GIZ Project
Strengthening of Urban Resilience in the Areas
of Supply Infrastructure and Housing in Ukraine

20.09.2024

EXPERT WORKSHOP

KNOWLEDGE TRANSFER FOR RESILIENT NEIGHBOURHOODS IN UKRAINE

співпраця з німеччиною
DEUTSCHE ZUSAMMENARBEIT

Виконавець
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

RPTU SP

insar stadt architektur region

TECHNISCHE HOCHSCHULE LÜBECK

hcu HafenCity Universität Hamburg

Program

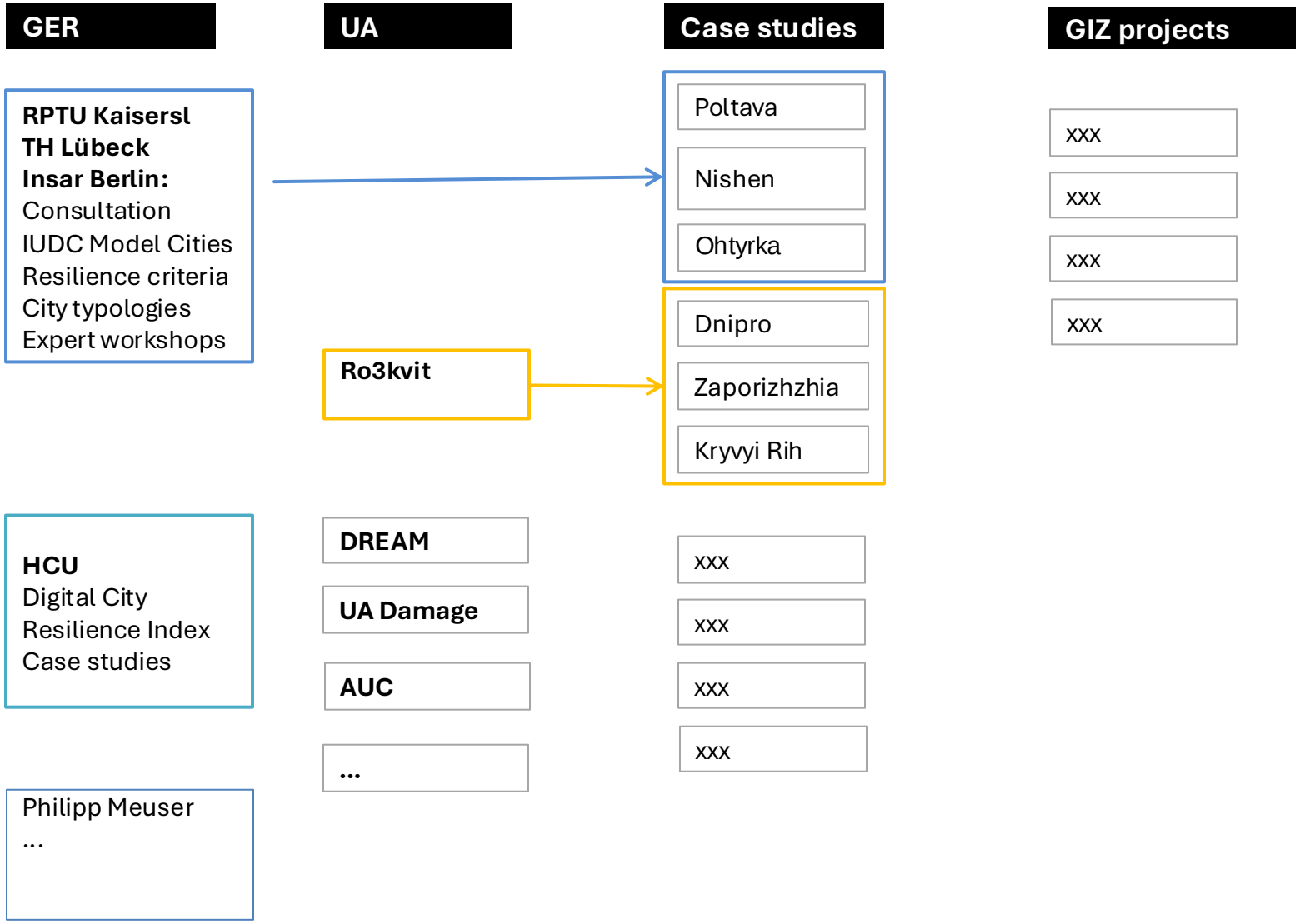
Time MET	*Topic*	*Presenters*
09.00	Welcome	GIZ
09.15	Introduction to the workshop	RPTU, THL, Insar
09.25	Criteria of vulnerability and strategies of resilience in recovery plans	HCU/ RPTU
09.45	Discussion	
10.30	Break	
10.45	Inputs: – Strategies for resilient Ukrainian cities – examples from student projects – Development agencies for urban recovery – experiences from East Germany – Strategies of integrated urban development	Prof. Dr. Liubov Apostolova-Sossa, KNUBA Matthias Klipp, project developer Prof. Hilmar Lojewski, Deutscher Staedtetag
11.15	Needs for urban resilience and recovery plans from municipalities	Ruslan Golub, Tetiana Melnyk, AUC Ukraine
11.35	Discussion	
12.20	Outlook	
12.30	End of workshop	

Participants

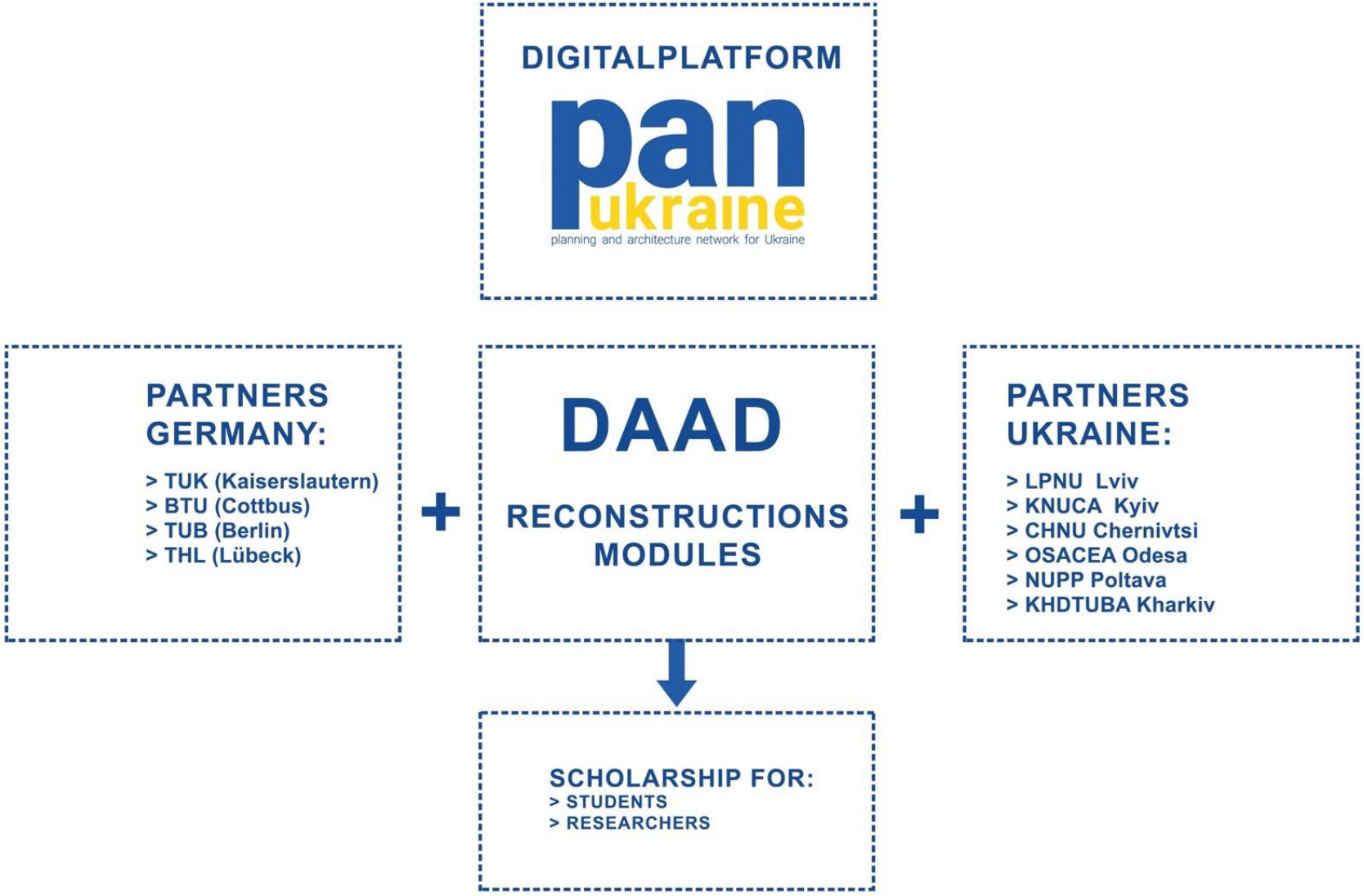
Name	Organisation
Prof. Dr. Liubov Apostolova-Sossa	KNUBA University Kyjiv
Prof. Kees Christiaanse	KCAP Zurich/ ETH Zurich
Ruslan Golub	Association of Ukrainian Cities AUC
Prof. Dr. Stefan Greiving	Technical University Dortmund
Nataliia Kholchenkova	International department Chernihiv
Matthias Klipp	Chief architect Potsdam/ Prenzlauer Berg off duty
Oleksandr Kodola	City mayor Nizhyn, Ukraine
Prof. Hilmar von Lojewski	Department Head, Deutscher Staedtetag Germany
Tetiana Melnyk	Association of Ukrainian Cities AUC
Prof. Dr. Philipp Meuser	Meuser Architects Berlin
Viktor Nestulia	Dream platform Ukraine
Gabriele Nießen	State secretary Bremen off duty
Oleksandr Pechenenk	Institute of the city development, Poltava
Nadiya Pitukova	First deputy mayor Okhtyrka, Ukraine
Prof. Dr. Jan Polivka	Technical University Berlin
Nataliya Sirota	Deputy head of the architecture department Poltava
Maksym Terletsky	Urban Resilience Hub Lviv
Fulco Treffers	Roskvit Ukraine
Yegor Vlasenko	Doctoral Assistant Laboratoire d'Urbanisme Lausanne
Partner from GIZ SUR Project	
Prof. Dr. Joerg Noenning, Maria Dale	HCU Hamburg
Prof. Dr. Detlef Kurth, Anna Kuzyshyn, Poliksen Qorri-Dragaj	RPTU Kaiserslautern
Prof. Christoph Wessling, Yana Maksymchuk	INSAR Berlin
Prof. Frank Schwartze	TH Lubeck
Team from GIZ	
Iryna Bryzhan **Mariia Kostenko** **Joerg Meyer** **Yevgen Losyev** **Erik Schweikhardt**	GIZ

1. Objectives and work packages of our project
2. Background EU objectives Leipzig Charta
3. Intermediate results on urban resilience
4. Discussion

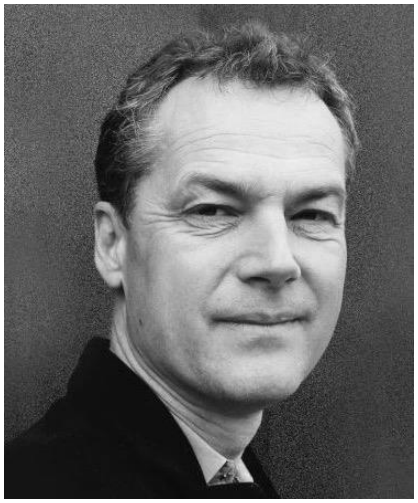
Partner structure GIZ SUR - overview



Partner of panforukraine: www.panforukraine.de



Our team



Prof. Dr. Detlef Kurth
RPTU Kaiserslautern

Anna Kuzyshyn M.Sc.
RPTU Kaiserslautern

Dipl.-Ing. Poliksen Qorri-Dragaj, RPTU Kaiserslautern

Prof. Christoph Wessling, Insar Berlin

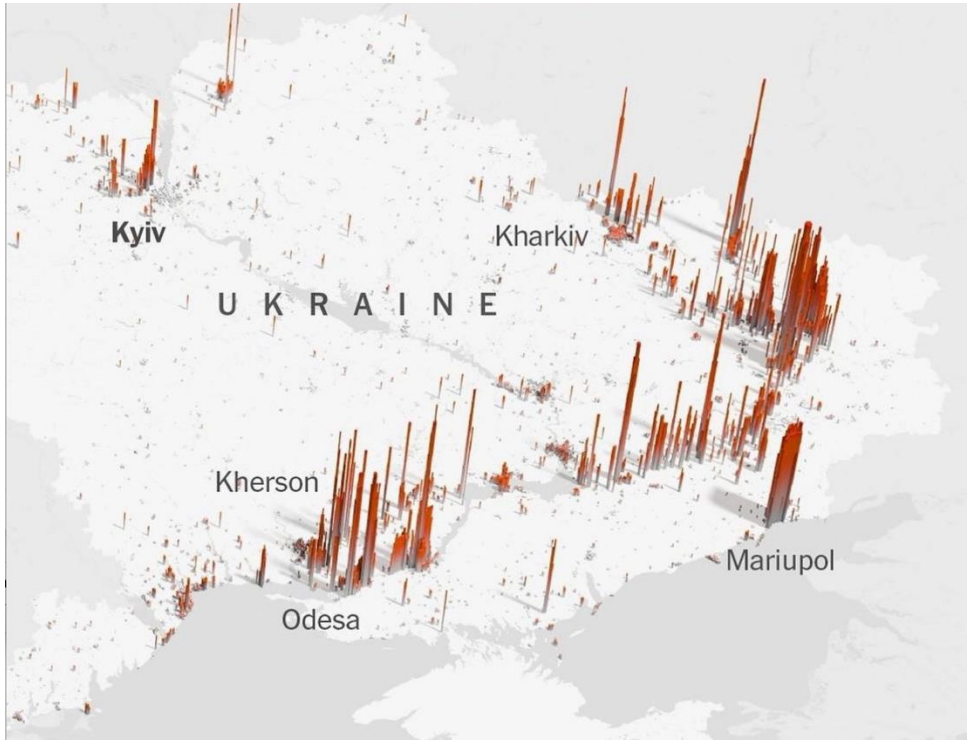
Yana Maksymchuk,
Insar Berlin

Prof. Frank Schwartze, TH Luebeck

Main objectives

Objectives:

- Short-term reconstruction projects need to be balanced with the medium-term goals of integrate urban development – Rapid Integrated Urban Development Concepts (IUDC)
- Ensure that inductive and deductive approaches are implemented in parallel.
- Qualify those responsible in the selected municipalities in terms of municipal planning sovereignty and contemporary urban development planning.
- Consultation, transfer, expert workshops



Damage as a share of built area. Source: InSar data by Jamon Van Den Hoek and Corey Scher,

Main steps

Brief research on resilient neighbourhood development and urban renewal processes

Support in the selection and classification of model municipalities

Advising the model municipalities on resilient neighbourhood development / Interviews

Exemplary neigh-bourhood concept 1

Exemplary neigh-bourhood concept 2

Exemplary neigh-bourhood concept 3

Knowledge transfer and knowledge exchange/ capacity building/ expert workshops

Competence platform for resilient neighbourhood development and reconstruction

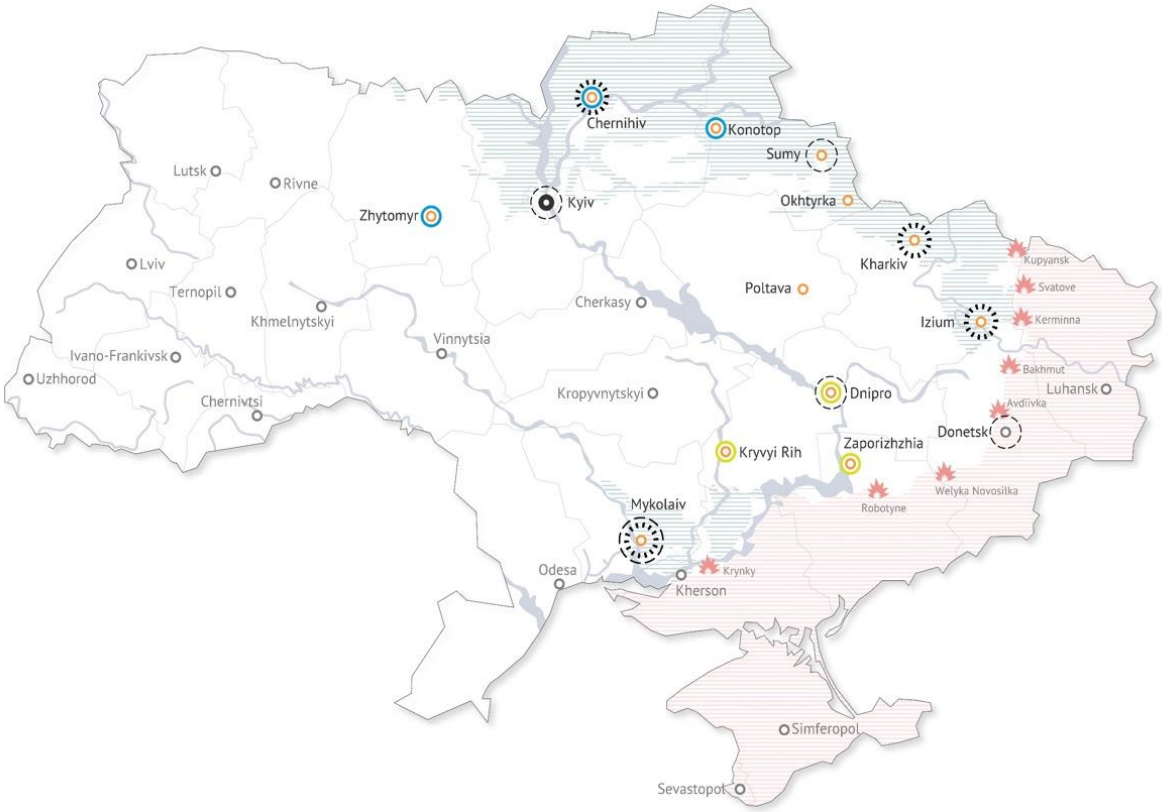
Project coordination, project management, reporting

Typologies and case studies

- Analysis of city typologies in East Ukraine
- Interviews with politicians and stakeholders in selected cities
- Selection of three case studies

Exemplary neighbourhood concepts with aspects of urban resilience for cities of

- Poltava
- Nishen
- Ohtyrka



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Background „Leipzig Charter“ of European Union 2007/2020

Targets of urban development policy:

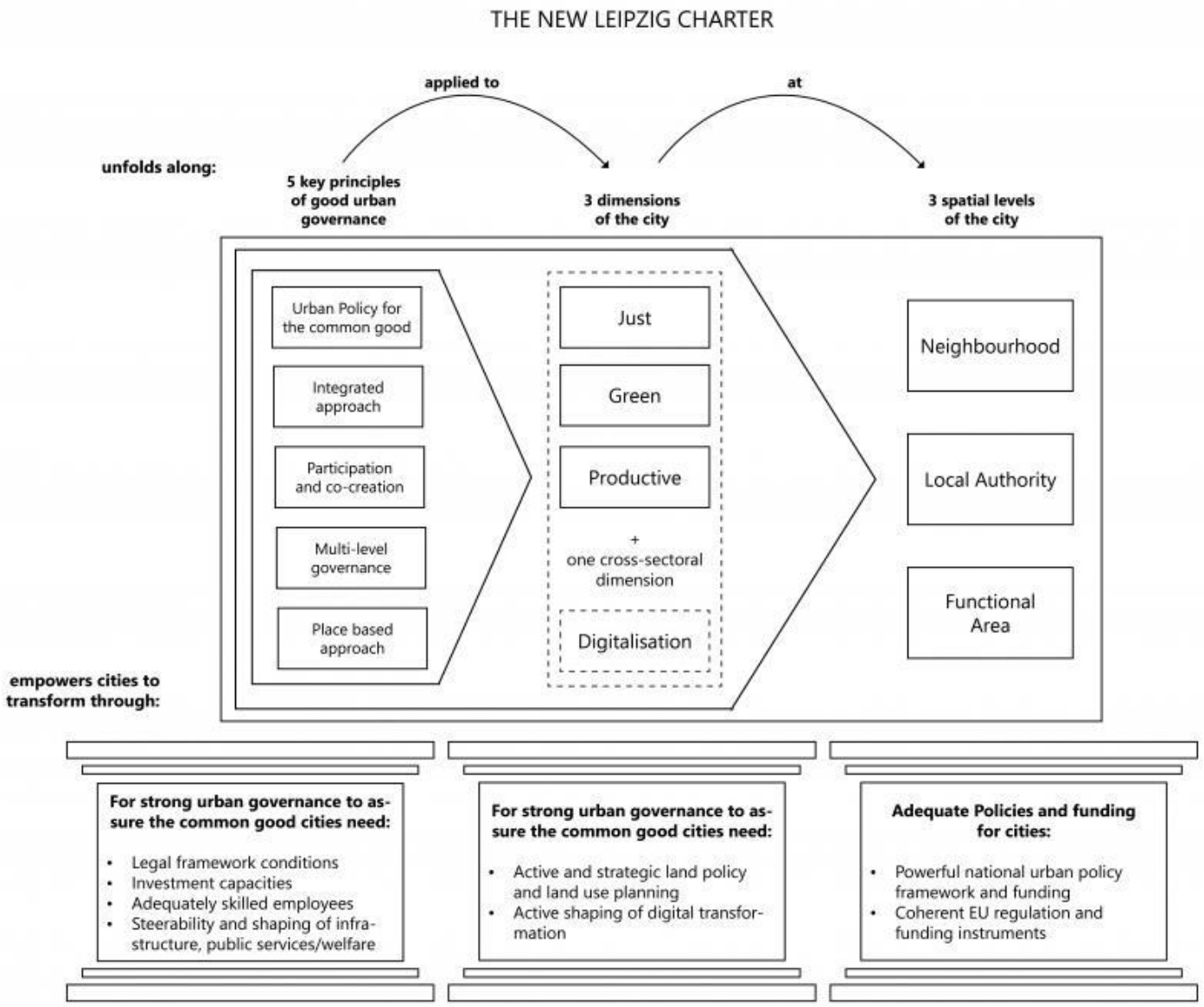
- Limitation of urban sprawl
- Compact and dense urban structures, mixed functions
- Strengthen common good, public infrastructure
- Green and climate adaptive city
- Less car traffic, accessable public space

Integrated approach:

- Multi-level governance, strong municipalities
- Integrated urban development concepts (IUDC)
- Planning as a process, not top-down
- Integrating the objectives of sustainable development

>>> Basis for EU EFRE fundings

Background „Leipzig Charter“ of European Union 2007/2020



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Different kinds of dangers and crisis

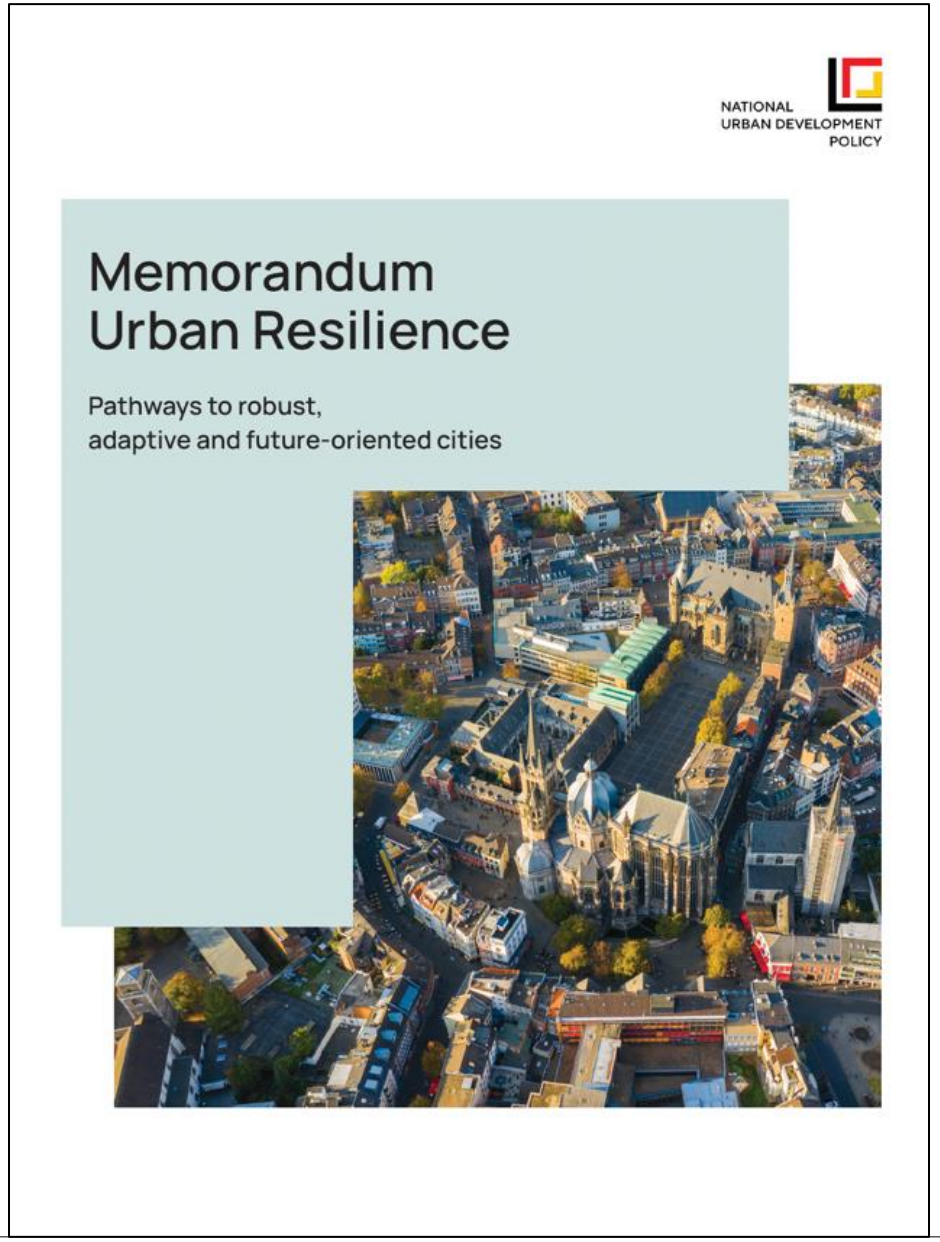
- Natural catastrophes
- Environmental crisis: resources, …
- Economic crisis / bankruptcy
- Financial/ bank crisis
- Political crisis, bad government
- Demographical crisis, aging society
- Failing critical infrastructure
- Security crisis/ terror

UN-Habitat/ Memorandum of „Urban Resilience“ in Germany

Definition **UN-Habitat 2021**:
“Urban Resilience is the measurable ability of any urban system, with its inhabitants, to **maintain** continuity through all shocks and stresses, while positively **adapting** and **transforming** toward sustainability“.

Three dimensions: robust, adaptive, future-oriented

“Building back better”

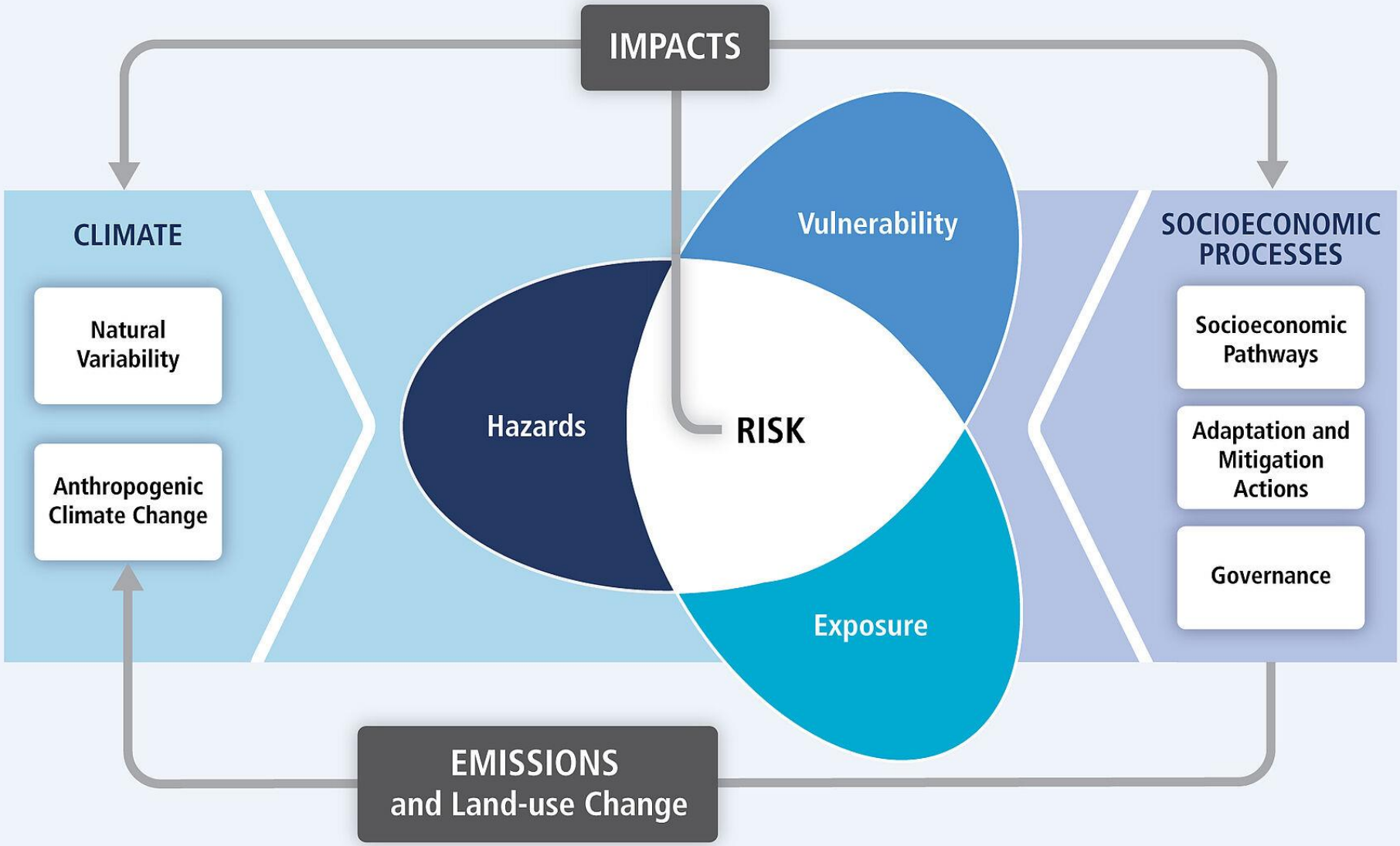


Urban Resilience in Ukraine

Rapid solutions must be found for the acute and persistent threat to people in an ongoing war and daily changing circumstances.

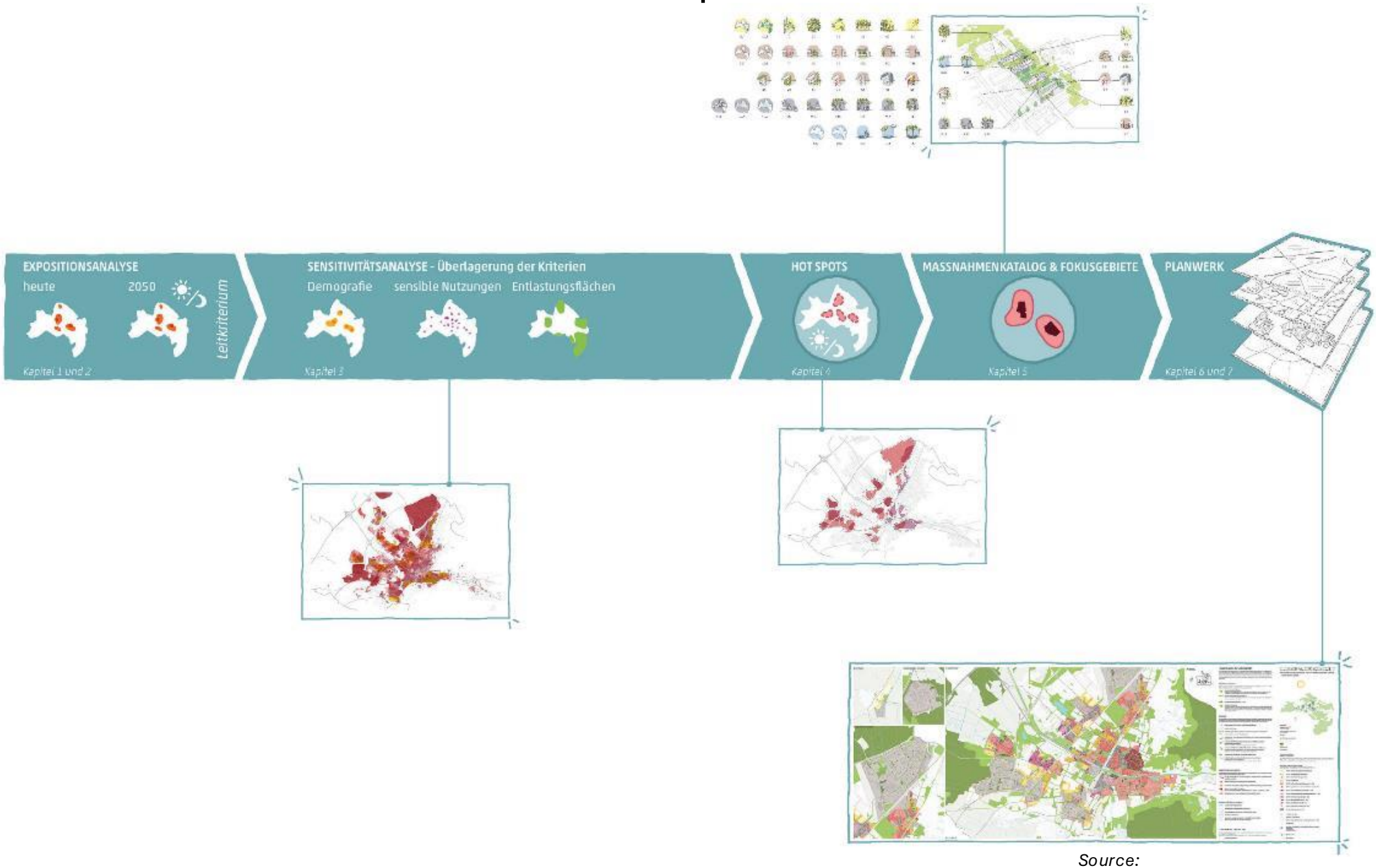
Long-term strategies and scenarios must be developed that take into account the challenging after-effects of the war and at the same time consider all other global challenges like climate change, demographics, resources, security of supply etc.

Urban Resilience Risks



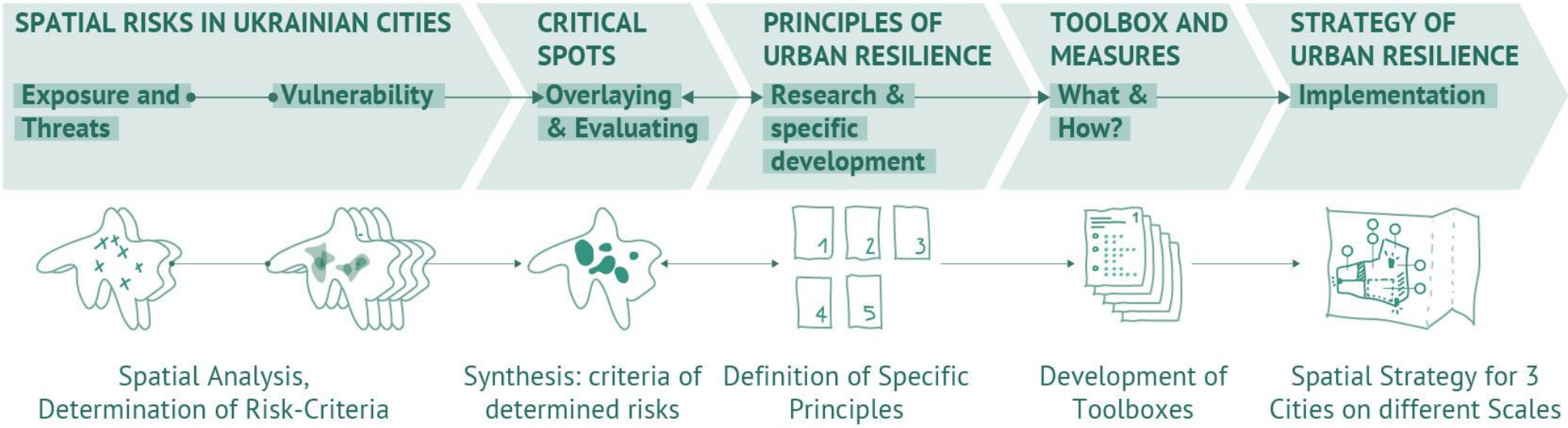
Source:
IPCC, 2014

Urban Resilience Urban Climate Adaptation

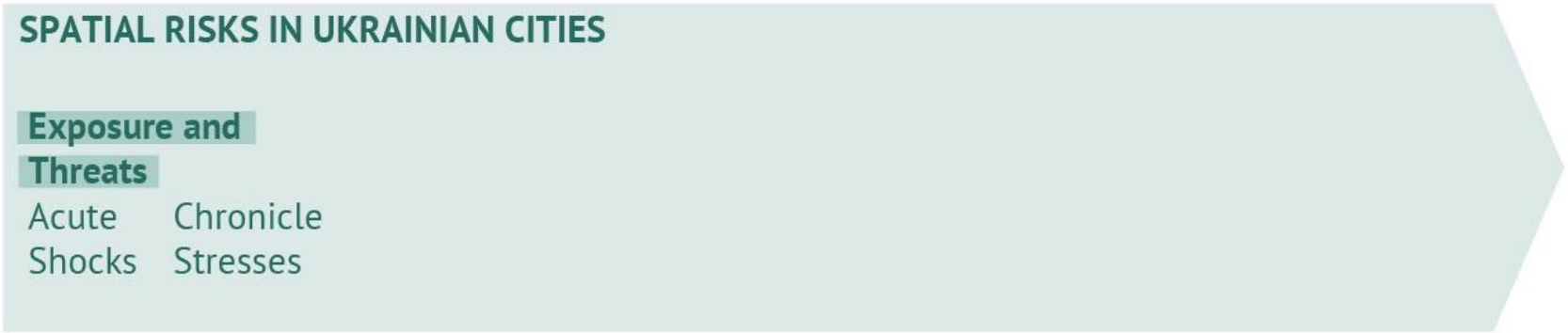


Source:
Climate Adaptation Concept Freiburg
berchtoldkrass, Geo-Net

Urban Resilience Approach



Urban Resilience Exposure and Threats



Acute Shocks

Sudden-onset, disruptive external incidents leading to adverse effects in the urban areas:

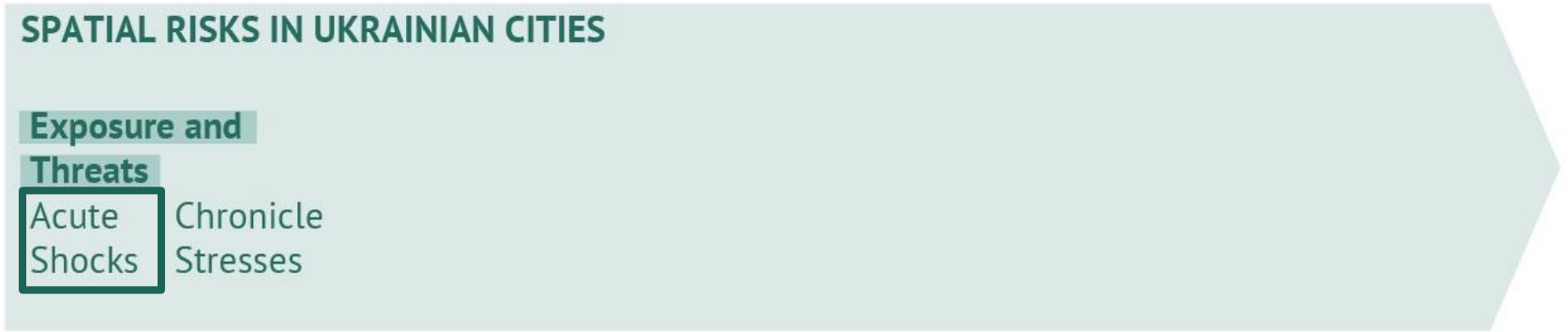
- War
- Natural Disaster
- Technogenic Disaster
- […]

Chronicle Stresses

Chronic pressures whose cumulative impacts undermine city's capacity for resilience:

-Possible aftermaths of war
-Effects of climate change
-Global trends

Urban Resilience Exposure and Threats | Criteria Acute Shocks



Effects of War

War damages / destruction

Emigration and displacement

– Shelter for refugees and IDPs

Ecological effects

– Contamination, pollutants, disruptions to ecosystem structure and services

Economical effects

– shrinking / absence / relocation of business and industry

[...]

Natural Disasters

Heavy rain

Flooding

Extreme Heatwaves

Drought

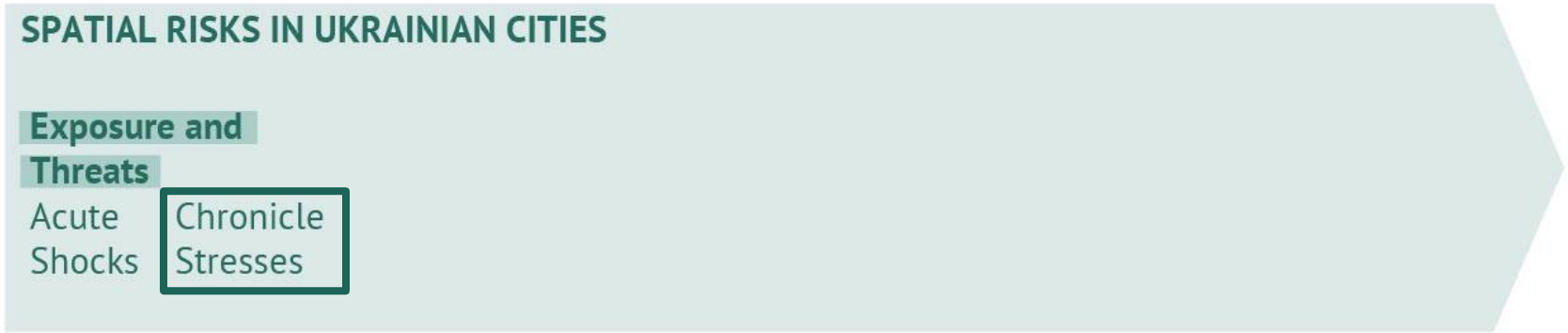
[...]

Technogenic Disaster

– risks of large-scale nuclear disaster

[...]

Urban Resilience Exposure and Threats | Criteria Chronicle Stresses



Effects of Climate Change

Increased Waterlevel

Heat

- Urban Heat Islands
- Bioclimatical Heat Stress
- […]

Possible Aftermaths of War

Architectural and urban heritage

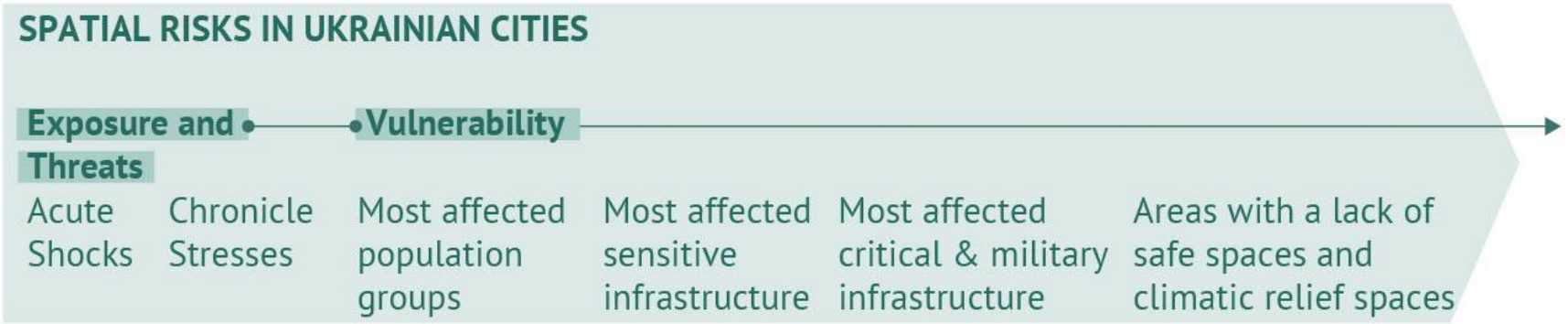
Shrinking / growing cities due to

- Remigration of refugees and IDPs
- Unemployment and poverty
- […]

Global Trends

- Urbanization
- Demographic change
- Rural-urban migration
- […]

Urban Resilience Vulnerability



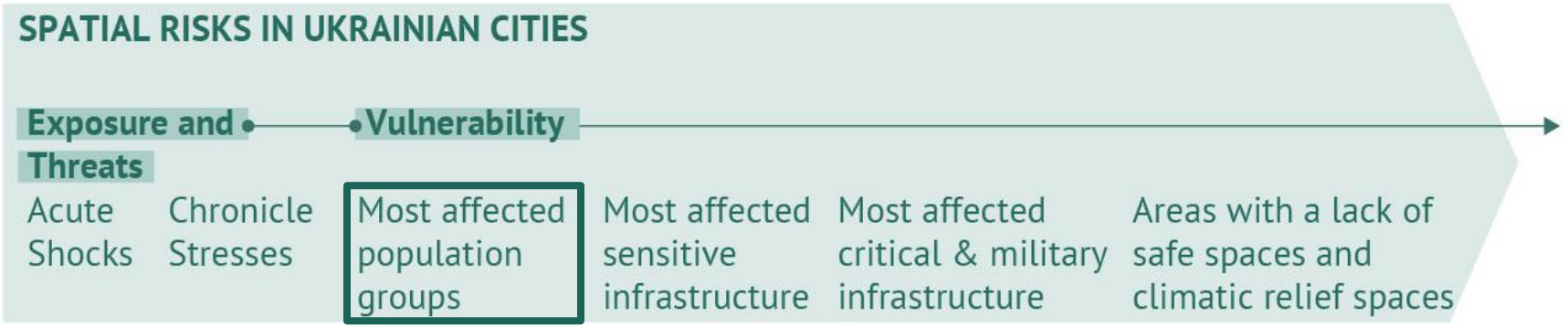
Vulnerability

Areas of a city that are particularly affected by exposure and threats due to certain uses or population structures:

- Areas in which many sensitive population groups live
- Areas with sensitive infrastructures
- Areas with critical and military infrastructures

Identifying these particularly affected, and thus particularly vulnerable, areas is important in order to know where there is the most urgent need for action to create urban resilience.

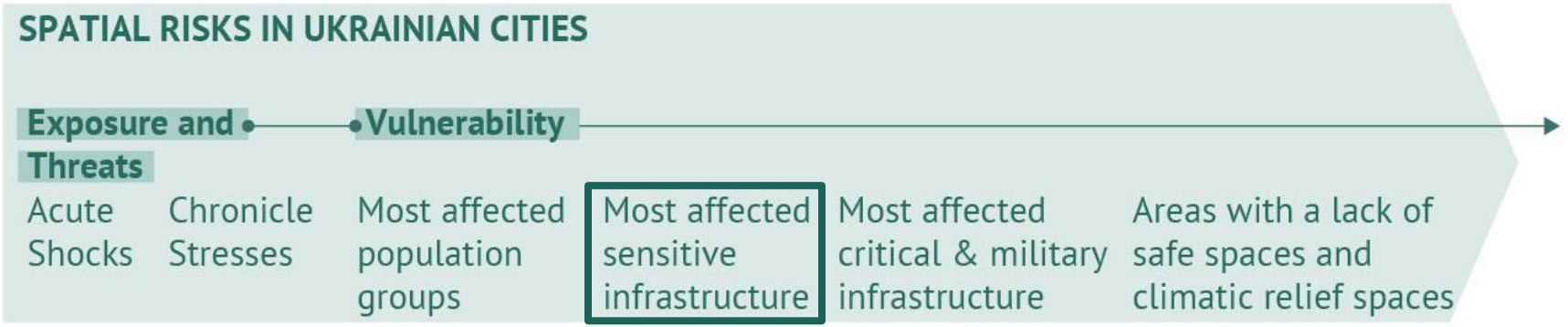
Urban Resilience Vulnerability | Criteria



Population groups

- elderly people
- children / infants
- mobility-restricted people
- traumatized people
- individuals / families with a lower income
- […]

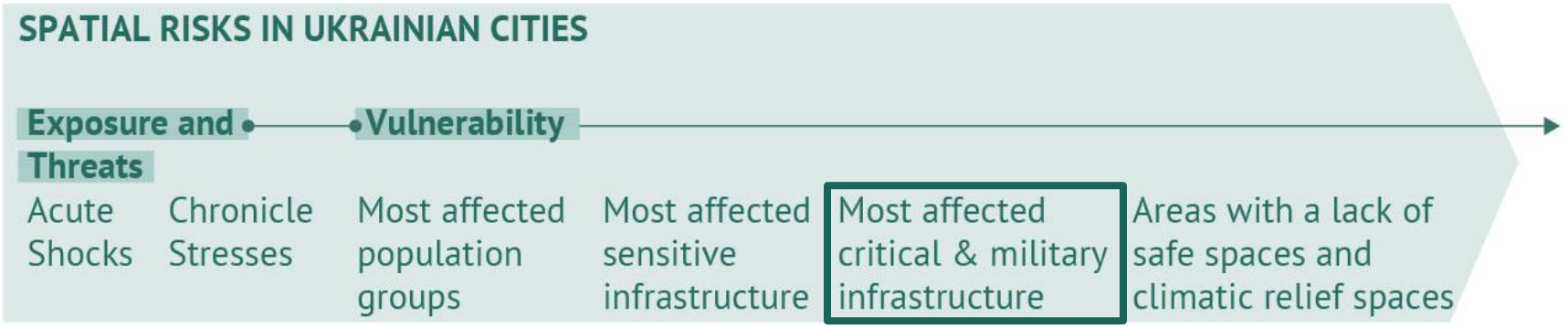
Urban Resilience Vulnerability | Criteria



Sensitive Infrastructure

- Hospitals
- Kindergartens
- Schools
- Retirement homes
- Trauma centers/psychiatric clinics
- Women's shelters
- Shelters/centers for internally displaced persons or those who lost their homes due to hostilities
- […]

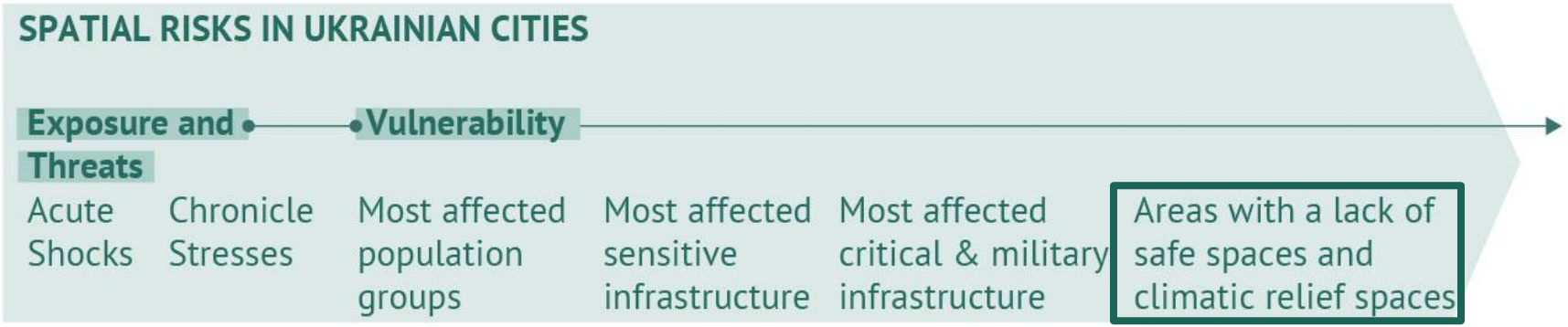
Urban Resilience Vulnerability | Criteria



Critical & Military Infrastructure

- Energy
- Water
- Food
- Information technology & telecommunications
- Health
- Media and culture
- Finance & insurance
- Transportation & traffic
- Municipal waste disposal
- Government & administration
- Military services
- [...]

Urban Resilience Vulnerability | Criteria



Areas with a lack of accessibility to safe spaces and climatic relief spaces

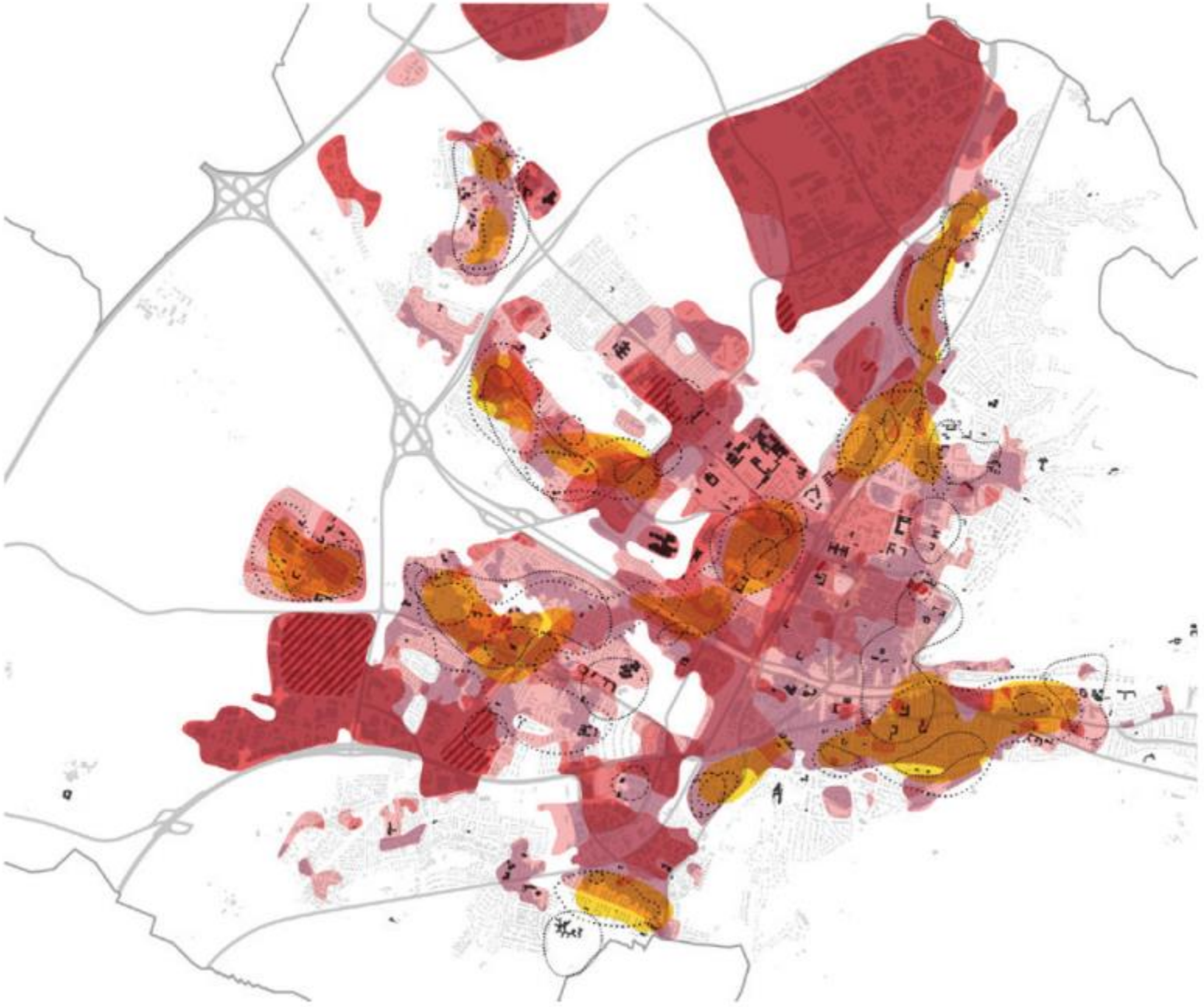
Safe Spaces

- bunker
- shelter
- collection points and emergency routes
- underground stations
- […]

Climatic relief spaces

- Parks
- Schoolyards
- Playgrounds
- Sports fields
- Institutional open spaces
- […]

Urban Resilience Vulnerability



Synthesis of criteria
Daytime Situation

- Population density Total population
- Population density Under 6 years old
- Population density Over 75 years old
- Population density Over 75 years old in 30 years
- Sensitive usages
- Deficit in relief areas in heat-stressed areas

Heat-stress
Daytime Situation

- Today high
- 2050 high
- 2050 very high
- 2050 highest

City-wide Vulnerability on heat-stress in Freiburg

Source:
Climate Adaptation Concept Freiburg
berchtoldkrass, Geo-Net

Urban Resilience Critical Spots

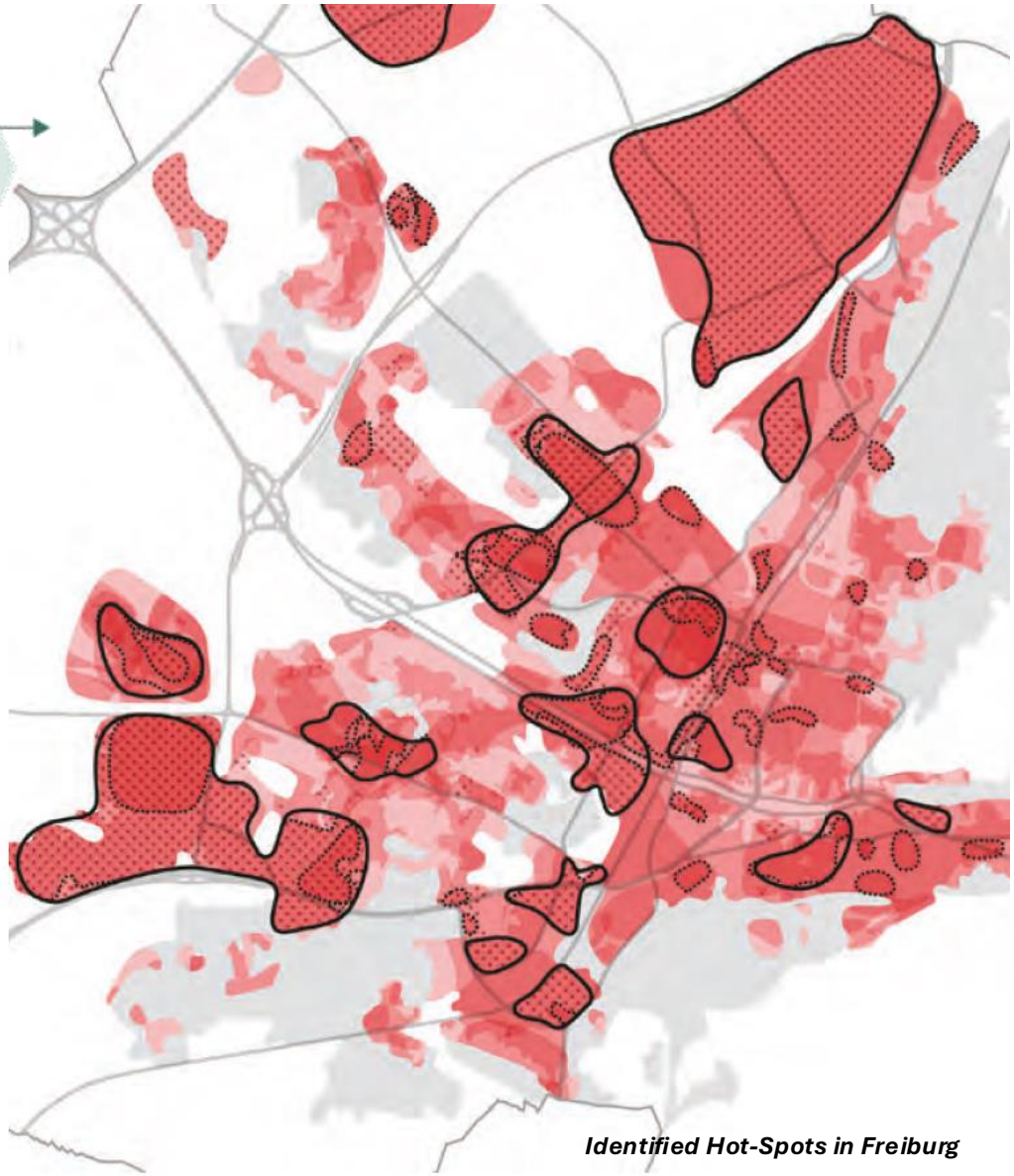
Critical Spots

Synthesis, overlaying and evaluation from planning perspective of spatial criteria and indicators of determined risks within a city or quarter

Urban Resilience Critical Spots

Critical Spots

Synthesis, overlaying and evaluation from planning perspective of spatial criteria and indicators of determined risks within a city or quarter



Identified Hot-Spots in Freiburg

Source:
Climate Adaptation Concept Freiburg
berchtoldkrass, Geo-Net

Urban Resilience Principles of Urban Resilience

Spatial Principles of Urban Resilience:

Redundancy

Efficiency

Robustness

Flexibility

Diversity

Urban Resilience Principles of Urban Resilience

Redundancy

The same functions are provided multiple times, so that spare capacities (areas and infrastructures) are kept free to be able to react to unforeseeable risks and access them if necessary

Example
A city has multiple power sources, such as solar, wind, and traditional power plants, to ensure continuous electricity supply even if one source fails.

Urban Resilience Principles of Urban Resilience

Efficiency

Spatial functions are planned in a space-saving manner or embedded in existing structures, resulting in efficient spatial structures

Example
A city uses rainwater harvesting and greywater recycling to reduce reliance on the main water supply and manage water resources sustainably.

Urban Resilience Principles of Urban Resilience

Robustness

Robust systems take precautions, are self-sufficient in an emergency and overcome crises independently.

Example
A city continuously maintains and strengthens its bomb shelters and underground bunkers to ensure long-term protection for civilians during ongoing conflict.

Urban Resilience Principles of Urban Resilience

Flexibility

Flexible systems can change, evolve and adapt to changing circumstances

Example
During an unexpected attack, a city quickly converts schools and community centers into emergency shelters and medical facilities to accommodate displaced residents.

Urban Resilience Principles of Urban Resilience

Diversity

Urban systems are less vulnerable to disruptions when different alternatives and choices are provided. Diversity enables a faster response to crises and the ability to adapt to new conditions.

Example
A city's economy is supported by a variety of industries, including technology, manufacturing, tourism, and agriculture, reducing dependence on any single sector.

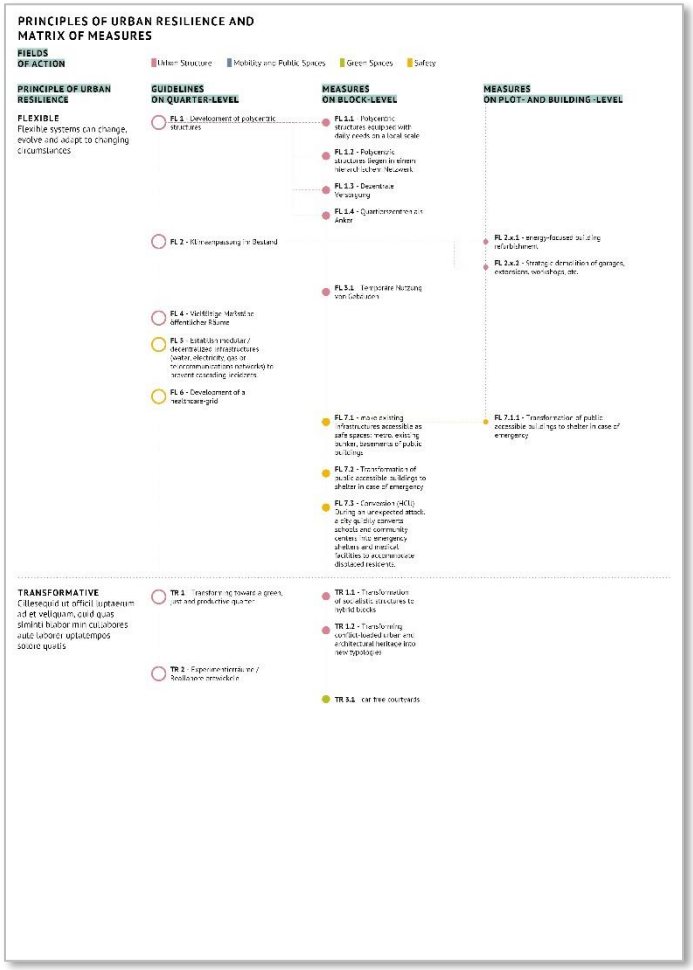
Urban Resilience Principles of Urban Resilience | Matrix of Measures

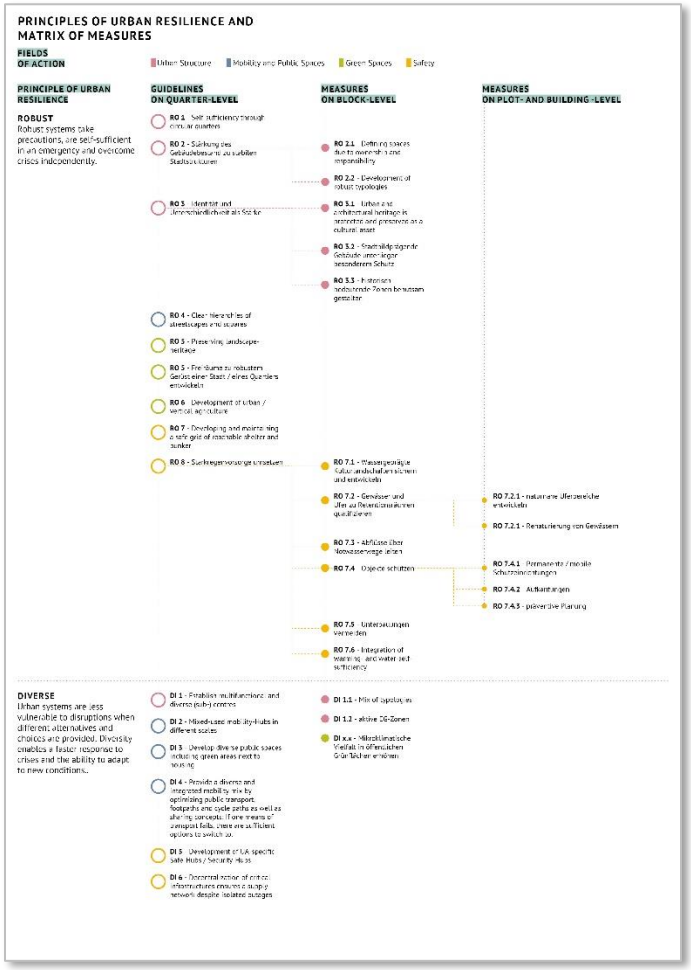
Measures in 4 fields of action

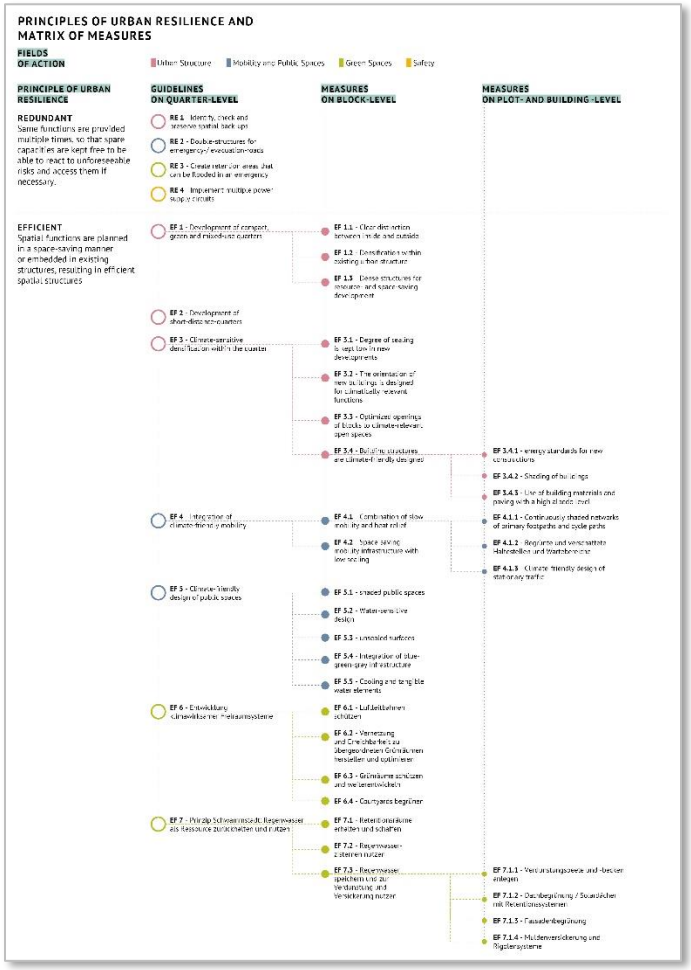
- Urban Structure
- Mobility and Public Spaces
- Green Spaces
- Safety

Measures in 3 Scales

- Quarter
- Block
- Plot / Building







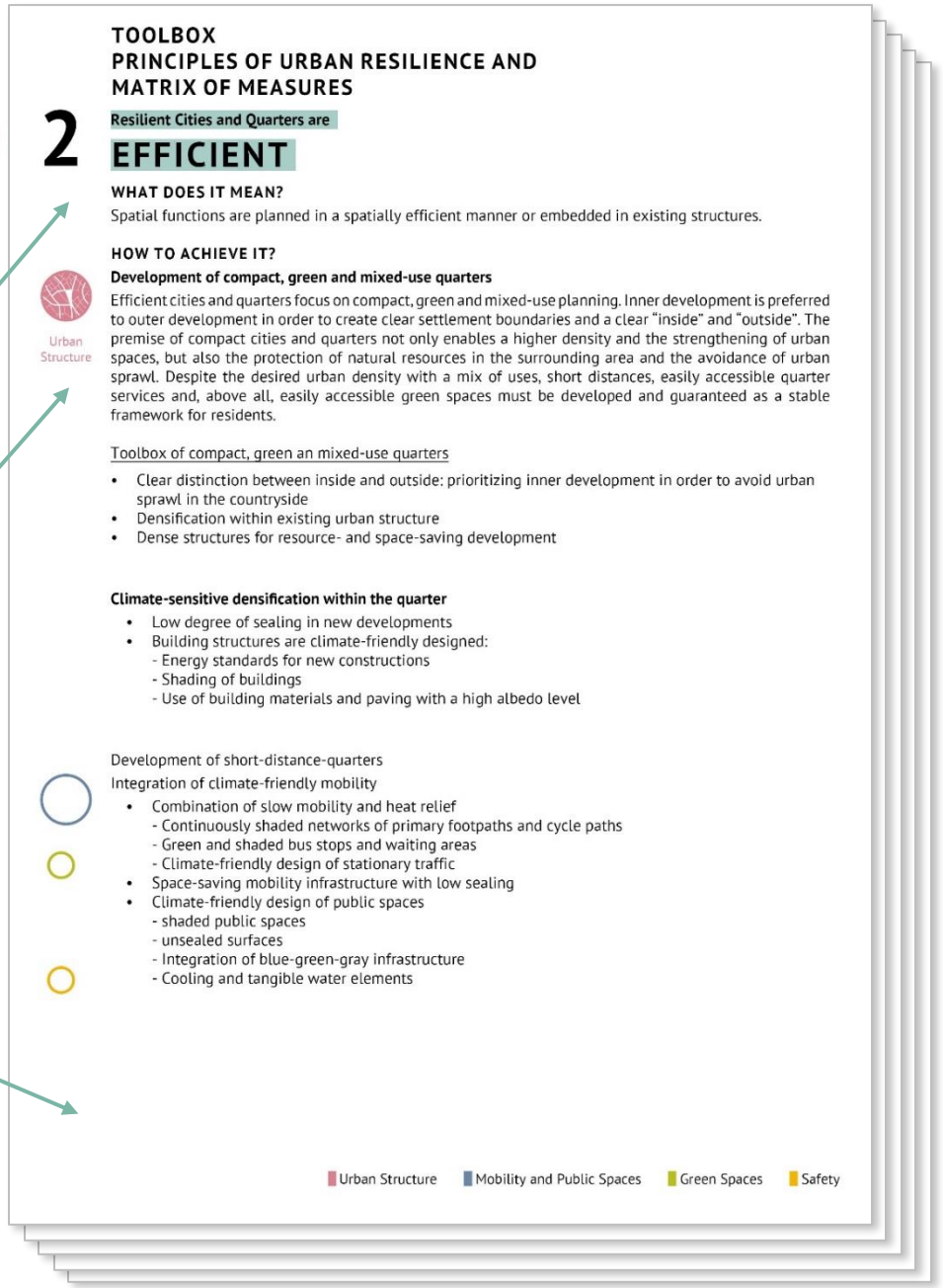
Urban Resilience Principles of Urban Resilience | Toolbox

Toolbox - Structure

Principle of Urban Resilience:
Deascription of what it is

Description of how to achieve it in
- 4 fields of Action
- 3 different scales

Links to further information and best practices



TOOLBOX
PRINCIPLES OF URBAN RESILIENCE AND MATRIX OF MEASURES

2

Resilient Cities and Quarters are

EFFICIENT

WHAT DOES IT MEAN?

Spatial functions are planned in a spatially efficient manner or embedded in existing structures.

HOW TO ACHIEVE IT?

Urban Structure

Development of compact, green and mixed-use quarters

Efficient cities and quarters focus on compact, green and mixed-use planning. Inner development is preferred to outer development in order to create clear settlement boundaries and a clear "inside" and "outside". The premise of compact cities and quarters not only enables a higher density and the strengthening of urban spaces, but also the protection of natural resources in the surrounding area and the avoidance of urban sprawl. Despite the desired urban density with a mix of uses, short distances, easily accessible quarter services and, above all, easily accessible green spaces must be developed and guaranteed as a stable framework for residents.

Toolbox of compact, green an mixed-use quarters

- Clear distinction between inside and outside: prioritizing inner development in order to avoid urban sprawl in the countryside
- Densification within existing urban structure
- Dense structures for resource- and space-saving development

Climate-sensitive densification within the quarter

- Low degree of sealing in new developments
- Building structures are climate-friendly designed:
  - Energy standards for new constructions
  - Shading of buildings
  - Use of building materials and paving with a high albedo level

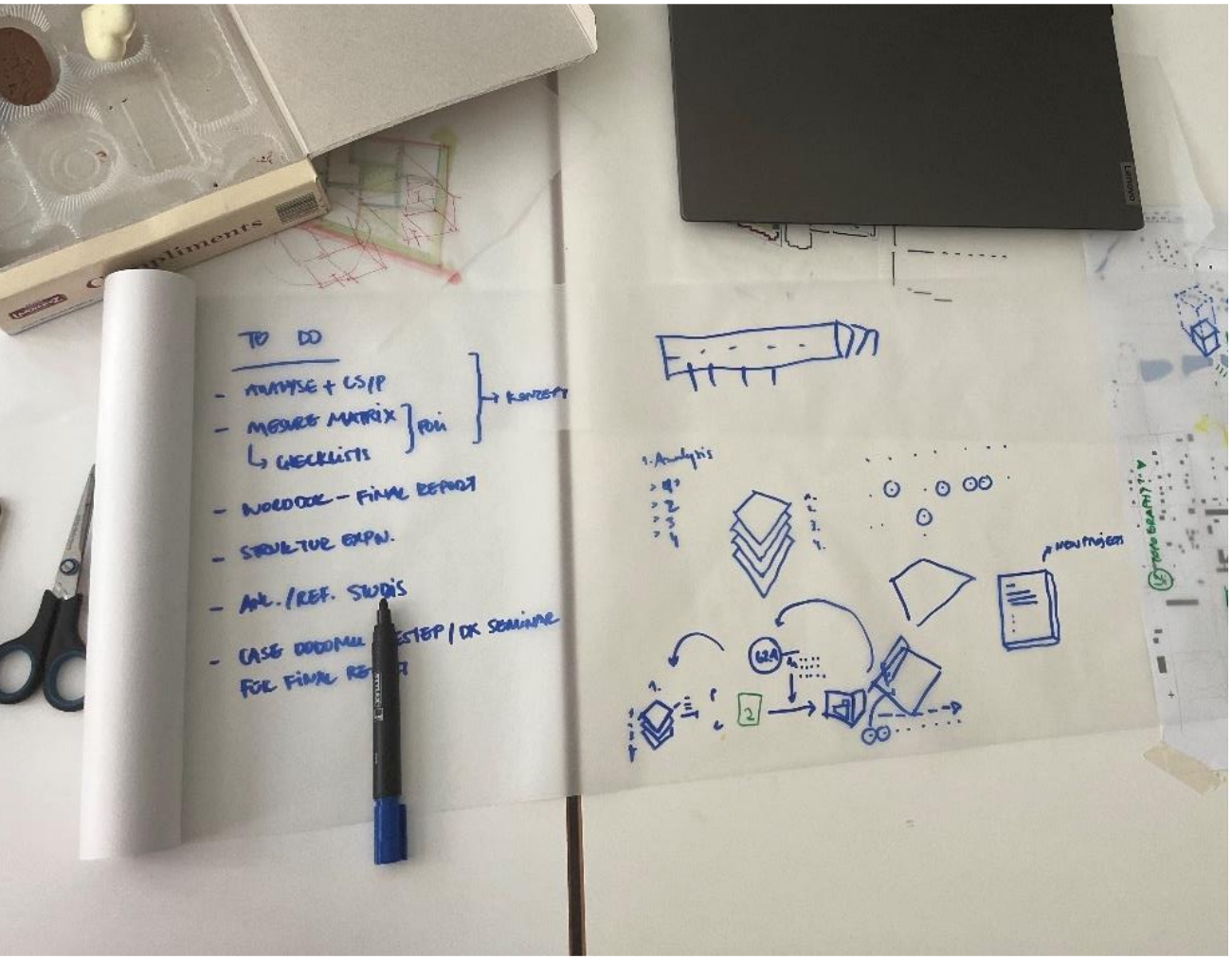
Development of short-distance-quarters

Integration of climate-friendly mobility

- Combination of slow mobility and heat relief
  - Continuously shaded networks of primary footpaths and cycle paths
  - Green and shaded bus stops and waiting areas
  - Climate-friendly design of stationary traffic
- Space-saving mobility infrastructure with low sealing
- Climate-friendly design of public spaces
  - shaded public spaces
  - unsealed surfaces
  - Integration of blue-green-gray infrastructure
  - Cooling and tangible water elements

Urban Structure | Mobility and Public Spaces | Green Spaces | Safety

Urban Resilience Next Steps: Spatial Transfer into a Strategy



Urban Resilience Next Steps: Spatial Transfer into a Strategy