

REFERENCES

- Aburas, M. M., Ahamad, M. S. S., & Omar, N. Q. (2019). Spatio-temporal simulation and prediction of land-use change using conventional and machine learning models: a review. *Environmental Monitoring and Assessment*, 191(4). <https://doi.org/10.1007/s10661-019-7330-6>
- Allam, M., Bakr, N., & Elbably, W. (2019). Multi-temporal assessment of land use/land cover change in arid region based on landsat satellite imagery: Case study in Fayoum Region, Egypt. *Remote Sensing Applications: Society and Environment*, 14, 8–19. <https://doi.org/10.1016/j.rsase.2019.02.002>
- Bai, X., McPhearson, T., Cleugh, H., Nagendra, H., Tong, X., Zhu, T., & Zhu, Y. G. (2017). Linking Urbanization and the Environment: Conceptual and Empirical Advances. *Annual Review of Environment and Resources*, 42, 215–240. <https://doi.org/10.1146/annurev-environ-102016-061128>
- Bayarsaikhan, U., Boldgiv, B., Kim, K.-R., Park, K.-A., & Lee, D. (2009). Change detection and classification of land cover at Hustai National Park in Mongolia. *International Journal of Applied Earth Observation and Geoinformation*, 11(4), 273–280. <https://doi.org/10.1016/j.jag.2009.03.004>
- BPS. (2013). *Proyeksi Penduduk Indonesia 2010-2035*.
- BPS. (2020). *Produk Domestik Regional Bruto Provinsi-Provinsi di Indonesia Menurut Lapangan Usaha*.
- Brenner, N., & Schmid, C. (2013). The ‘Urban Age’ in question. *International Journal of Urban and Regional Research*, 38(3), 731–755. <https://doi.org/10.1111/1468-2427.12115>
- Buhaug, H., & Urdal, H. (2013). An urbanization bomb? Population growth and social disorder in cities. *Global Environmental Change*, 23(1), 1–10. <https://doi.org/10.1016/j.gloenvcha.2012.10.016>
- Burzyński, M., Cudny, W., & Kosiński, W. (2004). Cellular Automata: Structures and Some Applications. *Journal of Theoretical and Applied Mechanics*, 42(3), 461–482. <http://www.ptmts.org.pl/2004-3-burzynski-in.pdf>
- Carra, G., & Barthélémy, M. (2019). A fundamental diagram of urbanization. *Environment and Planning B: Urban Analytics and City Science*, 46(4), 690–706. <https://doi.org/10.1177/2399808317724445>
- Chen, M., Zhang, H., Liu, W., & Zhang, W. (2014). The global pattern of urbanization and economic growth: Evidence from the last three decades. *PLoS ONE*, 9(8). <https://doi.org/10.1371/journal.pone.0103799>
- Chughtai, A. H., Abbasi, H., & Karas, I. R. (2021). A review on change detection method and accuracy assessment for land use land cover. *Remote Sensing Applications: Society and Environment*, 22(March), 100482. <https://doi.org/10.1016/j.rsase.2021.100482>
- Dempsey, N., Brown, C., & Bramley, G. (2012). The key to sustainable urban development in UK cities? The influence of density on social sustainability. *Progress in Planning*, 77(3), 89–141. <https://doi.org/10.1016/j.progress.2012.01.001>
- Diofanny, N., & Setyono, J. S. (2016). Perubahan Luas Lahan Sawah Menjadi

- Non Sawah Di Wilayah Joglosemar. *Teknik PWK (Perencanaan Wilayah Kota)*, 5(3), 203–213.
- Dioşan, L., Andreica, A., & Enescu, A. (2017). The Use of Simple Cellular Automata in Image Processing. *Studia Universitatis Babeş-Bolyai Informatica*, 62(1), 5–14. <https://doi.org/10.24193/subbi.2017.1.01>
- Dobbs, R., & Remes, J. (2013). *Trends : The Shifting Urban Economic Landscape, What Does It Mean for Cities?* (The World Bank's Sixth Urban Research and Knowledge Symposium, Issue October 2012). <https://openknowledge.worldbank.org/handle/10986/17589>
- Dociu, M., & Dunarintă, A. (2012). The Socio-Economic Impact of Urbanization. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 2(1), 47–52.
- Duhamel, C. (2012). Land Use and Land Cover, Including their Classification. *Encyclopedia of Life Support System (EOLSS)*, 1, 9.
- Firman, T. (2004). Demographic and spatial patterns of Indonesia's recent urbanisation. *Population, Space and Place*, 10(6), 421–434. <https://doi.org/10.1002/psp.339>
- Ghosh, P., Mukhopadhyay, A., Chanda, A., Mondal, P., Akhand, A., Mukherjee, S., Nayak, S. K., Ghosh, S., Mitra, D., Ghosh, T., & Hazra, S. (2017). Application of Cellular automata and Markov-chain model in geospatial environmental modeling- A review. *Remote Sensing Applications: Society and Environment*, 5, 64–77. <https://doi.org/10.1016/j.rsase.2017.01.005>
- Grimm, N. B., Faeth, S. H., Golubiewski, N. E., Redman, C. L., Wu, J., Bai, X., & Briggs, J. M. (2008). Global change and the ecology of cities. *Science*, 319(5864), 756–760. <https://doi.org/10.1126/science.1150195>
- Gross, J., & Ouyang, Y. (2020). Types of urbanization and economic growth. *International Journal of Urban Sciences*, 25(1), 71–85. <https://doi.org/10.1080/12265934.2020.1759447>
- Guan, D. J., Li, H. F., Inohae, T., Su, W., Nagae, T., & Hokao, K. (2011). Modeling urban land use change by the integration of cellular automaton and Markov model. *Ecological Modelling*, 222(20–22), 3761–3772. <https://doi.org/10.1016/j.ecolmodel.2011.09.009>
- Iacono, M., Levinson, D., El-Geneidy, A., & Wasfi, R. (2015). A Markov Chain Model of Land Use Change. *TeMA. Journal of Land Use, Mobility and Environment*, 8(3), 263–276. <http://www.tema.unina.it/index.php/tema/article/view/2985>
- Jahanishakib, F., Mirkarimi, S. H., Salmanmahiny, A., & Poodat, F. (2018). Land use change modeling through scenario-based cellular automata Markov: improving spatial forecasting. *Environmental Monitoring and Assessment*, 190(6). <https://doi.org/10.1007/s10661-018-6709-0>
- Kabisch, N., & Haase, D. (2011). Diversifying European agglomerations: Evidence of urban population trends for the 21st century. *Population, Space and Place*, 17, 236–253. <https://doi.org/10.1002/psp.600>
- Kang, J., Fang, L., Li, S., & Wang, X. (2019). Parallel cellular automata markov model for land use change prediction over MapReduce framework. *ISPRS International Journal of Geo-Information*, 8(10). <https://doi.org/10.3390/ijgi8100454>
- Katis, I., & Sirakoulis, G. C. (2012). Cellular automata on FPGAs for image

- processing. *Proceedings of the 2012 16th Panhellenic Conference on Informatics, PCI 2012*, 308–313. <https://doi.org/10.1109/PCi.2012.70>
- Kesaulija, F. F., Aipassa, M. I., Sumaryono, M., & Suhardiman, A. (2021). Modeling Land Cover Change Using Markov Chain-Cellular Automata in Sorong, West Papua Province. *Proceedings of the Joint Symposium on Tropical Studies (JSTS-19)*, 11, 157–162. <https://doi.org/10.2991/absr.k.210408.026>
- Kushwaha, K., Singh, M. M., Singh, S. K., & Patel, A. (2021). Urban growth modeling using earth observation datasets, Cellular Automata-Markov Chain model and urban metrics to measure urban footprints. *Remote Sensing Applications: Society and Environment*, 22(January), 100479. <https://doi.org/10.1016/j.rsase.2021.100479>
- Li, K., Feng, M., Biswas, A., Su, H., Niu, Y., & Cao, J. (2020). Driving factors and future prediction of land use and cover change based on satellite remote sensing data by the LCM model: A case study from gansu province, China. *Sensors (Switzerland)*, 20(10). <https://doi.org/10.3390/s20102757>
- Liping, C., Yujun, S., & Saeed, S. (2018). Monitoring and predicting land use and land cover changes using remote sensing and GIS techniques—A case study of a hilly area, Jiangle, China. *PLoS ONE*, 13(7), 1–23. <https://doi.org/10.1371/journal.pone.0200493>
- Liu, Y., Chen, X., & Liu, D. (2020). How Does Urban Spatial Structure Affect Economic Growth? Evidence from Landsat Data in China. *Journal of Economic Issues*, 54(3), 798–812. <https://doi.org/10.1080/00213624.2020.1787062>
- Liu, Y., & Yamauchi, F. (2014a). Population density, migration, and the returns to human capital and land: Insights from Indonesia. *Food Policy*, 48, 182–193. <https://doi.org/10.1016/j.foodpol.2014.05.003>
- Liu, Y., & Yamauchi, F. (2014b). *Population pressures, migration, and the returns to human capital and land: Insights from Indonesia* (No. 6790; Policy Research Working Paper, Issue February). <https://doi.org/10.1596/1813-9450-6790>
- McKinney, M. L. (2002). Urbanization, biodiversity, and conservation: the impacts of urbanization on native species are poorly studied, but educating a highly urbanized human population about these impacts can greatly improve species conservation in all ecosystems. *BioScience*, 52(10), 883–890. [https://doi.org/10.1641/0006-3568\(2002\)052\[0883:UBAC\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2002)052[0883:UBAC]2.0.CO;2)
- Mesta, C., Cremen, G., & Galasso, C. (2022). Urban growth modelling and social vulnerability assessment for a hazardous Kathmandu Valley. *Scientific Reports*, 12(1), 1–16. <https://doi.org/10.1038/s41598-022-09347-x>
- Motlagh, Z. K., Lotfi, A., Pourmanafi, S., Ahmadizadeh, S., & Soffianian, A. (2020). Spatial modeling of land-use change in a rapidly urbanizing landscape in central Iran: integration of remote sensing, CA-Markov, and landscape metrics. *Environmental Monitoring and Assessment*, 192(11). <https://doi.org/10.1007/s10661-020-08647-x>
- Mouratidis, K. (2018). Built environment and social well-being: How does urban form affect social life and personal relationships? *Cities*, 74(October), 7–20. <https://doi.org/10.1016/j.cities.2017.10.020>
- Navin, M. S., & Agilandeswari, L. (2020). Multispectral and hyperspectral

- images based land use / land cover change prediction analysis: an extensive review. *Multimedia Tools and Applications*, 79(39–40), 29751–29774. <https://doi.org/10.1007/s11042-020-09531-z>
- Nedd, R., Light, K., Owens, M., James, N., Johnson, E., & Anandhi, A. (2021). A Synthesis of Land Use/Land Cover Studies: Definitions, Classification Systems, Meta-Studies, Challenges and Knowledge Gaps on a Global Landscape. *Land*, 10(9), 994. <https://doi.org/10.3390/land10090994>
- Nguyen, H. M., & Nguyen, L. D. (2018). The relationship between urbanization and economic growth: an empirical study on ASEAN countries. *International Journal of Social Economics*, 45(2), 316–339. <https://doi.org/10.1108/IJSE-12-2016-0358>
- Nurmiaty, & Baja, S. (2013). Assessing land use dynamics using GIS-based Cellular Automata and Markov Chain. *34th Asian Conference on Remote Sensing 2013, ACRS 2013*, 5, 4062–4068.
- Overman, H. G., & Venables, A. J. (2010). Evolving City Systems. In *Handbook of Regional and Urban Economics* (2010/26).
- Pradhan, R. P., Arvin, M. B., & Nair, M. (2021). Urbanization, transportation infrastructure, ICT, and economic growth: A temporal causal analysis. *Cities*, 115(December 2020), 103213. <https://doi.org/10.1016/j.cities.2021.103213>
- Qian, Y., Chakraborty, T. C., Li, J., Li, D., He, C., Sarangi, C., Chen, F., Yang, X., & Leung, L. R. (2022). Urbanization Impact on Regional Climate and Extreme Weather: Current Understanding, Uncertainties, and Future Research Directions. *Advances in Atmospheric Sciences*, 39(6), 819–860. <https://doi.org/10.1007/s00376-021-1371-9>
- Roberts, B., & Kanaley, T. (2006). *Urbanization and Sustainability in Asia*. Asian Development Bank.
- Saputra, M. H., & Lee, H. S. (2019). Prediction of land use and land cover changes for North Sumatra, Indonesia, using an artificial-neural-network-based cellular automaton. *Sustainability (Switzerland)*, 11(11), 1–16. <https://doi.org/10.3390/su11113024>
- Sato, Y., & Zenou, Y. (2015). How urbanization affect employment and social interactions. *European Economic Review*, 75, 131–155. <https://doi.org/10.1016/j.eurocorev.2015.01.011>
- Schneider, A., & Woodcock, C. E. (2008). Compact, dispersed, fragmented, extensive? A comparison of urban growth in twenty-five global cities using remotely sensed data, pattern metrics and census information. *Urban Studies*, 45(3), 659–692. <https://doi.org/10.1177/0042098007087340>
- Shen, J. (2006). The urbanizing world. In *Environment and Development Vol. II*. Routledge. <https://doi.org/10.4324/9781849772006-7>
- Shivakumar, B. R., & Rajashekharadhy, S. V. (2018). Investigation on Land Cover Mapping Capability of Maximum Likelihood Classifier: A Case Study on North Canara, India. *Procedia Computer Science*, 143, 579–586. <https://doi.org/10.1016/j.procs.2018.10.434>
- Stauffer, D. (2001). Cellular automata: Applications invited talk. *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 1981, 199–206. https://doi.org/10.1007/3-540-44942-6_16
- Talukdar, S., Singha, P., Mahato, S., Pal, S., Liou, Y.-A., & Rahman, A. (2020).

- Land-Use Land-Cover Classification by Machine Learning Classifiers for Satellite Observations—A Review. *Remote Sensing*, 12(7), 1135.
<https://doi.org/10.3390/rs12071135>
- Talukdar, S., Singha, P., Mahato, S., Shahfahad, Pal, S., Liou, Y. A., & Rahman, A. (2020). Land-use land-cover classification by machine learning classifiers for satellite observations-A review. *Remote Sensing*, 12(7).
<https://doi.org/10.3390/rs12071135>
- Tan Hoi, H. (2020). Impacts of Urbanization on the Environment of Ho Chi Minh City. *IOP Conference Series: Earth and Environmental Science*, 505(1).
<https://doi.org/10.1088/1755-1315/505/1/012035>
- Turok, I., & McGranahan, G. (2019). Urbanisation and Economic Growth: The Arguments and Evidence for Africa and Asia. *Urbanisation*, 4(2), 109–125.
<https://doi.org/10.1177/2455747119890450>
- Wang, S., Zheng, X., Wang, L., & Zang, X. (2010). Simulation of precise scale land use change based on the Markov-cellular automata model. *2010 18th International Conference on Geoinformatics, Geoinformatics 2010*.
<https://doi.org/10.1109/GEOINFORMATICS.2010.5567828>
- Wu, J. J. (2006). Environmental amenities, urban sprawl, and community characteristics. *Journal of Environmental Economics and Management*, 52(2), 527–547. <https://doi.org/10.1016/j.jeem.2006.03.003>
- Zhang, W., Li, W., Zhang, C., & Ouimet, W. B. (2017). Detecting horizontal and vertical urban growth from medium resolution imagery and its relationships with major socioeconomic factors. *International Journal of Remote Sensing*, 38(12), 3704–3734. <https://doi.org/10.1080/01431161.2017.1302113>
- Zhao, M., & Zhang, Y. (2009). Development and urbanization: a revisit of Chenery-Syrquin's patterns of development. *Annals of Regional Science*, 43(4), 907–924. <https://doi.org/10.1007/s00168-008-0240-0>
- Zhu, E., Deng, J., Zhou, M., Gan, M., Jiang, R., Wang, K., & Shahtahmassebi, A. R. (2019). Carbon emissions induced by land-use and land-cover change from 1970 to 2010 in Zhejiang, China. *Science of the Total Environment*, 646, 930–939. <https://doi.org/10.1016/j.scitotenv.2018.07.317>