# 

# Supplementary table 3 – Mainstreaming case studies

|  |  |
| --- | --- |
| **Mainstreaming case studies** | **References** |
| **Geographic scope** | |
| Global | (Runhaar et al., 2018; Dellmuth and Gustafsson, 2021; Rogers et al., 2023) |
| Regional (incl. selected local case studies) |  |
| Europe | (Runhaar et al., 2018; Reckien et al., 2019) |
| Germany | (Wamsler and Pauleit, 2016) |
| Sweden | (Wamsler and Pauleit, 2016; Metzger et al., 2021) |
| Norway | (Rauken et al., 2015) |
| Netherlands | (Uittenbroek et al., 2013; Uittenbroek, 2016; Boezeman and De Vries, 2019; ten Brinke et al., 2022) |
| Northern Ireland | (Burns et al., 2022) |
| Switzerland | (Widmer, 2018; Braunschweiger and Pütz, 2021) |
| Asia-Pacific | (Saito, 2013; Friend et al., 2014) |
| Philippines | (Lasco et al., 2009; Cuevas, 2016a, 2016b; Gabriel et al., 2021) |
| Bangladesh | (Ayers et al., 2014; Fatemi et al., 2020) |
| Singapore | (Sen and Dhote, 2023) |
| India | (Sen and Dhote, 2023) |
| Malaysia | (Khailani and Perera, 2013) |
| Fiji | (Bertana and Blanton, 2023) |
| Australia | (Adams et al., 2024) |
| New Zealand | (Hanna et al., 2022) |
| Africa |  |
| Ghana | (Atanga et al., 2017; Ahenkan et al., 2021) |
| South Africa | (Farrell, 2010; Pasquini et al., 2015; Pieterse et al., 2021; Mugari and Nethengwe, 2022) |
| South America |  |
| Columbia | (Koch, 2018) |
| **Sectoral scope** | |
| Environmental considerations | (Nunan et al., 2012; Adelle and Russel, 2013; Adams et al., 2023; Rogers et al., 2023; Sen and Dhote, 2023) |
| Urban development / urban planning | (Uittenbroek et al., 2013; Macchi and Ricci, 2016; Uittenbroek, 2016; Newman, 2020; Gabriel et al., 2021; ten Brinke et al., 2022; Adams et al., 2023; Sen and Dhote, 2023) |
| Rural municipal planning | (Pieterse et al., 2021; Mugari and Nethengwe, 2022) |
| Land use planning | (Cuevas, 2016a, 2016b; Adams et al., 2023) |
| Housing considerations/sector | (Boezeman and De Vries, 2019; ten Brinke et al., 2022) |

Adams, C., Frantzeskaki, N., and Moglia, M. (2023). Mainstreaming nature-based solutions in cities: A systematic literature review and a proposal for facilitating urban transitions. *Land Use Policy* 130, 106661. doi: 10.1016/j.landusepol.2023.106661

Adams, C., Moglia, M., and Frantzeskaki, N. (2024). Realising transformative agendas in cities through mainstreaming urban nature-based solutions. *Urban Forestry & Urban Greening* 91, 128160. doi: 10.1016/j.ufug.2023.128160

Adelle, C., and Russel, D. (2013). Climate Policy Integration: a Case of Déjà Vu? *Environmental Policy and Governance* 23, 1–12. doi: 10.1002/eet.1601

Ahenkan, A., Chutab, D. N., and Boon, E. K. (2021). Mainstreaming climate change adaptation into pro-poor development initiatives: evidence from local economic development programmes in Ghana. *Climate and Development* 13, 603–615. doi: 10.1080/17565529.2020.1844611

Atanga, R. A., Inkoom, D. K. B., and Derbile, E. K. (2017). Mainstreaming Climate Change Adaptation into Development Planning in Ghana. *Ghana J. Dev. Stud.* 14, 209. doi: 10.4314/gjds.v14i2.11

Ayers, J. M., Huq, S., Faisal, A. M., and Hussain, S. T. (2014). Mainstreaming climate change adaptation into development: a case study of Bangladesh. *WIREs Climate Change* 5, 37–51. doi: 10.1002/wcc.226

Bertana, A., and Blanton, N. (2023). Climate change adaptation, gender, and mainstreaming: the role of gender in Fiji’s relocation initiative. *Climate and Development* 15, 60–68. doi: 10.1080/17565529.2022.2055524

Boezeman, D., and De Vries, T. (2019). Climate proofing social housing in the Netherlands: toward mainstreaming? *Journal of Environmental Planning and Management* 62, 1446–1464. doi: 10.1080/09640568.2018.1510768

Braunschweiger, D., and Pütz, M. (2021). Climate adaptation in practice: How mainstreaming strategies matter for policy integration. *Environmental Policy and Governance* 31, 361–373. doi: 10.1002/eet.1936

Burns, C., Flood, S., and O’Dwyer, B. (2022). “Mainstreaming Climate Change Adaptation into Planning and Development: A Case Study in Northern Ireland,” in *Creating Resilient Futures: Integrating Disaster Risk Reduction, Sustainable Development Goals and Climate Change Adaptation Agendas*, eds. S. Flood, Y. Jerez Columbié, M. Le Tissier, and B. O’Dwyer (Cham: Springer International Publishing), 129–147. doi: 10.1007/978-3-030-80791-7\_7

Cuevas, S. C. (2016a). Examining the challenges in mainstreaming climate change adaptation into local land-use planning: The case of Albay, Philippines. The University of Queensland. doi: 10.14264/uql.2016.161

Cuevas, S. C. (2016b). The interconnected nature of the challenges in mainstreaming climate change adaptation: evidence from local land use planning. *Climatic Change* 136, 661–676. doi: 10.1007/s10584-016-1625-1

Dellmuth, L. M., and Gustafsson, M.-T. (2021). Global adaptation governance: how intergovernmental organizations mainstream climate change adaptation. *Climate Policy* 21, 868–883. doi: 10.1080/14693062.2021.1927661

Farrell, L. A. (Leanne A. (2010). Mainstreaming climate change adaptation into urban development : lessons from two South African cities. Massachusetts Institute of Technology. Available at: https://dspace.mit.edu/handle/1721.1/59569 (Accessed November 6, 2023).

Fatemi, M. N., Okyere, S. A., Diko, S. K., and Kita, M. (2020). Multi-Level Climate Governance in Bangladesh via Climate Change Mainstreaming: Lessons for Local Climate Action in Dhaka City. *Urban Science* 4, 24. doi: 10.3390/urbansci4020024

Friend, R., Jarvie, J., Reed, S. O., Sutarto, R., Thinphanga, P., and Toan, V. C. (2014). Mainstreaming urban climate resilience into policy and planning; reflections from Asia. *Urban Climate* 7, 6–19. doi: 10.1016/j.uclim.2013.08.001

Gabriel, A. G., Santiago, P. N. M., and Casimiro, R. R. (2021). Mainstreaming Disaster Risk Reduction and Climate Change Adaptation in Comprehensive Development Planning of the Cities in Nueva Ecija in the Philippines. *Int J Disaster Risk Sci* 12, 367–380. doi: 10.1007/s13753-021-00351-9

Hanna, C., Cretney, R., and White, I. (2022). Re-Imagining Relationships with Space, Place, and Property: The Story of Mainstreaming Managed Retreats in Aotearoa-New Zealand. *Planning Theory & Practice* 23, 681–702. doi: 10.1080/14649357.2022.2141845

Khailani, D. K., and Perera, R. (2013). Mainstreaming disaster resilience attributes in local development plans for the adaptation to climate change induced flooding: A study based on the local plan of Shah Alam City, Malaysia. *Land Use Policy* 30, 615–627. doi: 10.1016/j.landusepol.2012.05.003

Koch, F. (2018). Mainstreaming adaptation: a content analysis of political agendas in Colombian cities. *Climate and Development* 10, 179–192. doi: 10.1080/17565529.2016.1223592

Lasco, R. D., Pulhin, F. B., Jaranilla-Sanchez, P. A., Delfino, R. J. P., Gerpacio, R., and Garcia, K. (2009). Mainstreaming adaptation in developing countries: The case of the Philippines. *Climate and Development* 1, 130–146. doi: 10.3763/cdev.2009.0009

Macchi, S., and Ricci, L. (2016). “15. Climate Change Adaptation Through Urban Planning: a Proposed Approach for Dar Es Salaam, Tanzania,” in *Planning to cope with tropical and subtropical climate change*, (De Gruyter Open), 267–289. doi: 10.1515/9783110480795-016

Metzger, J., Carlsson Kanyama, A., Wikman-Svahn, P., Mossberg Sonnek, K., Carstens, C., Wester, M., et al. (2021). The flexibility gamble: challenges for mainstreaming flexible approaches to climate change adaptation. *Journal of Environmental Policy & Planning* 23, 543–558. doi: 10.1080/1523908X.2021.1893160

Mugari, E., and Nethengwe, N. S. (2022). Mainstreaming Ecosystem-Based Disaster Risk Reduction: Towards a Sustainable and Just Transition in Local Development Planning in Rural South Africa. *Sustainability* 14, 12368. doi: 10.3390/su141912368

Newman, P. (2020). Cool planning: How urban planning can mainstream responses to climate change. *Cities* 103, 102651. doi: 10.1016/j.cities.2020.102651

Nunan, F., Campbell, A., and Foster, E. (2012). Environmental Mainstreaming: The Organisational Challenges of Policy Integration: Public Administration & Development. *Public Administration & Development* 32, 262–277. doi: 10.1002/pad.1624

Pasquini, L., Ziervogel, G., Cowling, R. M., and Shearing, C. (2015). What enables local governments to mainstream climate change adaptation? Lessons learned from two municipal case studies in the Western Cape, South Africa. *Climate and Development* 7, 60–70. doi: 10.1080/17565529.2014.886994

Pieterse, A., Du Toit, J., and Van Niekerk, W. (2021). Climate change adaptation mainstreaming in the planning instruments of two South African local municipalities. *Development Southern Africa* 38, 493–508. doi: 10.1080/0376835X.2020.1760790

Rauken, T., Mydske, P. K., and Winsvold, M. (2015). Mainstreaming climate change adaptation at the local level. *Local Environment* 20, 408–423. doi: 10.1080/13549839.2014.880412

Reckien, D., Salvia, M., Pietrapertosa, F., Simoes, S. G., Olazabal, M., De Gregorio Hurtado, S., et al. (2019). Dedicated versus mainstreaming approaches in local climate plans in Europe. *Renewable and Sustainable Energy Reviews* 112, 948–959. doi: 10.1016/j.rser.2019.05.014

Rogers, N. J. L., Adams, V. M., and Byrne, J. A. (2023). Factors affecting the mainstreaming of climate change adaptation in municipal policy and practice: a systematic review. *Climate Policy* 23, 1327–1344. doi: 10.1080/14693062.2023.2208098

Runhaar, H., Wilk, B., Persson, Å., Uittenbroek, C., and Wamsler, C. (2018). Mainstreaming climate adaptation: taking stock about “what works” from empirical research worldwide. *Regional Environmental Change* 18, 1201–1210. doi: 10.1007/s10113-017-1259-5

Saito, N. (2013). Mainstreaming climate change adaptation in least developed countries in South and Southeast Asia. *Mitig Adapt Strateg Glob Change* 18, 825–849. doi: 10.1007/s11027-012-9392-4

Sen, J., and Dhote, M. (2023). “Mainstreaming Biodiversity in Urban Habitats for Enhancing Ecosystem Services: A Conceptual Framework,” in *Climate Crisis: Adaptive Approaches and Sustainability*, eds. U. Chatterjee, R. Shaw, S. Kumar, A. D. Raj, and S. Das (Cham: Springer Nature Switzerland), 349–368. doi: 10.1007/978-3-031-44397-8\_19

ten Brinke, N., Kruijf, J. V., Volker, L., and Prins, N. (2022). Mainstreaming climate adaptation into urban development projects in the Netherlands: private sector drivers and municipal policy instruments. *Climate Policy* 22, 1155–1168. doi: 10.1080/14693062.2022.2111293

Uittenbroek, C. J. (2016). From Policy Document to Implementation: Organizational Routines as Possible Barriers to Mainstreaming Climate Adaptation. *Journal of Environmental Policy & Planning* 18, 161–176. doi: 10.1080/1523908X.2015.1065717

Uittenbroek, C. J., Janssen-Jansen, L. B., and Runhaar, H. A. C. (2013). Mainstreaming climate adaptation into urban planning: overcoming barriers, seizing opportunities and evaluating the results in two Dutch case studies. *Reg Environ Change* 13, 399–411. doi: 10.1007/s10113-012-0348-8

Wamsler, C., and Pauleit, S. (2016). Making headway in climate policy mainstreaming and ecosystem-based adaptation: two pioneering countries, different pathways, one goal. *Climatic Change* 137, 71–87. doi: 10.1007/s10584-016-1660-y

Widmer, A. (2018). Mainstreaming climate adaptation in Switzerland: How the national adaptation strategy is implemented differently across sectors. *Environmental Science & Policy* 82, 71–78. doi: 10.1016/j.envsci.2018.01.007