Supplementary Material

This supplemental Material includes indicator factsheets for all indicators analysed as part of the climate impact analysis.

Indicator: Heat stress on the population	
Short description	The heat stress of the population results from the spatial intersection of hot days (days with max. temperature >=30°C) with the population sensitivity.
Unit	Normalised values between 0 and 1
Reference level/ Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)
Data used	**Climate signal:** • Number of hot days for the period 1971-2000 (status quo) • Number of hot days for the period 2021-2050 (RCP 8.5 the 15th percentile as moderate scenario) • Number of hot days for the period 2021-2050 (RCP 8.5 the 85th percentile as strong scenario) **Sensitivity:** • Population data incl. age groups 2018 (status quo) • Population data incl. age groups 2040 (future) • Residential settlement areas (residential areas and areas of mixed used from the ATKIS Basis DLM) 2018 (status quo) • Residential settlement areas 2040 (moderate scenario, 50% on newly developed land) • Residential settlement areas 2040 (strong scenario, 75% on newly developed land)
Data origin	**Climate signal:** • Number of hot days: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) **Sensitivity:** • Population data 2018: State database NRW (Landesdatenbank NRW) • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Population data: • https://www.landesdatenbank.nrw.de/ldbnrw/online?operation=themes&levelindex=0&levelid=1653985414591&code=1#abreadcrumb Climate Data Upon request: • Number of hot days: LANUV NRW

Data actuality	• Number of hot days: 2018 • Population data: 2018 • Residential settlement areas: 2020
Notes	The hot days data refer to the period 1971-2000, as the future projections (2021-2050 and 2071-2100) refer to the absolute changes compared to this period (1971-2000).
Methodology	
Calculation	• The climate impact is calculated by first linking the residential settlement areas to the population figures and then to the hot days. The procedure is described below: **Climate signal:** • -Calculation of the average number of hot days per municipality using area-weighted averaging and subsequent normalisation via a min-max-normalisation: $Z_g^t=\frac{x_g^t-\min_t}{\max_t-\min_t}$ **Sensitivity:** • Formation of suitable age classes to map the sensitivity per municipality • Using the following equation: sensheatstress (0-5 years × 0,25) +(6-64 years × 0,05) +(65-79 years × 0,25) +(>80 years × 0,45)) • Determining the residential density by calculating the number of inhabitants per residential settlement area (per ha) • Additive linking of population sensitivity per municipality and residential density to a sensitivity value with subsequent normalisation. **Climate impact:** • Multiplicative linking of the normalised values for climate signal and sensitivity • Normalisation of obtained values and formation of classes
Method source/Literature	Climate impact fact sheet "Potential heat stress on the residential population retrieved from klimawandelvorsorge.de

Indicator: Flash flood risk of the population	
Short description	Climate impact describes the risk of the population to flash floods, linking the sensitivity of the population to the flash flood potential
Unit	Normalised values between 0 and 1
Reference level/ Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)
Data used	**Climate Signal:** • Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) for the status quo • Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) multiplied by the factor 1,92 for the moderate change scenario • Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) multiplied by the factor 2,56 for the strong change scenario • Digital terrain model (standard deviation of terrain slope) **Sensitivity:** • Population data incl. age groups 2018 (status quo) • Population data incl. age groups 2040 (future) • Residential settlement areas (residential areas and areas of mixed used from the ATKIS Basis DLM) 2018 (status quo) • Residential settlement areas 2040 (moderate scenario, 50% on newly developed land) • Residential settlement areas 2040 (strong scenario, 75% on newly developed land)
Data origin	**Climate Signal:** • KOSTRA DWD data set: Coordinated heavy precipitation regionalisation and evaluation of the German Meteorological Service (*DWD*) • Terrain slope: Copernicus EU DEM v1.1 Tile E40 N30 **Sensitivity**: • Population data: State database NRW • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: Heavy precipitation sums:

	• https://opendata.dwd.de/climate_environment/CDC/grids_germany/return_periods/precipitation/KOSTRA/KOSTRA_DWD_2010R/gis/ EU-DEM: • https://land.copernicus.eu/imagery-in-situ/eu-dem/eu-dem-v1.1 ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Population data: • https://www.landesdatenbank.nrw.de/ldbnrw/online?operation=themes&levelindex=0&levelid=1653985414591&code=1#abreadcrumb
Data actuality	• KOSTRA DWD 2010R: 2020 • EU DEM: 2019 • Population data: 2018 • Residential settlement areas: 2020
Notes	The factors for considering the heavy precipitation totals under the assumptions of moderate and strong climate change come from a separate calculation. The mean value of all grid cells given in KOSTRA DWD 2010R was set in relation to precipitation sums for extreme events (90mm for a moderate change and 120mm for a strong change).
Methodology	

Calculation	**Climate Signal:**
	• Calculation of the average heavy precipitation total per municipality and subsequent normalisation
	• Calculation of the average standard deviation of the terrain slope per municipality and subsequent normalisation
	• Additive combination of the two values and subsequent normalisation
	Sensitivity:
	• Formation of suitable age classes to map the sensitivity per municipality
	• Calculation of the absolute number of age classes as well as the relative share of age classes in the total area using the following classification on peer groups:
	  o Sensitivity level 1: peer groups of 19–25; 26–40; 41–60 years
	  o Sensitivity level 2: peer groups of 10–18; 61–70 years
	  o Sensitivity level 3: peer groups of 3–9; 71–80 years
	  o Sensitivity level 4: peer groups of 0–2; ≥80 years
	• Using following equation:
	  o $Sensfloodrisk^{abs}$ (senslvl1 x 1) +(senslvl2 × 2) +(senslvl3× 3) senslvl4 × 4)
	  o $Sensfloodrisk^{rel}$ (senslvl1/ha x 1) +(senslvl2/ha × 2) +(senslvl3/ha× 3) senslvl4/ha × 4)
	• Additive linking of the relative and absolute value after normalisation with subsequent normalisation to a sensitivity value
	Climate Impact:
	• Multiplicative linking of sensitivity and climate signal to climate impact
	• Normalisation of obtained values and formation of classes

Method source/Literature	Othmer, F.J.; Becker, D.; Schulte, L.M.; Greiving, S. A Methodological Approach to Municipal Pluvial Flood Risk Assessment Based on a Small City Case Study. Sustainability 2020, 12, 10487. https://doi.org/10.3390/su122410487 Fact sheet on climate impact " Flash flood risk of the population" retrieved from klimawandelvorsorge.de

Indicator: Flash flood risk of transport infrastructure	
Short description	Climate impact describes the risk of the transport infrastructure to flash floods, linking the sensitivity of the transport infrastructure to the flash flood potential
Unit	Normalised values between 0 and 1
Reference leve Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)

Data used	**Climate signal:**
	• Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) for the status quo
	• Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) multiplied by the factor 1,92 for the moderate change scenario
	• Heavy precipitation sums according to KOSTRA DWD 2010R (with duration stage D60 (60 min) and recurrence probability Tn100a (100-year event)) multiplied by the factor 2,56 for the strong change scenario
	• Digital terrain model (standard deviation of terrain slope)
	Sensitivity:
	• Commuter sum (In-commuters and out-commuters per municipality)
	• Traffic areas from the ATKIS Basis DLM:
	  ○ Category I roads: (42002):
	    ▪ Federal motorway (1301)
	    ▪ Federal Road (1303)
	    ▪ State road (1305)
	    ▪ County road (1306)
	    ▪ Municipal road (1307)
	  ○ Category I railway lines (42014):
	    ▪ Railway (1100)
	    ▪ Suburban railway (1104)
	    ▪ Light railway (1200)
	    ▪ Tram (1201)
	    ▪ Underground (1202)

Data origin	**Climate signal:** • KOSTRA DWD data set: Coordinated heavy precipitation regionalisation and evaluation of the German Meteorological Service (*DWD*) • Terrain slope: Copernicus EU DEM v1.1 Tile E40 N30 **Sensitivity:**

	• Commuter data: NRW Commuter Atlas • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: Precipitation data: • https://opendata.dwd.de/climate_environment/CDC/grids_germany/return_periods/precipitation/KOSTRA/KOSTRA_DWD_2010R/gis/ EU-DEM: • https://land.copernicus.eu/imagery-in-situ/eu-dem/eu-dem-v1.1 Commuter data: • https://www.pendleratlas.nrw.de/ ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Population data: • https://www.landesdatenbank.nrw.de/ldbnrw/online?operation=themes&levelindex=0&levelid=1653985414591&code=1#abreadcrumb
Data actuality	• KOSTRA DWD 2010R: 2020 • EU DEM: 2019 • Commuter data: 2019 • Traffic areas: 2020
Notes	The factors for considering the heavy precipitation totals under the assumptions of moderate and strong climate change come from a separate calculation. The mean value of all grid cells given in KOSTRA DWD 2010R was set in relation to precipitation sums for extreme events (90mm for a moderate change and 120mm for a strong change). For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.
Methodology	
Calculation	**Climate signal:** • Calculation of the average heavy precipitation total per municipality and subsequent normalisation • Calculation of the average standard deviation of the terrain slope per municipality and subsequent normalisation • Additive combination of the two values and subsequent normalisation **Sensitivity:** • Calculation of the absolute size of the traffic area types as well as their relative share of the total area • Normalisation of the calculated traffic area values and subsequent additive linking • Calculation of commuter sums by adding commuters in and out of each municipality, followed by normalisation • Additive linking of the values for commuter sums and transport areas and renewed normalisation to a sensitivity value **Climate impact:**

	• Multiplicative linking of sensitivity and climate signal to climate impact • Normalisation of obtained values and formation of classes
Method source/Literature	Fact sheet on climate impact " Flash flood risk of transport infrastructure " retrieved from klimawandelvorsorge.de

Indicator: Potential impact of drought stress on agriculture	
Short description	Calculation of the drought stress potential based on the precipitation sums in the vegetation periods and the combination of the areas of arable land and grassland in combination with the plant-available soil water.
Unit	Normalised values between 0 and 1
Reference level/ Form of aggregatio	Municipalities of the Rhenish lignite mining region (vector data)
Data used	**Climate signal:** • Average precipitation sums of the vegetation period (months April-September) for the period 1971-2000 (status quo) • Average precipitation sums of the vegetation period (months April-September) for the period 2021-2050 (RCP 8.5 the 15th percentile as moderate scenario) • Average precipitation sums of the vegetation period (months April-September) for the period 2021-2050 (RCP 8.5 the 85th percentile as strong scenario) **Sensitivity:** • Plant-available soil water based on usable field capacity and capillary rise rate • Arable land and grassland from the ATKIS Basis DLM
Data origin	**Climate signal:** • Precipitation sum: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) **Sensitivity:** • Soil map NRW: Geological Service NRW • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Upon request: • Precipitations sums: LANUV NRW • Soil map NRW: Geological Service NRW
Data actuality	• Precipitation sums 2018 • Soil map: 2020 • Arable and grassland areas based on ATKIS Basis DLM: 2020
Notes	The data on precipitation refer to the period 1971-2000, as the future projections (2021-2050 and 2071-2100) refer to the absolute changes compared to this period (1971-2000

	The determined values of the climate signal are reversed before normalisation, so that a low precipitation sum enters the climate impact as a high value (after normalisation). For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.
Methodology	
Calculation	• The climate impact is calculated by linking the average precipitation sums per municipality with the combined values of plant-available soil water and the absolute and relative size of grassland and arable areas **Climate signal:** • Determination of the average precipitation sum for the months April to September from the data of the respective period • Subsequent averaging for the entire period and normalisation **Sensitivity:** • Calculation of plant-available soil water based on the additive linkage of usable field capacity (nFK) and capillary rise rate (kap) from the soil map. As well as subsequent normalisation. • Calculation of the absolute size of grassland and arable areas as well as their percentage share of the total area with subsequent normalisation. • Combination of the absolute values with the relative proportions • Combination with the plant-available soil water to obtain sensitivity **Climate impact:** • Multiplicative linking of climate signal and sensitivity with subsequent normalisation and formation of classes
Method source/Literature	Fact sheet on climate impact " Potential impact of drought stress on agriculture " retrieved from klimawandelvorsorge.de

Indicator: **Potential impact of drought stress on forest**s	
Short description	Calculation of the drought stress potential based on the precipitation sums in the growing season as well as the combination of the areas of forest and grove in combination with the plant-available soil water.
Unit	Normalised values between 0 and 1
Reference level/ Form of aggregatio	Municipalities of the Rhenish lignite mining region (vector data)
Data used	**Climate signal:** • Average precipitation sums of the growing season (months April-September) for the period 1971-2000 (status quo) • Average precipitation sums of the growing season (months April-September) for the period 2021-2050 (RCP 8.5 the 15th percentile as moderate scenario) • Average precipitation sums of the growing season (months April-September) for the period 2021-2050 (RCP 8.5 the 85th percentile as strong scenario) **Sensitivity:** • Plant-available soil water based on usable field capacity and capillary rise rate • Forest and grove areas from the ATKIS Basis DLM
Data origin	**Climate signal:** • Precipitation sum: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) **Sensitivity:** • Soil map NRW: Geological Service NRW • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Upon request: • Precipitations sums: LANUV NRW • Soil map NRW: Geological Service NRW
Data actuality	• Precipitation sums: 2020 • Soil map: 2020 • Forest and grove areas based on ATKIS Basis DLM: 2020

Notes	The data on precipitation sums for individual months refer to the period 1971-2000, as the future projections (2021-2050 and 2071-2100) refer to the absolute changes compared to this period (1971-2000). The determined values of the climate signal are reversed before normalisation, so that a low precipitation sum enters the climate impact as a high value (after normalisation). For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.
Methodology	
Calculation	• The climate impact is calculated by linking the average precipitation sums per municipality with the combined values of plant-available soil water and the absolute and relative size of forest and grove areas. **Climate signal:** • Determination of the average precipitation sum for the months April to September from the data of the respective period • Subsequent averaging for the entire period and normalisation **Sensitivity:** • Calculation of plant-available soil water based on the additive linkage of usable field capacity (nFK) and capillary rise rate (kap) from the soil map. As well as subsequent normalisation. • Calculation of the absolute size of forest and grove areas as well as their percentage share of the total area with subsequent normalisation. • Combination of the absolute values with the relative proportions • Combination with the plant-available soil water to obtain sensitivity **Climate impact:** • Multiplicative linking of climate signal and sensitivity with subsequent normalisation and formation of classes
Method source/Literature	Fact sheet on climate impact " Potential impact of drought stress on forests " retrieved from klimawandelvorsorge.de

Indicator: Potential impact of flooding on transport infrastructure	
Short description	Climate impact describes the potential impact of flood events on transport infrastructure
Unit	Normalised values between 0 and 1
Reference level/ Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)

Data used	**Climate signal:**
	• Flood areas HQ_{100} without watercourse areas (Status Quo)
	• Flood areas $HQ_{extreme}$ without watercourse areas (Future Scenarios)
	Sensitivity:
	• Commuter sum (In-commuters and out-commuters per municipality)
	• Traffic areas from the ATKIS Basis DLM:
	  o Category I roads: (42002):
	    ▪ Federal motorway (1301)
	    ▪ Federal Road (1303)
	    ▪ State road (1305)
	    ▪ County road (1306)
	    ▪ Municipal road (1307)
	  o Category I railway lines (42014):
	    ▪ Railway (1100)
	    ▪ Suburban railway (1104)
	    ▪ Light railway (1200)
	    ▪ Tram (1201)
	    ▪ Underground (1202)

Data origin	**Climate signal:** • Flood areas: Opengeodata NRW **Sensitivity:** • Commuter data: NRW Commuter Atlas • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: Flood areas: • https://www.opengeodata.nrw.de/produkte/umwelt_klima/wasser/hwrm/ Commuter data: • https://www.pendleratlas.nrw.de/ ATKIS Basis DLM:

	• https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/
Data actuality	• HQ areas: 2020 • Commuter data: 2019 • Traffic areas: 2020
Notes	For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.
Methodology	
Calculation	**Climate signal:** • Calculation of the flood area by subtracting the watercourse areas from the ATKIS from the flood boundaries. • Calculation of the absolute and relative size of the flooded area on the municipal area • Additive linking of the two values and subsequent normalisation to the climate signal **Sensitivity:** • Calculation of the absolute size of the traffic area types as well as their relative share of the total area. • Additive linking for the values of traffic areas and normalisation. • Calculation of commuter sums by adding commuters in and out of each municipality, followed by normalisation. • Additive linking of the values for commuter sums and traffic areas and renewed normalisation to sensitivity **Climate impact:** • The procedure differs in that the determined sensitivity and the climate signal are not linked as the final step. Rather, it applies: • The traffic area is intersected with the flooded area to form a flooded traffic area. • The flooded traffic area is then weighted with the intensity of use (derived from the commuter sums) and linked additively as absolute and relative flooded traffic area to form a value. • This value is normalised again and thus represents the climate impact.
Method source/Literature	Fact sheet on climate impact " Potential impact of flooding on transport infrastructure " retrieved from klimawandelvorsorge.de

Indicator: Potential impact of floods on residential settlement areas	
Short description	Calculation of the potential impact of flood events on residential settlement areas
Unit	Normalised values between 0 and 1
Reference leve Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)
Data used	**Climate signal:** • Flood areas HQ_{100} without watercourse areas (Status Quo) • Flood areas $HQ_{extreme}$ without watercourse areas (Future Scenarios) **Sensitivity:** • Climatope types • Residential settlement areas (residential areas and areas of mixed used) from the ATKIS Basis DLM
Data origin	**Climate signal:** • Flood areas: Opengeodata NRW **Sensitivity:** • Climatope types: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download at: Climatope types: • https://www.opengeodata.nrw.de/produkte/umwelt_klima/klima/klimaanpassung/planungskarten/ Flood areas: • https://www.opengeodata.nrw.de/produkte/umwelt_klima/wasser/hwrm/ ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/
Data actuality	Flood areas:2020 Climatope types: 2019 ATKIS Basis DLM: 2020
Notes	Calculation of the flood area by subtracting the watercourse areas from the ATKIS from the flood boundaries For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.

Methodology	
Calculation	• The climate impact is calculated by combining the absolute and relative flooded residential settlement area, weighted by Climatope type. **Climate signal:** • Calculation of the flood area by subtracting the watercourse areas from the ATKIS from the flood boundaries • Calculation of the absolute and relative size of the flooded area on the municipal area • Additive linking of the two values and subsequent normalisation to the climate signal **Sensitivity:** • Determination of the absolute and relative size of the residential settlement areas per municipality subsequent linkage and normalisation **Climate impact:** • Like the climate impact "Potential impact of flooding on transport infrastructure", the sensitivity is not directly linked to the climate signal for calculating the climate impact. • First, the flooded residential settlement area is determined by directly intersecting flooded areas and residential settlement areas. • This is then weighted using the Climatope types (the denser the Climatope type, the higher the value enters the normalisation). • Determination of the absolute and relative weighted flooded residential settlement area and subsequent multiplicative linkage followed by normalisation to the climate impact and formation of classes.
Method source/Literature	Fact sheet on climate impact " Potential impact of floods on residential settlement areas " retrieved from klimawandelvorsorge.de

Indicator: Heat load on social infrastructures	
Short description	The climate impact describes the potential heat load of social infrastructures (hospitals, kindergartens, schools, care facilities, authorities) This is determined by the number of hot days and by the areas of the social infrastructures weighted by density.
Unit	Normalised values between 0 and 1
Reference leve Form of aggregation	Municipalities of the Rhenish lignite mining region (vector data)

Data used	**Climate signal:**
	• Number of hot days for the period 1971-2000 (status quo)
	• Number of hot days for the period 2021-2050 (RCP 8.5 the 15^{th} percentile as moderate scenario)
	• Number of hot days for the period 2021-2050 (RCP 8.5 the 85^{th} percentile as strong scenario)
	Sensitivity:
	• Areas of social infrastructure from the ATKIS Basis DLM
	    o Areas of special functional character (41007):
	        ▪ Schools/universities/research institutes (1120)
	        ▪ hospitals/health and nursing homes (1150)
	        ▪ kindergartens/youth and senior citizen facilities/homeless shelters, etc. (1160)
	• Climatope types

Data origin	**Climate signal:** • Number of hot days: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) **Sensitivity:** • Climatope types: North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (LANUV NRW) • ATKIS Basis DLM: Opengeodata NRW
Data availability	Free download Climatope types: • https://www.opengeodata.nrw.de/produkte/umwelt_klima/klima/klimaanpassung/planungskarten/ ATKIS Basis DLM: • https://www.opengeodata.nrw.de/produkte/geobasis/lm/akt/basis-dlm/ Upon request: • Number of hot days: LANUV NRW

Data actuality	Number of hot days:2018 Climatope types: 2018 ATKIS Basis DLM: 2020
Notes	The hot days data refer to the period 1971-2000, as the future projections (2021-2050 and 2071-2100) refer to the absolute changes compared to this period (1971-2000). For this indicator, no data basis was available to calculate future sensitivity. Therefore, the status quo was used for the future as well.
Methodology	
Calculation	• The climate impact is calculated by multiplicatively linking the normalised average number of hot days with the normalised and pre-weighted area sum of social infrastructures in the municipalities according to density. The procedure is described below: **Climate signal:** • Calculation of the average number of hot days per municipality using area-weighted averaging and subsequent normalisation **Sensitivity:** • Determination of the areas of social infrastructure sites based on the use assigned in ATKIS Basis DLM • Weighting of the absolute areas based on the Climatope classification number (the higher the Climatope classification number, the denser the type) • Subsequent normalisation **Climate impact:** • Multiplicative linking of the normalised values for climate signal and sensitivity • Normalisation of obtained values and formation of classes
Method source/Literature	Fact sheet on climate impact "Potential heat load of social infrastructures" retrieved from klimawandelvorsorge.de