



Tokyo

Heavy rains and water management

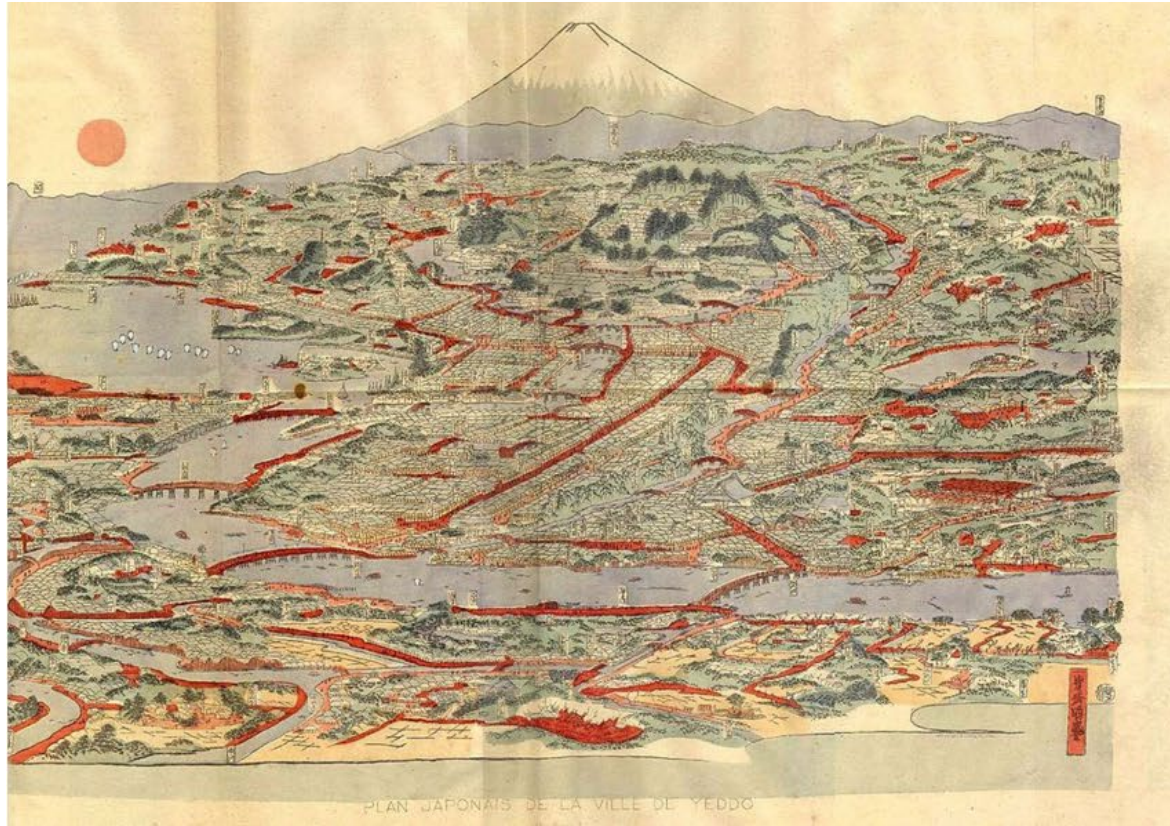
Arthur Guillot – Le Goff

*Spatial planning for flood protection - University of Ljubljana
Autumn semester of 2021*

Table of contents

- The Japan nature paradox
- Tokyo the boiling and drowning city
- Water management in the biggest megacity

The Japan nature paradox



Edo city stamp and nowadays Tokyo skyline (Wikipedia, Jan Christopher Becke)

The Japan nature paradox

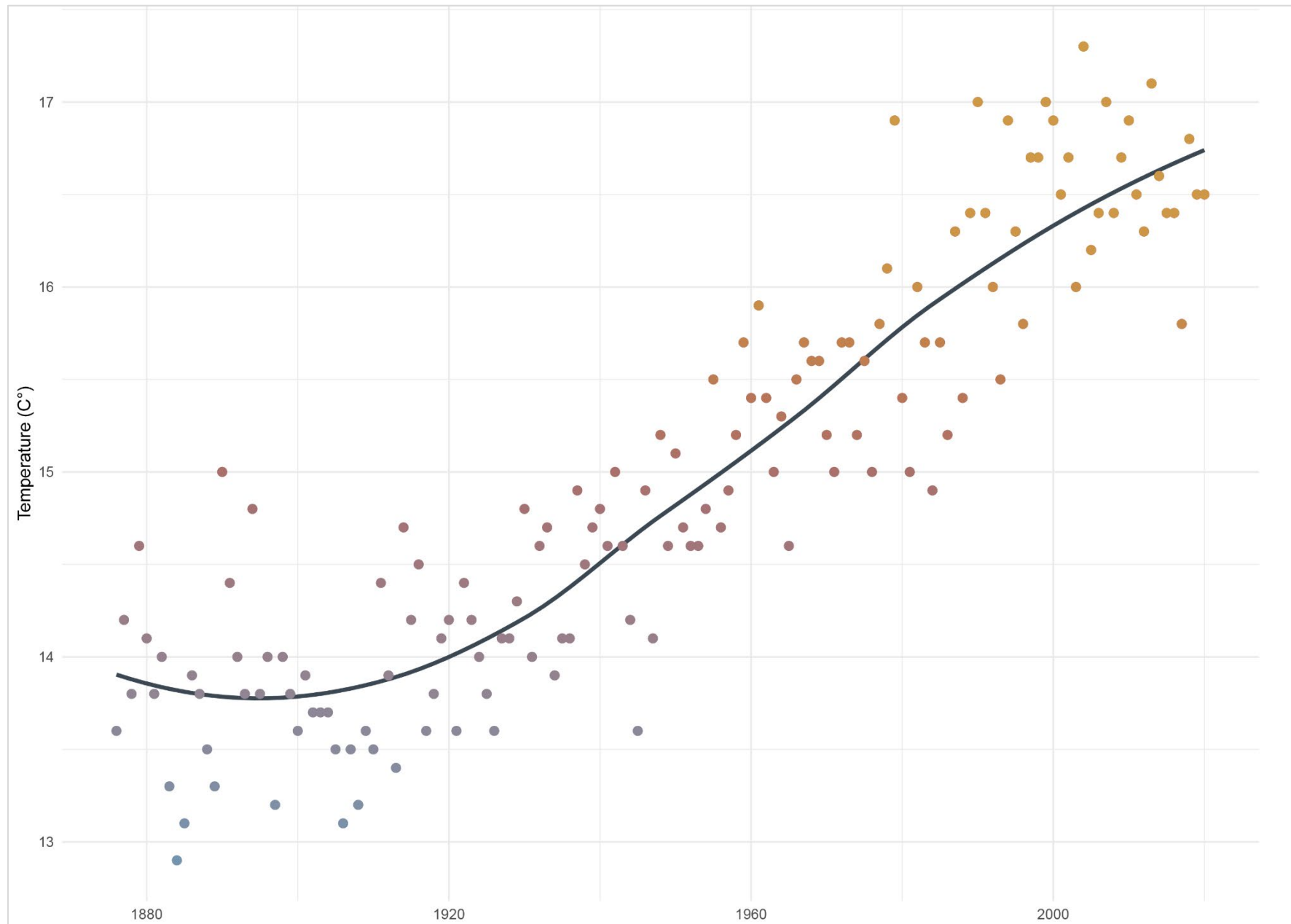
- Kami, the source of disasters
- Wealth and the burden of the monsoon
- Otarcism and the acceptance of foreign technology



Namazu to Kaname-ishi or 'Namazu and the Foundation Stone', (1855), artist unknown.

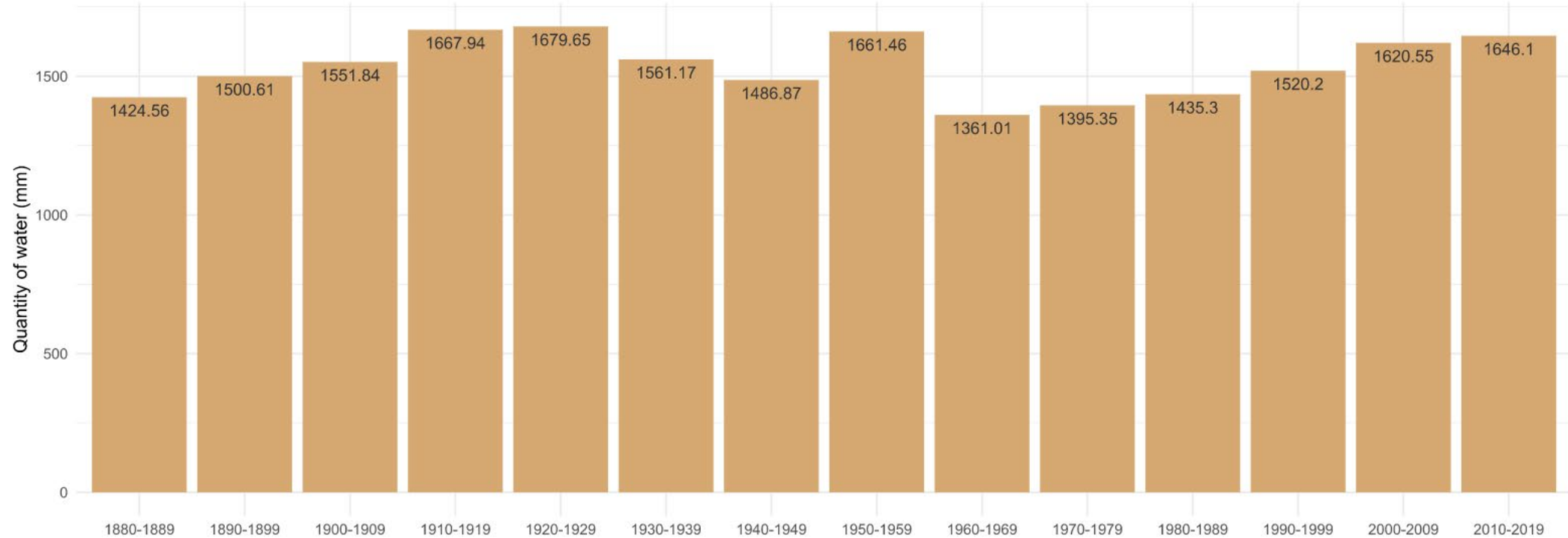
Source: Tokyo Metropolitan Library

The boiling and drowning city



*Average annual
temperature measured
at the WMO weather
station in Tokyo*

The boiling and drowning city



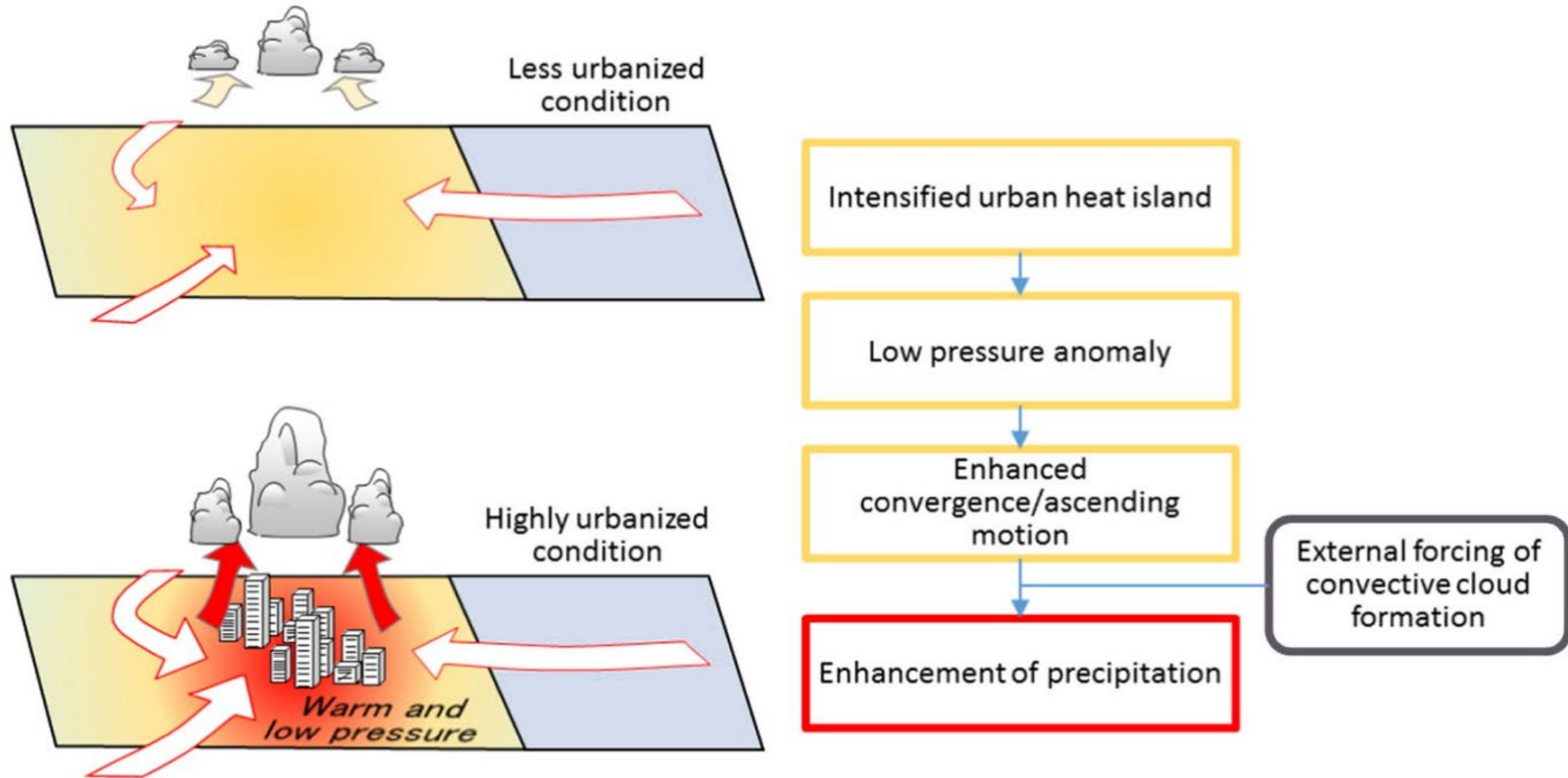
Histogram of rainfall per decade measured at the WMO weather station in Tokyo

Rainfalls of more than :

- 2 inches (50cm), increase of 30%
- 3 inches (76cm), increase of 70%

The boiling and drowning city

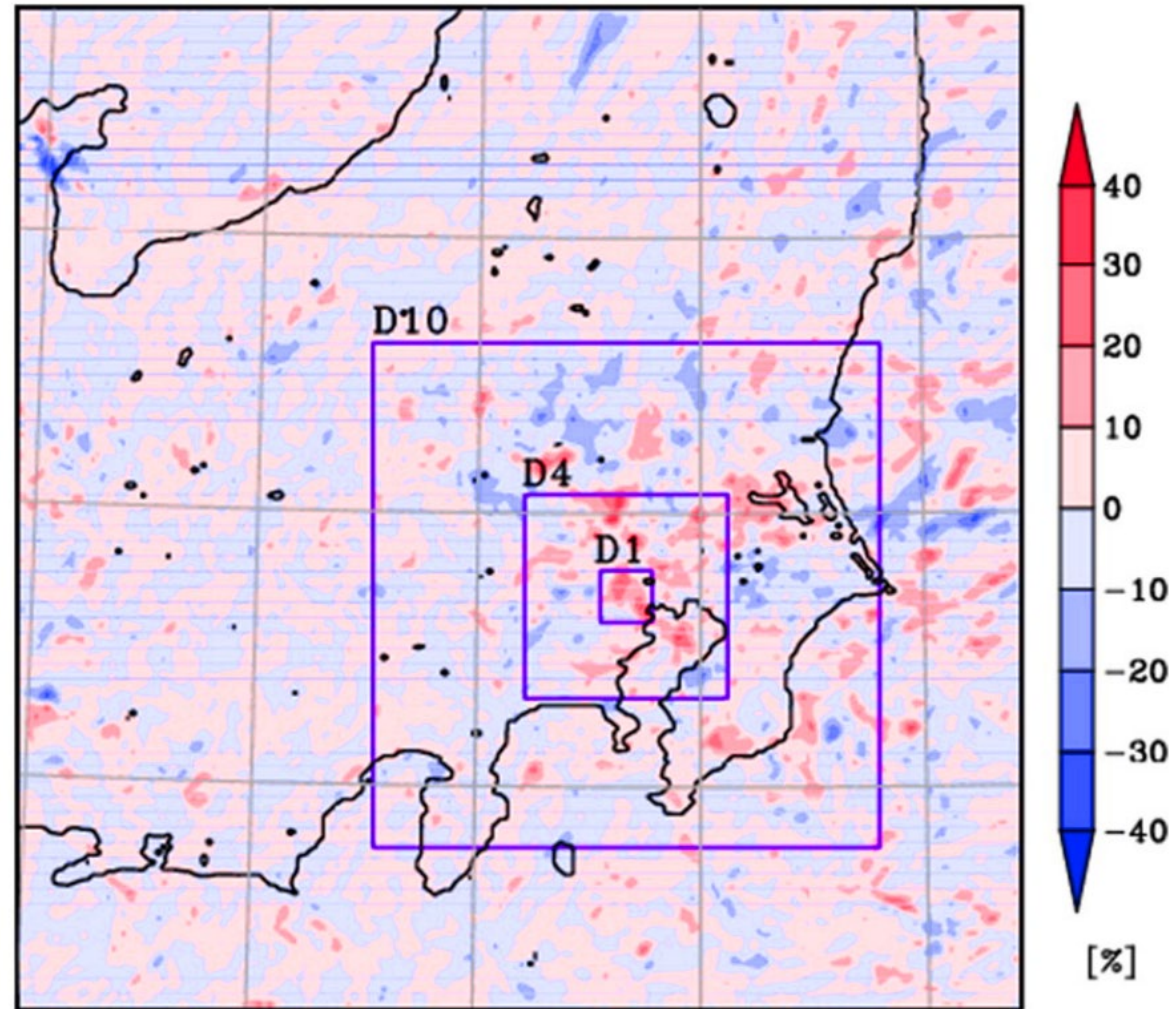
The path between urbanization and heavy rains



Schematic illustration of the impact of urban temperature rise on precipitation and relevant process (from N. Seino et al. / Urban Climate 23 (2018) 8–35)

The boiling and drowning city

One take is all we need



Map displaying the simulated rainfall amount in the case of very dense urbanisation minus the simulated rainfall amount where urbanisation is low (results reduced to a percentage)

Water management in the biggest megacity

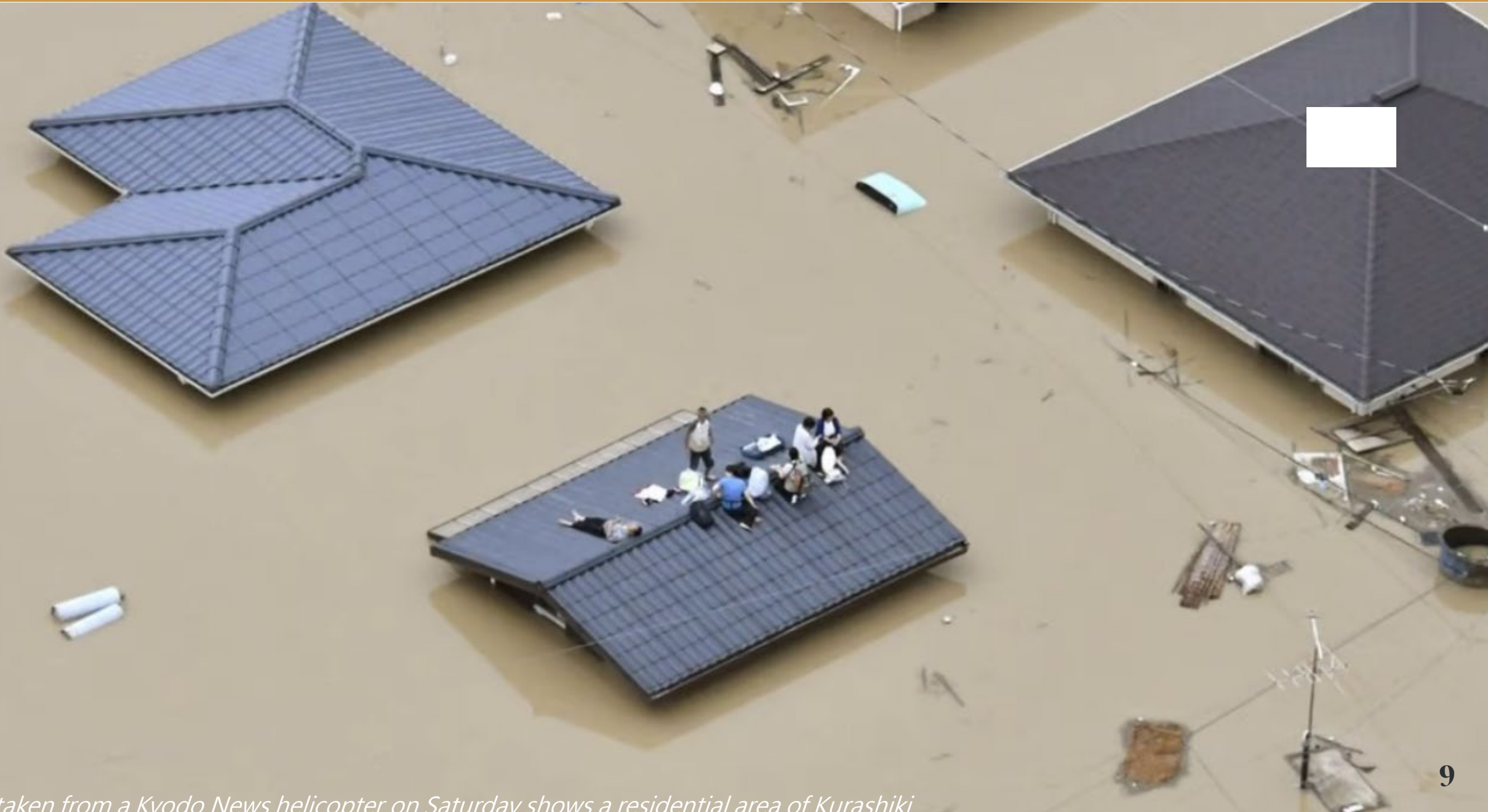
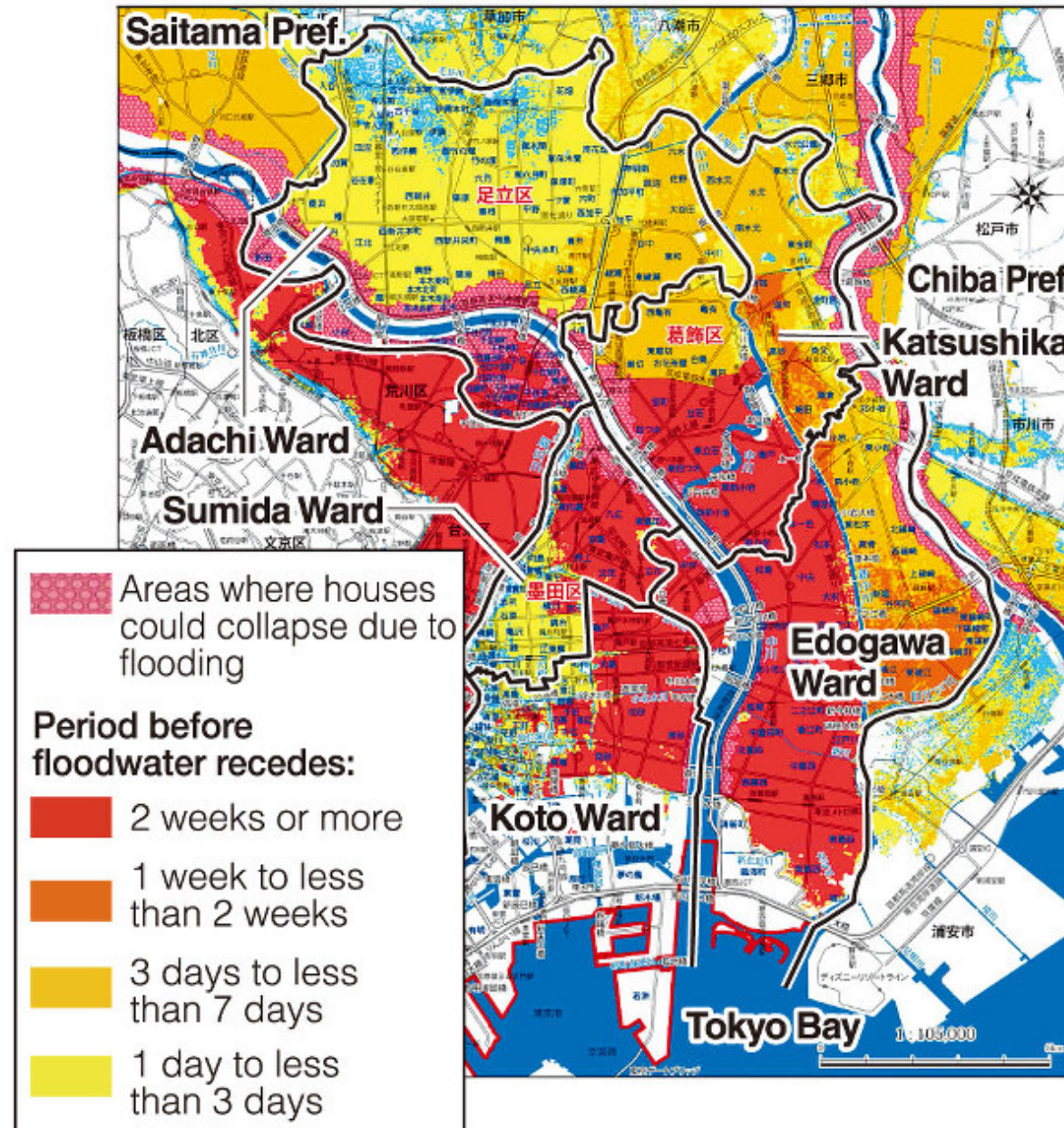


Photo taken from a Kyodo News helicopter on Saturday shows a residential area of Kurashiki

Water management in the biggest megacity



A hazard map released by five wards in eastern Tokyo (Prefecture of Tokyo)

- High standard improved levee
- Multifunctional design c

Photo of a super-levee on the Edogawa in Tokyo (William Veerbeek)



- Various channels operating through large gates
- Unpredictable flood events
- protects the whole of eastern Tokyo

Photo of the Iwabuchi Sluice Gate



- break the momentum of the rainwater
- manage a one in a 200-year flood
- saved \$1.1 billion since it was commissioned in 2006



Conclusion



WANTO, Painting a fill-in