

Socio-economic sensitivity (Exercise IV)

This exercise aims at identifying the activities that will be influenced the most by the climatic stressors. The most critical climatic stressors and chances for Estonian TA are marked with red.

Climatic parameters and impacts	How significant the change of climate parameter or impact is for Estonian TA?	Likely direction of the change? How much / how often / for how long / where these stresses can occur?	Which activities and how the change of a climate parameter might influence? (approx. up to year 2050)
No of cold days and nights (below 0°)	Not significant?	Duration of cold periods has decreased	Decrease in heating expenses, winter sports. Negative impact on winter tourism.
Heat waves	Not significant	No significant heat waves in Estonia	
Day and night temperature fluctuations around 0°	Significant impact	No data yet	If frequency increases, then negative impact on transport (e.g. degradation of roads), on agriculture (increase in nutrient losses), on health etc.
Total precipitation/rainfall	Significant impact	Total precipitation has increased, especially in winter as rain and sleet	Negative impact on roads, pipes, tourism.
Periods with heavy precipitation	Significant impact if the periods last several days and frequency is increasing		Negative impact on roads, pipes.
Storms (wind)	Significant impact	Models show that frequency is increasing	Power outages, forest breaks, negative impact on agriculture (decrease in productivity), on cycle paths (needs planning of trees/bushes at the path sides).
Cloudiness	Significant, but few data yet		Negative impact on energy management, building of passive houses, psychological impact on health.
Snow cover duration	Significant impact	Decreasing trend	Negative impact on agriculture – risk for droughts in spring. Extreme winter colds without snow cause deeper freezing of land – crop productivity decreases.

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			Impact on transport.
Ice cover extent	Significant impact in sea	Decreasing trend	If ice cover is less, spring will be earlier and warmer – impact on agriculture.
Beginning of spring events	Significant impact	Has shifted to an earlier time	Impact on transport, energy management – shorter heating periods.
Spring peak discharge	Not very significant impact	Has shifted to an earlier time, the amount of water has decreased	If it is earlier or no high water at all – risk for spring droughts is higher – impact on agriculture. Positive impact can be on transport – floods do not overwhelm culverts – the risk for it, however, is not big in Estonia.
Modification of water regime (incl. warming of lakes and rivers)	Impacts due to climate change likely not significant	There are not many water bodies in the TA.	Impact on eutrophication is not big, on recreation – no evidence.
Droughts	Significant impact in spring	More droughts in spring. Frequency of thunder has not changed.	Impact on agriculture – if duration of snow cover decreases, the risk for droughts increases.
Floods	Significant impact locally, but not for TA as a whole	Locally this year winter with heavy snow might have impact on spring flooding. Also caused by storms.	Risk in densely populated areas where most of the ground is impermeable.
Length of vegetation period	Neutral impact	Likely increase	Impact on agriculture.
Crop productivity	Neutral impact	In warmer and more humid climate, productivity might grow.	No firm evidence on increasing productivity in long-term. Crop species and varieties will change.
Forest fires -> landscape fires (forest, bog, grass)	Significant impact	Risk is increasing due to more frequent droughts	Impact on forest management, (rail) transport, etc.
Shifts in distribution of animal, plant and pest species, changes in abundance of populations	Not enough evidence	Some plant pest species have shifted to north.	Impact can be on agriculture, forest management, hunting, fishing: e.g. plant pest species shift northward, more frequent forest fungus diseases and tick-borne infections of roe deers, shifts in

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			life-cycles of migratory birds and species they feed on, shifts in dynamic balance of predators and prey species. Increase in wild boar abundance – impact on agriculture, roads
Changes in allergic pollen (distribution)	Not known	Distribution might be affected by atmospheric humidity.	Impact can be on agriculture, health.
Vectors of infectious diseases (distribution)	No firm evidence	Distribution area of ticks is determined by the frequency of cold winters.	Infections of Lyme disease (tick borrelia) have increased. Risk for mosquito-borne malaria if warm winters become more frequent.
Ground instability – landslides	Not significant	More instable in SW Estonia	
Coastal erosion	Not significant	Increases in coastal areas	
Coastal flooding	Not significant	In certain areas	
Loss of coastal wetlands	Not significant		
Sea level rise	Not significant		