

Transboundary adaptation: local and regional benefits in the Middle East

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Selwood, E., Cornforth, R. ORCID: <https://orcid.org/0000-0003-4379-9556>, Saggiaro, E. ORCID: <https://orcid.org/0000-0002-9543-6338>, Petty, C. and Verhoef, A. ORCID: <https://orcid.org/0000-0002-9498-6696> (2023) Transboundary adaptation: local and regional benefits in the Middle East. In: Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed. United Nations Environment Programme, Nairobi. ISBN 9789280740929 (Case Study 6.) Available at <https://centaur.reading.ac.uk/113846/>

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Adaptation Gap Report 2023 – Case Study

Transboundary adaptation: Local and regional benefits in the Middle East

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The impacts of the changing climate are already being felt by communities across the Eastern Mediterranean and the Middle East. As a result of the climate crisis, droughts – a historical feature of this regional climate – are becoming more frequent and increasingly severe. Scaling up land restoration via a cooperative and inclusive transboundary approach could help communities to adapt, while delivering both environmental and socioeconomic co-benefits at the local and regional level.

Between 2021 and 2022, approximately 13.5 million people in Syria and Iraq were affected by drought-related crop failures, conflict- and climate-related displacement, and waterborne diseases. Changing rainfall patterns are also resulting in more frequent and severe floods, which are devastating for both the affected communities and the environment. In 2019, flash flooding in Iran led to the displacement of over half a million people and caused at least 70 deaths (United Nations Office for the Coordination of Humanitarian Affairs 2019). In 2021, as Turkish authorities sought to control devastating wildfires on the Mediterranean coastline, at least 78 people were killed by flash floods on the Black Sea coast (International Federation of Red Cross 2021). In addition, sand and dust storms also represent a major hazard to economies and human health, with the average cost of dust-related welfare losses in the Middle East and North Africa totalling US\$150 billion every year (World Bank 2020). In Iraq, for example, dust storms in 2022 led to the hospitalization of at least 9,000 people and had severe economic impacts (Awadh 2023).

Millions of people in the region face pre-existing stresses because of conflict or forced displacement, and thus experience climate-related impacts profoundly. Displaced women and girls face higher rates of gender-based violence, exacerbated by inadequate access to water and sanitation facilities and the impacts of water shocks on livelihoods and well-being (Borgomeo *et al.* 2021). Conflicts also interrupt efforts to promote regional cooperation on surrounding natural resources, while limiting knowledge-sharing about how to protect critical ecosystems, for example through landscape restoration.

The causes and effects of environmental changes act across national boundaries. As a result, because of the transboundary nature of climate risk, inclusive adaptive solutions need to be designed through a transboundary lens. In the Middle East, the transboundary impacts of the climate crisis include land degradation, sand and dust storms, and changes to surface water and groundwater flows and stores. Adaptation plans need to be formulated with these transboundary dynamics in mind, to ensure that adaptation actions deliver benefits to all relevant stakeholders.

The potential benefits of transboundary cooperation on adaptation are threefold. The first benefit is to “do no harm”. By using a transboundary lens, planners can ensure that adaptation action in one location does not create or magnify risk in others, especially across borders. The second is to offer “value for money”. In this respect, those investing in adaptation can quantify the co-benefits both in the country and across boundaries, thus understanding the true value of investments. The third is “trust-building”. A transboundary dialogue on adaptation can help all relevant stakeholders to understand how climate impacts are being experienced across the region and allow collaboration on inclusive adaptation approaches (Cornforth *et al.* 2023) that deliver co-benefits at the local, national and regional levels.

While the benefits of transboundary cooperation are clear, achieving such cooperation is a challenge, as ongoing conflicts and instability can interrupt regional dialogues, in addition to impeding joint planning and access to finance. However, new and inclusive approaches are being developed (Wells *et al.* 2023) to address climate risks, which incorporate local, national and transboundary perspectives and help regional stakeholders cooperate based on a shared understanding of the science and identification of potential win-win solutions.

Working with partners in the region, the United Nations Environment Programme (UNEP) is drawing on the best available science to understand the transboundary dimensions of climate risk, and is also engaging regional stakeholders to facilitate cooperation on adaptation. These actions supplement ongoing adaptation planning support

at the national level. Furthermore, work with international scientific partners and regional states is already helping to identify potential opportunities for adaptation investments with transboundary co-benefits.

One example relates to sand and dust storms. In some parts of the region, such storms are already happening more frequently and with growing levels of severity in parts of the region, due to increasing aridity and the depletion of water bodies and soil moisture stores in agricultural and grazed lands. Further climate change will lead to additional increases in air and soil temperatures, greater evapotranspiration and added pressure on water resources, which, in the absence of adaptation, will initiate a feedback cycle. Loss of soil, vegetation, biodiversity and water bodies, such as wetlands, will combine with more extreme temperatures and thus reinforce this land-atmosphere feedback, which is causing reduced evapotranspiration. This will result in further heating of the air and soil, leading to an escalation in rates of desertification and aridity, in turn causing even more frequent and intense sand and dust storms.

Ecosystem-based adaptation approaches could help to reverse this cycle, delivering both local and regional benefits. Scaling up land restoration in the areas where sand and dust

storms begin can break the feedback cycle between the land and the atmosphere, which at present leads to further drying and warming. Land restoration can also benefit local communities, by increasing the amount of productive land available and protecting them against issues such as erosion. Options include planting native shrubs and trees, protecting against overgrazing, restoring wetlands and encouraging efficient water use, which will also enhance the recharging of good-quality groundwater.

Restoration efforts can also benefit people thousands of kilometres away, by reducing the likelihood of sand and dust storms and thus protecting health and livelihoods in major cities across the region.

Building on a science-based assessment of transboundary climate risks affecting the Euphrates-Tigris Basin (Cornforth *et al.* 2023), UNEP is working with regional partners to explore adaptation options that would deliver local and regional co-benefits. In practice, translating this scientific evidence into adaptation action plans requires a combination of science-based assessment, building technical capacity and convening stakeholders to explore potential solutions, with a focus on protecting vulnerable people across the region from the adverse impacts of climate change.

Contributors

Elizabeth Sellwood, United Nations Environment Programme
Rosalind Cornforth, The Walker Institute, University of Reading
Celia Petty, The Walker Institute, University of Reading
Elena Saggiaro, The Walker Institute, University of Reading
Anne Verhoef, The Walker Institute, University of Reading



References

- Awadh, S.M. (2023). Impact of North African sand and dust storms on the Middle East using Iraq as an example: Causes, sources, and mitigation. *Atmosphere* 14(1), 180. <https://doi.org/10.3390/atmos14010180>.
- Borgomeo, E., Jägerskog, A., Zaveri, E., Russ, J., Khan, A. and Damania, R. (2021). *Ebb and Flow, Volume 2: Water in the Shadow of Conflict in the Middle East and North Africa*. Washington, D.C.: World Bank. <http://hdl.handle.net/10986/36090>.
- Cornforth, R.J., Saggiaro, E., Petty, C., Verhoef, A., Wells, C.A. (2023). *Climate Risk Assessment for the Transboundary Region of the Euphrates and Tigris Rivers Basin*. Walker Institute, University of Reading. <https://doi.org/10.5281/zenodo.8100921>.
- International Federation of Red Cross (2021). Turkey: Western Black Sea Flash Floods – Information Bulletin No: 3 – 20.08.2021. <https://go.ifrc.org/reports/14686>. Accessed 25 October 2023.
- United Nations Office for the Coordination of Humanitarian Affairs (2019). Islamic Republic of Iran: Situation Overview: Floods, As of 9 April 2019. www.unocha.org/publications/report/iran-islamic-republic/islamic-republic-iran-situation-overview-floods-18-april-2019.
- Wells, C.A., Saggiaro, E., Petty, C. and Cornforth, R.J. (2023). Using the Implementation Centric Evolving Climate Change Adaptation Process to bridge the gap between policy and action. *Frontiers in Climate* 5, 1197027. <https://doi.org/10.3389/fclim.2023.1197027>.
- World Bank (2020). *Sand and Dust Storms in the Middle East and North Africa (MENA) Region: Sources, Costs, and Solutions*. Washington, D.C.: The International Bank for Reconstruction and Development and World Bank. www.worldbank.org/en/region/mena/publication/sand-and-dust-storms-in-the-middle-east-and-north-africa-mena-region-sources-costs-and-solutions.

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