

# Daftar Pustaka

- [1] M. N. Sawka, S. N. Cheuvront, and R. Carter, "Human Water Needs," *Nut. Rev.*, vol. 63, no. 6, pp. 30–39, 2005, doi: 10.1301/nr.2005.jun.S30-S39.
- [2] M. Sugajski, M. Buszewska-Forajta, and B. Buszewski, "Functional Beverages in the 21st Century," *Beverages*, vol. 9, no. 1, p. 27, 2023, doi: 10.3390/beverages9010027.
- [3] P. H. Burgi and B. V. Rydbeck, "Sustainable Potable Water Systems Strengthen Rural Communities in Developing Nations: In Bridging the Gap: Meeting the World's Water and Environmental Resources Challenges," pp. 1–9, 2001, doi: 10.1061/40569(2001)364.
- [4]
- [5] E. Bonet, M. Niubó, M. T. Yubero, and P. Alfonso, "Key Parameters for Assessing the Deterioration of Reinforced Concrete Pipes in Water Networks," *Water*, vol. 16, no. 16, p. 2352, 2024, doi: 10.3390/w16162352.
- [6] A. Sharma and S. Gray, Eds., *Integration of Decentralised and Centralised Water Systems to Address Current Water Servicing Challenges*, 2021.
- [7]
- [8] A. Sharma, S. Burn, T. Gardner, and A. Gregory, "Role of decentralised systems in the transition of urban water systems," *Water Supply*, vol. 10, no. 4, pp. 577–583, 2010, doi: 10.2166/ws.2010.187.
- [9] Mukherjee, M., Wichelns, D., & Chindarkar, N., "Water Scarcity to Water Security: How Can Asian Cities Achieve A Sustainable Transition: In Sustainability Matters: Environmental and Climate Changes in the Asia-Pacific," pp. 103–129, 2015, doi: 10.1142/9789814719155\_0005.
- [10] N. Talat, Ed., *Urban water-supply management: indirect issues of climate change leading to water scarcity scenarios in developing and underdeveloped nations: in Water Conservation in the Era of Global Climate Change*, 2021.
- [11] A. Ferdowsi, F. Piadeh, K. Behzadian, S.-F. Mousavi, and M. Ehteram,
- [12] C. S. Galli, D. S. Abe, M. Cortesão Barnsley Scheuenstuhl, C. E. de Mattos Bicudo, and J. Galizia Tundisi, Eds., *Availability, Pollution and Eutrophication of Waters // Waters of Brazil: Strategic Analysis*, 1st ed. Cham: Springer International Publishing; Imprint: Springer, 2016.
- [13] Agrawal, K.K., Panda, C., Bhuyan, M.K., Ed.,

- [14] A. Das, F. Munoz-Arriola, S. K. Singh, P. K. Jha, and M. Kumar, "Nutrient dynamics of the Brahmaputra (tropical river) during the monsoon period," *Desalination and Water Treatment*, vol. 76, pp. 212–224, 2017, doi: 10.5004/dwt.2017.20788.
- [15] Paton, F. L., Baulis, J. P., Staniford, B. S., Maier, H. R., & Dandy, G. C., "Considering sustainability in the planning and management of regional urban water supply systems: A case study of Adelaides Southern system: In 18th World IMACS/MODSIM congress.," 2009.
- [16] C. Victor *et al.*, "Spatial heterogeneity of neighborhood-level water and sanitation access in informal urban settlements: A cross-sectional case study in Beira, Mozambique," *PLOS water*, vol. 1, no. 6, 2022, doi: 10.1371/journal.pwat.0000022.
- [17] E. A. Adams and W. F. Vásquez, Eds.,
- [18]
- [19] S. R. Pokhrel, G. Chhipi-Shrestha, K. Hewage, and R. Sadiq, "Sustainable, resilient, and reliable urban water systems: making the case for a “one water” approach," *Environ. Rev.*, vol. 30, no. 1, pp. 10–29, 2022, doi: 10.1139/er-2020-0090.
- [20] W. I. H. Wan Rosely and N. Voulvoulis, "Systems thinking for the sustainability transformation of urban water systems," *Critical Reviews in Environmental Science and Technology*, vol. 53, no. 11, pp. 1127–1147, 2023, doi: 10.1080/10643389.2022.2131338.
- [21] P. Luís-Manso and M. Finger, "Risk sharing and capacity investment in the urban water sector in Europe," in *Environmental Economics and Investment Assessment*, Mykonos, Greece, 2006, pp. 177–186.
- [22] Lazarus Jambadu, Jochen Monstadt, and Sophie Schramm, "Understanding Repair and Maintenance in Networked Water Supply in Accra and Dar es Salaam,"
- [23] M. Rouse, "Policy Brief: The urban water challenge," *International Journal of Water Resources Development*, vol. 29, no. 3, pp. 300–309, 2013, doi: 10.1080/07900627.2013.791568.
- [24] N. S. Grigg, *Water, wastewater, and stormwater infrastructure management*. Boca Raton Fla.: Lewis Publishers, 2003.
- [25] R. H. Khan and R. A. Fenner, "Socio-Demographic Factors Driving the Choice of Alternative Safe Water Sources and Their Implications for Public Health: Lessons from Goalhari, Bangladesh," *Water*, vol. 16, no. 14, p. 1978, 2024, doi: 10.3390/w16141978.
- [26] N. Colbran, "Piped water in Jakarta: A political, economic or social good?," in *The Human Right to Water: Theory, Practice and Prospects*: Cambridge University Press, 2017, pp. 503–530. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85047539848&doi=10.1017%2f9780511862601.016&partnerID=40&md5=800766ef353c5a55b011305c1ee2d6ef>

- [27] N. Ardhanie, P. Purwanto, and Kismartini, Eds., *Demand and Supply Analysis as a Basis for Jakarta Water Provision Planning*: EDP Sciences, 2021.
- [28] N. Ardhanie, D. Daniel, P. Purwanto, and K. Kismartini, "Jakarta water supply provision strategy based on supply and demand analysis," *H2Open J.*, vol. 5, no. 2, pp. 221–233, 2022, doi: 10.2166/h2oj.2022.076.
- [29] F. Mardianti and D. E. Purba, "Effects of citizen participation on urban water management based on socioeconomic factors,"
- [30] W. A. Yudhantoro, D. N. Martono, and S. W. Utomo, Eds., *Study of wastewater treatment for fulfilment of clean water*: IOP Publishing Ltd, 2020.
- [31] M. Karmilah and M. Y. Madrah, Eds., *Coping Strategies to Address Water Scarcity through Local Knowledge in Tidal Flood and Erosion-Prone Areas: A Case Study of Timbuloko, Sayung Regency, Demak Municipality*: Institute of Physics, 2024.
- [32] K. Bakker, M. Kooy, N. E. Shofiani, and E.-J. Martijn, "Governance Failure: Rethinking the Institutional Dimensions of Urban Water Supply to Poor Households," *World Dev.*, vol. 36, no. 10, pp. 1891–1915, 2008, doi: 10.1016/j.worlddev.2007.09.015.
- [33] A. R. Sumartapraja and D. W. Christianti, "The Right to Water in Jakarta: Limitation in a Sinking City," *Padjadjaran. J. Ilmu. Huk.*, vol. 9, no. 1, pp. 67–88, 2022, doi: 10.22304/pjih.v9n1.a3.
- [34] D. Penney, M. Yantha, and L. Swatuk, "A Megacity's Hydrological Risk: An Analysis of Water Security Issues in Jakarta City, Indonesia," in *International Political Economy Series*
- [35] C. M. Medina-Rivas, J. A. Morales-Novelo, L. Rodríguez-Tapia, and D. A. Revollo-Fernández, "Mexico city's decline in per capita domestic water use: a comprehensive spatial-temporal study," *Urban Water Journal*, vol. 22, no. 1, pp. 1–15, 2025, doi: 10.1080/1573062X.2024.2423400.
- [36]
- [37] C. Monica, M.V. Raju, D. Vinay Kumar, S. Ramesh Babu, and SS. Asadi 5, "Assessment of heavy metal concentrations and suitability study of ground water (bore wells) quality for construction purpose: A model study," *International Journal of Civil Engineering and Technology (IJCIET)*, vol. 9, no. 9, pp. 1273–1282, 2018. [Online]. Available: [https://iaeme.com/MasterAdmin/Journal\\_uploads/IJCIET/VOLUME\\_9\\_ISSUE\\_9/IJCIET\\_09\\_09\\_123.pdf](https://iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_9_ISSUE_9/IJCIET_09_09_123.pdf)
- [38] H. Wong, Y. R. Filion, and V. Speight, "A Neighbourhood-Level Analysis of the Impact of Common Urban Forms on Energy Use in Drinking Water Distribution Systems," *Water Resour Manage*, vol. 34, no. 9, pp. 2641–2655, 2020.
- [39] R. Singh, G. Andaluri, and V. C. Pandey, "Cities' water pollution—Challenges and controls," pp. 3–22, 2022, doi: 10.1016/B978-0-12-824270-4.00015-8.

- [40] S. Dos Santos, "Social and health issues of water access in Ouagadougou - Burkina Faso," *Espace-Populations-Societes*, 2006.
- [41] J. C. Faure and K. M. Faust, "Socioeconomic characteristics versus density changes: the operational effects of population dynamics on water systems," *Sustainable and Resilient Infrastructure*, vol. 8, no. 1, pp. 3–16, 2023, doi: 10.1080/23789689.2020.1757882.
- [42] S. Lim and A. Prakash, "How the opposing pressures of industrialization and democratization influence clean water access in urban and rural areas: A panel study, 1991–2010," *Env Pol Gov*, vol. 30, no. 4, pp. 182–195, 2020, doi: 10.1002/eet.1883.
- [43] K. Brindha and M. Schneider, "Impact of urbanization on groundwater quality," in *GIS and Geostatistical Techniques for Groundwater Science*: Elsevier, 2019, pp. 179–196. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079222332&doi=10.1016%2fB978-0-12-815413-7.00013-4&partnerID=40&md5=a01c58cb24121d461498a35fb3ff5e19>
- [44] L. Colombo, L. Alberti, P. Mazzon, and M. Antelmi, "Null-Space Monte Carlo Particle Backtracking to Identify Groundwater Tetrachloroethylene Sources," *Front. Environ. Sci.*, vol. 8, 2020, doi: 10.3389/fenvs.2020.00142.
- [45] M. S. Islam, K. Nakagawa, M. Abdullah-Al-Mamun, M. Siddique, and R. Berndtsson, "Toxicity and source identification of pollutants in an urban river in Bangladesh," *Environ. Earth Sci.*, vol. 82, no. 6, 2023, doi: 10.1007/s12665-023-10812-7.
- [46] E. W. Ward and K. Winter, "Missing the link: Urban stormwater quality and resident behaviour," *Water SA*, vol. 42, no. 4, pp. 571–576, 2016, doi: 10.4314/wsa.v42i4.07.
- [47] S. Monteiro, G. Queiroz, F. Ferreira, and R. Santos, "Characterization of Stormwater Runoff Based on Microbial Source Tracking Methods," *Front. Microbiol.*, vol. 12, 2021, doi: 10.3389/fmicb.2021.674047.
- [48] A. Fiocca, A. Barbeau, A. Payasok, F. Yousef, J. K. Chetri, and K. R. Reddy, "Sustainable In-Ground Permeable Reactive Filter for the Treatment of Urban Stormwater Runoff," in 2023, pp. 273–285. [Online]. Available: [https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142648511&doi=10.1007%2f978-981-19-5077-3\\_22&partnerID=40&md5=360bd4f20e3ee5502c22154791e570ac](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85142648511&doi=10.1007%2f978-981-19-5077-3_22&partnerID=40&md5=360bd4f20e3ee5502c22154791e570ac)
- [49] A. Goonetilleke and J.-L. Lampard, "Stormwater quality, pollutant sources, processes, and treatment options," in *Approaches to Water Sensitive Urban Design: Potential, Design, Ecological Health, Urban Greening, Economics, Policies, and Community Perceptions*: Elsevier, 2018, pp. 49–74. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068720470&doi=10.1016%2fB978-0-12-812843-5.00003-4&partnerID=40&md5=da964175adc462d876c762505acec01e>
- [50] B. Bian, X.-J. Cheng, and L. Li, "Investigation of urban water quality using simulated rainfall in a medium size city of China," *Environ. Monit. Assess.*, vol. 183, 1-4, pp. 217–229, 2011, doi: 10.1007/s10661-011-1916-y.

- [51] A. Rouabhia, M. Bouteraa, F. Baali, C. Fehdi, and G. Vergoten, "Pollution risk of groundwater, in a semi arid region by wastewater rejections: Case of tebessa aquifer system," in *Aquifers: Types, Impacts and Conservation*: Nova Science Publishers, Inc, 2012, pp. 135–147. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-84892134525&partnerID=40&md5=8723281236becd5da367c8eea87388be>
- [52] A. Musolff, S. Leschik, F. Reinstorf, G. Strauch, and M. Schirmer, "Assessing emerging contaminants - Case study of the city of Leipzig, Germany," in 2008, pp. 178–185. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-62949084730&partnerID=40&md5=64d296335418cb34fc353b52cd1bb409>
- [53] F. Abdalla and R. Khalil, "Potential effects of groundwater and surface water contamination in an urban area, Qus City, Upper Egypt," *J. Afr. Earth Sci.*, vol. 141, pp. 164–178, 2018, doi: 10.1016/j.jafrearsci.2018.02.016.
- [54] B. Meyer, J.-Y. Paillet, C. Guignard, L. Hoffmann, and A. Krein, "Concentrations of dissolved herbicides and pharmaceuticals in a small river in Luxembourg," *Environ. Monit. Assess.*, vol. 180, 1-4, pp. 127–146, 2011, doi: 10.1007/s10661-010-1777-9.
- [55] C. Ferreira, Z. Kalantari, S. Seifollahi-Aghmiuni, N. Ghajarnia, O. Rahmati, and M. K. Solomun, "Rainfall-runoff-erosion processes in urban areas," in *Precipitation: Earth Surface Responses and Processes*: Elsevier, 2021, pp. 481–498. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129075758&doi=10.1016%2fB978-0-12-822699-5.00018-5&partnerID=40&md5=691bc41be766c2431676db81c49ec3be>
- [56] B. Jiménez and J. B. Rose, *Urban water security: Managing risks*: CRC Press, 2009. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85121516692&doi=10.1201%2f9780203881620&partnerID=40&md5=db2377883c8304dbfae2a9b019e3631>
- [57] R. Sánchez-Gutiérrez, C. Alfaro-Chinchilla, K. Ledezma-Zamora, L. Hernando-Echeverría, C. Mora-Aparicio, and R. Pérez-Salazar, "Socio-environmental aspects affecting water contamination in an urban area," (in Spanish), *Uniciencia*, vol. 35, no. 2, 2021, doi: 10.15359/RU.35-2.20.
- [58] M. I. Mahmood, N. A. Elagib, F. Horn, and S. Saad, "Lessons learned from Khartoum flash flood impacts: An integrated assessment," *Sci. Total Environ.*, 601-602, pp. 1031–1045, 2017, doi: 10.1016/j.scitotenv.2017.05.260.
- [59] M. Rouse, "The worldwide urban water and wastewater infrastructure challenge," *Int. J. Water Resour. Dev.*, vol. 30, no. 1, pp. 20–27, 2014, doi: 10.1080/07900627.2014.882203.
- [60] D. Singh, S. Liu, T. P. Singh, A. S. Gagnon, T. Thomas, and S. P. Rai, Eds., *Ensuring Domestic Water Security for Cities Under Rapid Urbanisation and Climate Change Risks*.

- [61] T. A. Larsen, S. Hoffmann, C. Lüthi, B. Truffer, and M. Maurer, "Emerging solutions to the water challenges of an urbanizing world," *Science (New York, N.Y.)*, vol. 352, no. 6288, pp. 928–933, 2016, doi: 10.1126/science.aad8641.
- [62] H. Kang, "Challenges for water infrastructure asset management in South Korea," *Water Policy*, vol. 21, no. 5, pp. 934–944, 2019, doi: 10.2166/wp.2019.005.
- [63] A. Sharma *et al.*, "Water Sensitive Urban Design: An Investigation of Current Systems, Implementation Drivers, Community Perceptions and Potential to Supplement Urban Water Services," *Water*, vol. 8, no. 7, p. 272, 2016, doi: 10.3390/w8070272.
- [64] P. P. Kalbar and S. Lokhande, "Need to adopt scaled decentralized systems in the water infrastructure to achieve sustainability and build resilience," *Water Policy*, vol. 25, no. 4, pp. 359–378, 2023, doi: 10.2166/wp.2023.267.
- [65] B. D. Richter *et al.*, "Decoupling Urban Water Use and Growth in Response to Water Scarcity," *Water*, vol. 12, no. 10, p. 2868, 2020, doi: 10.3390/w12102868.
- [66] F. van den Brandeler, J. Gupta, and M. Hordijk, "Megacities and rivers: Scalar mismatches between urban water management and river basin management," *Journal of Hydrology*, vol. 573, pp. 1067–1074, 2019, doi: 10.1016/j.jhydrol.2018.01.001.
- [67] A. Ferdowsi, F. Piadeh, K. Behzadian, S.-F. Mousavi, and M. Ehteram, "Urban water infrastructure: A critical review on climate change impacts and adaptation strategies," *Urban Climate*, vol. 58,
- [68] C. Mikovits, A. Jasper-Tönnies, T. Einfalt, M. Huttenlau, W. Rauch, and M. Kleidorfer, "Klimawandel, Stadtentwicklung und urbane Wasserinfrastrukturplanung – Risiken und Möglichkeiten," *Österr Wasser- und Abfallw*, vol. 67, 5-6, pp. 214–221, 2015, doi: 10.1007/s00506-015-0233-z.
- [69] N. Dolman and F. Ogunyoye, "How water challenges can shape tomorrow's cities," *Proceedings of the Institution of Civil Engineers - Civil Engineering*, vol. 171, no. 6, pp. 22–30, 2018, doi: 10.1680/jcien.17.00052.
- [70] R. Singh, G. Andaluri, and V. C. Pandey, "Cities' water pollution—Challenges and controls," pp. 3–22, doi: 10.1016/B978-0-12-824270-4.00015-8.
- [71] S. K. Narasimhan, S. Narasimhan, T. C. Dilly, A. Bakhshipour, U. Dittmer, and S. M. Bhallamudi, "Urban water infrastructure: distribution and collection," pp. 265–274, doi: 10.2166/9781789063714\_0265.
- [72] W. J. Weber, "Optimal uses of advanced technologies for water and wastewater treatment in urban environments," *Water Supply*, vol. 4, no. 1, pp. 7–12, 2004, doi: 10.2166/ws.2004.0002.
- [73] B. R. Smith, "Re-thinking wastewater landscapes: combining innovative strategies to address tomorrow's urban wastewater treatment challenges," *Water Sci. Technol.*, vol. 60, no. 6, pp. 1465–1473, 2009, doi: 10.2166/wst.2009.473.

- [74] A. A. Shah, S. Walia, and H. Kazemian, "Electrolysis for ammonia removal and hydrogen generation in urban wastewater: Innovative approaches to the water crisis," *Journal of Environmental Chemical Engineering*, vol. 12, no. 6, p. 114420, 2024, doi: 10.1016/j.jece.2024.114420.
- [75] S. Kant, F. H. Jaber, and R. Karthikeyan, "Greywater Treatment System Modeling: An approach Using Simulated Greywater," doi: 10.13031/aim.20131620367.
- [76] J. Marsalek, "Strategies for Enhancing Sustainability of Urban Water Systems: In: Hlavinek, P., Winkler, I., Marsalek, J., Mahrikova, I. (eds) *Advanced Water Supply and Wastewater Treatment: A Road to Safer Society and Environment*. NATO Science for Peace and Security Series C: Environmental Security., pp. 3–12, 2011, doi: 10.1007/978-94-007-0280-6\_1.
- [77] L. Dasallas, J. Lee, S. Jang, and S. Jang, "Development and Application of Technical Key Performance Indicators (KPIs) for Smart Water Cities (SWCs) Global Standards and Certification Schemes," *Water*, vol. 16, no. 5, p. 741, 2024, doi: 10.3390/w16050741.
- [78] T. Semeraro, R. Aretano, and A. Pomes, "Green Roof Technology as a Sustainable Strategy to Improve Water Urban Availability," *IOP Conf. Ser.: Mater. Sci. Eng.*, vol. 471, p. 92065, 2019, doi: 10.1088/1757-899X/471/9/092065.
- [79] Ashraf, M. V., Rather, S. A., Khan, M. H., & Ahmad, S., "Innovative Treatment Technologies for Municipal Wastewater.: In *Innovative and Hybrid Technologies for Wastewater Treatment and Recycling*," *CRC Press.*, pp. 95–128, 2024.
- [80] P. Ponce, C. Pérez, A. R. Fayek, and A. Molina, "Solar Energy Implementation in Manufacturing Industry Using Multi-Criteria Decision-Making Fuzzy TOPSIS and S4 Framework," *Energies*, vol. 15, no. 23, 2022, doi: 10.3390/en15238838.
- [81] M. Smyth, "Solar Winery Design and Operation," *Green Energy and Technology*, vol. 42, pp. 357–454, 2011, doi: 10.1007/978-0-85729-844-7\_6.
- [82] H. Gunerhan, A. Hepbasli, and U. Giresunlu, "Environmental impacts from the solar energy systems," *Energy Sources Recovery Util. Environ. Eff.*, vol. 31, no. 2, pp. 1131–1138, 2009, doi: 10.1080/15567030701512733.
- [83] N. Krasniqi and A. Ymeri, "Electricity production from solar Energy in Kosovo and Environmental Impacts," in 2022, pp. 302–307. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85147020575&doi=10.1016%2fj.ifacol.2022.12.039&partnerID=40&md5=09b41e320b882d5785bc9f12d5f602fb>
- [84]
- [85] A. Lakhout, N. Alhathloul, C. El Mokhi, and H. Hachimi, "Assessing the Environmental Impact of PV Emissions and Sustainability Challenges," *Sustainability*, vol. 17, no. 7, 2025, doi: 10.3390/su17072842.

- [86] R. de Oliveira Azevêdo, P. Rotela, L. C. Souza Rocha, G. Chicco, G. Aquila, and R. S. Peruchi, "Identification and analysis of impact factors on the economic feasibility of photovoltaic energy investments," *Sustainability*, vol. 12, no. 17, 2020, doi: 10.3390/su12177173.
- [87]
- [88] A. E. Gol and M. Ščasný, "Techno-economic analysis of fixed versus sun-tracking solar panels," *Internat. J. Rene. Ener. Devel.*, vol. 12, no. 3, pp. 615–626, 2023, doi: 10.14710/ijred.2023.50165.
- [89] E. Kabir, P. Kumar, S. Kumar, A. A. Adelodun, and K.-H. Kim, "Solar energy: Potential and future prospects," *Renewable Sustainable Energy Rev*, vol. 82, pp. 894–900, 2018, doi: 10.1016/j.rser.2017.09.094.
- [90] N. Ayadi, A. Et-Taleby, C. E. Salem, Y. Chaibi, M. Benslimane, and Z. Chalh, "Analysis of the Faults Impact on Current and Voltage Characteristics of Photovoltaic Solar Systems," in 2024, pp. 362–367.
- [91] J. R. White and M. Doherty, Eds., *Hazards in the installation and maintenance of solar panels*: IEEE Computer Society, 2017.
- [92] A. R. Jha, Ed., *Solar panel installation configurations for optimum system performance*, 2010.
- [93] J. J. Cook, J. Cruce, E. O'Shaughnessy, K. Ardani, and R. Margolis, "Exploring the link between project delays and cancelation rates in the U.S. rooftop solar industry," *Energy Policy*, vol. 156, 2021, doi: 10.1016/j.enpol.2021.112421.
- [94] M. Debouza, F. Sallabi, and R. Errouissi, Eds., *Application of Discrete Event Simulation to Rooftop Solar Panels Installation*: Institute of Electrical and Electronics Engineers Inc, 2024.
- [95] D. Selvakarthy, D. Sivabalaselvamani, V. Sedhumadhavan, P. Gnaneshwaran, M. R. Sowmian, and A. Shabeerahamed, "Robotization on Solar Panel Installation: Location Marking on Steel Roof," in 2023, pp. 885–889. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85159131337&doi=10.1109%2fICSCDS56580.2023.10105091&partnerID=40&md5=40fef0b78b50f1f7d1aaa8bcc222e3f5>
- [96] P. T. Parrish, *Photovoltaic Laboratory: Safety, Code-Compliance, and Commercial Off-the-Shelf Equipment*: CRC Press, 2016.
- [97] D. Kinzer, "A new day dawns for solar photovoltaic power," *Electron Prod Garden City NY*, vol. 51, no. 12, 2009. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-74349112822&partnerID=40&md5=d850831d5ffbc64282ea38eee7a80c18>
- [98] G. D. Lorenzo, R. Araneo, M. Mitolo, A. Niccolai, and F. Grimaccia, "Review of O&M Practices in PV Plants: Failures, Solutions, Remote Control, and Monitoring Tools,"

*IEEE J. Photovoltaics*, vol. 10, no. 4, pp. 914–926, 2020, doi: 10.1109/JPHOTOV.2020.2994531.

- [99] Deutsche Gesellschaft für Sonnenenergie, *Planning and installing photovoltaic systems: A guide for installers, architects, and engineers*. London, New York: Routledge Taylor & Francis Group, 2013.
- [100] B. S. Richards and A. I. Schäfer, "Chapter 12 Renewable Energy Powered Water Treatment Systems," *Sustainability Sci. Eng.*, vol. 2, C, pp. 353–373, 2010, doi: 10.1016/S1871-2711(09)00212-8.
- [101] T. Dewi *et al.*, "Smart integrated aquaponics system: Hybrid solar-hydro energy with deep learning forecasting for optimized energy management in aquaculture and hydroponics," *Energy Sustainable Dev.*, vol. 85, 2025, doi: 10.1016/j.esd.2025.101683.
- [102] K. Maruf, R. J. Setiawan, A. A. Kafah Alam, N. Azizah, and N. E. Khosyati, "Integration of Solar Photovoltaic System and Water Filter: A Sustainable Energy Solution for Clean Water Supply," in 2024, pp. 96–102. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85214695689&doi=>
- [103] Y. Zhang, M. Sivakumar, S. Yang, K. Enever, and M. Ramezani-pour, "Application of solar energy in water treatment processes: A review," *Desalination*, vol. 428, pp. 116–145, 2018, doi: 10.1016/j.desal.2017.11.020.
- [104] P. Kumar, A. Cuprys, and S. K. Brar, "Application of solar energy in modular drinking water treatment," in *Modular Treatment Approach for Drinking Water and Wastewater*: Elsevier, 2022, pp. 319–334. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85143298192&doi=10.1016%2fB978-0-323-85421-4.00014-0&partnerID=40&md5=bfa1c81be4c44a56485486625e1cb401>
- [105] Z.-W. Wu and H.-C. Yang, "Solar energy technologies for desalination and utilization of hypersaline brines," *Sustain. Energy Fuels*, vol. 9, no. 3, pp. 673–692, 2024, doi: 10.1039/d4se01552e.
- [106] H. Luo *et al.*, "Asymmetric Ba<sub>0.7</sub>Sr<sub>0.3</sub>CoO<sub>3-δ</sub>/MXene solar evaporators for enhanced treatment of high salinity organic wastewater: Improving salt deposition control and pollutant removal," *Desalination*, vol. 588, 2024, doi: 10.1016/j.desal.2024.117972.
- [107] L. Mori Sosa, "Efficiency Evaluation of a Photovoltaic-Powered Water Treatment System with Natural Sedimentation Pretreatment for Arsenic Removal in High Water Vulnerability Areas: Application in La Yarada Los Palos District, Tacna, Peru," *Sustainability*, vol. 17, no. 7, 2025, doi: 10.3390/su17072987.
- [108] B. Jeco-Espaldon, A. E. Espaldon, T. Sado, and K. Oguma, "SOLAR-POWERED UV-LED MODULE FOR WATER DISINFECTION ON AN OFF-THE-GRID ISLAND," *Int. J. Energy Environm. Econ.*, vol. 30, no. 2, pp. 135–156, 2023. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85174564790&partnerID=40&md5=d5d389b551c3ee201810ac2c45e5f016>

- [109] H. de Faria, K. Torchyany, H. Z. Margossian, and J. Sachau, "Distributed generation with photovoltaic grid connected systems: Connection, drivers, and obstacles," in *Photovoltaic Systems: Design, Performance and Applications*: Nova Science Publishers, Inc, 2018, pp. 207–235. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85152185422&partnerID=40&md5=ab228069963b5eb7187b58ac0b140347>
- [110] V. Gullapalli, "Solar Energy and Water/Wastewater Infrastructure," in *Renewable Energy Technologies and Water Infrastructure*: American Society of Civil Engineers (ASCE), 2022, pp. 183–198. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85137922740&doi=10.1061%2F9780784415856.ch10&partnerID=40&md5=9edc1a9c9491ccba96e02cb4ecfddcb2>
- [111] B. S. Richards and A. I. Schäfer, "Chapter 12 Renewable Energy Powered Water Treatment Systems," *Sustainability Sci. Eng.*, vol. 2, C, pp. 353–373, 2010, doi: 10.1016/S1871-2711(09)00212-8.
- [112] A. Saavedra, N. A. Galvis, M. Castaneda, S. Zapata, F. Mesa, and A. J. Aristizábal, "Feasibility of using photovoltaic solar energy for water treatment plants," *Int. J. Electr. Comput. Eng.*, vol. 11, no. 3, pp. 1962–1968, 2021, doi: 10.11591/ijece.v11i3.pp1962-1968.
- [113] M. R. Elkadeem *et al.*, "Optimize and analyze a large-scale grid-tied solar PV-powered SWRO system for sustainable water-energy nexus," *Desalination*, vol. 579, p. 117440, 2024, doi: 10.1016/j.desal.2024.117440.
- [114] Y. Zhang, M. Sivakumar, S. Yang, K. Enever, and M. Ramezani-pour, "Application of solar energy in water treatment processes: A review," *Desalination*, vol. 428, pp. 116–145, 2018, doi: 10.1016/j.desal.2017.11.020.
- [115] H. Al Nawafah, C. Kada, O. Habash, A. A. Hadi, and R. S. Amano, Eds., *The Experimental Integration of Photovoltaic Systems with Aeration Tanks In Wastewater Treatment*: American Society of Mechanical Engineers (ASME), 2024.
- [116] M. García-López, B. Montano, and J. Melgarejo, "The Influence of Photovoltaic Self-Consumption on Water Treatment Energy Costs: The Case of the Region of Valencia," *Sustainability*, vol. 15, no. 15, p. 11508, 2023, doi: 10.3390/su151511508.
- [117] K. Klittich and J. Schettler, "Solar cogeneration – A new renewable technology for water and wastewater treatment plants," in 2014, pp. 3251–3271.
- [118] A. K. Pandey *et al.*, "Utilization of solar energy for wastewater treatment: Challenges and progressive research trends," *J. Environ. Manage.*, vol. 297, p. 113300, 2021, doi: 10.1016/j.jenvman.2021.113300.
- [119]
- [120] S. Bukhary, J. Batista, and S. Ahmad, "Using solar and wind energy for water treatment in the southwest," in 2019, pp. 410–416.

- [121] S. Bukhary, J. Batista, and S. Ahmad, "Evaluating the Feasibility of Photovoltaic-Based Plant for Potable Water Treatment," in 2017, pp. 256–263.
- [122] J. Torres, M. Vivar, M. Fuentes, and A. M. Palacios, "SolWat technology for simultaneous wastewater disinfection and higher energy generation utilizing PV module front surface," *J. Water Process Eng.*, vol. 57, 2024, doi: 10.1016/j.jwpe.2023.104698.
- [123] A. R. Qaid, A. S. Baqir, and M. Almoussawi, Eds., *Water desalination by parabolic concentrator: A review*: American Institute of Physics Inc, 2023.
- [124] S. Fang, W. Tu, and W. Lu, "Artificial intelligence vision technology application in sustainability evaluation of solar-driven distillation device," *Environ. Technol. Innov.*, vol. 36, 2024, doi: 10.1016/j.eti.2024.103731.
- [125] M. T. Wolan, S. C. Connor, and T. P. Kuster, "Harnessing the sun to power the canal road treatment plant at new jersey american water," *Cogenerat. Distribut. Generat. J.*, vol. 23, no. 1, pp. 52–64, 2008, doi: 10.1080/15453660809509137.
- [126] B. Xu *et al.*, "A fabric interpenetrating composite hydrospungels with permeability and evaporation enthalpy regulation for efficient solar-driven interfacial evaporation and water purification," *Chem. Eng. J.*, vol. 503, 2025, doi: 10.1016/j.cej.2024.158642.
- [127]
- [128]
- [129] A. Kumar and S.-Y. Pan, "Opportunities and challenges of electrochemical water treatment integrated with renewable energy at the water-energy nexus," *Water-Energy Nexus*, vol. 3, pp. 110–116, 2020, doi: 10.1016/j.wen.2020.03.006.
- [130] A. Omar, Q. Li, D. Saldivia, A. Nashed, and B. van Dang, "Solar-driven water treatment: Generation III - Low technology readiness," in *Solar-Driven Water Treatment: Re-engineering and Accelerating Nature's Water Cycle*: Elsevier, 2021, pp. 201–261. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129805839&doi=10.1016%2fB978-0-323-90991-4.00001-3&partnerID=40&md5=18336bbca1066767a7c5662c09cc82dd>
- [131] E. S. Tweve and S. Gabriel, "Solar Powered Water Pump Application in Rural Villages. A case study of Mahango village –Mbarali District Tanzania," *SSRG. Int. J. Electr. Electron. Eng.*, vol. 7, no. 1, pp. 1–6, 2020, doi: 10.14445/23488379/IJEEE-V7I1P101.
- [132] A. Bennett, "Sustainable desalination: Renewable energy in desalination systems," *Filtr. Sep.*, vol. 48, no. 5, pp. 24–27, 2011, doi: 10.1016/S0015-1882(11)70208-7.
- [133] S. Bukhary, J. Batista, and S. Ahmad, "Evaluating the Feasibility of Photovoltaic-Based Plant for Potable Water Treatment," in 2017, pp. 256–263.
- [134] K. Świętochowski, M. Świętochowska, M. Kalenik, and J. Gwoździej-Mazur, "Analysis of the Use of a Low-Power Photovoltaic System to Power a Water Pumping Station in a Tourist Town," *Energies*, vol. 16, no. 21, 2023, doi: 10.3390/en16217435.

- [135] S. Bukhary, J. Batista, and S. Ahmad, "Using solar and wind energy for water treatment in the southwest," in 2019, pp. 410–416.
- [136] M. M. Ibrahim, N. H. Mostafa, A. H. Osman, and A. Hesham, "Performance analysis of a stand-alone hybrid energy system for desalination unit in Egypt," *Energy Convers. Manage.*, vol. 215, 2020, doi: 10.1016/j.enconman.2020.112941.
- [137] A. M. Delgado-Torres and L. García-Rodríguez, "Off-grid SeaWater Reverse Osmosis (SWRO) desalination driven by hybrid tidal range/solar PV systems: Sensitivity analysis and criteria for preliminary design," *Sustainable Energy Technol. Assess.*, vol. 53, 2022, doi: 10.1016/j.seta.2022.102425.
- [138] S. U. Uddin and T. Iqbal, "Design and Economic Analysis of Solar Powered Drinking Water Reverse Osmosis Desalination System for a Community in Pakistan," in 2022, pp. 1059–1064. [Online]. Available: <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85127694621&doi=10.1109%2fCCWC54503.2022.9720759&partnerID=40&md5=a7673fa68b4c6aabc94ae1f016f3d12>
- [139] S. U. Uddin, O. Chidolue, A. Azeez, and T. Iqbal, Eds., *Design and Analysis of a Solar Powered Water Filtration System for a Community in Black Tickle-Domino*: Institute of Electrical and Electronics Engineers Inc, 2022.
- [140] M. Gökçek, "Integration of hybrid power (wind-photovoltaic-diesel-battery) and seawater reverse osmosis systems for small-scale desalination applications," *Desalination*, vol. 435, pp. 210–220, 2018, doi: 10.1016/j.desal.2017.07.006.
- [141] A. Aldaghi, M. Gheibi, M. Akrami, and M. Hajiaghahi-Keshteli, "A smart simulation-optimization framework for solar-powered desalination systems," *Groundw. Sustain. Dev.*, vol. 19, 2022, doi: 10.1016/j.gsd.2022.100861.
- [142] P. Kumar *et al.*, "Efficient integration of photo voltaic and hydro energy technologies for sustainable power generation in rural areas: A case study," *Materials Science for Energy Technologies*, vol. 7, pp. 297–308, 2024, doi: 10.1016/j.mset.2024.04.002.
- [143] A. Nasipucha, S. Alvarado, G. A. Almeida Pazmiño, R. Hidalgo-Leon, and G. Soriano, "Modeling of an Integrated System for Desalination and Hydrogen Production Based on Solar Energy," pp. 67–72, 2023, doi: 10.1109/ICRERA59003.2023.10269358.
- [144] A. Remlaoui, D. Nehari, M. Laissaoui, and A. M. Sandid, "Performance evaluation of a solar thermal and photovoltaic hybrid system powering a direct contact membrane distillation: TRNSYS simulation," *Desalin. Water Treat.*, vol. 194, pp. 37–51, 2020, doi: 10.5004/dwt.2020.25834.
- [145] K. Maruf, R. J. Setiawan, A. A. Kafah Alam, N. Azizah, and N. E. Khosyati, "Integration of Solar Photovoltaic System and Water Filter: A Sustainable Energy Solution for Clean Water Supply," in 2024, pp. 96–102.
- [146] A. S. Isah, H. B. Takaijudin, B. S. M. Singh, T. O. Abimbola, M. M. Muhammad, and S. B. Sani, "Photovoltaic-integrated advancements for sustainable water production:

Developing and evaluating an enhanced hybrid solar desalination system," *Desalination*, vol. 579, p. 117453, 2024, doi: 10.1016/j.desal.2024.117453.

- [147] L. Cornejo-Ponce, P. Vilca-Salinas, M. J. Arenas-Herrera, C. Moraga-Contreras, H. Tapia-Caroca, and S. Kukulis-Martínez, "Small-Scale Solar-Powered Desalination Plants: A Sustainable Alternative Water-Energy Nexus to Obtain Water for Chile's Coastal Areas," *Energies*, vol. 15, no. 23, p. 9245, 2022, doi: 10.3390/en15239245.
- [148] M. Abedi, X. Tan, P. Saha, J. F. Klausner, and A. Bénard, "Design of a solar air heater for a direct-contact packed-bed humidification–dehumidification desalination system," *Applied Thermal Engineering*, vol. 244, p. 122700, 2024, doi: 10.1016/j.applthermaleng.2024.122700.
- [149] F. Maqbool, M. I. Soomro, L. Kumar, and K. Harijan, "Modeling and simulation of direct contact membrane distillation system integrated with a photovoltaic thermal for electricity and freshwater production," *Front. Energy Res.*, vol. 12, 2024, doi: 10.3389/fenrg.2024.1344214.
- [150] T. Gillblad and G. Olsson, "Integrating local solar energy and water recovery: Operating experiences of a systemic approach," *Water Pract. Technol.*, vol. 18, no. 12, pp. 3291–3298, 2023, doi: 10.2166/wpt.2023.204.
- [151] A. Maleki, Z. Eskandarfilabi, S. M. Mahmoudi, and F. Eskandarfilabi, "Multi-objective optimization of the hybrid photovoltaic-battery-diesel-desalination system based on multi-type of desalination unit," *Environ. Sci. Pollut. Res.*, vol. 31, no. 27, pp. 38603–38617, 2024, doi: 10.1007/s11356-024-31887-0.
- [152] M. A. Ebrahim, S. M. Ramadan, H. A. Attia, E. M. Saied, M. Lehtonen, and H. A. Abdelhadi, "Improving the Performance of Photovoltaic by Using Artificial Intelligence Optimization Techniques," *Int. J. Renew. Energy Res.*, vol. 11, no. 1, pp. 46–53, 2021.
- [153] M. K. Muhieithen, A. Alqaity, and M. K. Al-Solihat, "Techno-economic assessment of stand-alone renewable energy powered desalination and hydrogen production in NEOM, Saudi Arabia," *Renew. Energy*, vol. 241, 2025, doi: 10.1016/j.renene.2024.122264.
- [154] B. Meryem, N. Ahmed, H. Sanaa, and F. Ahmed, "Optimization of PV panel using P&O and incremental conductance algorithms for desalination mobile unit," in 2019, pp. 164–184. [Online]. Available: [https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062041625&doi=10.1007%2f978-3-030-12065-8\\_17&partnerID=40&md5=01375a0df439d5b622fcdef31fb96dfb](https://www.scopus.com/inward/record.uri?eid=2-s2.0-85062041625&doi=10.1007%2f978-3-030-12065-8_17&partnerID=40&md5=01375a0df439d5b622fcdef31fb96dfb)
- [155]
- [156] B. Đurin and J. Margeta, "Analysis of the Possible Use of Solar Photovoltaic Energy in Urban Water Supply Systems," *Water*, vol. 6, no. 6, pp. 1546–1561, 2014, doi: 10.3390/w6061546.

- [157] J. Margeta and B. Đurin, "Multi-criteria approach in solar urban water supply systems," *Proceedings of the Institution of Civil Engineers - Water Management*, vol. 170, no. 6, pp. 273–286, 2017, doi: 10.1680/jwama.16.00010.
- [158] X. Pan, Y. Zhao, X. Lin, N. Zhao, M. Sun, and J. Ma, "Towards Sustainable Urban Water System: A Strategic Approach to Advance Decarbonizing Water Management," *Engineering*, 2025, doi: 10.1016/j.eng.2025.03.028.
- [159] S. Bukhary, J. Batista, and S. Ahmad, "Water -energy -carbon nexus approach for sustainable large-scale drinking water treatment operation," *Journal of Hydrology*, vol. 587, p. 124953, 2020, doi: 10.1016/j.jhydrol.2020.124953.
- [160] H. Gholami, "A Holistic Multi-Criteria Assessment of Solar Energy Utilization on Urban Surfaces," *Energies*, vol. 17, no. 21, p. 5328, 2024, doi: 10.3390/en17215328.
- [161] A. Kaleshwarwar and S. Bahadure, "Assessing dynamics of urban solar PV power generation using grid divisional method," *Energy and Buildings*, vol. 325, p. 114935, 2024, doi: 10.1016/j.enbuild.2024.114935.
- [162]
- [163] T. Zhou *et al.*, "The green and low-carbon development pathways in the urban and rural building sector in Shaanxi Province, China," *Energy and Buildings*, vol. 306, p. 113952, 2024, doi: 10.1016/j.enbuild.2024.113952.
- [164] O. G. Kaoud, M. H. Elbassoussi, and S. M. Zubair, "Optimizing hybrid renewable energy systems for urban sustainability: A case study of five Saudi Arabian cities," *Renew. Energy*, vol. 248, p. 123091, 2025, doi: 10.1016/j.renene.2025.123091.
- [165] B. Shirizadeh and P. Quirion, "Long-term optimization of the hydrogen-electricity nexus in France: Green, blue, or pink hydrogen?," *Energy Policy*, vol. 181, p. 113702, 2023, doi: 10.1016/j.enpol.2023.113702.
- [166] T. Saheb, M. Dehghani, and T. Saheb, "Artificial intelligence for sustainable energy: A contextual topic modeling and content analysis," *Sustainable Computing: Informatics and Systems*, vol. 35, p. 100699, 2022, doi: 10.1016/j.suscom.2022.100699.
- [167] S. B. Issa Zadeh and C. L. Garay-Rondero, "Enhancing Urban Sustainability: Unravelling Carbon Footprint Reduction in Smart Cities through Modern Supply-Chain Measures," *Smart Cities*, vol. 6, no. 6, pp. 3225–3250, 2023, doi: 10.3390/smartcities6060143.
- [168] T.-P. Chu, J.-H. Guo, Y.-G. Leu, and L.-F. Chou, "Estimation of solar irradiance and solar power based on all-sky images," *Sol. Energy*, vol. 249, pp. 495–506, 2023, doi: 10.1016/j.solener.2022.11.031.
- [169] A. Ghaffar, M. B. Asif, J. Mahmood, and C. T. Yavuz, "Simultaneous solar power harnessing and water treatment for water-energy sustainability," *Materials Science and Engineering: R: Reports*, vol. 166, p. 101038, 2025.

- [170] N. Khandan, "(Invited) Evaluating Urban Water-Energy Systems Based on UN Sustainable Development Goals (SDGs)," *Meet. Abstr.*, no. 18, p. 1195, 2023, doi: 10.1149/ma2023-02181195mtgabs.
- [171] N. Shekarchi and F. Shahnia, "A comprehensive review of solar-driven desalination technologies for off-grid greenhouses," *Int J Energy Res*, vol. 43, no. 4, pp. 1357–1386, 2019, doi: 10.1002/er.4268.
- [172] Y. Guo, Y. Bouteraa, M. Khishe, and B. F. Ibrahim, "Grid-connected desalination plant economic management powered by renewable resources utilizing Niching Chimp Optimization and hunger game search algorithms," *Sustainable Computing: Informatics and Systems*, vol. 42, p. 100976, 2024, doi: 10.1016/j.suscom.2024.100976.
- [173] Z. Liu *et al.*, "Business model comparison of slum-based PV to realize low-cost and flexible power generation in city-level," *Appl. Energy*, vol. 344, p. 121220, 2023, doi: 10.1016/j.apenergy.2023.121220.
- [174] D. S. Vijayan *et al.*, "Advancements in Solar Panel Technology in Civil Engineering for Revolutionizing Renewable Energy Solutions—A Review," *Energies*, vol. 16, no. 18, p. 6579, 2023, doi: 10.3390/en16186579.
- [175] A. Al-Subhi, "Efficient mathematical models for parameters estimation of single-diode photovoltaic cells," *Energy Syst*, vol. 15, no. 1, pp. 275–296, 2022, doi: 10.1007/s12667-022-00542-3.
- [176] M. Zuccotto, A. Castellini, D. La Torre, L. Mola, and A. Farinelli, "Reinforcement learning applications in environmental sustainability: a review," *Artif Intell Rev*, vol. 57, no. 4, 2024, doi: 10.1007/s10462-024-10706-5.