

The municipality of Härnösand presents

Climate Adaptation Plan

THE FUTURE OF HÄRNÖSAND IN A CHANGING CLIMATE



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kommun

Acknowledgements



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In addition we would like to express gratitude to the following for their assistance and contributions to the Climate Adaptation Plan:

- The Adaptation Working Group for the Municipality of Härnösand and Mid Sweden University and Sundsvall for the support
- County Administrative Board of Västernorrland, Sweden
- The CLIMATE Programme Partners



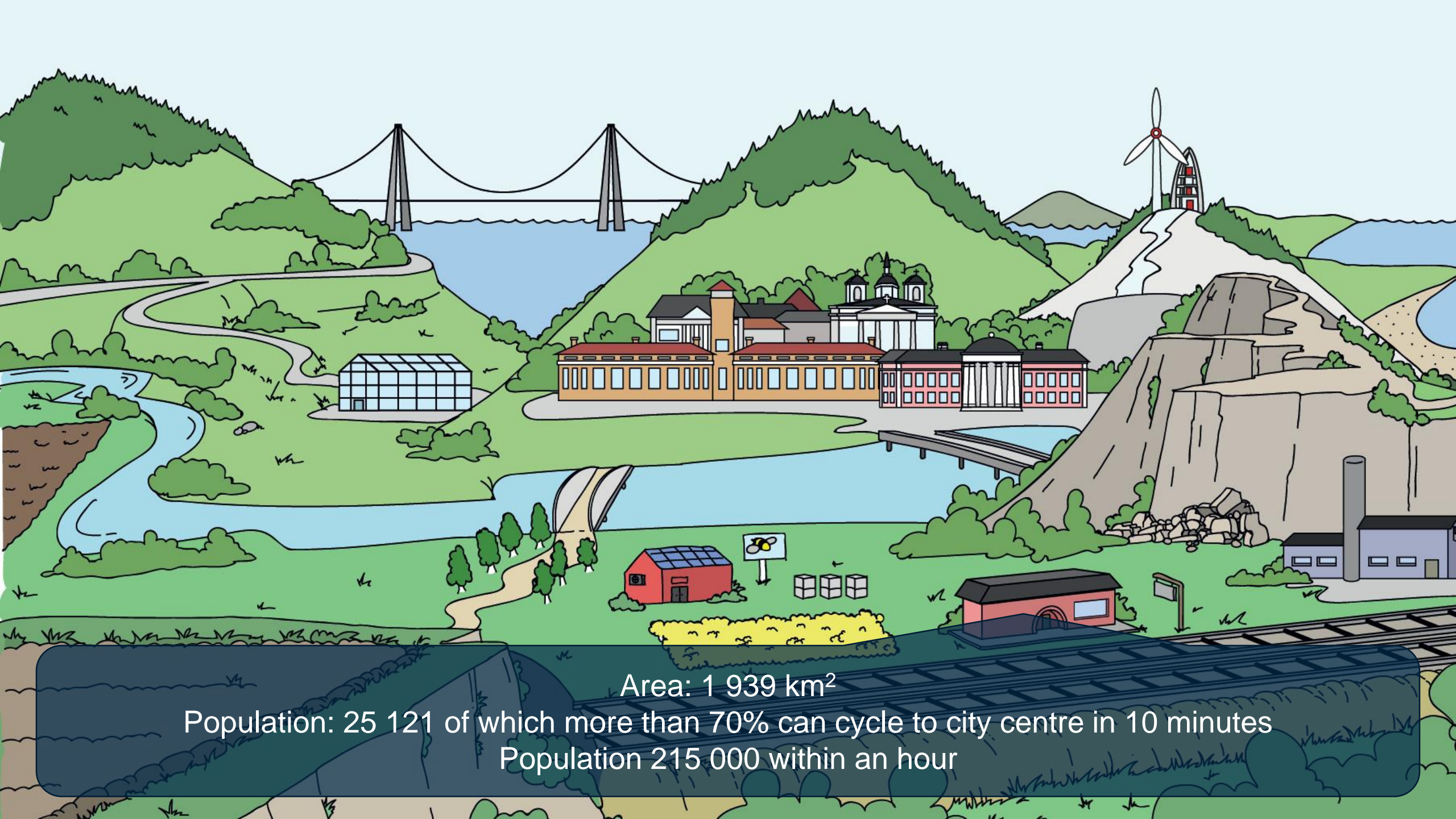
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CLIMATE

Adapting to Change





Area: 1 939 km²

Population: 25 121 of which more than 70% can cycle to city centre in 10 minutes

Population 215 000 within an hour

Forward – Chief Executive

We are experiencing a climate that is changing. Our society is already affected today and will be affected in many different ways by climate change in the future and therefore we need to work strategically to adapt to change.

The climate adaptation plan is intended to function as a support office in the continued work with climate adaptation in our operations and services.

Working with climate adaptation is an important part of the work to strengthen and ensure a robust society, while at the same time creating opportunities for development.



Lars Liljedahl, Municipal Chief Executive
Municipality of Härnösand, Sweden



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Did you know that 2019 was the hottest year on record, ever?

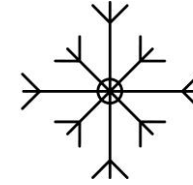
Outlook for Härnösand in short 2100



Mean maximum temperatures will increase 2-3 ° C



Specially autumn and winter can cause problems



Less days with snow cover and ground frost



Slight decrease in the number of zero-crossing



Extreme flows in major w-ways, not expected increase



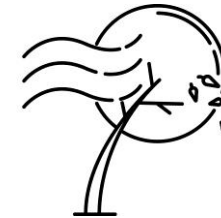
Growing seasons will increase with about a month



Situations with heavy rain to increase, 10-15%



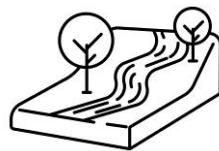
Slightly increase of sea level after year 2080*



Uncertain trend of the highest wind speed



and increase of cloudburst with a return time of 10 years



Land rise compensate 8 mm a year



Uncertain trend of thunder, may increase

* extreme water levels are estimated to increase slightly and reach 144 cm above today's average water level at Spikarna/Draghällan for the period 2071-2100

You hear about the Arctic sea ice tracking near all time lows. Glaciers melting and rising sea levels.



MITIGATION
Prevent
Climate Change


ADAPTATION
Adapt
to change

Our promise to the climate
“Lead the way to the future of everyday life,
aiming at a climate where people are in balance with the
environment by 2045”

(Climate Action Plan - Härnösand municipality 2017)



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And also that it will rain more.
That there may be more problems
with flooding and difficult to
access infrastructure.

Vision

Climate Change will be a natural part of the process for planning and implementation of measures for the community development to be robust against climate change in the future

Our Aims

That the negative consequences of climate change will be as small as possible and that we will take advantage of the positive consequences in the best possible way

Cross cutting

- Actions
- Governance and preparedness
- Knowledge and information



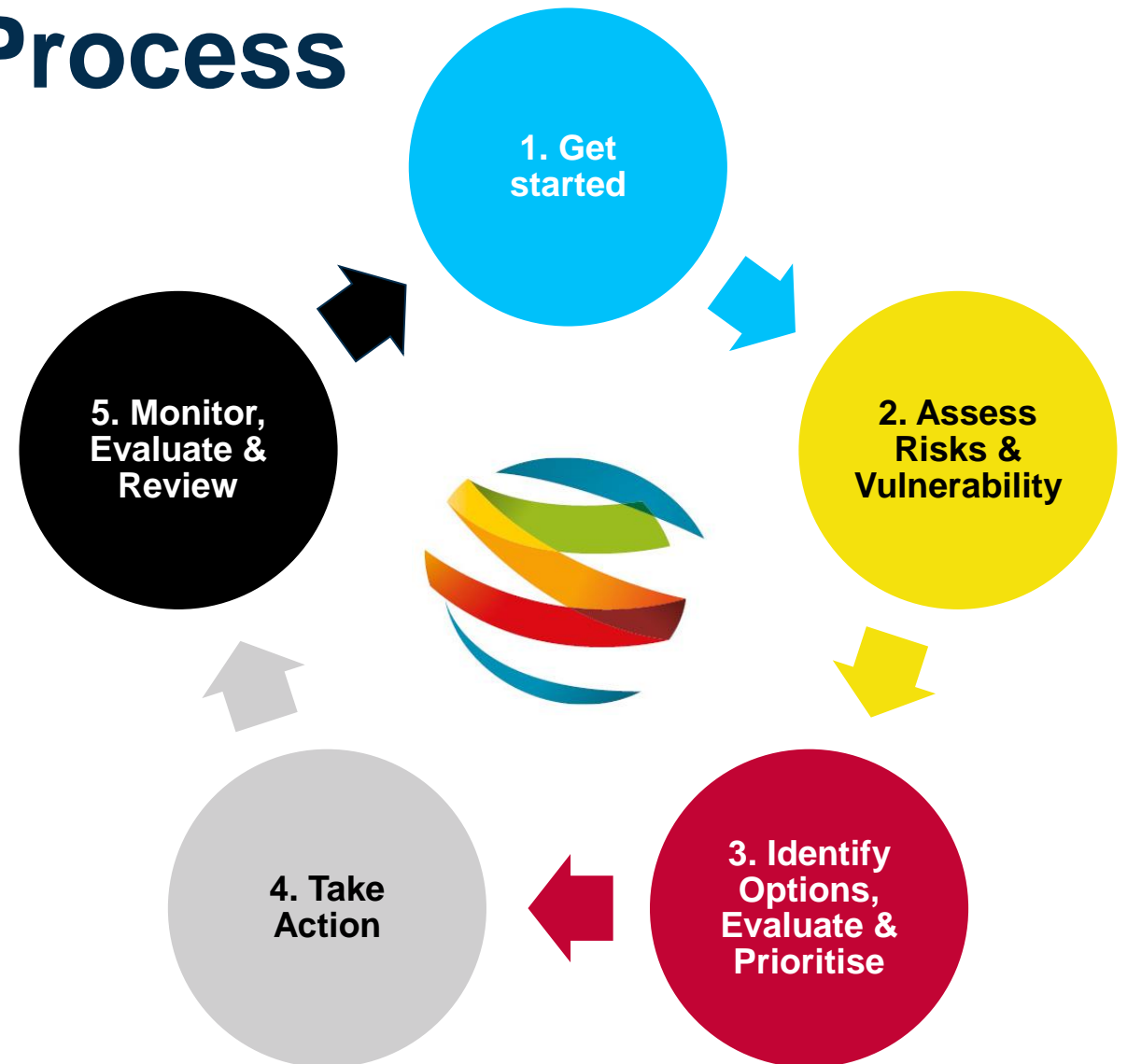
We have extreme temperatures,
drought and wildfires.


Adaptation Planning Process

The Climate Adaptation Plan has been produced following a five step process developed by the CLIMATE Project.

Including representation across a broad range of Municipal services the Working Group held a series of workshops and meetings following the adaptation planning process.

Adaptation planning is an iterative process which involves ongoing review and updates with the emergence of new risks, research and changing local conditions.





There is still a lot we can do to adapt to change. Making the cities greener by protecting and enhancing nature, for example.

The Climate Adaptation Plan

Adaption is an ongoing process that needs to be conducted continuously to eventually become a natural part of the process for planning and implementation of measures in the organisations, in areas for which the municipality is responsible.

The plan is a support for the municipal and municipal companies, elected representatives and officials in the work with climate adaptation.

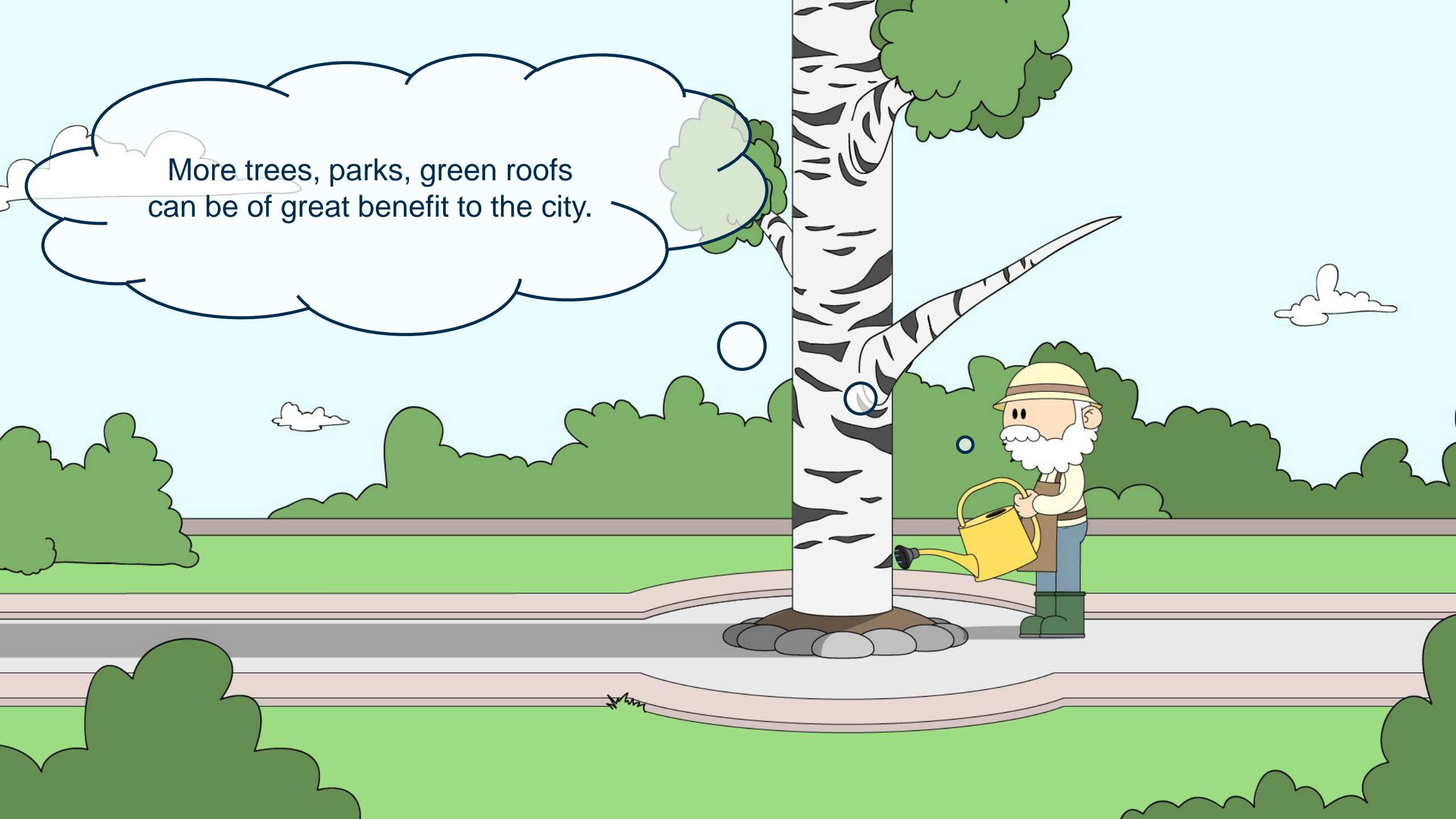
The most important measure is establishing a municipal working group with the responsibility for coordinating the work with climate adaptation.

At the same time, it is not just municipal activities that need to work - it is an issue that affects everyone who lives and works in the municipality.

To reach them, information must be made available. This is primarily done through ongoing contacts with stake holders, but also by making information available on websites and other communication platforms.



More trees, parks, green roofs
can be of great benefit to the city.



Adaptation Action Plan

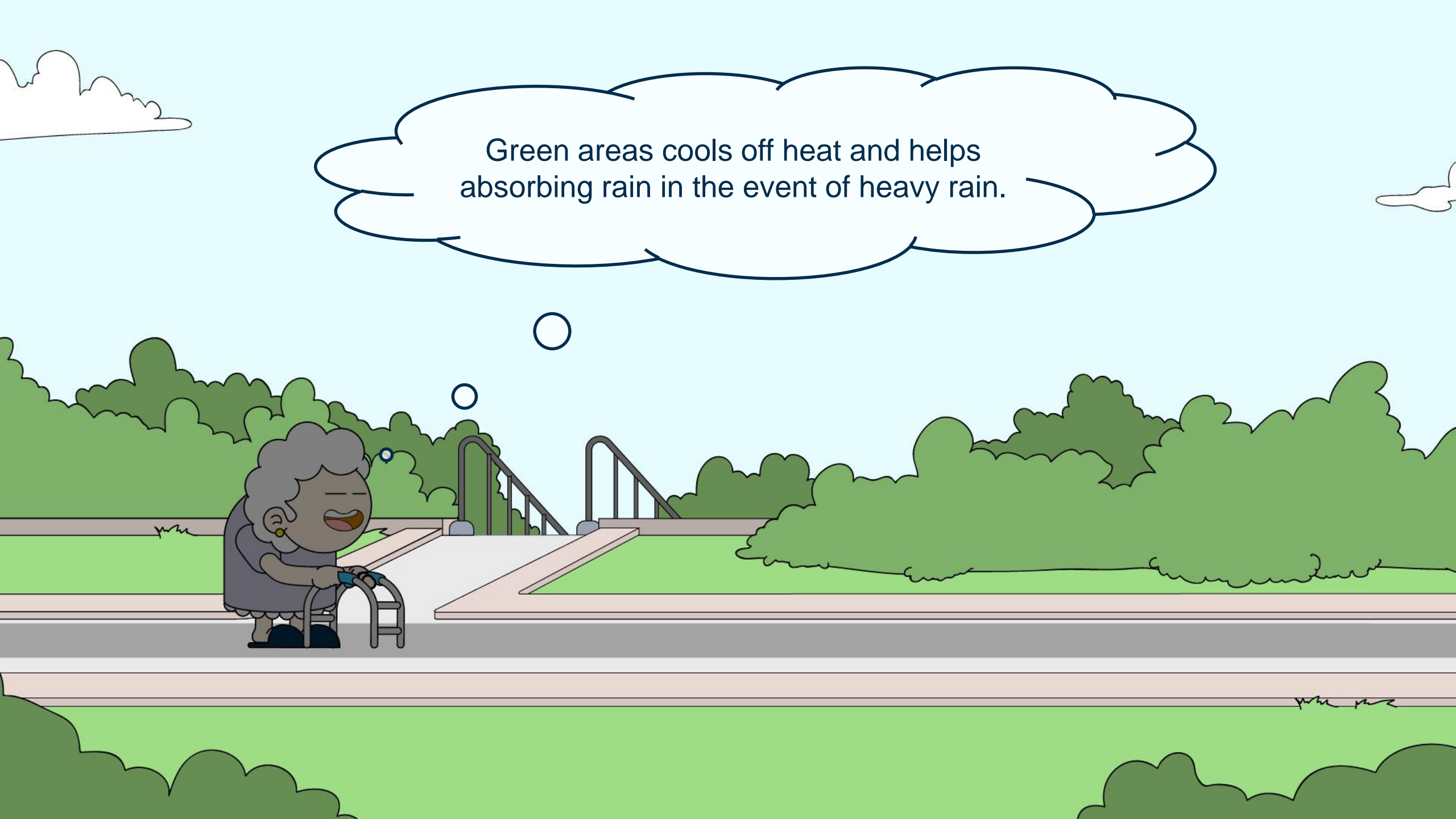
The Climate Adaption Plan is delivered by a supporting Action Plan. This outlines a short (within 2030), medium (2030-2060) and long-term (2060-2100) actions to be delivered.

Actions are allocated by cross-cutting actions enabling to build capacity to planning & adaptation action in focus areas.

The Climate Adaptation Working Group will continue to monitor progress and maintain momentum towards delivering the actions.



Green areas cools off heat and helps absorbing rain in the event of heavy rain.



First action – to establish the working group

For coordination of the work with climate adaptation, it is proposed that the municipal board propose to the municipal council to decide:

- to give the municipal executive the task of establishing a working group, and
- adopt guidelines for the working group's assignments



Guidelines for the working group's assignments

The working group will:

- develop the working method for the assignment to ensure implementation and revision by complying with the developed work model and focus areas for climate adaptation
- propose a budget to support the implementation and follow-up of the work
- continue the work with the action plan and the measures developed in the Climate project
- ensure that the climate adaptation perspective is taken into account in the relevant governing documents for the activities and in community planning
- assist with training and information initiatives for employees, managers and elected representatives in the municipality's operations and companies and be a support in the work with climate adaptation.

Action Plan

ACTION

The Action Plan, by Columns

- **Action** – will have the name together with the purpose of the action
- **Implementation** - for when the action should be completed. Divided into the time perspectives Short (<2030), Medium (2030-2060) or Long-term (2060-2100), as well as responsible (for the decision and implementation) and stakeholder (collaborating and/or relevant actors).

IMPLEMENTATION

PRIORITY (CROSS CUTTING)

- **Priority and type of action.** Priority is based on a simplified evaluation of the measure, based on whether the effort/cost is large or small in relation to the effect/impact the measure gives, from 1 highest priority = Implement, 2 = Consider, 3 = Possible or 4 = Desirable.

Several types of measures may be required to address a specific consequence of the future climate. These are divided into (1) Physical action, (2) Governance & preparedness and / or (3) More knowledge.

Action Plan

ACTION	IMPLEMENTATION	PRIORITY (CROSS CUTTING)
Implement rainfall scenarios in GIS systems and anchor data to those involved in the organisation *	2021	1 (Governance and preparedness, More knowledge)
Create a better hydrology and delay of the water for a longer time higher up in the landscape in Gerestabäcken, a partly natural waterway in the southeastern part of Härnösand's urban area.	2023	1 (Action)
Investigate appropriate adaptation measures in Gådeå water systems **	2025	2 (More knowledge)

* Cloud-burst simulation model - Härnösand (see Appendix 3d in the Project Evaluation Report)

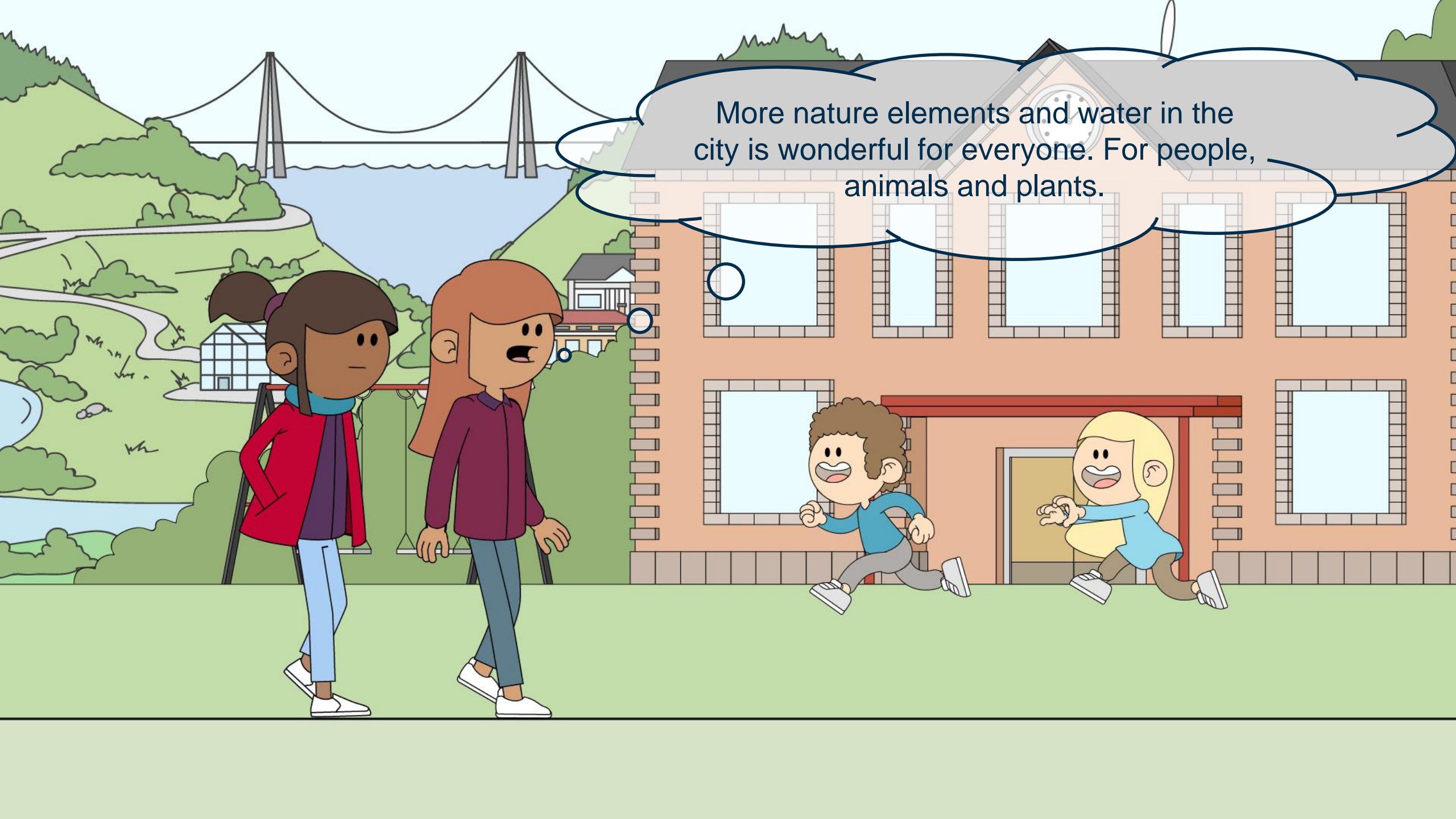
** Pre-study Climate Adaptation in the watercourse Gådeån - Härnösand (see Appendix 3e in the Project Evaluation Report) You find the evaluation report in www.climate-project.net

Action Plan (regional cooperation)

ACTION	IMPLEMENTATION	PRIORITY (CROSS CUTTING)
Integrate Climate Adaptation into spatial planning	2020	1 (Governance and preparedness)
Extreme Rainfall Plan in urban areas	2025	1 (Governance and preparedness, More knowledge)
Municipal water supply plans	2020	2 (Governance and preparedness)
Protect our water sources against increased risks of contamination	2020	1 (Governance and preparedness)
Climate adapt the municipalities' drinking water	2030	3 (Action, Governance and preparedness)
Reduce the risk of interruptions in the water and sewage	2025	2 (Governance and preparedness, More knowledge)
Robust facilities to ensure the county's energy supply	2030	3 (Governance and preparedness)

Action Plan (stakeholder cooperation)

ACTION	IMPLEMENTATION	PRIORITY (CROSS CUTTING)
Operation and maintenance of infrastructure takes into account a changing climate	2020	1 (Governance and preparedness)
Risk inventory of road infrastructure	2025	3 (Governance and preparedness, More knowledge)
Preparedness for heat waves and increased risks of the spread of infection for vulnerable groups	2020	1 (Governance and preparedness, More knowledge)
Inventory and review of properties and facilities where risk groups affected by heat waves are located	2025	3 (Governance and preparedness)
Increase knowledge about how a changed climate affects our health	2025	3 (Knowledge and information)



More nature elements and water in the city is wonderful for everyone. For people, animals and plants.

Selection of the global goals for sustainable development that have a stronger relationship to the work with climate adaptation



Thank you for your cooperation



The Municipality of Härnösand Climate Adaptation

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(will be available from December 2020)

More information is available upon request.



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