

DAFTAR PUSTAKA

- Aboelnour, M., Gitau, M. W., Engel, B. A., Aich, V., Liersch, S., Vetter, T., Fournet, S., Andersson, J. C. M., Calmanti, S., van Weert, F. H. A., Hattermann, F. F., Paton, E. N., Srinivasan, R. R., Santhi, C., Harmel, R. D., Griensven, A. Van, Beven, K., ... Zepp, H. (2018). LARGE Area Hydrologic Modeling And Assessment Part I: Model Development ' basin scale model called SWAT (Soil and Water speed and storage , advanced software debugging policy to meet the needs , and the management to the tank model (Sugawara et al ., 1. *Hydrological Processes*, 24(2), 1032–1042. <https://doi.org/10.1002/hyp.9645>
- Achmad, M., Samsuar, S., & Mubarak, H. (2020). Predicting the impact of land-use change on soil erosion rate in Ussu sub-catchment area and sedimentation yield in Malili River. *IOP Conference Series: Earth and Environmental Science*, 486(1). <https://doi.org/10.1088/1755-1315/486/1/012061>
- Adhami, M., Sadeghi, S. H., & Sheikhmohammady, M. (2018). Making competent land use policy using a co-management framework. *Land Use Policy*, 72(December 2017), 171–180. <https://doi.org/10.1016/j.landusepol.2017.12.035>
- Aher, P. D., Adinarayana, J., & Gorantiwar, S. D. (2014). Quantification of morphometric characterization and prioritization for management planning in semi-arid tropics of India: A remote sensing and GIS approach. *Journal of Hydrology*, 511, 850–860. <https://doi.org/10.1016/j.jhydrol.2014.02.028>
- Aich, V., Liersch, S., Vetter, T., Fournet, S., Andersson, J. C. M., Calmanti, S., van Weert, F. H. A., Hattermann, F. F., & Paton, E. N. (2016). Flood projections within the Niger River Basin under future land use and climate change. *Science of the Total Environment*, 562, 666–677. <https://doi.org/10.1016/j.scitotenv.2016.04.021>
- Arts, B., & de Koning, J. (2017). Community Forest Management: An Assessment and Explanation of its Performance Through QCA. *World Development*, 96(April), 315–325. <https://doi.org/10.1016/j.worlddev.2017.03.014>
- Asemi, A., Baba, M. S., Asemi, A., Abdullah, R. B. H., & Idris, N. (2014). Fuzzy Multi Criteria Decision Making Applications: A Review Study. *ResearchGate*, December, 344–351.
- Asier, L. O. (2007). *Analisis Perubahan Penutupan Lahan Terhadap Debit Pada SUB DAS Tanralili.* 1–16.Jurnal Kehutanan. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwjup8-5_YP3AhUz4zgGHcsZCkAQFnoECAUQAQ&url=http%3A%2F%2Fejournal.forda-mof.org%2Fejournal-

- litbang%2Ffiles%2Fjournals%2F13%2Farticles%2F879%2Fattachment%2F879-2090-1-AT.docx&usg=AOvVaw2WAVMjcfx_gYucNyoK-nFz
- Badan Pusat Statistik. (2010). *Maros Dalam Angka 2010 Maros in Figures 2010*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2011a). *Centrana Dalam Angka 2011*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2011b). *Kecamatan Tombolo Pao 2011* (Issue 7306). BPS Kabupaten Gowa. www.bps.go.id
- Badan Pusat Statistik. (2011c). *Kecamatan Tompobulu 2011*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2015a). *Badan Pusat Statistik Kabupaten Gowa 2015*. <https://musirawaskab.bps.go.id/>. BPS Kabupaten Gowa. www.bps.go.id
- Badan Pusat Statistik. (2015b). *Kecamatan Dalam Angka Tompobulu 2015*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2015c). *Kecamatan Tombolo Pao 2015*. BPS Kabupaten Gowa. www.bps.go.id
- Badan Pusat Statistik. (2015d). *Maros Dalam Angka 2015*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2017). Kecamatan Centrana dalam angka 2017. In 73110.1730. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2020a). *Kecamatan Tombolo Pao dalam Angka 2020*. BPS Kabupaten Gowa. www.bps.go.id
- Badan Pusat Statistik. (2020b). *Kecamatan Tompobulu 2020*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2021a). *Centrana Dalam Angka 2021*. BPS Kabupaten Maros. www.bps.go.id
- Badan Pusat Statistik. (2021b). *Gowa Dalam Angka 2021*. <https://gowakab.bps.go.id/publikasi.html#:~:text=Gowa%20Dalam%20Angka>. Tahun 2021. www.bps.go.id.
- Ballesteros, E., & Romero, C. (2013). Multiple criteria decision making and its applications to economic problems. *Springer Science & Business Media*. <https://www.springerprofessional.de/en/multiple-criteria-decision-making-and-its-applications-to-econom/13876868>

- Benini, L., Bandini, V., Marazza, D., & Contin, A. (2010). Assessment of land use changes through an indicator-based approach: A case study from the Lamone river basin in Northern Italy. *Ecological Indicators*, 10(1), 4–14. <https://doi.org/10.1016/j.ecolind.2009.03.016>
- Beven, K., & Germann, P. (2013). Macropores and water flow in soils revisited. *Water Resources Research*, 49(6), 3071–3092. <https://doi.org/10.1002/wrcr.20156>
- Bieger, K., Hörmann, G., & Fohrer, N. (2015). The impact of land use change in the Xiangxi Catchment (China) on water balance and sediment transport. *Regional Environmental Change*, 15(3), 485–498. <https://doi.org/10.1007/s10113-013-0429-3>
- Bishaw, B. (2001). Deforestation and Land Degredation in the Ethiopian Highlands: A Strategy for Physical Recovery. *Northeast African Studies*, 8(1), 7–25. <https://doi.org/10.1353/nas.2005.0014>
- Boulton, A. J., Findlay, S., Marmonier, P., Stanley, E. H., & Maurice Valett, H. (1998). The functional significance of the hyporheic zone in streams and rivers. *Annual Review of Ecology and Systematics*, 29, 59–81. <https://doi.org/10.1146/annurev.ecolsys.29.1.59>
- Butt, A., Shabbir, R., Ahmad, S. S., & Aziz, N. (2015). Land use change mapping and analysis using Remote Sensing and GIS: A case study of Simly watershed, Islamabad, Pakistan. *Egyptian Journal of Remote Sensing and Space Science*, 18(2), 251–259. <https://doi.org/10.1016/j.ejrs.2015.07.003>
- Camorani, G., Castellarin, A., & Brath, A. (2005). Effects of land-use changes on the hydrologic response of reclamation systems. *Physics and Chemistry of the Earth*, 30(8–10), 561–574. <https://doi.org/10.1016/j.pce.2005.07.010>
- Chalise, D., Kumar, L., & Kristiansen, P. (2019). Land degradation by soil erosion in Nepal: A review. *Soil Systems*, 3(1), 1–18. <https://doi.org/10.3390/soilsystems3010012>
- Cooper, M. (2010). Advanced Bash-Scripting Guide An in-depth exploration of the art of shell scripting Table of Contents. *Okt 2005 Abrufbar Über Httpwww Tldp OrgLDPabsabsguide Pdf Zugriff 1112 2005, 2274(November 2008), 2267–2274.* <https://doi.org/10.1002/hyp>
- Dahuri, R. (2001). Pengelolaan Ruang Wilayah Pesisir dan Lautan Seiring dengan Pelaksanaan Otonomi Daerah. *MIMBAR: Jurnal Sosial Dan Pembangunan*, 17(2), 139–171. <https://ejournal.unisba.ac.id/index.php/mimbar/article/view/38/pdf>

- Devaraju, N., de Noblet-Ducoudré, N., Quesada, B., & Bala, G. (2018). Quantifying the relative importance of direct and indirect biophysical effects of deforestation on surface temperature and teleconnections. *Journal of Climate*, 31(10), 3811–3829. <https://doi.org/10.1175/JCLI-D-17-0563.1>
- Dolisca, F., McDaniel, J. M., Teeter, L. D., & Jolly, C. M. (2007). Land tenure, population pressure, and deforestation in Haiti: The case of Forêt des Pins Reserve. *Journal of Forest Economics*, 13(4), 277–289. <https://doi.org/10.1016/j.jfe.2007.02.006>
- Dos Santos, V., Laurent, F., Abe, C., & Messner, F. (2018). Hydrologic response to land use change in a large basin in eastern Amazon. *Water (Switzerland)*, 10(4). <https://doi.org/10.3390/w10040429>
- Edivaldo Afonso de Oliveira, S., Madson Tavares, S., Thomás Rocha, F., Lorena Conceição, P. de A., Cleber, A. dos S., Aline Maria, M. de L., Vicente, de P. R. da S., Francisco, de A. S. de S., & Dênis Jose, C. G. (2021). Impacts of land use and land cover changes on hydrological processes and sediment yield determined using the SWAT model. *International Journal of Sediment Research*, April. <https://doi.org/10.1016/j.ijsrc.2021.04.002>
- Faridah, N. S., & Ahmad, M. (2011). *Pengelolaan DAS Berbasis Penggunaan Lahan Dengan Metode Fuzzy Multi-Attribute Decision Making*. Prosiding Seminar 37 Nasional Perteta. Fakultas Pertanian, Universitas Hasanuddin.21–22.
- Fitri, R., Tarigan, S. D., & Sitorus, S. R. P. (2018). Land Use Planning for Agroforestry Development in the Upstream of Ciliwung River Watershed (DAS) West Java Province Rini Fitri 1 , Suria Darma Tarigan 2 , Santun R.P. Sitorus 3 dan Latief M Rachman 4. *Tata Kelola*, 20(2), 148–158.
- Francesconi, W., Srinivasan, R., Pérez-Miñana, E., Willcock, S. P., & Quintero, M. (2016). Using the Soil and Water Assessment Tool (SWAT) to model ecosystem services: A systematic review. *Journal of Hydrology*, 535, 625–636. <https://doi.org/10.1016/j.jhydrol.2016.01.034>
- Frenkel, A. (2004). The potential effect of national growth-management policy on urban sprawl and the depletion of open spaces and farmland. *Land Use Policy*, 21(4), 357–369. <https://doi.org/10.1016/j.landusepol.2003.12.001>
- Gebretsadik, R., Shimelis, H., Laing, M. D., Tongoona, P., & Mandefro, N. (2014). A diagnostic appraisal of the sorghum farming system and breeding priorities in Striga infested agro-ecologies of Ethiopia. *Agricultural Systems*, 123, 54–61. <https://doi.org/10.1016/j.agsy.2013.08.008>

- Georgiou, D., Mohammed, E. S., & Rozakis, S. (2015). Multi-criteria decision making on the energy supply configuration of autonomous desalination units. *Renewable Energy*, 75, 459–467. <https://doi.org/10.1016/j.renene.2014.09.036>
- Gill, N. (1979). *Watershed development with special reference to soil and water conservation*. (FAO (Ed.). ISBN 92-5-500859-5
- Görkem Emirhüseyinoğlu, S. M. R. (2019). *Land use optimization for nutrient reduction under stochastic precipitation rates*. <https://doi.org/https://doi.org/10.1016/j.envsoft.2019.104527>
- Govindan, K., & Jepsen, M. B. (2016). ELECTRE: A comprehensive literature review on methodologies and applications. *European Journal of Operational Research*, 250(1), 1–29. <https://doi.org/10.1016/j.ejor.2015.07.019>
- Graham, C. B., Woods, R. A., & McDonnell, J. J. (2010). Hillslope threshold response to rainfall: (1) A field based forensic approach. *Journal of Hydrology*, 393(1–2), 65–76. <https://doi.org/10.1016/j.jhydrol.2009.12.015>
- Guo, L., Fan, B., Zhang, J., & Lin, H. (2018). Occurrence of subsurface lateral flow in the Shale Hills Catchment indicated by a soil water mass balance method. *European Journal of Soil Science*, 69(5), 771–786. <https://doi.org/10.1111/ejss.12701>
- Halim, F. (2014). Pengaruh Hubungan Tata Guna Lahan Dengan Debit Banjir Pada Daerah Aliran Sungai Malalayang. *Jurnal Ilmiah Media Engineering*, 4(1), 45–54.
- Hasnawir, Kubota, T., Sanchez-Castillo, L., & Soma, A. S. (2017). The influence of land use and rainfall on shallow landslides in tanralili sub-watershed, Indonesia. *Journal of the Faculty of Agriculture, Kyushu University*, 62(1), 171–176. <https://doi.org/10.5109/1801778>
- Hayati, N. (2016). *Strategi masyarakat dalam memenuhi kebutuhan hidup di sub das tanralili kabupaten maros*. Info Teknis EBONI Vol. 13 No. 1, Juni 2016 : 27 - 35.
- Hazairin Subair, D.A. Suriamihardja, Muh. Altin Massinai, M.A. Hamzah Assegaf, Syamsul A. Lias, Paharuddin, Muchtar S. Solle & Asmita Ahmad, Busthan Azikin, Paharuddin, Aryanti Virtanti Anas, Samsu Arif, Baharuddin Nurkin, Sakka, E. B. D. (2018). *Das jeneberang* (D. A. Suriamihardja (Ed.); Vol. 1). Unhas Press.
- Huang, I. B., Keisler, J., & Linkov, I. (2011). Multi-criteria decision analysis in environmental sciences: Ten years of applications and trends. *Science of the Total Environment*, 409(19), 3578–3594. <https://doi.org/10.1016/j.scitotenv.2011.06.022>

- Huang, Y., Nian, P., & Zhang, W. (2015). The prediction of interregional land use differences in Beijing: a Markov model. *Environmental Earth Sciences*, 73(8), 4077–4090. <https://doi.org/10.1007/s12665-014-3693-8>
- Ignace, D. D., Huxman, T. E., Weltzin, J. F., & Williams, D. G. (2007). Leaf gas exchange and water status responses of a native and non-native grass to precipitation across contrasting soil surfaces in the Sonoran Desert. *Oecologia*, 152(3), 401–413. <https://doi.org/10.1007/s00442-007-0670-x>
- Jaiswal, R. K., Ghosh, N. C., Lohani, A. K., & Thomas, T. (2015). Fuzzy AHP Based Multi Criteria Decision Support for Watershed Prioritization. *Water Resources Management*, 29(12), 4205–4227. <https://doi.org/10.1007/s11269-015-1054-3>
- Jariyah, N. A. (2019). Evaluasi Kinerja Sosial Ekonomi DAS Brantas Berdasarkan Penerapan P61/Menhut-II/2014. *Jurnal Penelitian Sosial Dan Ekonomi Kehutanan*, 16(9), 95–114.
- Junaidi, E., & Maryani, R. (2013). Pengaruh Dinamika Spasial Sosial Ekonomi Pada Suatu Lanskap Daerah Aliran Sungai (Das) Terhadap Keberadaan Lanskap Hutan (Studi Kasus Pada Das Citanduy Hulu Dan Das Ciseel, Jawa Barat). *Jurnal Penelitian Sosial Dan Ekonomi Kehutanan*, 10(2), 122–139. <https://doi.org/10.20886/jsek.2013.10.2.122-139>
- Kemenhut RI. (2014). *P.61 Kemenhut 2014*. Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia.
- Khakbaz, B., Imam, B., Hsu, K., & Sorooshian, S. (2012). From lumped to distributed via semi-distributed: Calibration strategies for semi-distributed hydrologic models. *Journal of Hydrology*, 418–419, 61–77. <https://doi.org/10.1016/j.jhydrol.2009.02.021>
- Kharat, M. G., Kamble, S. J., Raut, R. D., Kamble, S. S., & Dhume, S. M. (2016). Modeling landfill site selection using an integrated fuzzy MCDM approach. *Modeling Earth Systems and Environment*, 2(2). <https://doi.org/10.1007/s40808-016-0106-x>
- Kirsch, K., Kirsch, A., & Arnold, J. G. (2002). *Psplib u swat*. 45(6), 1757–1769.
- Koomen, E., Rietveld, P., & Nijs, T. (2008). Modelling land-use change for spatial planning support. *Annals of Regional Science*, 42(1), 1–10. <https://doi.org/10.1007/s00168-007-0155-1>
- Ku, C. A. (2016). Incorporating spatial regression model into cellular automata for simulating land use change. *Applied Geography*, 69, 1–9. <https://doi.org/10.1016/j.apgeog.2016.02.005>
- Kundzewicz, Z. W., Mata, L. J., Arnell, N. W., Döll, P., Kabat, B., Jimenez, B., Miller, K. A., Oki, T., Sen, Z., & Shiklomanov, I. A. (2007). Freshwater

- resources and their management. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution Of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, December 2016*, 173–210.
- Lambin, E. F., Geist, H. J., & Lepers, E. (2003). Dynamics of land-use and land-cover change in tropical regions. *Annual Review of Environment and Resources*, 28, 205–241. <https://doi.org/10.1146/annurev.energy.28.050302.105459>
- Lambin, E. F., Turner, B. L., Geist, H. J., Agbola, S. B., Angelsen, A., Bruce, J. W., Coomes, O. T., Dirzo, R., Fischer, G., Folke, C., George, P. S., Homewood, K., Imbernon, J., Leemans, R., Li, X., Moran, E. F., Mortimore, M., ... Xu, J. (2001). The causes of land-use and land-cover change: Moving beyond the myths. *Global Environmental Change*, 11(4), 261–269. [https://doi.org/10.1016/S0959-3780\(01\)00007-3](https://doi.org/10.1016/S0959-3780(01)00007-3)
- Lin, H. (2010). Linking principles of soil formation and flow regimes. *Journal of Hydrology*, 393(1–2), 3–19. <https://doi.org/10.1016/j.jhydrol.2010.02.013>
- Lin, Y. P., Hong, N. M., Wu, P. J., Wu, C. F., & Verburg, P. H. (2007). Impacts of land use change scenarios on hydrology and land use patterns in the Wu-Tu watershed in Northern Taiwan. *Landscape and Urban Planning*, 80(1–2), 111–126. <https://doi.org/10.1016/j.landurbplan.2006.06.007>
- Luxmoore, R. J., Jardine, P. M., Wilson, G. V., Jones, J. R., & Zelazny, L. W. (1990). Physical and chemical controls of preferred path flow through a forested hillslope. *Geoderma*, 46(1–3), 139–154. [https://doi.org/10.1016/0016-7061\(90\)90012-X](https://doi.org/10.1016/0016-7061(90)90012-X)
- Mishra, V. N., & Rai, P. K. (2016). A remote sensing aided multi-layer perceptron-Markov chain analysis for land use and land cover change prediction in Patna district (Bihar), India. *Arabian Journal of Geosciences*, 9(4). <https://doi.org/10.1007/s12517-015-2138-3>
- Molle, F. (2017). River Basin Management and Development. *International Encyclopedia of Geography: People, the Earth, Environment and Technology*, 1–12. <https://doi.org/10.1002/9781118786352.wbieg0907>
- Mukhopadhyay, A., Mondal, P., Barik, J., Chowdhury, S. M., Ghosh, T., & Hazra, S. (2015). Changes in mangrove species assemblages and future prediction of the Bangladesh Sundarbans using Markov chain model and cellular automata. *Environmental Sciences: Processes and Impacts*, 17(6), 1111–1117. <https://doi.org/10.1039/c4em00611a>
- Mulliner, E., Malys, N., & Maliene, V. (2016). Comparative analysis of MCDM methods for the assessment of sustainable housing affordability. *Omega (United Kingdom)*, 59, 146–156. <https://doi.org/10.1016/j.omega.2015.05.013>

- Munir, A., & Faridah, S. N. U. R. (2010). *Fuzzy Multi Attribute Decision Making for River Basin Management*. 5(March), Prosiding Seminar Nasional Perteta 201. 2301–2308.
- Munir, A., Suripin, Abdullah, M. N., & Marutani, T. (2000). Application of geographic information system (GIS-IDRISI) for assessing land use risks on sediment yields. *Journal of the Faculty of Agriculture, Kyushu University*, 44(3–4), 463–471. <https://doi.org/10.5109/24347>
- Musdalifah. (1999). Studi partisipasi masyarakat dalam program konservasi tanah dan air di Das Tanralili kabupaten dati II Maros. *Pascasarjana UNHAS*.
- Mwangi, H. M., Julich, S., Patil, S. D., McDonald, M. A., & Feger, K. H. (2016). Modelling the impact of agroforestry on hydrology of Mara River Basin in East Africa. *Hydrological Processes*, 30(18), 3139–3155. <https://doi.org/10.1002/hyp.10852>
- Nash. (2001). Ireland's water budget - Model validation and a greenhouse experiment. *Irish Geography*, 34(2), 124–134. <https://doi.org/10.1080/00750770109555783>
- Nevens, F., & Reheul, D. (2001). Crop rotation versus monoculture; yield, N yield and ear fraction of silage maize at different levels of mineral N fertilization. *Netherlands Journal of Agricultural Science*, 49(4), 405–425. [https://doi.org/10.1016/S1573-5214\(01\)80026-9](https://doi.org/10.1016/S1573-5214(01)80026-9)
- Nieber, J. L., & Sidle, R. C. (2010). How do disconnected macropores in sloping soils facilitate preferential flow? *Hydrological Processes*, 24(12), 1582–1594. <https://doi.org/10.1002/hyp.7633>
- PAKASI, S. E. (1995). Analisis penggunaan lahan dalam rangka pelestarian sumberdaya tanah dan air di sub Das Tanralili. *Program Pascasarjana UNHAS*. <http://kin.perpusnas.go.id/DisplayData.aspx?plId=10825&pRegionCode=UNHAS&pClientId=633>
- Pamukcu, P., Erdem, N., Serengil, Y., & Randhir, T. O. (2016). Ecohydrologic modelling of water resources and land use for watershed conservation. *Ecological Informatics*, 36, 31–41. <https://doi.org/10.1016/j.ecoinf.2016.09.005>
- Ramankutty, N., & Foley, J. A. (1999). Estimating historical changes in global land cover: Croplands from 1700 to 1992. *Global Biogeochemical Cycles*, 13(4), 997–1027. <https://doi.org/10.1029/1999GB900046>
- Ratih. (2015). PEMODELAN KONSERVASI TANAH DAN AIR UNTUK MENURUNKAN LAJU SEDIMENTASI DI SUB DAS TANRALILI [Universitas Hasanuddin]. In *Universitas Hasanuddin*. <http://digilib.unhas.ac.id/opac/detail-opac?id=18860>

- Rauschkolb, R. S. (1976). *Land degradation* (FAO (Ed.)).
https://www.worldcat.org/title/land-degradation/oclc/984940485&referer=brief_results
- Rawat, J. S., & Kumar, M. (2015). Monitoring land use/cover change using remote sensing and GIS techniques: A case study of Hawalbagh block, district Almora, Uttarakhand, India. *Egyptian Journal of Remote Sensing and Space Science*, 18(1), 77–84.
<https://doi.org/10.1016/j.ejrs.2015.02.002>
- Ritsema van Eck, J., & Koomen, E. (2008). Characterising urban concentration and land-use diversity in simulations of future land use. *Annals of Regional Science*, 42(1), 123–140. <https://doi.org/10.1007/s00168-007-0141-7>
- Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, E. F. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. J. Schellnhuber, B. Nykvist, C. A. de Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder, ... J. A. Foley. (2009). A safe operation space for humanity. *Nature*, 461(September), 472–475.
- Rukmana, D. (2012). *Pertanian Berkelanjutan : Mengapa , Apa Dan Pelajaran Penting Dari*. 1–9. Hasanuddin University Repository
- Rukmana, D. (2019). Neraca Sumberdaya Alam dan Lingkungan Oleh Didi Rukmana. *Unhas*, 14. <http://repository.unhas.ac.id/bitstream/handle/123456789/2835/NERACA%20SUMBERDAYA%20ALAM%20DAN%20LINGKUNGAN%20SERTA%20KEMUNGKINAN%20APLIKASINYA.pdf?sequence=1>
- Saaty, R. W. (1987). The analytic hierarchy process-what it is and how it is used. *Mathematical Modelling*, 9(3–5), 161–176.
[https://doi.org/10.1016/0270-0255\(87\)90473-8](https://doi.org/10.1016/0270-0255(87)90473-8)
- Saha, S. (2017). Groundwater potential mapping using analytical hierarchical process: a study on Md. Bazar Block of Birbhum District, West Bengal. *Spatial Information Research*, 25(4), 615–626.
<https://doi.org/10.1007/s41324-017-0127-1>
- Salman-Mahini, A. (2013). Assessment and evaluation of land for integrated management of Hablehroud Basin. *Tehran: Pouneh Publications.(Persian)*.
- Serpa, D., Nunes, J. P., Santos, J., Sampaio, E., Jacinto, R., Veiga, S., Lima, J. C., Moreira, M., Corte-Real, J., Keizer, J. J., & Abrantes, N. (2015). Impacts of climate and land use changes on the hydrological and erosion processes of two contrasting Mediterranean catchments. *Science of the Total Environment*, 538, 64–77.
<https://doi.org/10.1016/j.scitotenv.2015.08.033>

- Serrano-Ruiz, H., Martin-Closas, L., & Pelacho, A. M. (2021). Biodegradable plastic mulches: Impact on the agricultural biotic environment. *Science of the Total Environment*, 750, 141228. <https://doi.org/10.1016/j.scitotenv.2020.141228>
- Shope, C. L., Maharjan, G. R., Tenhunen, J., Seo, B., Kim, K., Riley, J., Arnhold, S., Koellner, T., Ok, Y. S., Peiffer, S., Kim, B., Park, J. H., & Huwe, B. (2014). Using the SWAT model to improve process descriptions and define hydrologic partitioning in South Korea. *Hydrology and Earth System Sciences*, 18(2), 539–557. <https://doi.org/10.5194/hess-18-539-2014>
- Simonovic, S. P., & Li, L. (2004). Sensitivity of the Red River basin flood protection system to climate variability and change. *Water Resources Management*, 18(2), 89–110. <https://doi.org/10.1023/B:WARM.0000024702.40031.b2>
- Sinukaban, N. (2007). *Membangun Pertanian Menjadi Industri yang Lestari dengan Pertanian Konservasi dalam Konservasi Tanah dan Air KunciPembangunan Berkelanjutan.*
- Sinukaban, N., Tarigan, S. D., Purwakusuma, W., Tejo, D. P., & Wahyuni, E. D. (2000). Analysis of watershed function sediment transfer across various type of filter strips. *ICRAFT South East Asia*, 7.
- Statistics Indonesia (Badan Pusat Statistik [BPS]). (2021). *Badan pusat statistik kabupaten maros 2021*. <https://bps.go.id/>
- Statistik, B. P. (2010). *GOWA DALAM ANGKA 2010*. BPS Kabupaten Gowa.
- Stehr, A., Debels, P., Romero, F., & Alcayaga, H. (2008). Hydrological modelling with SWAT under conditions of limited data availability: Evaluation of results from a Chilean case study. *Hydrological Sciences Journal*, 53(3), 588–601. <https://doi.org/10.1623/hysj.53.3.588>
- Stonestrom, D. A., Scanlon, B. R., & Zhang, L. (2009). Introduction to special section on impacts of land use change on water resources. *Water Resources Research*, 45(7), 2–4. <https://doi.org/10.1029/2009WR007937>
- Sukmawati, R. (2019). Dinamika Erosi di Sub DAS Tanralili Sehubungan dengan Perubahan Penggunaan Lahan Tahun 2009 – 2019. *Seminar Nasional Penginderaan Jauh Ke-6*, 8–22.
- Surahman, S. (2016). *Perubahan Penggunaan Lahan dan Dampaknya Terhadap Karakteristik Hidrologi Sub Das Tanralili Provinsi Sulawesi Selatan Menggunakan Model Swat*. Tesis: Sekolah Pascasarjana Institut Pertanian Bogor. Bogor.

- Surahman, S. (2017). Impact of Land Use Changes on The Characteristics of Hydrology in Tanralili Sub Watershed of South Sulawesi Province Using SWAT Model. *Journal of Chemical Information and Modeling*, 8(9), 1–58.
- Surahman, S., Zubair, H., Munir, A., & Achmad, M. (2021). Impact of land use change on groundwater flow using SWAT model, study case: Tanralili Sub Watershed. *IOP Conference Series: Earth and Environmental Science*, 807(3), 032056. <https://doi.org/10.1088/1755-1315/807/3/032056>
- Susila, A. D., Bambang, S., Purwoko, Palada, M. C., Kartika, J. G., Dahlia, L., Wijaya, K., Rahmanulloh, A., Raimadoya, M., Koesoemaningtyas, T., Puspitawati, H., Prasetyo, T., Budidarsono, S., Manue, I. K., & Roshetko, J. M. (2012). *Vegetable-Agroforestry Systems in Indonesia*.
- Tabeau, A., Eickhout, B., & Meijl, H. Van. (2006). Endogenous agricultural land supply: estimation and implementation in the GTAP model. *Gtap*, January.
- Tole, L. (1998). Sources of deforestation in tropical developing countries. *Environmental Management*, 22(1), 19–33. <https://doi.org/10.1007/s002679900081>
- van Oort, P. A. J., Gou, F., Stomph, T. J., & van der Werf, W. (2020). Effects of strip width on yields in relay-strip intercropping: A simulation study. *European Journal of Agronomy*, 112(January 2019), 125936. <https://doi.org/10.1016/j.eja.2019.125936>
- Verburg, P. H. (2003). Chapter 2 *Changemodeelling: Concepts and Challenges*. 17–51.
- Wang, Y., Zhang, B., Lin, L., & Zepp, H. (2011). Agroforestry system reduces subsurface lateral flow and nitrate loss in Jiangxi Province, China. *Agriculture, Ecosystems and Environment*, 140(3–4), 441–453. <https://doi.org/10.1016/j.agee.2011.01.007>
- Weiler, M., McDonnell, J. J., Tromp-van Meerveld, I., & Uchida, T. (2005). Subsurface Stormflow. *Encyclopedia of Hydrological Sciences*, 1–14. <https://doi.org/10.1002/0470848944.hsa119>
- Wilson, J. S., Brothers, T. S., & Marcano, E. J. (2001). Remote sensing of spatial and temporal vegetation dynamics in Hispaniola: A comparison of Haiti and the Dominican Republic. *Geocarto International*, 16(2), 7–18. <https://doi.org/10.1080/10106040108542188>
- Winckler, J., Reick, C., Luyssaert, S., Cescatti, A., Stoy, P., Lejeune, Q., Raddatz, T., Chlond, A., Heidkamp, M., & Pongratz, J. (2018). Different response of surface temperature and air temperature to deforestation in climate models. *Different Response of Surface Temperature and Air Temperature to Deforestation in Climate Models*, October, 1–17. <https://doi.org/10.5194/esd-2018-66>

- Wolka, K., Mulder, J., & Biazin, B. (2018). Effects of soil and water conservation techniques on crop yield, runoff and soil loss in Sub-Saharan Africa: A review. *Agricultural Water Management*, 207(January), 67–79. <https://doi.org/10.1016/j.agwat.2018.05.016>
- Wu, Q., Li, H. qing, Wang, R. song, Paulussen, J., He, Y., Wang, M., Wang, B. hui, & Wang, Z. (2006). Monitoring and predicting land use change in Beijing using remote sensing and GIS. *Landscape and Urban Planning*, 78(4), 322–333. <https://doi.org/10.1016/j.landurbplan.2005.10.002>
- Wubie, M. A., Assen, M., & Nicolau, M. D. (2016). Patterns, causes and consequences of land use/cover dynamics in the Gumara watershed of lake Tana basin, Northwestern Ethiopia. *Environmental Systems Research*, 5(1), 1–12. <https://doi.org/10.1186/s40068-016-0058-1>
- Xu, Y. D., Fu, B. J., He, C. S., & Gao, G. Y. (2012). Watershed discretization based on multiple factors and its application in the Chinese Loess Plateau. *Hydrology and Earth System Sciences*, 16(1), 59–68. <https://doi.org/10.5194/hess-16-59-2012>
- Yang, J., Reichert, P., Abbaspour, K. C., Xia, J., & Yang, H. (2008). Comparing uncertainty analysis techniques for a SWAT application to the Chaohe Basin in China. *Journal of Hydrology*, 358(1–2), 1–23. <https://doi.org/10.1016/j.jhydrol.2008.05.012>
- Ye, H. L., Chen, Z. G., Jia, T. T., Su, Q. W., & Su, S. C. (2021). Response of different organic mulch treatments on yield and quality of Camellia oleifera. *Agricultural Water Management*, 245, 106654. <https://doi.org/10.1016/j.agwat.2020.106654>
- Yeh, C. K., & Liaw, S. C. (2015). Application of landscape metrics and a Markov chain model to assess land cover changes within a forested watershed, Taiwan. *Hydrological Processes*, 29(24), 5031–5043. <https://doi.org/10.1002/hyp.10542>
- Yusuf, S. M. (2018). Analysis and prediction of land cover change in upstream Citarum watershed. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan (Journal of Natural Resources and Environmental Management)*, 8(3), 365–375. <https://doi.org/10.29244/jpsl.8.3.365-375>
- Zavadskas, E. K., Antucheviciene, J., & Kar, S. (2019). Multi-objective and multi-attribute optimization for sustainable development decision aiding. *Sustainability (Switzerland)*, 11(11), 1–6. <https://doi.org/10.3390/su11113069>
- Zhang, X., Yu, X., Wu, S., Zhang, M., & Li, J. (2007). Response of land use/coverage change to hydrological dynamics at watershed scale in the Loess Plateau of China. *Acta Ecologica Sinica*, 27(2), 414–421. [https://doi.org/10.1016/S1872-2032\(07\)60013-4](https://doi.org/10.1016/S1872-2032(07)60013-4)

- Zhang, Y., Li, H., Wang, X., Zheng, C., Wang, C., Xiao, K., Wan, L., Wang, X., Jiang, X., & Guo, H. (2016). Estimation of submarine groundwater discharge and associated nutrient fluxes in eastern Laizhou Bay, China using ^{222}Rn . *Journal of Hydrology*, 533, 103–113. <https://doi.org/10.1016/j.jhydrol.2015.11.027>
- Zhao, A., Zhu, X., Liu, X., Pan, Y., & Zuo, D. (2016). Impacts of land use change and climate variability on green and blue water resources in the Weihe River Basin of northwest China. *Catena*, 137, 318–327. <https://doi.org/10.1016/j.catena.2015.09.018>
- Zheng, H. W., Shen, G. Q., Wang, H., & Hong, J. (2015). Simulating land use change in urban renewal areas: A case study in Hong Kong. *Habitat International*, 46, 23–34. <https://doi.org/10.1016/j.habitatint.2014.10.008>
- Zierl, B., & Bugmann, H. (2005). Global change impacts on hydrological processes in Alpine catchments. *Water Resources Research*, 41(2), 1–13. <https://doi.org/10.1029/2004WR003447>
- Zubair, H. (2008a). Pengaruh Perubahan Penggunaan Lahan Terhadap Karakter Hidrologi Daerah Aliran Sungai Maros Di Provinsi Sulawesi Selatan. Makassar. *Jurnal Buletin Penelitian.*, Vol 7(ISSN.0215-174X: 110-114.), 110–114.
- Zubair, H. (2008b). Pengaruh perubahan penggunaan lahan terhadap karakter hidrologi daerah aliran sungai Maros di Provinsi Sulawesi Selatan. *Buletin Penelitian*, Vol 7(1), 110–114.

LAMPIRAN

Hidrologi Soil Group Sub-DAS Tanralili

| Sub Basin | HRU | Penggunaan Lahan | Jenis Tanah | Lereng | LUAS |
|-----------|-----|---------------------------------|-------------|--------|---------|
| 1 | 1 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 159.23 |
| | 2 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 268.27 |
| | 3 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 347.22 |
| | 4 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 174.51 |
| | 5 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 53.28 |
| | 6 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 102.59 |
| | 7 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 64.02 |
| 2 | 8 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 370.27 |
| | 9 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 469.53 |
| | 10 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 189.98 |
| | 11 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 198.98 |
| | 12 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 504.81 |
| | 13 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 1404.88 |
| | 14 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 640.23 |
| 3 | 15 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 253.13 |
| | 16 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 334.95 |
| | 17 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 230.47 |
| 4 | 18 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 34.91 |
| | 19 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 21.87 |
| | 20 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 24.08 |
| | 21 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 30.81 |
| | 22 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 27.50 |
| | 23 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 22.44 |
| | 24 | Semak Belukar | Inceptisol | 0-8 | 4.13 |
| | 25 | Semak Belukar | Inceptisol | 15-25 | 9.66 |
| | 26 | Semak Belukar | Inceptisol | 8-15 | 10.06 |
| | 27 | Semak Belukar | Inceptisol | 8-15 | 7.78 |
| | 28 | Semak Belukar | Inceptisol | 15-25 | 5.73 |
| | 29 | Semak Belukar | Inceptisol | 0-8 | 5.53 |
| 5 | 30 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 114.26 |
| | 31 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 51.44 |
| | 32 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 26.10 |
| | 33 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 32.65 |
| | 34 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 11.31 |
| | 35 | Pertanian Lahan Kering Campuran | Mollisol | 0-8 | 44.28 |
| 6 | 36 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 343.62 |

| Sub Basin | HRU | Penggunaan Lahan | Jenis Tanah | Lereng | LUAS |
|-----------|-----|---------------------------------|-------------|--------|--------|
| 3 | 37 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 341.53 |
| | 38 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 307.70 |
| | 39 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 200.77 |
| | 40 | Pertanian Lahan Kering Campuran | Mollisol | 0-8 | 165.96 |
| | 41 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 54.81 |
| | 42 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 109.25 |
| | 43 | Pertanian Lahan Kering Campuran | Ultisol | 0-8 | 242.94 |
| | 44 | Pertanian Lahan Kering Campuran | Ultisol | 8-15 | 72.00 |
| 7 | 45 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 169.66 |
| | 46 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 198.19 |
| | 47 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 101.16 |
| | 48 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 73.53 |
| | 49 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 56.69 |
| | 50 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 95.72 |
| | 51 | Sawah | Inceptisol | 8-15 | 38.54 |
| | 52 | Sawah | Inceptisol | 0-8 | 142.23 |
| | 53 | Sawah | Inceptisol | 0-8 | 100.71 |
| | 54 | Sawah | Mollisol | 0-8 | 115.43 |
| | 55 | Sawah | Mollisol | 8-15 | 14.44 |
| 8 | 56 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 7.41 |
| | 57 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 10.02 |
| | 58 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 18.94 |
| | 59 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 25.45 |
| | 60 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 69.02 |
| | 61 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 94.65 |
| | 62 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 119.96 |
| | 63 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 10.68 |
| | 64 | Pertanian Lahan Kering Campuran | Mollisol | 0-8 | 83.59 |
| | 65 | Sawah | Inceptisol | 0-8 | 151.19 |
| | 66 | Sawah | Mollisol | 0-8 | 51.99 |
| | 67 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 24.27 |
| 9 | 68 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 99.81 |
| | 69 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 69.85 |
| | 70 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 53.19 |
| | 71 | Pertanian Lahan Kering Campuran | Mollisol | 0-8 | 132.00 |
| | 72 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 82.75 |
| | 73 | Sawah | Inceptisol | 8-15 | 26.45 |
| | 74 | Sawah | Inceptisol | 15-25 | 27.79 |
| | 75 | Sawah | Inceptisol | 0-8 | 13.06 |
| | 76 | Sawah | Mollisol | 15-25 | 8.27 |
| | 77 | Sawah | Mollisol | 8-15 | 16.85 |
| | 78 | Sawah | Mollisol | 0-8 | 31.11 |

| Sub Basin | HRU | Penggunaan Lahan | Jenis Tanah | Lereng | LUAS |
|-----------|-----|---------------------------------|-------------|--------|--------|
| 79 | 79 | Semak Belukar | Inceptisol | 25-45 | 30.74 |
| | 80 | Semak Belukar | Inceptisol | 8-15 | 12.50 |
| | 81 | Semak Belukar | Inceptisol | 15-25 | 31.19 |
| | 82 | Semak Belukar | Mollisol | 15-25 | 5.26 |
| | 83 | Semak Belukar | Mollisol | 25-45 | 2.00 |
| | 84 | Semak Belukar | Mollisol | 8-15 | 1.68 |
| 10 | 85 | Hutan sekunder | Mollisol | 25-45 | 682.87 |
| | 86 | Hutan sekunder | Mollisol | 15-25 | 319.77 |
| | 87 | Hutan sekunder | Mollisol | >45 | 323.98 |
| | 88 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 480.94 |
| | 89 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 192.30 |
| | 90 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 261.58 |
| | 91 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 350.90 |
| 11 | 92 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 997.49 |
| | 93 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 765.64 |
| | 94 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 310.93 |
| | 95 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 635.42 |
| | 96 | Sawah | Inceptisol | 15-25 | 26.23 |
| | 97 | Sawah | Inceptisol | 0-8 | 39.77 |
| | 98 | Sawah | Inceptisol | 25-45 | 24.91 |
| | 99 | Sawah | Inceptisol | 8-15 | 36.17 |
| | 100 | Sawah | Mollisol | 8-15 | 46.54 |
| | 101 | Sawah | Mollisol | 0-8 | 52.92 |
| | 102 | Sawah | Mollisol | 25-45 | 71.67 |
| | 103 | Sawah | Mollisol | 15-25 | 60.83 |
| | 104 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 26.85 |
| 12 | 105 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 43.09 |
| | 106 | Hutan sekunder | Mollisol | >45 | 69.66 |
| | 107 | Hutan sekunder | Mollisol | 15-25 | 99.83 |
| | 108 | Hutan sekunder | Mollisol | 25-45 | 216.64 |
| | 109 | Hutan Tanaman Industri | Mollisol | 25-45 | 146.02 |
| | 110 | Hutan Tanaman Industri | Mollisol | >45 | 150.54 |
| | 111 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 139.23 |
| | 112 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 196.42 |
| 13 | 113 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 321.60 |
| | 114 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 99.63 |
| | 115 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 56.86 |
| | 116 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 23.35 |
| | 117 | Sawah | Mollisol | 15-25 | 18.05 |
| | 118 | Sawah | Mollisol | 25-45 | 22.94 |
| 14 | 119 | Sawah | Mollisol | 8-15 | 10.01 |
| | 120 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 55.39 |

| Sub Basin | HRU | Penggunaan Lahan | Jenis Tanah | Lereng | LUAS |
|-----------|-----|---------------------------------|-------------|--------|--------|
| | 121 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 213.98 |
| | 122 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 102.21 |
| | 123 | Sawah | Mollisol | 8-15 | 98.12 |
| | 124 | Sawah | Mollisol | 15-25 | 136.25 |
| 16 | 125 | Hutan sekunder | Inceptisol | 25-45 | 460.49 |
| | 126 | Hutan sekunder | Inceptisol | >45 | 107.08 |
| | 127 | Hutan sekunder | Inceptisol | 15-25 | 255.88 |
| | 128 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 57.06 |
| | 129 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 68.65 |
| | 130 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 90.39 |
| | 131 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 30.13 |
| | 132 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 16.16 |
| | 133 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 25.40 |
| | 134 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 37.82 |
| 17 | 135 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 30.02 |
| | 136 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 115.34 |
| | 137 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 62.04 |
| 18 | 138 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 384.23 |
| | 139 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 483.12 |
| 19 | 140 | Hutan sekunder | Inceptisol | >45 | 88.79 |
| | 141 | Hutan sekunder | Inceptisol | 25-45 | 440.03 |
| | 142 | Hutan sekunder | Inceptisol | 15-25 | 178.22 |
| | 143 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 316.16 |
| | 144 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 356.91 |
| | 145 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 250.11 |
| | 146 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 154.72 |
| | 147 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 85.55 |
| | 148 | Pertanian Lahan Kering Campuran | Mollisol | 0-8 | 54.22 |
| | 149 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 161.90 |
| | 150 | Pertanian Lahan Kering Campuran | Mollisol | 8-15 | 134.29 |
| | 151 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 48.49 |
| | 152 | Pertanian Lahan Kering Campuran | Inceptisol | 0-8 | 150.49 |
| | 153 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 106.69 |
| 20 | 154 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 222.03 |
| | 155 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 99.78 |
| | 156 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 236.78 |
| | 157 | Semak Belukar | Mollisol | >45 | 73.64 |
| | 158 | Semak Belukar | Mollisol | 25-45 | 13.00 |
| 21 | 159 | Hutan sekunder | Mollisol | 8-15 | 34.53 |
| | 160 | Hutan sekunder | Mollisol | 15-25 | 106.57 |
| | 161 | Hutan sekunder | Mollisol | 25-45 | 124.92 |
| | 162 | Hutan Tanaman Indsutri | Inceptisol | 25-45 | 177.84 |

| Sub Basin | HRU | Penggunaan Lahan | Jenis Tanah | Lereng | LUAS |
|-----------|-----|---------------------------------|-------------|--------|--------|
| | 163 | Hutan Tanaman Industri | Inceptisol | 8-15 | 123.33 |
| | 164 | Hutan Tanaman Industri | Inceptisol | 15-25 | 212.97 |
| | 165 | Hutan Tanaman Industri | Mollisol | 8-15 | 50.15 |
| | 166 | Hutan Tanaman Industri | Mollisol | 15-25 | 98.86 |
| | 167 | Hutan Tanaman Industri | Mollisol | 25-45 | 166.60 |
| | 168 | Hutan Tanaman Industri | Mollisol | >45 | 99.10 |
| | 169 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 89.24 |
| | 170 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 147.05 |
| | 171 | Pertanian Lahan Kering Campuran | Inceptisol | >45 | 35.59 |
| | 172 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 394.66 |
| | 173 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 290.01 |
| | 174 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 153.35 |
| 22 | 175 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 118.37 |
| | 176 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 292.81 |
| | 177 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 501.05 |
| 23 | 178 | Hutan sekunder | Mollisol | 15-25 | 91.65 |
| | 179 | Hutan sekunder | Mollisol | 25-45 | 290.70 |
| | 180 | Hutan sekunder | Mollisol | >45 | 255.38 |
| | 181 | Pertanian Lahan Kering Campuran | Inceptisol | 25-45 | 54.94 |
| | 182 | Pertanian Lahan Kering Campuran | Inceptisol | 15-25 | 38.43 |
| | 183 | Pertanian Lahan Kering Campuran | Inceptisol | 8-15 | 12.39 |
| | 184 | Pertanian Lahan Kering Campuran | Mollisol | 25-45 | 473.79 |
| | 185 | Pertanian Lahan Kering Campuran | Mollisol | 15-25 | 224.18 |
| | 186 | Pertanian Lahan Kering Campuran | Mollisol | >45 | 229.01 |