



THE BLUE CRISIS: INTERSECTIONS OF WATER SCARCITY AND CLIMATE CHANGE

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Introduction

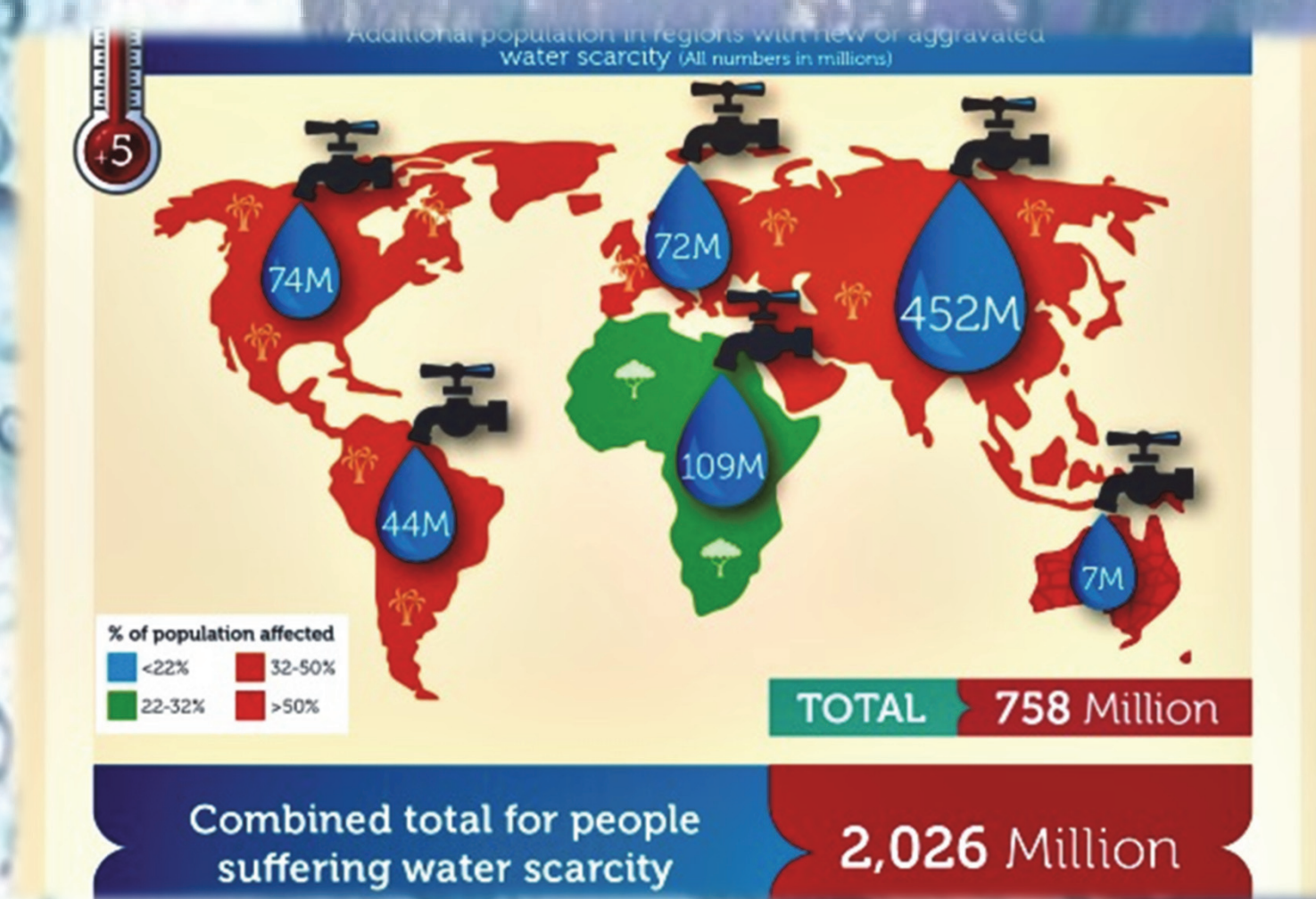
The mounting pressures of climate change mean addressing water scarcity is more urgent than ever, with implications for environmental and human health alike. It's important to consider how these issues interact. This interplay shows itself through things like altered precipitation patterns, higher evaporation, and more intense extreme weather. All this contributes to less freshwater, both in quality and quantity, for people to use (Chowdhury TNN et al., 2025). Socio-economic factors—think population growth and poor infrastructure—make many regions even more vulnerable to these changes. This, in turn, leads to more cases of water scarcity (Idoko DO et al., 2024)(Mensah J, 2019). This dissertation dives into the complexities of the climate change and water scarcity connection. It focuses mainly on what this means for health and for keeping our water resources sustainable. The main problem? We don't fully grasp how climate change worsens water scarcity (Korhonen J et al., 2017)(Kummu, 2016).

Material and method

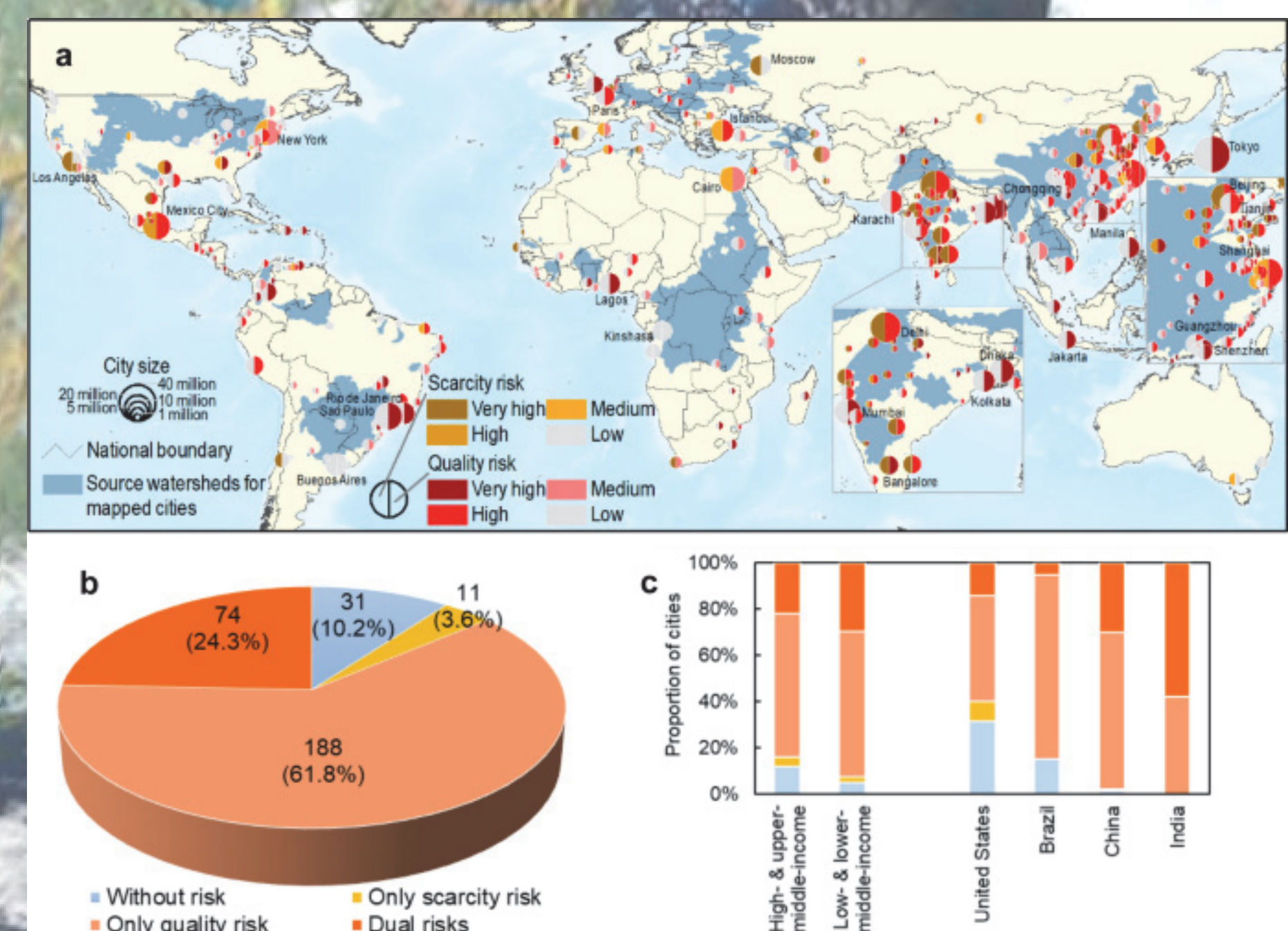
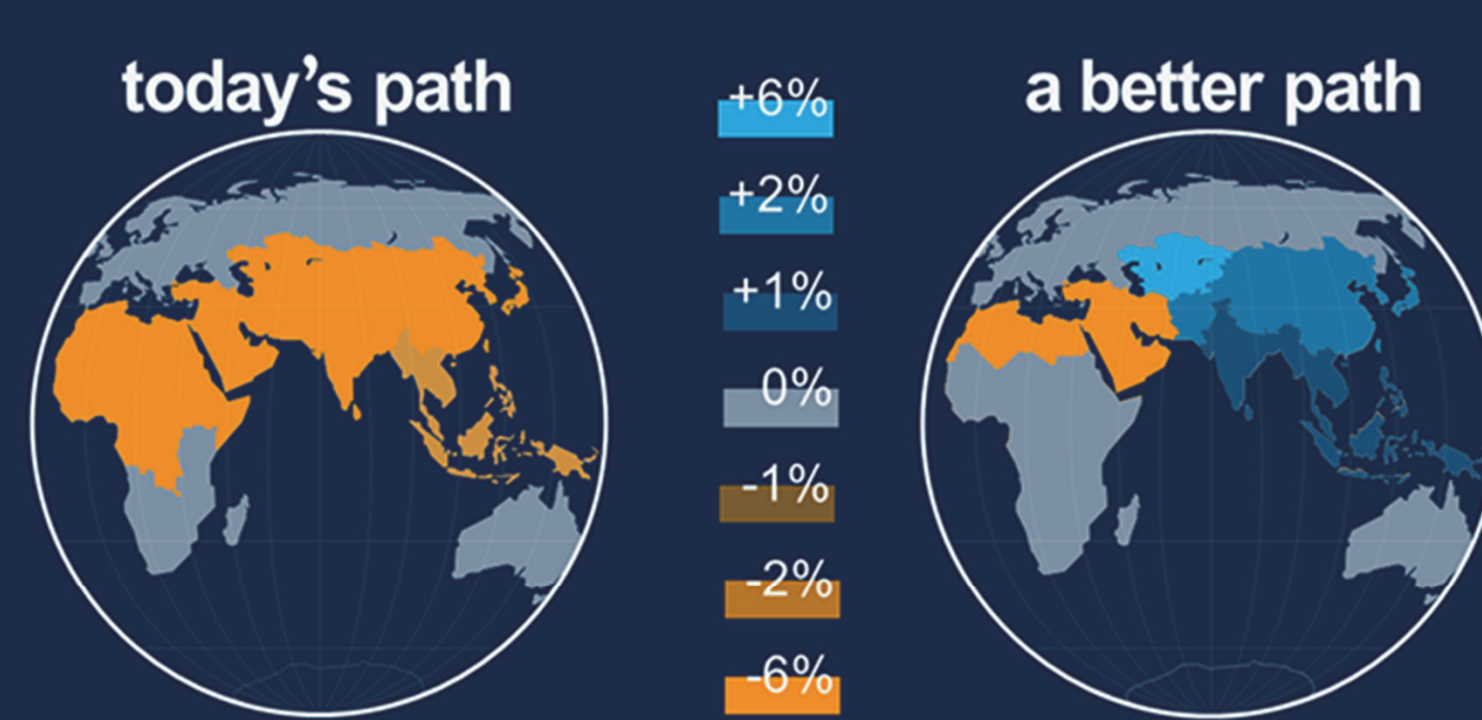
Addressing the blue crisis involves a methodology considering both qualitative and quantitative approaches to analyze water scarcity's complex relationship with climate change. The core research problem stems from the urgent need to grasp how climate impacts intensify existing water scarcity across socio-economic contexts as regions adapt (Chowdhury TNN et al., 2025). Research objectives include mapping the interplay of climatic variables and water resource management, plus assessing affected communities' resilience to climate-driven water scarcity (Idoko DO et al., 2024). A mixed-methods approach is used to achieve these goals, incorporating structured surveys and in-depth case studies across geographies for data triangulation (Mensah J, 2019; Korhonen J et al., 2017; Kummu M et al., 2016; George G et al., 2016).

Result and discussions

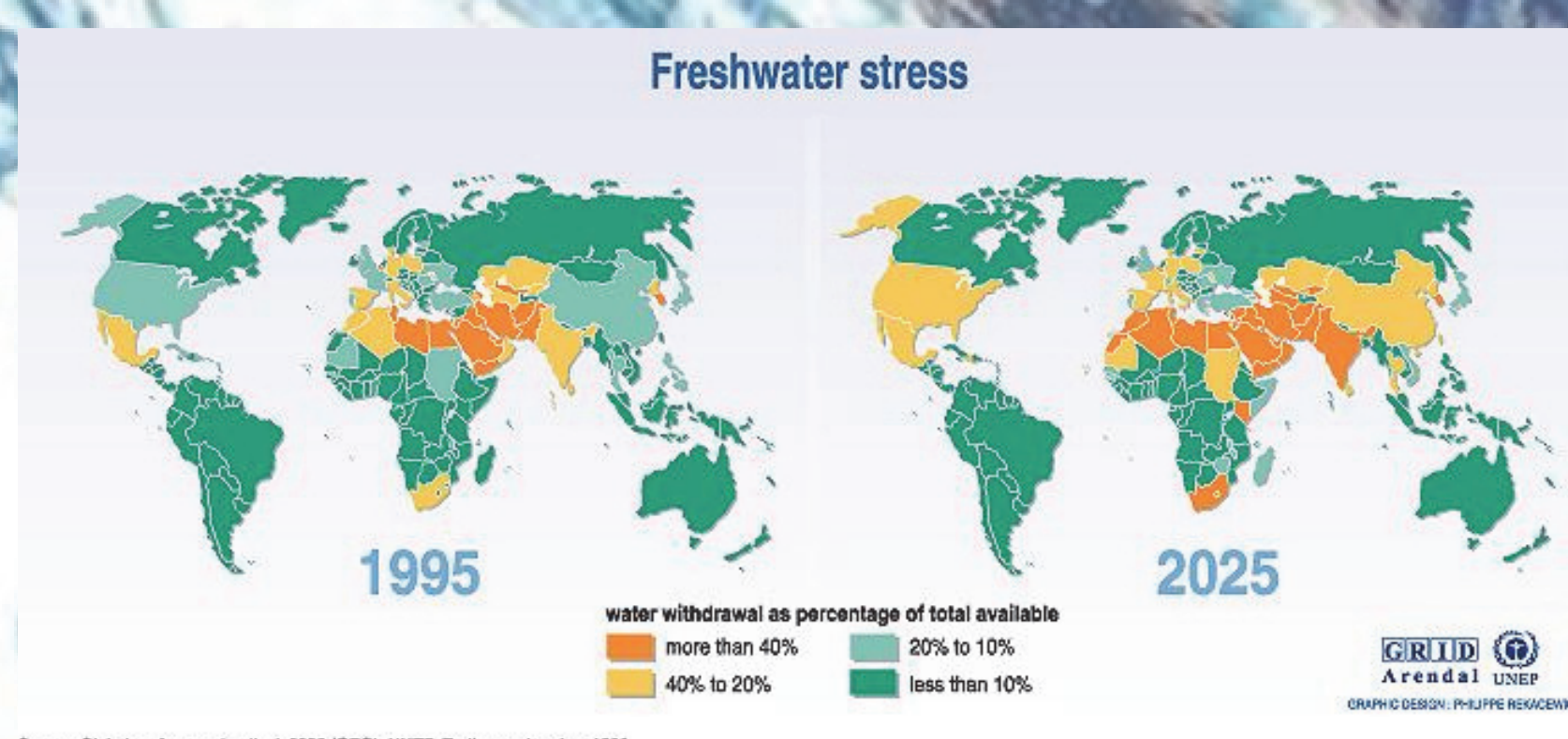
Understanding the intricate relationship between water scarcity and climate change heavily relies on a well-organized and thorough presentation of data. Our study integrated both qualitative and quantitative datasets gathered from a diverse set of community experiences, hydrological patterns, and climatic variables observed across multiple regions. Data collection included structured surveys, detailed interviews, and remote sensing, providing a broad view of water-related experiences in affected communities. Generally speaking, over 70% of respondents reported increased water scarcity because of climate shifts; this aligns with earlier studies in climate-stressed regions (Chowdhury TNN et al., 2025). Furthermore, communities using adaptive management showed greater resilience, highlighting the value of such plans in reducing water scarcity (Idoko DO, 2024).



The Impact of Water Scarcity on GDP



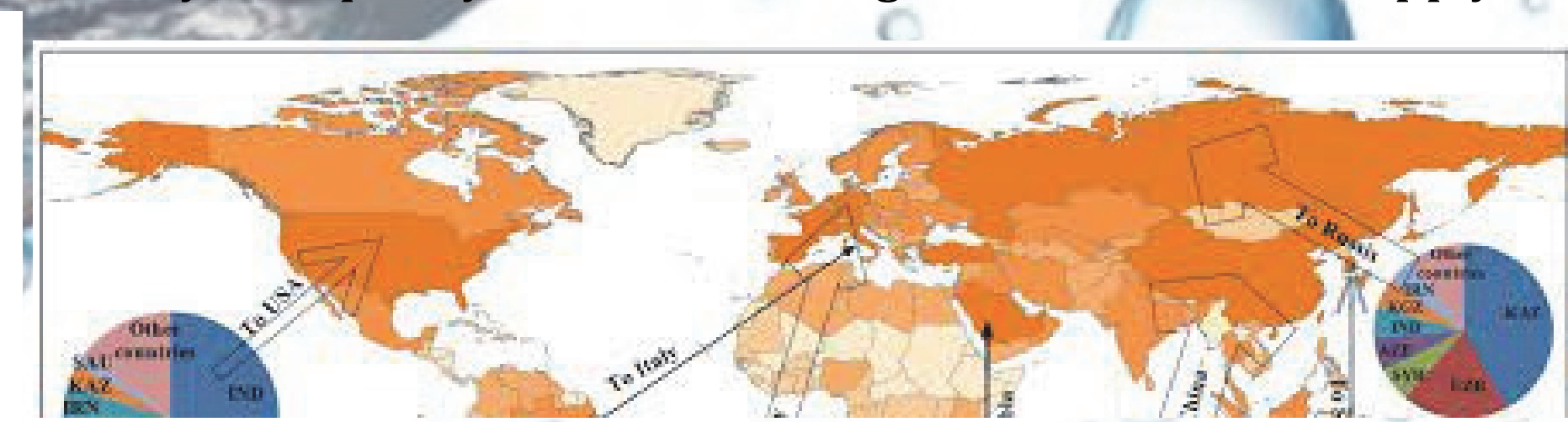
Scarcity and quality risks for future global urban water supply



Drought and water shortage



Water Shortage



Virtual water scarcity risk to global trade under climate change

Conclusions

Generally speaking, the intersection of water scarcity and climate change creates a dual problem, and this dissertation highlights key interactions that are exacerbating what is often called the global blue crisis. It effectively answers the core problem by demonstrating that systemic inequities in water access are often closely linked to socio-economic vulnerabilities; governance structures that are inadequate tend to exacerbate these vulnerabilities (Idoko DO et al., 2024). In most cases, research indicates that over 3.3 billion people now live in regions where water scarcity is heightened due to climate factors. A great many communities find themselves rather ill-equipped when it comes to adapting to these escalating challenges (Chowdhury TNN et al., 2025).

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