

Zentrum KlimaAnpassung
beraten • vernetzen • gestalten

Challenges and solutions to climate change adaptation and resilience in Germany

Insights from the German Centre for Climate Adaptation (ZKA)

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Im Auftrag des:
Bundesministerium für Umwelt, Klimaschutz, Naturschutz und nukleare Sicherheit

difu Deutsches Institut für Urbanistik

adelphi

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01 Where do German municipalities stand with regard to climate adaptation and resilience?

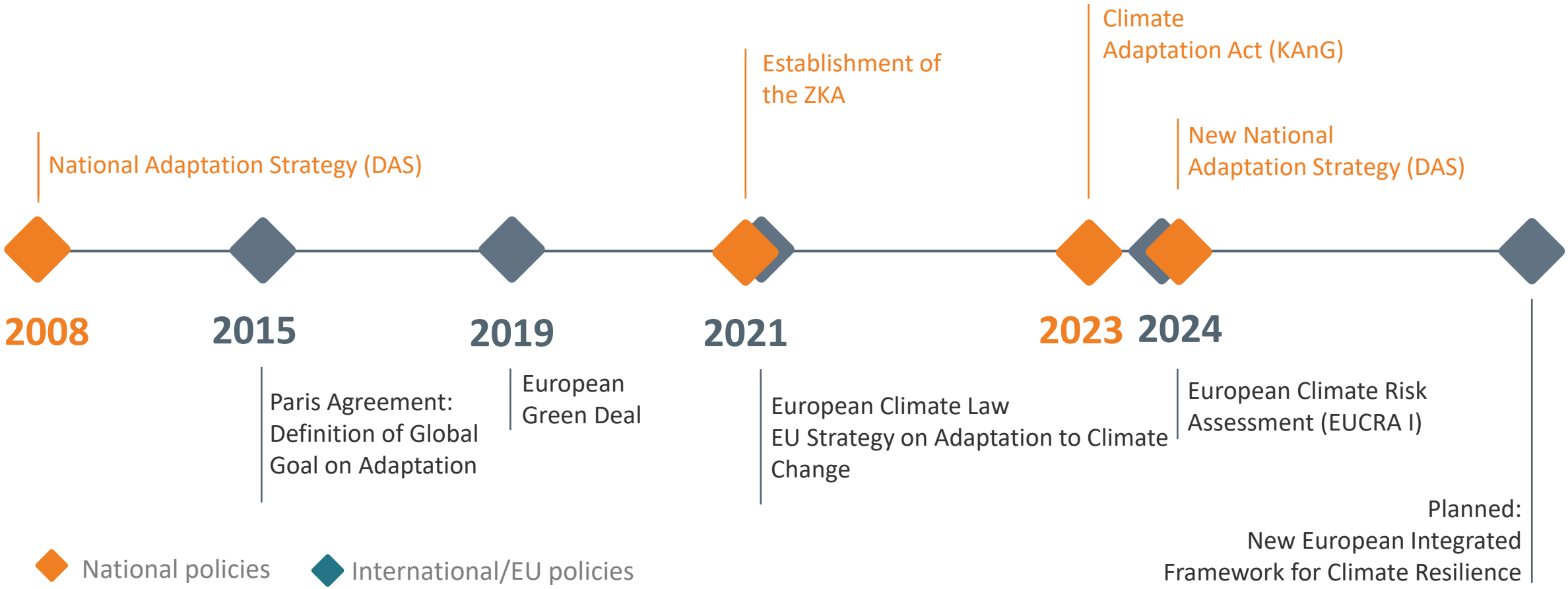
02 What are barriers to municipal climate adaptation?

03 What is ZKA offering as support and advisory facility?



Climate adaptation in Germany – Status Quo

Germany’s adaptation policy in a European and international context



Federal Climate Adaptation Act (KAnG)

First national climate adaptation law in Germany, adopted in December 2023.

Binding framework across all levels of government:

- The federal government must adopt a climate adaptation strategy with measurable targets; federal states are required to develop their own strategies; municipalities are expected to draw up local adaptation concepts based on climate risk analyses.

Mainstreaming obligation:

- Public authorities are required to integrate climate adaptation considerations into all areas of planning and decision-making.

Monitoring and accountability:

- The federal government must regularly monitor progress towards adaptation targets.

German Strategy for Adaptation to Climate Change 2024 (DAS)

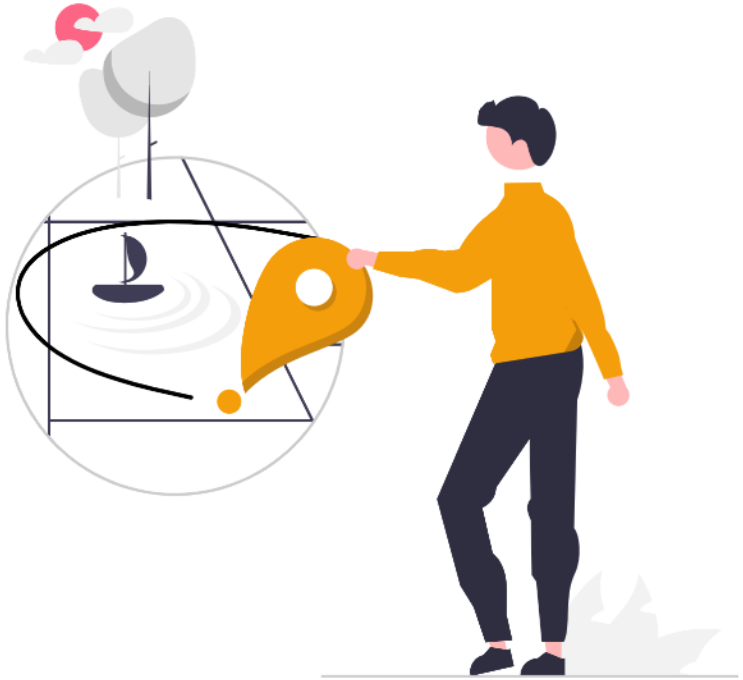
- German adaptation strategy **with measurable targets for the national level**, adopted by the Federal Cabinet in December 2024.
- 33 targets and 45 sub-targets across seven clusters, addressing **infrastructure, water, land and land use, health and care, economy, urban development and spatial planning and civil protection** as well as cross-sectoral topics.
- Over 180 measures to **strengthen resilience** against heatwaves, drought, heavy rainfall and flooding.
- Timeline: Most targets to be **achieved by 2030**, some extending to 2050.
- **Monitoring and review:** Progress measured through indicator-based monitoring system; strategy to be updated every four years.

Local level implementation is key for successful climate adaptation and resilience

Germany's federal structure assigns responsibilities across the national level, the 16 federal states, districts and municipalities, in line with the principle of subsidiarity.

In Germany, 294 districts and 11,000 German municipalities act as key implementers of adaptation measures, as they own and manage critical infrastructure, such as:

- Roads and drainage systems
- Public buildings and hospitals
- Green spaces



Furthermore, social institutions (such as hospitals, old age homes, kindergartens, homeless shelters and social welfare organisations) have an important role as they have direct access to many of those most affected by climate change.

NATURE AND ENVIRONMENT | GERMANY

Germany: June heat wave linked to 5,000 excess deaths

Elizabeth Schumacher with dpa, Reuters
07/09/2026

Several other European Union countries reported thousands of additional dea
became the hottest on record for bloc.



The cost of the heat: 6.3 billion euros in two weeks

> **Our infrastructure is not designed to cope with such heatwaves.**
>
> Lukas Sander, Lead Climate Impacts and Adaptation

The new
extreme
econom

What does heat cost us?

6.3 billion euros was the cost of the **heatwave from 17 to 30 June 2026**.



Barriers to municipal climate adaptation

Municipalities are where climate change becomes lived reality

- High levels of **surface sealing** and **limited green space** amplify climate risks in urban areas
- Climate impacts are creating new challenges for **essential services** — flood protection, water supply, heat and health protection
- Particular importance of **protecting vulnerable groups**
- **Rural municipalities** are equally affected — not just urban centers:
  - Forestry and agriculture under increasing stress
  - Sensitive ecosystems at risk, e.g. wetlands and peatlands



Climate adaptation meets local politics

- A clear majority - **83 % of municipalities are already active on climate adaptation** (UBA municipal survey 2023)
- **Primary driver**: municipalities‘ own experience of climate impacts
- Yet municipal landscape is a mosaic: success in climate adaptation is shaped by **four factors**:
  - Human resources
  - Financial resources
  - Technical expertise and experiences with cross-sectoral processes
  - Political priority



Climate adaptation happens locally

Challenges

- Climate impacts vary significantly by location – adaptation must be **tailored, not templated**
- Sometimes adaptation is already **embedded in mandatory tasks** → everything beyond that is voluntary
- Financially constrained municipalities can rarely invest beyond their mandatory obligations → **cross-sectoral strategies** are needed

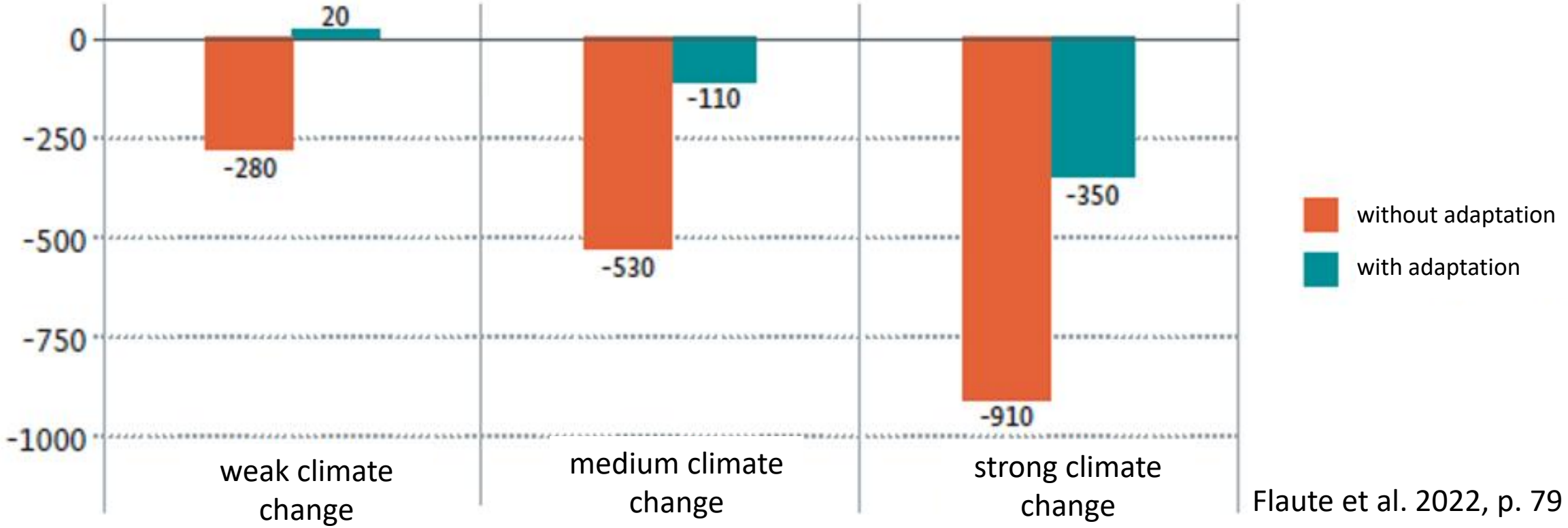
Costs

- **Staff costs** – e.g. climate adaptation managers
- Adaptation **concepts and frameworks**
- External **consultancy and planning services**
- **Quick wins** with high impact – e.g. drinking water fountains, shading structures…
- **Major investments** – e.g. green-blue infrastructures

Financing climate adaptation

Economic impacts of adapting to climate change

Cumulative impact on real GDP in billions of euros (rounded to the nearest 10) for the period 2022–2050



Flaute et al. 2022, p. 79

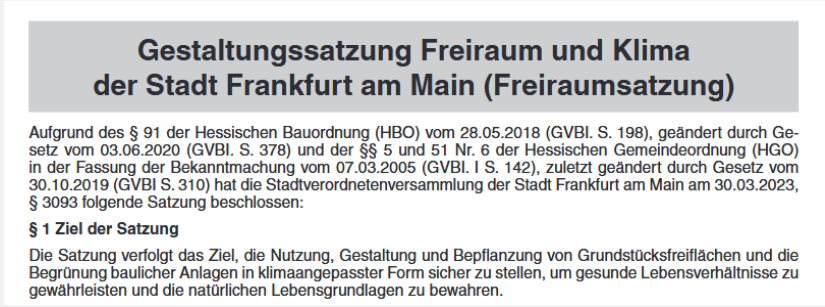
Financing through mandatory municipal tasks

„Anyway measures" approach

- **Creation and maintenance of green and open spaces**
  - Optimising regularly funded measures to incorporate climate adaptation objectives
- **Urban development projects, particularly the redevelopment of conversion sites**
  - Integration adaptation from the outset in planning processes
  - Building regulations, statutes and urban development contracts — securing climate adaptation investments, including by private developers

Example

For example, **Frankfurt am Main's Open Space and Climate Design Statute** (Freiraumsatzung, adopted 9 May 2023) requires the **greening of all unsealed surfaces** on developed plots across the entire city — securing green cover as a binding standard citywide.



Gestaltungssatzung Freiraum und Klima der Stadt Frankfurt am Main (Freiraumsatzung)

Aufgrund des § 91 der Hessischen Bauordnung (HBO) vom 28.05.2018 (GVBl. S. 198), geändert durch Gesetz vom 03.06.2020 (GVBl. S. 378) und der §§ 5 und 51 Nr. 6 der Hessischen Gemeindeordnung (HGO) in der Fassung der Bekanntmachung vom 07.03.2005 (GVBl. I S. 142), zuletzt geändert durch Gesetz vom 30.10.2019 (GVBl S. 310) hat die Stadtverordnetenversammlung der Stadt Frankfurt am Main am 30.03.2023, § 3093 folgende Satzung beschlossen:

§ 1 Ziel der Satzung

Die Satzung verfolgt das Ziel, die Nutzung, Gestaltung und Bepflanzung von Grundstücksfreiflächen und die Begrünung baulicher Anlagen in klimaangepasster Form sicher zu stellen, um gesunde Lebensverhältnisse zu gewährleisten und die natürlichen Lebensgrundlagen zu bewahren.

https://www.bauaufsicht-frankfurt.de/fileadmin/Downloads__alle/Sonstige/Freiraumsatzung.pdf?_=1683621752

Intermunicipal cooperation and joint projects

- **Learning from experiences** of other municipalities – realistic assessment of resources
- **Intermunicipal projects** – shared planning and implementation
  - Funding programmes often allow joint applications – increasing competitiveness and reducing administrative burden per municipality
- **Cooperation with universities, research institutions and businesses** – accessing expertise and co-financing

Example

The **intermunicipal flood protection concept** for the Bocholter Aa river and its subsequent implementation protects the frequently flood-affected municipalities of Velen, Borken, Rhede and Bocholt from inundation caused by heavy rainfall events.



https://www.hochwasserallianz-bocholter-aa.de/



About ZKA

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ZKA at a glance

Zentrum KlimaAnpassung

- **Founded:** 2021 by Federal Ministry for the Environment
- **Operated by**: German Institute of Urban Affairs (Difu) and adelphi consult
- **Purpose:** National hub supporting local climate adaptation through a wide array of tailored, cost-free services
- **Main target groups:** Local actors such as districts, municipalities and social institutions
- **Role:** First point of contact for all climate adaptation matters

On behalf of:

Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

difu Deutsches Institut für Urbanistik

adelphi

The four core missions

How does the ZKA support local adaptation?



Multi-level cooperation within the network of adaptation actors

National level

Federal ministries and agencies
Municipal umbrella associations
Social welfare organisations

Federal state level

Climate adaptation competence centres
Federal state administrations



Other actors

Research institutes, associations, civil society organisations

Local level

Public administrations (e.g. climate adaptation managers)
Social institutions (e.g. dedicated adaptation officers)

5 years of ZKA

Our offers reached over 90% of all municipalities in Germany



over *5.000*

advisory services (via phone and E-Mail)



45

Weekly webinars every year



over *3.800*

Newsletter recipients

over *6.300*

LinkedIn Follower



over *300*

participants mentoring programme



over 350

climate adaptation managers trained

ZKAs advisory formats

Phone hotline & E-Mail: Mon-Fri, 10am-3pm

Focus consultations: Targeted, on-demand advice

On-site workshops: tailored to the target group, different levels of experience, diverse topics

Weekly webinars: Practice-oriented inputs, space for exchange



On-site workshop on the district level in Storman, November 2025 © ZKA

Learning formats

Training ‘Fit for Climate Adaptation Management’:

2 ½ day modular course for local adaptation managers

Webinars for social institutions:

focused, practice-oriented input for social actors

Learning workshop series on inter-municipal cooperation:

Four sequential sessions guiding a structured cooperation processes

Mentoring:

Peer-to-peer learning and collegial consultation



Network formats

Annual online networking conference: Two-day online format, combines expert input, thematic discussions, networking and peer exchange

Regional climate adaptation workshops: In-person, supports common knowledge base and identification of concrete measures

Strategic partner network: Federal agencies, state centres, municipalities, German Federal Environmental Agency (UBA) and other institutions



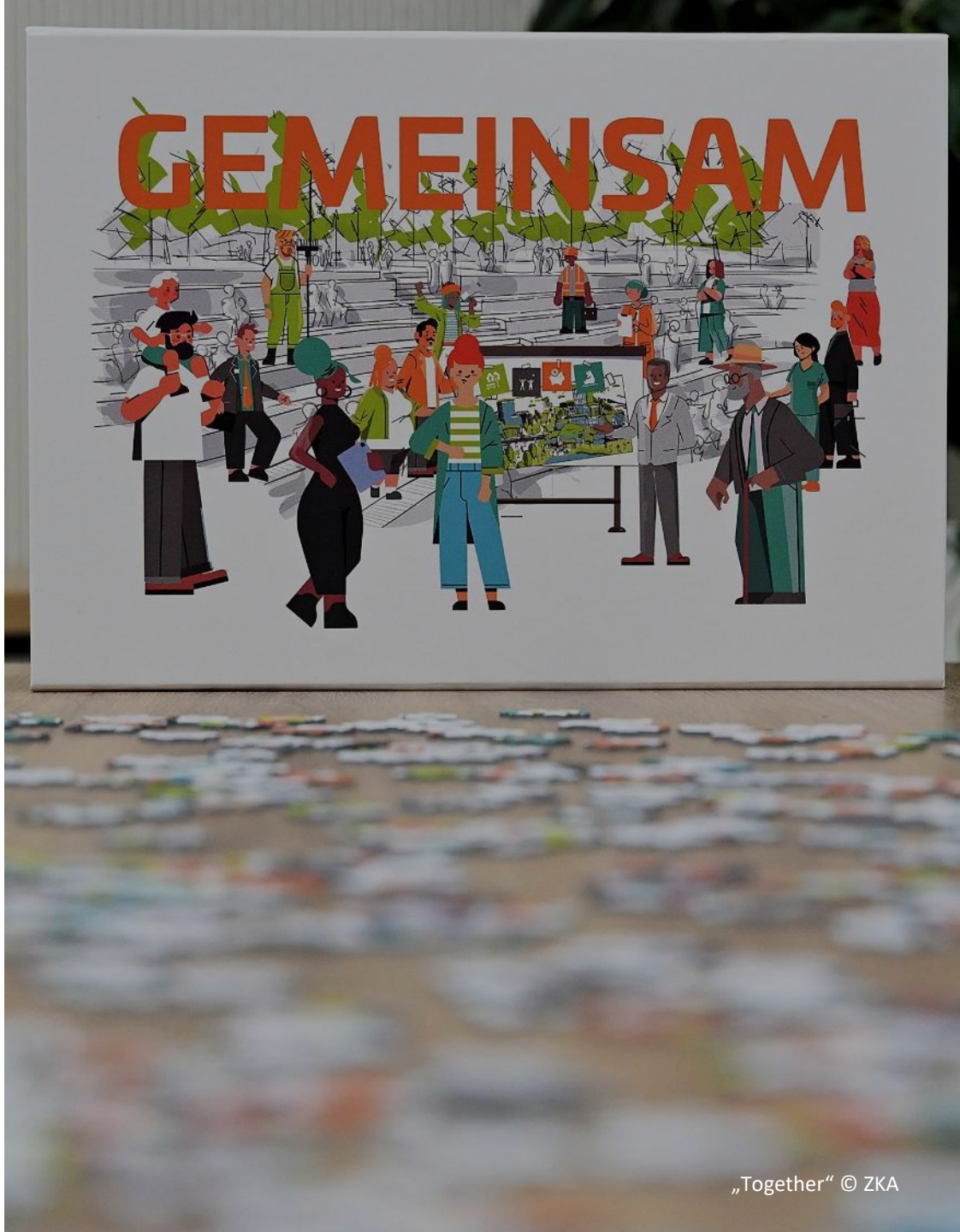
Communication channels

Website:

- Collection of publications, explanatory videos, podcasts
- Overview of adaptation-related events
- Funding and training databases

Direct communication through:

- Newsletters: 4,000+ readers (as of April 2026)
- LinkedIn: 6,000+ followers (as of April 2026)
- Active press relations



„Together“ © ZKA

Vielen Dank!

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