REPUBLIC OF ESTONIA
MINISTRY OF THE ENVIRONMENT

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# Climate-adapting Estonia


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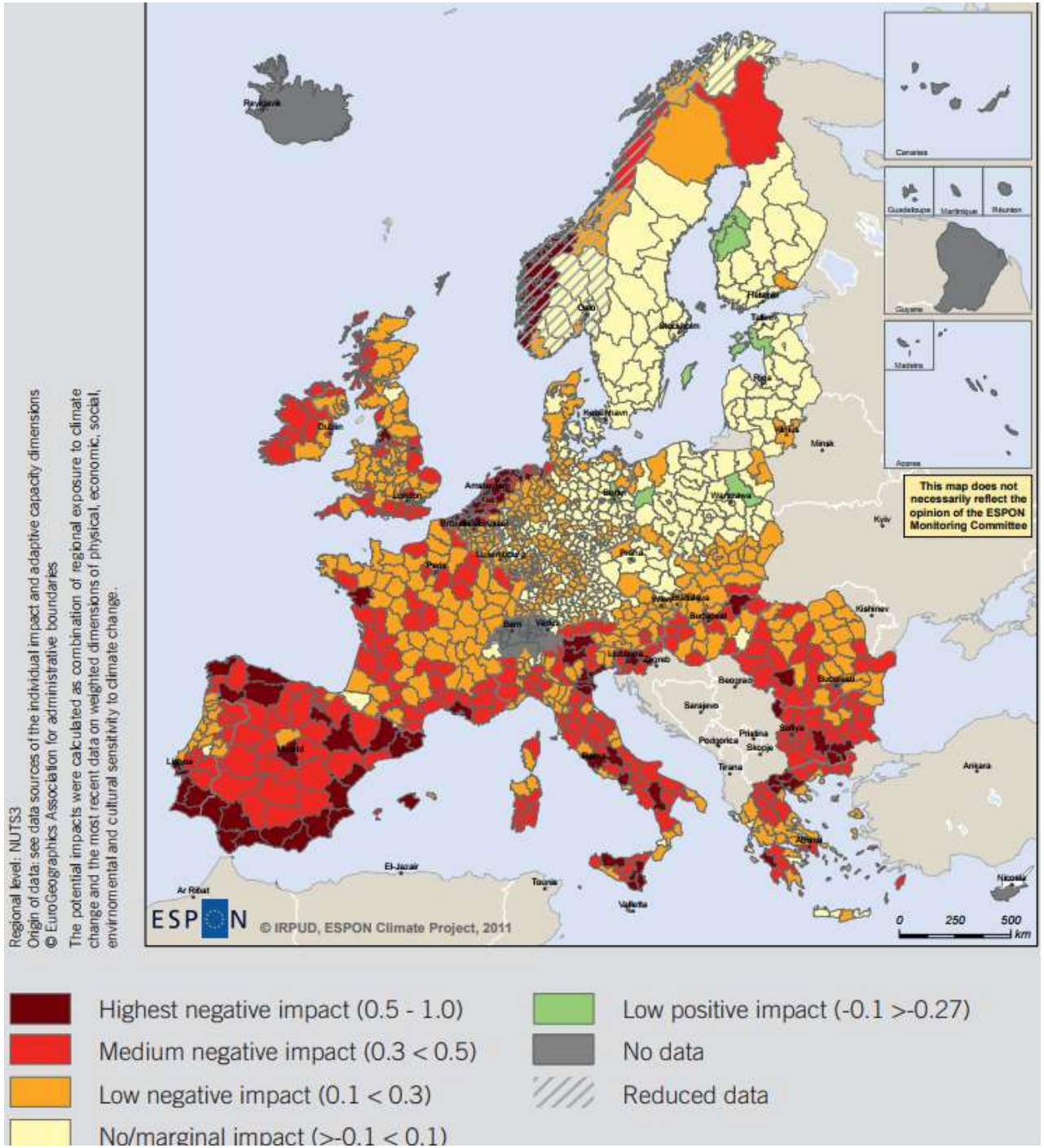
# What is the future of the climate in Estonia? Tropics or poor skiing weather?

photo: Priit Simson



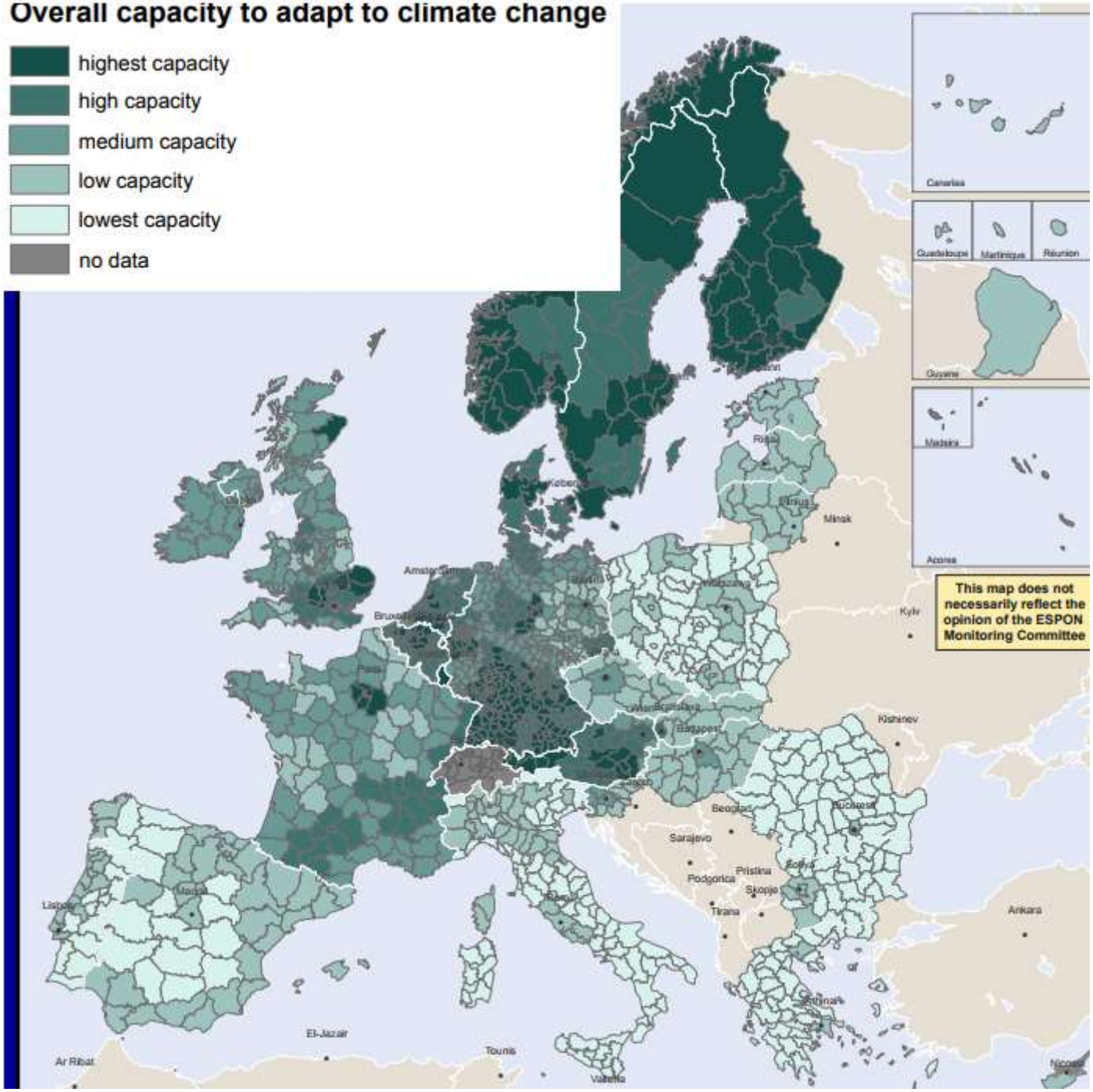

- Climate change will impact European regions differently depending on their regional exposure and sensitivity to climate change.

- The higher the potential negative impacts, the more important adaptation is in order to avoid negative consequences on the economy, population, physical assets, cultural heritage and the environment.

- Many mountainous and coastal areas are highly impacted, for reasons such as coastal storm surges, economic dependency on winter and/or summer tourism.

- Central, eastern and northern European regions face virtually no negative impacts or are even witnessing benefits of climate change offering new economic opportunities

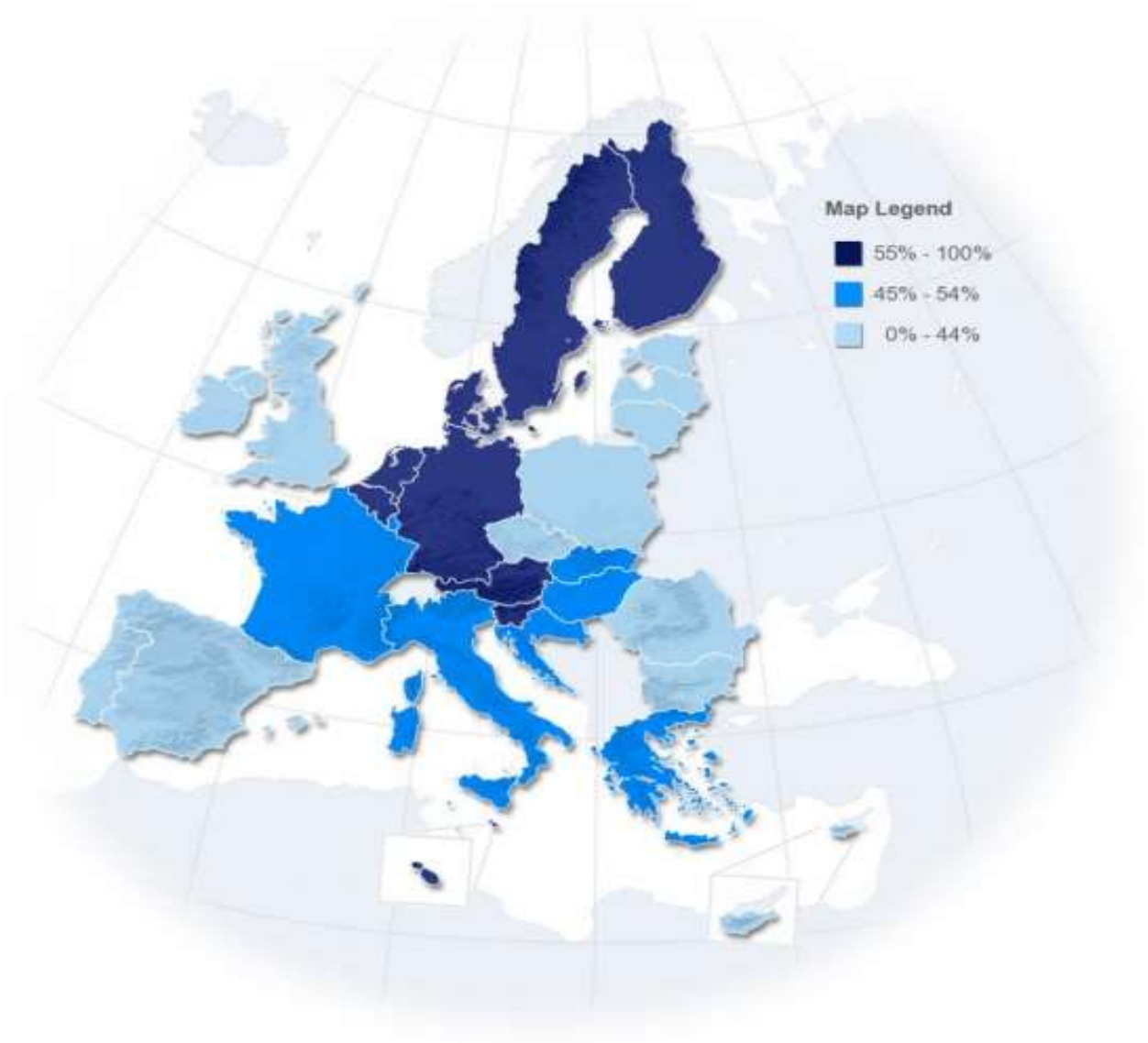
## Overall capacity to adapt to climate change



Question: QA1T. Which of the following do you consider to be the most serious problems facing the world as a whole? TOTAL

Answers: Climate change

| | |
|---|---|
| SE | 81% |
| DK | 73% |
| DE | 70% |
| AT | 70% |
| FI | 59% |
| MT | 58% |
| NL | 57% |
| SI | 57% |
| BE | 56% |
| EL | 53% |
| EU | 50% |
| LU | 50% |
| HR | 50% |
| IT | 49% |
| HU | 46% |
| FR | 46% |
| SK | 45% |
| ES | 44% |
| UK | 44% |
| CY | 43% |
| IE | 41% |
| LT | 41% |
| RO | 38% |
| PL | 38% |
| CZ | 38% |
| BG | 35% |
| PT | 33% |
| LV | 33% |
| EE | 28% |



# Why do we need to adapt with climate change?


Floods and storms in Pärnu and Haapsalu 2005/2011/2015 (*Photos: Google, newspaper „Postimees“)*

# Floods and storms in Tallinn 2005/2011/2016

Tallinn in August 2005 after the heavy rain (floods)

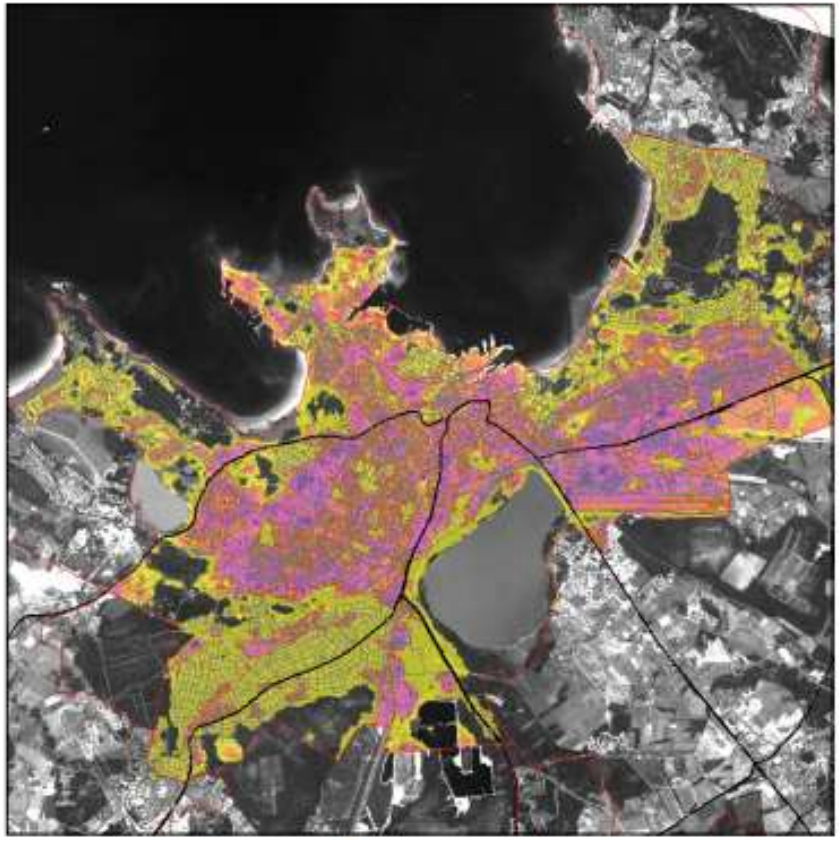
Pirita beach

after the storm on January 2005

*photo Kaarel Orviku*

Ülemiste Shopping Center flooding on summer 2016

# An urban heat island effect in city of Tallinn

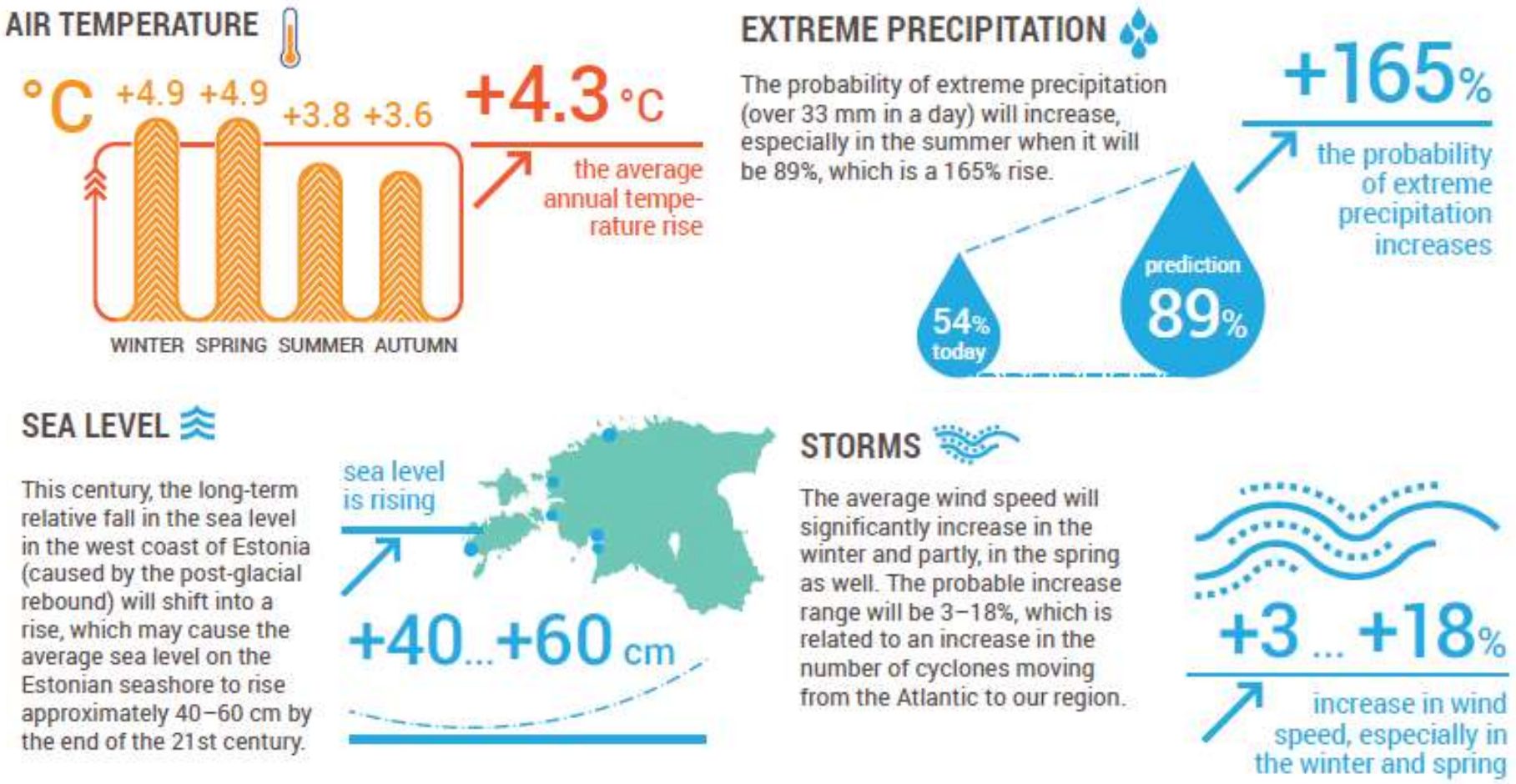


**Joonis 2.** Pinnatemperatuur Tallinnas 25. juulil 2014. Landsat 8 satelliitpilt on tehtud kell 11:30.

# Extreme weather events also affect inland areas

- The whirlwind near the City of Rakvere in 2010 *(photo about Väike-Maarja church after the whirlwind, photo from the newspaper „Estonian Church“*)
- Kunda river floods in 2012/2014 (*photo from newspaper „Maaleht“*)
- Storm disturbance in forest ecosystems, the forests blowdown in the area of Tudu in 2001.

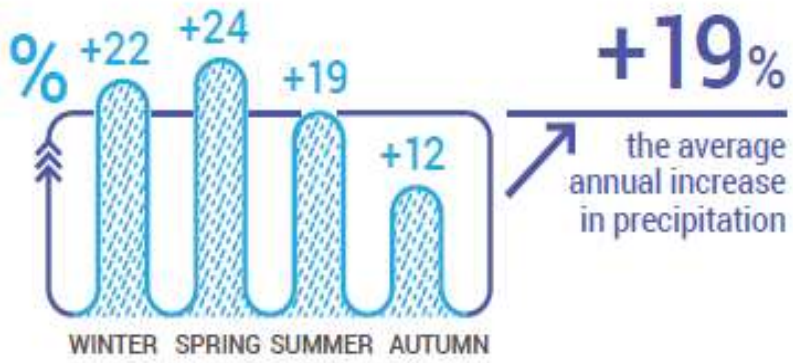
# Estonian Climate 2100 (1)




Source: Future climate was explored by the Estonian Environment Agency (EEA) for the compilation of the Climate Change Adaptation Strategy and EEA used a scenario in which International economy would still largely be based on carbon

# Estonian Climate 2100 (2)

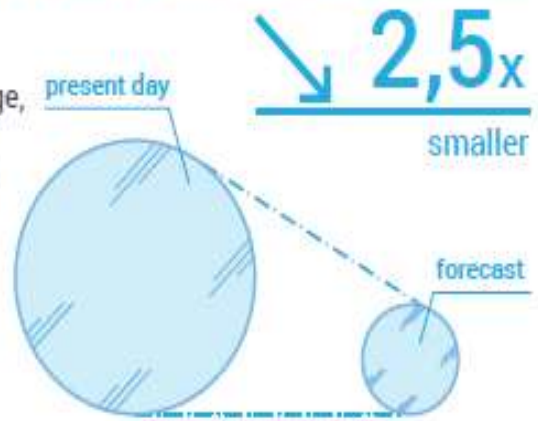
## PRECIPITATION




## SEA ICE

Most of the Baltic Sea will be ice-free. On average, the predicted extent of ice on the Baltic Sea will be 45,000 km², which is 2.5 times smaller than it is currently.

the extent of ice on the Baltic Sea will be




## WATER LEVELS IN INLAND BODIES OF WATER

The maximum water levels will fall due to a decrease in snow-cover. Autumn will become an important season of high tide in addition to spring. Because the summer minimum drain period will become longer, the upper courses of small streams and rivers will be more likely to dry.


## SNOW

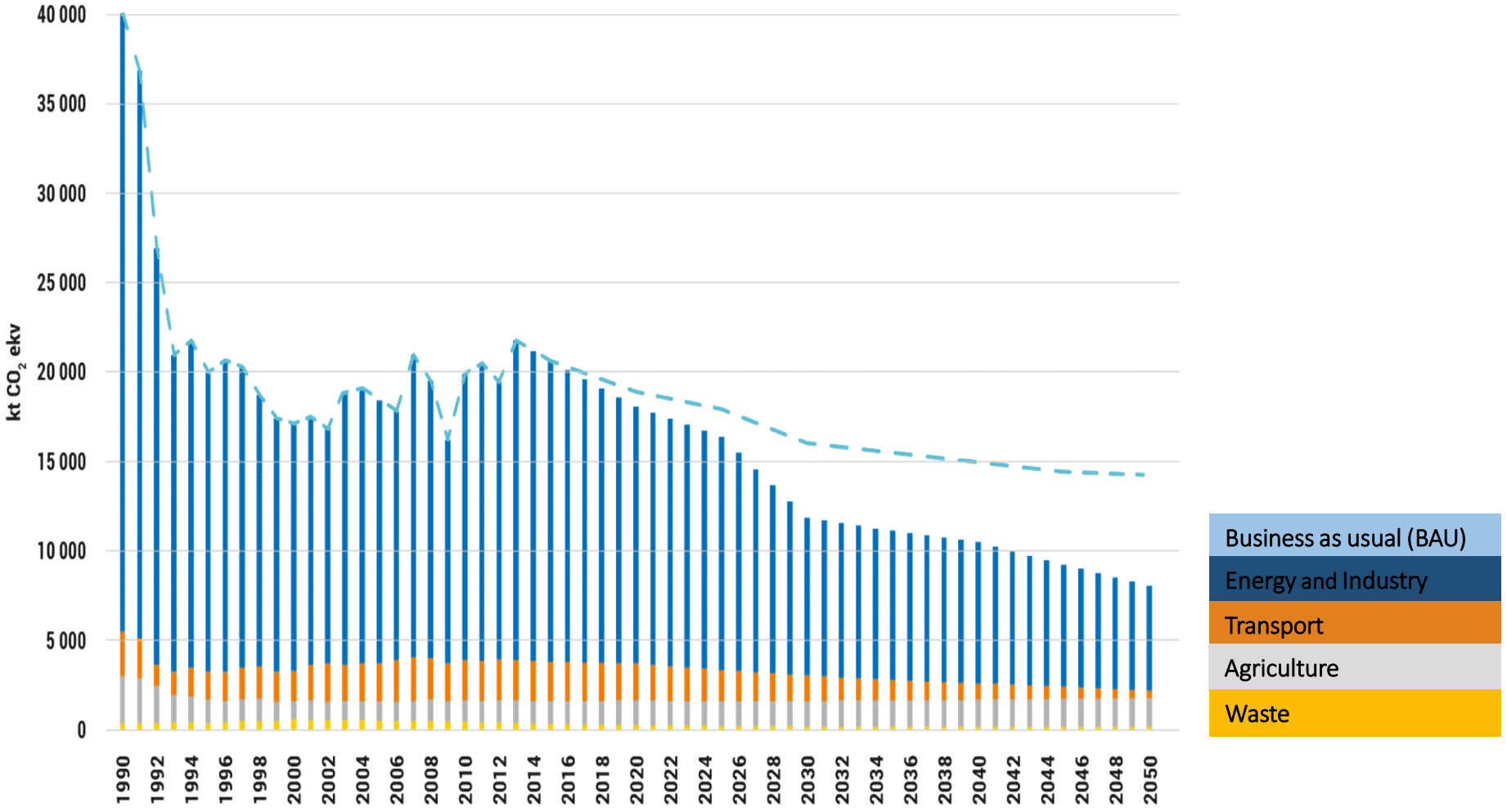
The duration of snow-cover will generally be less than 10 days in January–February, which means that there will not be permanent snow-cover. Snow can most likely be seen in a few areas in north-eastern Estonia.

# What we have done?

# Estonian low-carbon development strategy until 2050

- Determine the general principles for climate policy as a high level development document;
- Estonia's long-term target is to reduce the emission of greenhouse gases by 2050 by 80% in comparison with the emission levels of 1990;
- The development document contains long term policy guidelines for the mitigation of climate change for the economy as a whole and sectoral guidelines in energy, transportation, industry, agriculture, forestry and land-use, waste management;
- Estonian low-carbon strategy named „General principles of Climate Policy until 2050“ is approved by the Parliament (on 5th April, 2017);
- Information can be found on the Ministry of the Environment homepage www.envir.ee.

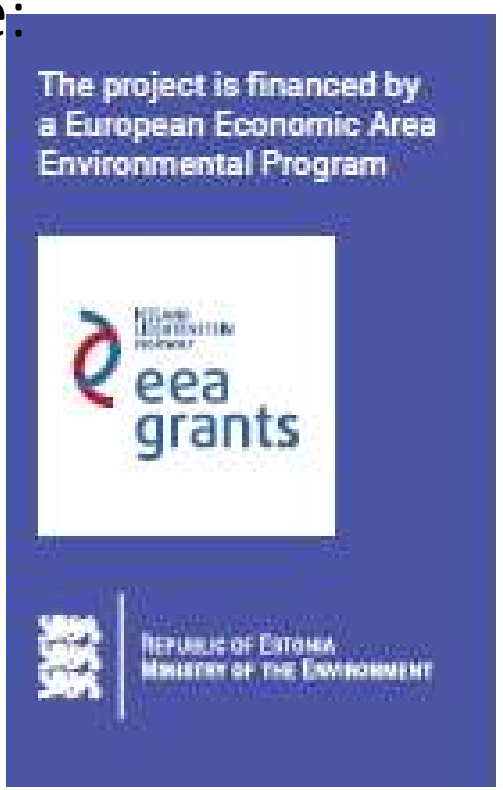
# Estonian low-carbon development strategy until 2050 (GHG emission trajector)




*Eesti kasvuhoonegaaside heite vähendamise traiektoor. mis kuiutab liikumist liai 80% heite vähendamise eesmärai suunas aastaks 2050.*

With the EEA FM 2009-2014 environmental programme funding the development plan for national climate change adaptation (NAS as a proposal), its implementation plan (NAP) and
4 climate change scientific studies were made:

- KATI -Human health and rescue capability and Land use and planning;
- BioClim -Natural environment and Bio-economy;
- RAKE -Economy and Society, awareness and cooperation;
- ENFRA -Infrastructure and buildings and Energy and power supply.



# Developments and the current status of national adaptation strategy

National adaptation strategy (NAS) „Estonian Development Plan for Climate Change Adaptation until 2030" and Action Plan adopted by the Government on 2. March 2017.

The Ministry of the Environment is responsible for implementation of the NAS and also coordinates the exchange of information between different ministries.

KESKKONNAMINISTEERIUM

**Kliimamuutustega kohanemise arengukava aastani 2030**

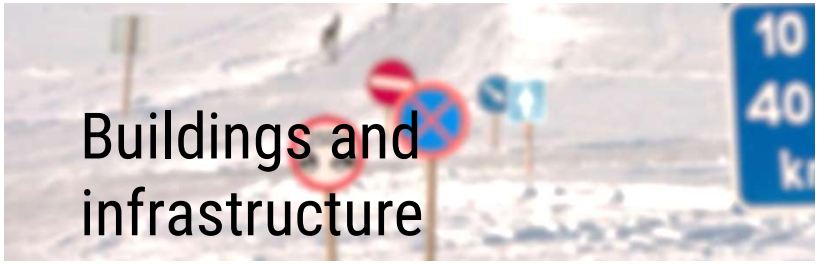
# THE GENERAL AIM OF NAS

Enhance Estonia's preparedness and capability to adapt to the impacts of climate change locally, regionally and nationally.

## 8 PRIORITY SECTORS:







# What to do next?

# What we want to achieve? (1)

## HEALTH AND RESCUE CAPABILITY 1

Our rescue capability is good and we can react to emergencies caused by the climate change. Additionally, people are very aware of risks and therefore, can protect their health and property.

## LAND USE AND PLANNING 2

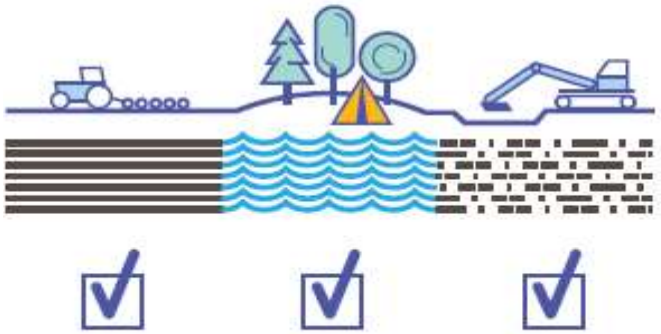
Risk of storms, flood, and erosion has been reduced, the urban heat island effect has been eased, human settlements have been made more climate proof.

## NATURAL ENVIRONMENT 3

Diversity of species, habitats, and landscapes has been ensured, favourable statuses for ecosystems have been achieved, and ecosystem services that are socio-economically important are offered: For example, purification of air and water, food, timber, pollination.

## BIOECONOMY 4

Sustainability of major sectors has been ensured with the climate-conscious planning of agriculture, forestry, water economy, fishery, recreational centres, and the extraction of peat.



# What we want to achieve? (2)

## ECONOMY 5

Enterprises are able to respond to impacts related to the climate change and take advantage of the accompanying new opportunities, such as growing new crops, using wind energy more efficiently, producing timber, and increasing the number of summer tourists.


## SOCIETY AND AWARENESS 6

People are more aware about the risks and opportunities related to the climate change and Estonia is actively participating in the international climate policy.

## INFRASTRUCTURE AND BUILDINGS 7

The availability of vital services (such as the electricity and gas supply, communication, broadcasting, sewerage, transport networks) has not decreased and buildings are constructed by taking into account the climate change and energy efficiency.

## ENERGY AND SECURITY OF SUPPLY 8

Climate change will not decrease the energy independence, energy safety, security of supply and the use of renewable energy resources or increase the volume of end consumption of primary energy.

# Implementing the NAS and Action Plan

- NAS and NAP total funding for the period 2017-2030 is together about 44 million euros (several activities, analysis, researches and developments in different sectors). For the period 2017-2020 the NAP funding is estimated 6,7 mil euros.
- NAP: 8 different sub-categories with 83 measures and activities with costs, different responsible bodies and implementing periods.
- The financing resources are coming from the state budget (mainly in the budget of Ministry of the Environment, but also in the other ministries budgets depending about the measures), from the Environmental Investment Centre Environmental Programme and also from foreign investments.
- The NAS will be implemented on cooperation with other ministries and agencies in Estonia.
- The Ministry of Environment will organize the annual reporting on the implementation of the development plan and coordinate the exchange of information between ministries.

# 20 areas with the highest risk of flooding

# Sea level rise and coastal flood risk

- **Flood hazard map-city of Pärnu**

# This is 2010 flood in Tartu

- It is Tartu prison, which locates near the river Emajõgi (*photo newspaper „Eesti Päevaleht“, Ove Maidla*)

# Action in 2018 regarding to the NAP

Different activities in diferent sectors e.g:

- Developing the sea level forecasting system and elaborating the flood hazard mapping in coastal areas with the flood risk management toolkit to significant flood risk areas
- Developing and updating the meteorological and hydrological parameters monitoring system concerning with the needs of climate change and improving the weather conditions (heat waves, storms, floods) monitoring, forecasting and public warning systems
- Local-level pilot projects on adaptation (comprehensive and detail spatial plans) and guidance materials for climate change adaptation and risk mitigation on the basis of climate change

Contribution around 1,9 mil €

# Information about CC impacts

- MoE webpage www.envir.ee (topic: climate)
- Estonian Land Board Geoportal (flood risk areas maps) http://geoportaal.maaamet.ee/est/Teenused/Kaardirakendused/Uleujutuste-rakendus-p467.html
- Estonian Environmental Agency webpage www.keskkonnaagentuur.ee (Estonian weather service)
- Estonian Environmental Research Centre Climate Change Adaptation http://www.klab.ee/kohanemine/en/
- the European Commission *Climate Adapt* homepage (national pages)

# Questions?

**Thank You very much for your attention!**

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