars and plug-in hybrid electric cars has begun and is expected to have an impact in the coming years. But this requires systematic, coordinated work. A high proportion of renewable bio-oil has in recent years been added to diesel fuel. IT support for travel-free meetings, carpools and other rationalisations are important means to achieve the goal. There is a need for clearer incentives and controls to achieve the goal of a fossil fuel free vehicle fleet and working machines. In addition it is of the utmost importance that the incentives also have positive effects on air quality in the town.

The municipality procures different types of transport services involving both heavy and light vehicles, for example waste transports and mobility services. There is also a lot of indirect transport arising from different procured products and services, for example callouts for lifeline alarms. There is a good deal of transport in construction and installation projects, which also includes working machines. There is large scope here to make stricter demands on energy streamlining and renewable fuels as well as electrification. The municipality's coordinated internal goods distribution is a successful example, which is being further developed.

The rate of development is expected to increase when the government investigation (2013) for a fossil fuel free vehicle fleet by 2030 is complete. With the city taking the lead by setting an earlier target date and a more ambitious target, Uppsala can become an attractive place for innovation and business development within the transport sector, and can bring together the forces and ideas needed to achieve the goal. Cooperation with local business, the regional authority Region Uppsala and the University are a prerequisite, where common aims are a success factor.

### **Responsibility**

*Own vehicles:* The City Executive Board coordinates the work. All boards and companies that lease or buy vehicles.

*Directly procured transport:* Procuring boards and committees.

*Indirectly procured transport:* The City Executive Board develops methods and coordinates. Procuring boards and committees.

*Community level:* The City Executive Board and the Traffic and Community Environment Board.

**Responsible for follow-up**

The City Executive Board, procuring organisations and those that own/lease vehicles.

**Follow-up**

The number and proportion of fossil fuel free vehicles in our own vehicle fleet and machine pool.

Procured transport, and climate-neutral procured transport.

Own/leased private cars, working machines and light trucks are in addition followed up with regard to energy use and climate impact.

**Conditions for follow-up**

The fossil-fuel free goal must be understood principally. For example, an ethanol vehicle is considered fossil fuel free even if there is a small content of petrol in E85. In production too, fossil fuels are used. State regulations and the municipality set increasingly higher requirements for climate and environmental benefits in the procurement of fuels. This is however not directly included in follow-up of the goal.

**Conditions for implementation**

It will be difficult to achieve the goal of fossil fuel free procurement of transport by 2023 – both direct and indirect transportations – through direct requirements on vehicles or other solutions. Neither will it be fully possible due to stipulation in the Public Procurement Act. The goal is therefore climate-neutral transport. The municipality will develop its procurement methodology to set requirements for "green fuel" for the corresponding municipal part of the transporter's mileage. That is to say, a transporter does not need to drive on environmental fuel when delivering for Uppsala Municipality, but the municipality commits to a volume corresponding to the transporter's total volume. There are already legal provisions for a similar system with regard to fuel gas. Regarding transportations in the town centre, the aim shall always be for with the best health-related properties, or electric power for the best air quality.

The category procured snow clearance vehicle is exempted from goal achievement but included in the development work. For this category, the priority is fuels that promote good air quality in the town centre.

# Milestone 4:

## 25% more energy-efficient municipal operations by 2020

To be able to phase out fossil fuels for renewable fuels and move towards a society with low environmental and climate impact, energy efficiency is required. This is important so that the production of renewable fuels and renewable energy will suffice.

Energy efficiency is economic and ecological resource efficiency, and the basis for a more life-cycle oriented community. In a municipal economic perspective, a far-reaching increase in energy efficiency is central to freeing funds for other energy or environmental investments which are not immediately profitable in the traditional sense.

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**Goal:** The goal of city boards and committees is for increased energy efficiency corresponding to at least a 25% reduction by 2020 with base year 2014. Increased efficiency goals for direct energy use are set after evaluation in 2014.

The total amount of the city organisation's direct energy use in absolute numbers must at most be unchanged in 2020 compared to 2014.

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Most of the municipality's operations require energy, either direct energy like heating and electricity or indirect energy used for services and products that the municipality procures or uses. The use of indirect energy is estimated to be considerable.

With the exception of transportation, much of the direct energy efficiency goals for buildings (20% measured in kWh/m<sup>2</sup>) have previously had intra-municipal goals for 2016 compared to 2008. These goals are evaluated in 2014 and new goals set for 2020 with 2014 as the base year. The goals shall be based on different conditions under which different boards and committees work.

### **Responsibility**

All boards and committees.

### **Follow-up**

Follow-up measurements are defined by each board and committee. The City Executive Board compiles the goals and results.

The municipal software for energy, climate and environment statistics is used for the committees' and boards' follow-up.

At programme start-up, the joint follow-up encompasses building management energy, own vehicles and business trips by air and rail, but it is gradually being expanded for external contractors and suppliers. Today, transport operations within home care services are followed up. The software has functionality to also handle indirect energy and climate /environmental impact.

### **Conditions for follow-up – indirect energy**

For indirect energy, each department must identify the likely biggest items and set its own goals. The goals are set as key indicators that are relevant to each operation (students, turnover, etc.). In many cases this can be done in a straightforward way: “reduced waste generation by 25% per user”. In other cases it can be deemed probable that a reduction of at least 25% can be achieved through a certain action, for example when disposable articles are replaced by reusable articles.

In a number of cases, it is worthwhile after evaluation to translate material purchasing expressed in weight or volume into energy use, and environmental and climate impact in a life-cycle perspective. This applies among other things to construction and installation projects. Here a pilot project in street renovation has shown the way, in which the software for energy and climate was used. The pilot project showed that the climate impact from working machines was only one-third, while indirect climate impact from concrete (1/3) and asphalt (1/3) etc. constituted two-thirds. Systematically following up makes it possible in project procurement to not only set requirements on time, money and quality, but also require an energy budget.

# Milestone 5:

## Sustainable procurement for a toxin-free environment by 2020

Reducing the risk of exposure to and spread of chemicals is one of the biggest environmental challenges of our time. There are chemicals in water, the ground, the air and in our bodies. Research shows that several of the chemicals found in food, textiles, furniture, packaging, cleansing and hygiene products, building materials and so on have negative health effects on people, animals and nature. The negative health effects lead to both considerable personal suffering and economic consequences to society.

Children are particularly vulnerable to chemical exposure. Their biological development in combination with physical activity and social behaviour gives rise to exposure patterns that differ from those of adults. Small children drink more water, eat more food and breathe more air per kilogramme of bodyweight than adults. Small children bite and suck things, exploring their world, and staying close to floor level and being in other ground-level environments. All this means that in relation to their bodyweight, children risk ingesting greater quantities of chemicals than adults do. Children are generally sensitive to chemical exposure during certain periods of their development and growth. Serious injury can arise from exposure during the foetal period, during the child's first year and on into puberty. This applies particularly to damage to the nervous, reproductive, endocrine (or hormone) and immune systems. Data from recent years also indicate an increased risk of cancer from chemical exposure during the foetal stage<sup>3</sup>.

Uppsala Municipality is contributing to the phase-out of environmentally hazardous and health-threatening substances by participating in mapping and decontaminating polluted areas and buildings, informing and supervising companies, public operations and individuals, and by carrying out measures that reduce air pollution in the town centre, increasing the proportion of organic food in municipally-funded operations to a 100%, increasing incentives for toxin-free construction, focusing on toxin-free nursery schools and other internal environmental work, and by setting requirements in procurement.

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**Goal:** By 2020, all procurement of goods, services and contracting shall follow the advanced requirements of the National Agency for Public Procurement or similar, with focus on reduction, substitution or phase-out of environmentally hazardous or health-threatening substances.

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The goal is closely tied to and carried out in collaboration with the intentions of Uppsala Municipality's procurement policy.

There will be special focus on measures that can reduce the exposure of children and young people.

### Responsibility

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<sup>3</sup> [www.kemi.se](http://www.kemi.se)

The City Executive Board and all boards and committees.

**Follow-up**

Quality follow-up requirements concerning environmentally hazardous and health-threatening substances in agreements where relevant. The first review takes place in 2014 (zero-measurement). Subsequent follow-up every third year.

**Responsible for follow-up:**

The City Executive Board.

# Milestone 6:

## 100% organic food by 2023

By consuming food in a sustainable and resource efficient way we reduce the spread of and exposure to environmental toxins in our community, favour biodiversity, promote animal protection, contribute to better health and reduce climate impact. Children are particularly vulnerable to chemical exposure, and increasing the proportion of organically produced food for children has especially high priority.

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**Goal:** Organically produced food in operations funded by Uppsala Municipality amounts to 100% by 2023.

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### **Responsibility**

The City Executive Board and all boards and committees, primarily the Education Board, Senior Citizens Board, Social Care Board, Uppsala Konsert och Kongress, Fyrishov and Stadsteatern.

### **Follow-up**

Proportion of procured food in SEK.

### **Conditions for implementation**

The goal means that for the procurement in each operation and department, from foodstuffs and ready meals to buns and pastries, only organic food will be requested. By changing the focus of the goal, from increasing in stages to a 100%, conditions are provided that simplify goal achievement. The municipality is now targeting market stakeholders who focus on organic products. It is considered that they can give both better quality and lower prices through the increasing volumes of organic products demanded.

One challenge is that there should be a sufficiently large supply of organic foods on the market. The supply is continuously growing, but compared to food grown in the traditional way it is relatively small. Experience from other municipalities shows that when major stakeholders demand organic, it raises the rate of transition. Through clear goals and strong demand we affect the supply. This shows the importance of communicating with the market.

Greater volumes will give lower prices. However, quality, animal and environmental considerations lead to a higher cost level nevertheless compared to conventional production. Therefore, knowledge of organic food is important, as is knowledge of how the menu and meal composition can be adjusted to stay within budget. Seasonal adaptation, an increased proportion of vegetables, reduced food wastage and preparing food from whole ingredients provide conditions for ecologically, as well as economically and socially, sustainable development.

A joint concerted effort is needed to achieve the goal. Mapping, education and communication are important components. The work is initially carried out in a project with collective forces working together with the sections of the municipality that are affected. One pre-condition to achieve the goal is that procurement of foodstuffs support the development, for example by separating procurement of transportation from procurement of food. In that way we also enable smaller suppliers to submit tenders. An introduction plan will be produced during spring 2014.

# Milestone 7:

## Increase sustainable construction and property management

Uppsala is a growing municipality, in great need of new residences. At the same time, older stock needs to be renovated. To build and renovate sustainably is prerequisite for human health and the environment. Construction represents about 40% of the total energy use in Sweden, and is largely responsible for the spread and exposure of chemicals in society. Sustainable construction encompasses both social and ecological aspects, with good social and business economics.

The physical design of the community has major significance to how much energy is used, and thereby the extent of climate and environmental impact. Coordinated construction and traffic planning are required to create a long-term sustainable and attractive community. Holistic solutions must be striven for to make structures resilient to climate change.

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**Goal:** Uppsala Municipality's work to promote toxin-free, resource and energy-smart buildings and building maintenance has made Uppsala one of the leading municipalities in Sweden regarding sustainable construction by 2020.

*Goal achievement requires among other things that:* a non-compulsory programme for construction and renovation, is to be set up together with the construction businesses by 2016 and successively implemented. All exploitation projects on municipal land must develop and implement programmes for sustainable construction in collaboration with the municipality.

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In the Comprehensive Plan 2010 it is stated that the municipality shall actively develop a programme for reduced and more efficient energy use in new buildings and renovated older buildings in cooperation with other stakeholders in society and focus on low-energy housing technology. Here the aims are broadened from covering energy in new and altered constructions to also include existing buildings and encompass all aspects of sustainability and especially toxin-free and resource-saving choices of material.

Through the project in Östra Sala Backe, with ambitious climate and sustainability visions, Uppsala Municipality has for the first time, together with the developers in Stage 1, designed a sustainability and quality programme for a development area/new construction area. Sustainability work has thereby taken a big step forward in Uppsala. The work is being further developed in subsequent stages and in other fields.

To achieve a breakthrough for sustainable building and renovation with ambitious thinking in a larger proportion of the construction projects carried out in Uppsala, there is a need to reach an agreement with the construction and property management industry on a general sustainability programme, also involving other stakeholders.

From the environmental aspect of sustainable constructing, we have selected five strategically important areas:

(1) sustainable transportation and travel, (2) environmental impact and energy use from materials and in the construction and installation process, (3) toxin-free choices of material, (4)

life-cycle oriented materials, for example solid wood in entire buildings and other objects, and (5) steps towards so-called nearly zero-energy buildings.

The programmes are to stimulate the use of new technology and new solutions, which in turn benefit research and business development.

One of the EU energy directives stipulates that no later than 31 December 2020, all new construction, private and public, must be so-called nearly zero-energy buildings. Already by 2019, all new publicly-owned buildings are to be nearly zero-energy buildings. At programme start-up it is unclear how the final system of regulations will look in Sweden, but the EU has high ambitions, for which the municipality is making provision. The aim in stage one is a half the energy need compared to the building norms of 2012.

### **Responsibility**

*Overall:* The City Executive Board, the Planning and Building Board, the Traffic and Community Environment Board, Uppsala Vatten och Avfall AB.

*Programme for sustainable building and renovation:* The City Executive Board (MEX), the Planning and Building Board, the Traffic and Community Environment Board, Uppsala Vatten och Avfall. Collaboration is needed with Uppsalahem, Uppsala kommuns fastigheter AB, other municipal property management and the social welfare boards.

### **Follow-up**

*Overall:* The City Executive Board, the Planning and Building Board, the Traffic and Community Environment Board, Uppsala Vatten och Avfall AB.

An overall assessment of implementation is carried out with regard to scope and level of ambition, and of the results from performance and environmental status and other suitable parameters.

*Programme for sustainable building and renovation:* The Planning and Building Board. Proportion of plans for new constructions with applied sustainability programme.

### **Conditions for implementation**

In Östra Sala Backe the municipality owns the land and can therefore in the exploitation agreement ratify the agreed sustainability programme on a civil law basis. Unlike certain other municipalities, Uppsala Municipality does not own large areas of land. To achieve sufficient impact for sustainable construction at a higher level in a major proportion of the construction projects carried out in Uppsala, a general, non-compulsory sustainability programme needs to be agreed upon with the construction and property industry overall, where other stakeholders are also involved. Primarily, Uppsalahem needs to be involved, but also other municipal companies. Uppsala Climate Protocol and similar collaboration arenas are important for the establishment of a sustainability programme.

The major energy use is in existing properties. Today there is a lack of energy requirements at a national level. Energy requirements exist only for new structures, which constitute only a small part of the property stock.

# Milestone 8:

## Sustainable business models, operations and green jobs

To meet the environmental and climate challenges requires that public and private sector operations make sustainable development their core, so that the development stays within the planetary limits. That means that both the business community and the public sector should run environmentally and climate-driven businesses.

A business sectors that offer innovative as well as environmentally and climate-efficient products and services create growth and job opportunities. Uppsala Municipality has a unique opportunity through our collective resources in the form of two universities, a well-educated workforce, public sector operations with high ambitions for the introduction of new environmental engineering, and a business community that is active and skilled within the field.

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**Goal:** By 2023, Uppsala Municipality is one of the best municipalities in Sweden in environmentally and climate driven business and operations development, through efficient collaboration between local businesses and the community.

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Uppsala Municipality works to support environmentally and climate driven business development in local businesses, among other things through procurement with environmentally oriented and innovative aims, the STUNS network, the effort to support effective networks for the development of environmental engineering, concrete research collaboration projects between the two universities, ongoing test bed projects for proving and verifying new environmental engineering, process management of and participation in the Uppsala Climate Protocol, owner directives to the municipality's companies, Destination Uppsala, The Farmers Market and so on.

Environmentally and climate-driven development of municipal operations gives support and improves conditions for parallel development in business sectors.

### **Responsibility**

The City Executive Board, and all boards and committees.

### **Responsible for follow-up**

The City Executive Board.

### **Follow-up**

Completed activities with the purpose of contributing to the goal.

Number/ proportion of job opportunities in the green sector.

Economic growth for Uppsala companies within the environmental engineering sector.

### **Conditions for implementation**

Work is carried out in coordination with the City Council's business programme, and made operational through the action plan for a leading business municipality.

# Milestone 9:

## Only bio-based or recycled plastic by 2030, and no new fossil plastic

Plastic has been in existence for several hundred years and is today a part of everyday life. About 900 000 tons of plastic are used in Sweden every year. It is in everything from packaging, plastic bags, electronics and sewage pipes to toys, building material and clothing. Plastic can be manufactured from fossil oil or renewable raw materials, and after use can be recycled as material or energy. Plastic is functional and contributes among other things to lighter packaging for transport, increased safety for electronics and reduced food wastage. It is also used for important applications in medical care. Plastic brings benefits to the community, and to the environment/climate, but also has negative effects on the climate, health and the environment.

To reduce harmful effects from plastic, Uppsala Municipality will reduce its purchasing of products containing plastic. Instead, the municipality will use renewable materials or durable materials. Where there are no alternatives, fossil raw materials will be replaced by recycled or renewable raw materials. When possible, disposable products will be replaced by reusable products or disposable products with a lower climate impact. So-called decomposable or compostable plastic will be completely avoided, since it decreases the possibility of material recycling. It is environmentally sound to use products that are made of, or contain, plastic, including fossil plastic, as long as possible before recycling them.

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**Goal:** When acquiring new products containing plastic, the plastic shall come solely from recycled or renewable raw materials by 2030. The goal applies both to the municipality's own purchasing and to the procurement of operations.

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This applies to all municipal operations: schools, social care, offices, and in particular construction and renovation. Developing municipal operations can be required to find and introduce other solutions, or be able to move on to other materials. Increased knowledge about plastic creates the necessary commitment to achieve the goals.

Uppsala Municipality is to work, both within the city organisation and in the municipality geographically, to increase source separation and sorting of waste to enable a higher degree of material recycling of plastic, both fossil and bio-based.

### **Actions and sub-goals**

By 2020, the municipality's boards and companies shall have removed at least three product groups containing fossil plastic, inventoried their use of plastic in their own and their procured operations, and produced an action plan for achieving the goals for 2023 and 2030.

By 2023, climate impact from newly acquired products or product groups containing plastic shall be halved compared to the situation at the inventory of the use of plastic which is to be carried out by 2020.

A halved climate impact can be achieved either by replacing fossil plastic with bio-based plastic, or by ensuring that used plastic goes to material recycling and not to energy recycling. Methods to calculate actual and reduced climate impact are being jointly developed in the municipality.

One possible risk is that in 2030 there will be no alternatives to certain specialised applications. Identification of these takes place during the inventory in 2020 and at the review of the goal in 2023. Joint development work will then be started to develop alternatives.

### **Climate impact**

Plastic is manufactured almost solely of fossil crude oil, which means that greenhouse gases are released upon combustion. Today most of the used plastic is energy recycled in combustion plants. The annual carbon dioxide emissions from energy recycling of waste with fossil plastic at the heating plant in Uppsala are equal in quantity to almost a year's emissions from passenger transport in Uppsala. The proportion of plastic among total emissions in Uppsala in 2015 was around 15%. As other fossil fuels for energy and transport in Uppsala are phased out, the proportion of plastic among local greenhouse gas emissions can rise to over 50% after 2030 if nothing is done.

### **Environmental and health impact**

Additives in plastic can be endocrine-disruptive and toxic to both people and animals. Plastic that ends up in watercourses and the sea accumulates in large quantities both in ocean currents and on beaches, causing considerable injury and damage to the environment, people and animals. Regardless of whether the plastic is made of fossil or renewable raw materials, or of recycled plastic, it can contain harmful additives. Milestone 5, sustainable procurement for a toxin-free environment, deals with this issue.

### **Microplastics**

Microplastics are particles less than 5 mm in size which are released from plastic, for example from littering, clothing and artificial grass surfaces, regardless of whether the plastic is made of fossil or renewable raw materials. They are difficult to remove with filters in water treatment plants and bio-gas plants, and end up in watercourses, where aquatic animals mistake them for food. The microplastics that are filtered out often end up in sludge which is then spread on fields and disseminate in nature. It is suspected that microplastics can bind and transport metals and other harmful compounds via water<sup>4</sup>.

### **Responsible for the target and follow-up**

The City Executive Board and all boards and municipal companies.

### **Follow-up**

The City Executive Board provides support and coordination in the work through guidance in inventorying, calculation of climate impact and action plans. Environmental Product

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<sup>4</sup> The report *Allt du (inte) vill veta om plast* (Everything you (do not) want to know about plastic) by the Swedish Society for Nature Conservation (2014)

Declarations (EPDs) for products will be requested. The boards and companies follow up their action plans and report to the City Executive Board.

### **Implementation**

In the Uppsala Climate Protocol, cooperation has been established between members in the focus group "The Hunt for Plastics". The purpose of the focus group is to increase awareness about plastic and to increase commitment for a sustainable use of plastic. The municipality together with the pharmaceutical company Fresenius Kabi, Region Uppsala, Uppsala Parish and others has begun development work to identify and phase out fossil plastic through a dedicated procurement process. One of the participants is Vattenfall, which is to become climate-neutral by 2030. Cooperation has begun with other municipalities in the Mälardalen region.

In the building process, toxin-free and climate-aware choices of material shall be made by using life-cycle analyses and environmental valuation systems. It is important to increase reuse and material recycling of plastic both in the production stage and in renovation or demolition. Environmental and climate criteria shall be added in tender documentation and the land allocation process. The same methodology should be used in all sectors.

The negative effects of plastic and low degree of recycling came into the spotlight internationally, in the EU and nationally in 2016–2017. Strategies and actions are now being reviewed at all levels. New instruments are being introduced and many more are needed. It is central to the work to shift the focus towards increased material recycling.

Noted problems affecting increased material recycling are that a product can contain several sorts of plastic, that the plastic contains several harmful additives, or that it is coloured. There is a need for technological development for material recycling, substitution plans for hazardous substances that occur in plastic, and better marking of plastic. Within product formation and design, alternative choices of material, use of secondary materials and product disassembly need to be developed. All products will not be recyclable through current recycling technology. In the long term therefore, there is a need to complement with chemical material recycling. In refineries for recycling plastic, the plastic can be reduced to molecule level, which enables all plastic to be material-recycled and formed into new products. In that process, recycled heat can be utilised.

The basic problem is that used plastic today loses 90% of its original value. Change is needed along the entire value chain for the economic value to be maintained. Both at municipal and national level, efforts can be made throughout the value chain, in cooperation with the plastics industry, forestry and research. Uppsala can contribute to creating new industrial opportunities by working for plastic to become new material, contributing to the development of plastic recycling refineries, and an increased circular regional economy.

# Milestone 10:

## More wood and climate-neutral materials in the construction process by 2030

The construction industry produces about 20% of the greenhouse gas emissions in Sweden<sup>5</sup>. Uppsala is a growing municipality with a considerable need of new housing, buildings and infrastructure. The climate impact from the construction industry must therefore decrease for Uppsala to become climate positive by 2050. The impact comes above all from extraction and production of building and installation materials. Transport to building sites and working machines also has considerable climate impact.

Uppsala is focusing on reducing climate impact from concrete and using more wood. In 2015, about 10% of the apartment buildings in Sweden were built with a wooden frame and there is capacity to build half of all apartment buildings in wood by the year 2025<sup>6</sup>. Uppsala Municipality can steer its own production and ordering of structures and installations in the desired direction and affect changes in the planning process through allocation of its own land.

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**Goal:** In town planning projects with land allocation and in the city's own production, half of the completed structural volume shall be of wood by the end of 2030, and climate impact from concrete shall be at least 50% lower by 2030 compared to 2017. In addition, the concrete shall be climate-neutral by 2030.

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*Structural volume includes new constructions and major alterations and extensions. Detached houses are not included in the statistics, since they are presumed to be largely constructed of wood. By "constructed of wood" is meant that at least the framework is mainly of wood-based material. In alterations, major sections shall be built of wood.*

### Actions and sub-goals

From 2020, the municipality shall make the requirement that the climate impact for new construction projects is presented. From 2023, the municipality shall make the requirement that the climate impact from construction and installation projects shall be reduced. The level is set upon revision of the Environmental and Climate Programme 2020.

To successively reduce the climate impact of concrete, the impact shall be 10% lower by 2020, 30% lower by 2023, and 50% lower by 2030, for all concrete in comparison with the standard Environmental Product Declaration (EPD) for concrete products used for beam layouts in 2017.

To increase the proportion of wood in the municipality's own production, at least one wood-based project shall be started by 2020. By the end of 2023, at least 30% of the started structural

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<sup>5</sup> The National Board of Building, Housing and Planning, 2015, *Utsläpp av växthusgaser från bygg- och fastighetssektorn* <https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuell-status/vaxthusgaser/>

<sup>6</sup> Linköping University, 2017, *Industriellt byggande i trä – nuläge och prognos mot 2025*

volume (foundation complete) in urban building projects with land allocation and in the municipality's own production shall be of wood.

### **Wood**

In a climate perspective, wood is a good building material. Wood is renewable, and binds carbon dioxide in the structure, which creates a so-called carbon sink. Wood is light, which means that transport of building components has a lower climate impact than with heavier materials. Constructing in wood brings shorter production times, which can also give lower production costs. When extending existing constructions, wood has the advantage of lower weight and smaller load on the construction. The challenges that exist are to meet the requirements regarding fire, moisture and acoustics. With an increased wooden production there is a risk that biodiversity is affected, therefore it is important to make demands on sustainable forestry.

An increased number of wood constructions creates jobs in the forestry industry, in sawmills and in wood production plants. Sweden's experience of modern wood construction technology means opportunities for increased export of raw materials, the construction process, technology and know-how.

### **Concrete**

Concrete is a functional and durable material that requires little maintenance and of which the construction industry has much experience. It has good strength, it is malleable and there are standardised construction methods that make it simple to meet the requirements regarding fire, moisture and acoustics.

Concrete consists of ballast (a mixture of gravel and sand) and cement, which is manufactured from the fossil material limestone. The use of concrete has considerable climate impact both through high energy use in manufacturing and through the release of carbon dioxide when transforming limestone into cement. The concrete industry has reduced carbon dioxide emissions through product development of cement and increased energy efficiency in cement kilns. Parts of the cement can to some extent be replaced by other materials, for example fly ash. Renewable fuels can be used to a greater extent in the whole production chain, from extraction and crushing of stone/ballast, in cement manufacture, and in transport.

The concrete industry has high ambitions and is working to further reduce its climate impact and become climate-neutral within a few decades. The cement industry in Sweden has the target "zero carbon dioxide emissions during the concrete life cycle by 2030".

### **Plastic and asphalt**

Besides concrete and steel, the use of asphalt and plastic has climate impact in the construction industry. Plastic is used both in packaging and as building material. The targets for plastic, which also includes builders' plastic, are found in Interim Targets 5 and 9.

Asphalt contains the fossil oil product bitumen. The greatest proportion of climate impact occurs during manufacturing through the use of heating oil. In the manufacturing process, reduced temperatures and renewable fuels can reduce climate impact. The challenge is to achieve product development leading to cold-manufactured asphalt with cold spreading, maintaining good functional properties. Asphalt usually consists of 10-30% recycled asphalt, and there are several environmentally adapted types of asphalt on the market which contribute to lower carbon dioxide emissions. Uppsala Municipality strives to use asphalt with a high proportion of recycled product and low climate impact.

## **Responsibility**

Responsibility for the goals in community planning projects lies with the Planning and Building Board, Traffic and Community Environment Board, and the City Executive Board.

Responsibility for the goals for the municipality's own production or for procurement lies with the municipal companies active in building and installation and the boards which are major procurers of buildings and facilities. The latter applies mainly to the Education Board, Sports and Recreation Board, and the Traffic and Community Environment Board.

## **Follow-up**

The number of projects in which wooden frameworks are used is followed up in connection with administration of building permits. Presentations of which material or materials are used for most of the building's load-bearing sections, including the proportions of each respective material, are to be submitted no later than the technical consultation phase.

Reduced climate impact from the use of concrete in construction shall be based on presentations of the EPD declaration for concrete products.

No later than the time for technical consultation, the developer shall present work done to reduce climate impact from concrete in specific projects. The presentation shall include the effects of the work compared to the reference scenario according to the description in the Milestone.

The companies and boards present their work with the goals in their ordinary reporting.

## **Implementation**

In new construction and installation projects, demands for life-cycle analysis (LCA) for the product stage and construction stage of the construction process shall be introduced by Uppsala.

Guidelines for presenting LCA shall be developed. The National Board of Housing, Building and Planning is reviewing a national introduction of LCA in the construction process. It means that there may be legislative requirements to present climate impact. However, it is not certain that requirements will be made via construction regulations or similar ordinances to actually reduce climate impact or to build in a more climate-friendly way.

Technical consultants need to be well informed of developments to be able to support operations and developers with LCA. Companies and involved boards need to develop general skills in the field. Above all, a strategy is to be worked out to enable making demands for lower climate impact, and determine the stages in the process in which this is to take place.

One prerequisite for achieving the goals for construction in wood is that development plans are material-neutral and based on function. Wooden buildings may need double-height beam layout and therefore need to be higher than concrete buildings, a prerequisite that may need to be considered in the development plan. More knowledge and experience is also needed regarding how fire, moisture and acoustic requirements are best met when building in wood. For example, measurement methods for acoustics today are designed with concrete as the chosen material.

To reduce climate impact in the construction programme requires development in design, technology and constructions. This is needed to develop products with a lower climate impact and construction components in other materials, with increased reuse of building materials. Further methods are more effective construction solutions and careful calculation of ordered volumes to avoid wastage and unnecessary over-dimensioning.

Uppsala Municipality shall have local and regional support from the universities and industry, for example through postgraduates in the industry, and dialogue on wooden constructions with relevant education departments. Wood production plants are a prerequisite to enable delivering sufficient quantities of building parts, and several have started in recent years throughout the country. The establishment of the manufacture of building frameworks and building sections in the Mälardalen district means operations development and the creation of new jobs, at the same time as the climate impact from long-distance transportation is reduced.

# Prioritised areas

## Sectors

The Environmental and Climate Programme prioritises three sectors:

- Transportation
- Construction
- Production & Consumption

## Work methods

The Framework for Ecological Sustainability identifies four prioritised work methods to develop Uppsala Municipality into a sustainable community.

- Collaboration
- Climate-friendly choices
- Promoting new technology
- Systematic work methods and follow-up

These four work methods are the municipality's strategic choices to achieve results within the sectorial areas. Each sectorial focus is processed with the help from all the work methods. For example, the municipality shall not solely collaborate in a general way, but must also find collaboration for each sectorial focus, to give a clear effect within respective sectors.

## Selective geographic focus

To achieve increased impact for ecologically sustainable development there is a need for a collected effort in addition to general work with all or many environmental issues in a delimited part of the Uppsala – a selective geographic focus. Work with social sustainability and ecological sustainability gives mutual reinforcement for good local development.

The Framework for Ecological Sustainability indicates two input areas which also the Environmental and Climate Programme shall contribute to and drive:

- A sustainability programme for development areas
- Urban district development in identified areas, integrated with ecological sustainability

# Environmental and Climate Programme input map – strategic input areas

The strategic input areas collect and focus municipal efforts to achieve impact in a number of central areas with the purpose of achieving the environmental and climate goals. The input areas have an overall municipal geographic and city organisational perspective with focus on systemic solutions. The input areas largely reinforce the work with the preparation of comprehensive plans, other ecological programmes or plans, and the municipality’s sectorial plans. The map is subject to change.

Priority areas	General	Transport	Structures	Production and consumption
<b>General</b>	<p><b>Geographic focus</b> <i>Urban district development</i></p> <p>Sustainability programmes for development land areas</p>	<p>Developed public transport</p> <p><i>Sustainable travel – joint efforts</i></p> <p><i>Efficient freight transportation and distribution</i></p>	<p>Miljonprogrammen (large scale affordable housing) – half the energy, all the benefits</p> <p>Transport-saving planning</p> <p>Nearly zero energy buildings</p> <p>Toxin-free and resource smart</p>	<p>Energy-autonomous farms</p> <p>Locally produced food</p> <p>Toxin-free nursery schools</p> <p><i>Ecotourism</i></p>
<b>Partnership</b>	<p>Uppsala Climate Protocol</p> <p>Climate Municipalities</p>	<p><i>Sustainable travel – collaboration</i></p> <p>Rail taxi municipalities and tram towns</p> <p><i>Cooperation developed with other cities</i></p>	<p>“Creating tomorrow” – construction and property industry for sustainable development</p>	<p>Chemical-smart region</p> <p><i>Leader – environmentally driven rural development</i></p> <p><i>Sustainable business and operations development</i></p>
<b>Climate aware choices</b>	<p>Communication:</p> <p>The municipality makes it easier for you to live and work in an environmentally aware manner.</p> <p>Education for sustainable development</p>	<p><i>Sustainable travel – traveller’s choice</i></p> <p><i>Challenge others: fossil-free vehicles and transport</i></p> <p><i>Develop solutions for large-scale carpool systems</i></p>	<p>Waste – minimising and recycling</p>	<p>Be closer to food and nature</p> <p>Reduce food wastage</p>
<b>New technology and solutions</b>	<p>Development of environmental engineering industry</p>	<p>Fossil fuel free public transport</p> <p>Electrified transportation</p>	<p><i>Sun energy on "every" roof</i></p> <p><i>Smart grid – for electricity and heating</i></p> <p><i>Solid wood as construction material</i></p>	<p><i>Bio-gas – manure fermentation</i></p>
<b>Systematic work and follow up</b>	<p><i>Roadmap climate-neutral Uppsala</i></p> <p>Sustainable procurement</p>	<p><i>Installation and operation contracting – environmental requirements and climate budget</i></p> <p>Travel and conference guidelines – implementation</p>	<p><i>Construction material – toxin-free, energy efficient and with low climate impact</i></p>	<p>Sustainable food in the canteen</p> <p><i>Ecological footprint</i></p>

**Legend:** Input areas that are ongoing and which should be further developed or strengthened.

**Cursive:** Completely new input areas or areas that were in principle undeveloped in 2013 and should be radically developed are marked in cursive.