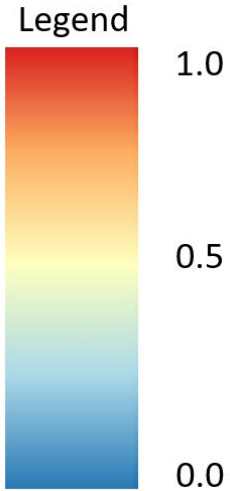
URBAN HEAT VULNERABILITY MAP OF HELSINKI, FINLAND

The Urban Heat Vulnerability Map of Helsinki is a map designed to identify areas within the administrative region of Helsinki that have the propensity or predisposition to be adversely affected by extreme heat events. This map presents the distribution of Urban Heat Vulnerability Index (UHVI) across the administrative boundary of Helsinki. Vulnerability of urban areas to extreme heat is measured as a function of exposure, sensitivity and adaptive capacity based on the framework supported by the Intergovernmental Panel on Climate Change.

URBAN HEAT VULNERABILITY INDEX (UHVI)

The UHVI is an indicator which measures the vulnerability of an urban area in Helsinki to extreme heat events based on the ability of the area to get physically overheated, the density of vulnerable population, which are the very young (Age < 16) and elderly people (Age > 64) residing within that area and also the level of greenery and moisture present in that area which can provide relief to the residents during an extreme heat event. The UHVI ranges from 0 to 1 and have been represented from the colour gradients presented below:



HIGH HEAT VULNERABILITY: Areas with UHVI equal or close to 1.0 are considered to be areas with very high vulnerability to extreme heat events. These areas experience relatively high temperatures during heat wave events compared to other areas in the city. They also have a high density of vulnerable population residing within the administrative district that contains these areas. Furthermore, they also have a low level of greenery and moisture which means that this area provides poor natural relief to its residents from extreme heat.

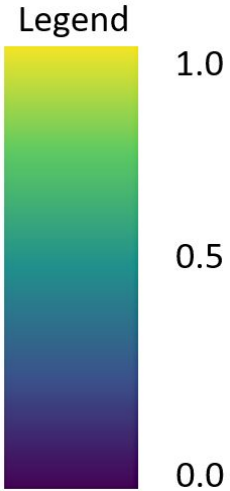
LOW HEAT VULNERABILITY: Areas with UHVI equal or close to 0.0 are considered to be areas with very low vulnerability to extreme heat events. These areas experience relatively low temperatures during heat wave events compared to other areas in the city. They also have a low density of vulnerable population residing within the administrative district that contains these areas. They also have a high level of greenery and moisture which means that this area provides strong natural relief to its residents from extreme heat.

URBAN HEAT IMPACT MAP OF HELSINKI, FINLAND

The Urban Heat Impact Map of Helsinki is a map designed to identify areas within the administrative region of Helsinki that can suffer from the realized risk of being adversely affected by extreme heat events. This map presents the distribution of Urban Heat Impact Index (UHII) across the administrative boundary of Helsinki. Impact of urban areas to extreme heat is measured as a function of exposure and sensitivity.

URBAN HEAT IMPACT INDEX (UHII)

The UHII is an indicator which measures the impact of an urban area in Helsinki to extreme heat events based on the ability of the area to get physically overheated and the density of vulnerable population, which are the very young (Age < 16) and elderly people (Age > 64) residing within that area. The UHII ranges from 0 to 1 and have been represented from the colour gradients presented below:



HIGH HEAT IMPACT: Areas with UHII equal or close to 1.0 are considered to be areas with very high impact to extreme heat events. These areas experience relatively high temperatures during heat wave events compared to other areas in the city. They also have a high density of vulnerable population residing within the administrative district that contains these areas.

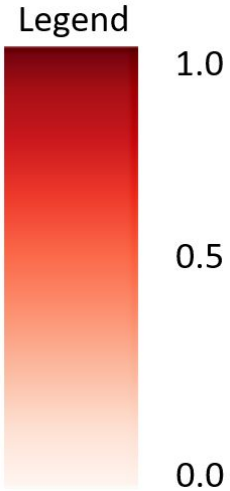
LOW HEAT IMPACT: Areas with UHII equal or close to 0.0 are considered to be areas with very low impact to extreme heat events. These areas experience relatively low temperatures during heat wave events compared to other areas in the city. They also have a low density of vulnerable population residing within the administrative district that contains these areas.

URBAN HEAT EXPOSURE MAP OF HELSINKI, FINLAND

The Urban Heat Exposure Map of Helsinki is a map designed to identify areas within the administrative region of Helsinki that are in direct danger from extreme heat events. This map presents the distribution of Urban Heat Exposure Index (UHEI) across the administrative boundary of Helsinki.

URBAN HEAT EXPOSURE INDEX (UHEI)

The UHEI is an indicator which measures the heat exposure of an urban area in Helsinki to extreme heat events based on the ability of the area to get physically overheated during an extreme heat event. It is measured from all the thermal infrared data collected by NASA Landsat 8 satellite for the summer months (June, July and August) of each year between 2018 to 2021 and from the archived weather data from the Finnish Meteorological Institute (FMI). The UHEI ranges from 0 to 1 and have been represented from the colour gradients presented below:



HIGH HEAT EXPOSURE: Areas with UHEI equal or close to 1.0 are considered to be areas with very high exposure to extreme heat events. These areas experience relatively high temperatures during heat wave events compared to other areas in the city.

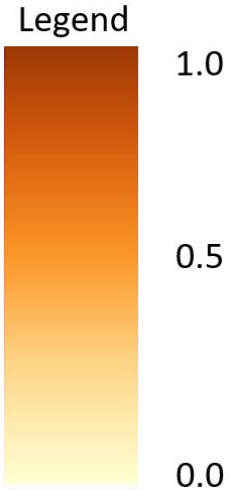
LOW HEAT EXPOSURE: Areas with UHEI equal or close to 0.0 are considered to be areas with very low exposure to extreme heat events. These areas experience relatively low temperatures during heat wave events compared to other areas in the city.

URBAN HEAT SENSITIVITY MAP OF HELSINKI, FINLAND

The Urban Heat Sensitivity Map of Helsinki is a map designed to identify areas within the administrative region of Helsinki which can have significant strength of human reaction to extreme heat events. This map presents the distribution of Urban Heat Sensitivity Index (UHEI) across the administrative boundary of Helsinki.

URBAN HEAT SENSITIVITY INDEX (UHSI)

The UHSI is an indicator which measures the heat sensitivity of an urban area in Helsinki to extreme heat events based on the density of vulnerable population, which are the very young (Age < 16) and elderly people (Age > 64) residing within that area. It is measured from the data obtained for the population and their age-group distribution of Helsinki from the Greater Helsinki Open Statistical Databases for the year 2021. The UHSI ranges from 0 to 1 and have been represented from the colour gradients presented below:



HIGH HEAT SENSITIVITY: Areas with UHSI equal or close to 1.0 are considered to be areas with very high sensitivity to extreme heat events. They have a high density of vulnerable population residing within the administrative district that contains these areas.

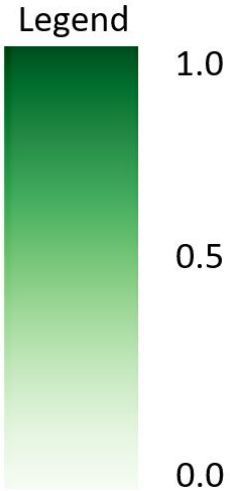
LOW HEAT SENSITIVITY: Areas with UHSI equal or close to 0.0 are considered to be areas with very low sensitivity to extreme heat events. They have a low density of vulnerable population residing within the administrative district that contains these areas.

URBAN HEAT ADAPTIVITY MAP OF HELSINKI, FINLAND

The Urban Heat Adaptivity Map of Helsinki is a map designed to identify areas within the administrative region of Helsinki that have the ability to cope with, recover and adjust to the impacts of extreme heat events. This map presents the distribution of Urban Heat Adaptivity Index (UHAI) across the administrative boundary of Helsinki.

URBAN HEAT ADAPTIVITY INDEX (UHAI)

The UHAI is an indicator which measures the adaptivity of an urban area in Helsinki to extreme heat events based on the level of greenery and moisture present in that area which can provide relief to the residents in that area. It is measured from the enhanced vegetation index and normalized difference water index data collected by ESA Copernicus Sentinel-2 satellite for the day 26.07.2021. The UHAI ranges from 0 to 1 and have been represented from the colour gradients presented below:



HIGH HEAT ADAPTIVITY: Areas with UHAI equal or close to 1.0 are considered to be areas with very high adaptivity to extreme heat events. These areas have a high level of greenery and moisture which means that this care provides strong natural relief to its residents from extreme heat.

LOW HEAT ADAPTIVITY: Areas with UHAI equal or close to 0.0 are considered to be areas with very low adaptivity to extreme heat events. These areas have a low level of greenery and moisture which means that this care provides poor natural relief to its residents from extreme heat.