

TABLE 5.1

Case studies – Basic information

| Region | Area size | Population | Topographical context / Climatic zone | | Political context | Climate change phenomena featured | Who adapts? |
|--------------------------------------|---|--|--|--|---|---|---|
| Hamburg (Germany) | 755.3 km² ⁽¹⁾ | 1.9 Mio. ⁽²⁾ | Topographical context: coastal city and seaport in a transitional estuarine coastal zone, connection to the North Sea coast through the Elbe, Northern Germany Climatic zone: temperate, maritime climate, average temperature: 9.8°C, average annual precipitation: 720 mm | | City, municipality, and Federal State in the Federal Republic of Germany, parliamentary democracy | Heat waves, groundwater flooding, riverine flooding, coastal flooding, storm surges, pluvial flooding, torrential rain, coastal erosion, sea-level rise | Public bodies (politics, administration), business sector (e.g., Chamber of Commerce), housing industry (e.g., SAGA and cooperatives), citizens |
| São Paulo (Brazil) | 1521 km² ⁽³⁾ | 11.45 Mio. ⁽³⁾ | Topographical context: Brazilian southeast region, 760 m above sea level Climatic zone: humid subtropical climate, average temperature: 20.4°C, average annual precipitation: 1658,3 mm | | City, capital of São Paulo federal state, Democratic Republic of Brazil | Torrential rain, inundation, flooding, landslides, droughts, heat waves | Local government, public administration (environment/climate-related secretariats), civil society, academia |
| Ho Chi Minh City (Vietnam) | 2095.4 km² ⁽⁴⁾ | >10 Mio.* (*pop. of the mega city exceeding administrative borders), according to Stat. Yearbook 2022 = 9.389 Mio inhabitants ⁽⁴⁾ | Topographical context: first mega city of Vietnam, northeastern edge of the Mekong Delta, large parts just 0.5 meters above sea level Climatic zone: tropical monsoon climate | | Most populous city in the Socialist Republic of Vietnam, one-party state, authoritarian style | Heat waves, flooding, torrential rain | Public bodies (politics), households (micro-scale, such as elevated doorways) |
| Northeast Lower Saxony (Germany) | 47614 km² ⁽⁵⁾ | 7.9 Mio. ⁽⁵⁾ | Topographical context: rural northeastern Germany, Lower Saxony, Wendland, low altitude, sandy soils, agricultural production: grains, maize, potatoes, sugar beets Climatic zone: temperate climate, transition between the Atlantic and continental climate zones, average annual precipitation: 550–750 mm | | Region in the Federal State of Lower Saxony in the Federal Republic of Germany, parliamentary democracy | Drought, water shortage, decreased soil water availability, storm, damages in forests, pests: bark beetle infestations in forests | Farmers, forest owners, public bodies (politics on regional, national and EU level) |
| Nepalese Highlands | 122400 km² ⁽⁶⁾ | 13.5 Mio. ⁽⁶⁾ | Topographical context: mountain region Climatic zone: (sub)temperate to tundra | | Region in the Federal Democratic Republic of Nepal, parliamentary democracy | Droughts, glacier melt, flooding, heat waves | Indigenous people and local communities (IPLCs), households, local government |
| Kunene, Namibian Pastoralists | 115239 km² ⁽⁷⁾ | 86856 (census 2011) ⁽⁷⁾ | Topographical context: northwestern Namibia Climatic zone: (semi)arid, average annual precipitation: 100 – 300 mm, transformation to drier conditions | | Region in the northwest of the Republic of Namibia, democracy | Droughts (impact on vegetation growth and livestock farming) leading to resource scarcity and food insecurity, heat waves | Pastoralists, local level households |
| North Frisia, German North Sea Coast | 441 km of coastline and 5 islands ⁽⁸⁾ | 169000 (2022) ⁽⁹⁾ | Topographical context: part of the Wadden Sea Region, which stretches from Den Helder in the Netherlands along the German coast up to Blåvands Hook in southern Denmark; low lying coastal region, tidal mudflats and marshlands Climatic zone: oceanic (moderate) climate, average temperature: 8.5–9°C ⁽⁵⁾ , Average annual precipitation: 750 mm ⁽⁵⁾ | | Region in the Federal State of Schleswig-Holstein in the Federal Republic of Germany, parliamentary democracy | Storms, storm surge, sea-level rise, coastal erosion | Inhabitants of the islands and the mainland; various interest groups (e.g., farmers, diking associations), local communities, parishes, nature conservation, and the relevant authorities |
| Maldives | 298 km² land area, 923322 km² total ⁽¹⁰⁾ | 561631 (2022) ⁽¹⁰⁾ | Topographical context: indian Pacific, 1196 islands south of India, average land elevations ranging from 0.5m to 2.3 m above sea-level Climatic zone: dry season with winter northeast monsoon and rainy season with summer southwest monsoon, average annual precipitation: 2,540–3,810 mm, temperatures rarely below 25°C | | Republic of Maldives, presidential representative democratic republic | Heat waves, flooding, sea-level rise, coastal erosion | Maldivian government, Ministry of Environment, Climate Change and Technology |
| Taiwan | 36197 km² ⁽¹¹⁾ | 23.3 Mio. ⁽¹¹⁾ | Topographical context: flat to gentle plains in the west, mostly forest-covered mountains in the eastern area, geologically very active area Climatic zone: subtropical, tropical climate on the south, monsoon climate, typhoons in summer, average annual precipitation: 2200–3800 mm | | Difficult status: officially Republic of China (ROC) but considers itself a sovereign state with its own democratic system (government, military, and constitution); most countries recognize China rather than Taiwan diplomatically | Storm surge, flooding, coastal erosion | Taiwan Central Government, National Science and Technology Council (Disaster), Ministry of Transportation and Communications (Infrastructure), Ministry of Economic Affairs (Water Resources), Ministry of the Interior (Land Use and Coast), Ministry of Agriculture (Agricultural Production and Biodiversity), local governments |

Additional Sources: ⁽¹⁾ Neumann, G. (2018). Hamburg: Location, Size and Population. Hamburg Marketing. <https://marketing.hamburg.de/facts-and-figures.html> (Last access: 11.03.2024). ⁽²⁾ Statistisches Bundesamt (2023). Städte (Alle Gemeinden mit Stadtrecht) nach Fläche, Bevölkerung und Bevölkerungsdichte am 31.12.2022. Available online: <https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html>. (Last access: 26.02.2024). ⁽³⁾ IBGE (2022). População. Instituto Brasileiro de Geografia e Estatística (IBGE). Available at: <https://cidades.ibge.gov.br/brasil/sp/sao-paulo/panorama>. (Last access: 06.03.2024). ⁽⁴⁾ General Statistics Office of Vietnam (2023). Statistical Yearbook of 2022. Statistical Publishing House, Hanoi. https://www.gso.gov.vn/wp-content/uploads/2023/06/Sach-Nien-giam-TK-2022-update-21-7_file-nen-Water.pdf (Last access: 21.02.2024). ⁽⁵⁾ Lower Saxony State Chancellery (2016). State Chancellery of Lower Saxony. Home of Diversity. Niedersachsen. Klar. https://www.niedersachsen.de/download/116564/Broschueire_Heimat_. (Last access: 23.11.2023). ⁽⁶⁾ Government of Nepal (2023). National Population and Housing Census 2021 (National Report). National Statistics Office, Kathmandu, Nepal, p. 614.

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