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DAFTAR PUSTAKA

Abdelwahab, O. M. M., Mohamed, E. S., El Bastawesy, M. A., & Ali, R. R. (2025). Modeling the effect of nature-based solutions in reducing soil erosion using the InVEST-SDR model: The Carapelle case study. *Water, 17*(24), 3451. https://doi.org/10.3390/w17243451

Abebe, T. G., Lemma, T. M., & Meshesha, T. W. (2025). Exploring best soil conservation practices using the tolerable soil loss limit in central highlands. *International Soil and Water Conservation Research, 13*, 348–361. https://doi.org/10.1016/j.iswcr.2025.01.001

Alaoui, H. I., Chemchaoui, A., & Ait Kacem, H. (2024). Economic valuation of sediment retention services in the Oued-Beht watershed using InVEST SDR. *Ecological Frontiers*. *(Lengkapi volume, nomor, halaman, dan DOI jika tersedia)*

Anjinho, P. S., Portela, M. M., & Rivaes, R. (2022). Evaluation of InVEST's water ecosystem service models in a large Mediterranean watershed: Hydrological services, sediment retention, and nutrient delivery. *Water, 14*(3), 390. https://doi.org/10.3390/w14030390

Amani, M., Ghorbanian, A., Ahmadi, S. A., et al. (2020). Google Earth Engine cloud computing platform for remote sensing big data applications: A comprehensive review. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 13*, 5326–5350. https://doi.org/10.1109/JSTARS.2020.3021052

Argaw, M., & Yohannes, H. (2024). Impact of land use/land cover changes on surface water and soil-sediment export in the urbanized Akaki River catchment, Awash Basin, Ethiopia. *Journal of Hydrology: Regional Studies, 52*, 101677. https://doi.org/10.1016/j.ejrh.2024.101677

Arsyad, S. (2012). *Konservasi tanah dan air* (Edisi kedua). IPB Press.

Asdak, C. (2024). *Hidrologi dan pengelolaan daerah aliran sungai* (Edisi revisi). Gadjah Mada University Press.

Badan Standardisasi Nasional. 2010. *SNI 7645:2010 Klasifikasi Penutup Lahan*. Jakarta: Badan Standardisasi Nasional.

Baja, S. (2012). *Perencanaan tata guna lahan dalam pengembangan wilayah: Pendekatan spasial dan aplikasinya*. Penerbit Andi.

Barry, L. E., Paragahawewa, U. H., Yao, R. T., & Turner, J. A. (2011). Valuing avoided soil erosion by considering private and public net benefits. Paper presented at the *2011 NZARES Conference*, Tahuna Conference Centre, Nelson, New Zealand, August 25–26, 2011.

Bayarmagnai, B., Erdenetuya, B., & Batjargal, Z. (2022). Land use/land cover classification using Random Forest algorithm and Landsat 8 OLI imagery. *International Journal of Remote Sensing and Spatial Information Sciences*, 1–6. https://doi.org/10.1139/ijrs-2021-0241

UNIVERSITAS
GADJAH MADA
EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR PADA SUB DAS PANASEN SULAWESI UTARA
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Biondi, D., Freni, G., Iacobellis, V., Mascaro, G., & Montanari, A. (2012). Validation of hydrological models: Conceptual basis, methodological approaches and a proposal for a code of practice. *Physics and Chemistry of the Earth, 42–44*, 70–76. https://doi.org/10.1016/j.pce.2011.07.037

Boardman, J. (2006). Soil erosion science: Reflections on the limitations of current approaches. *Catena, 68*(2–3), 73–86.

BPDAS Tondano. (2021). *Laporan penyusunan peta daerah tangkapan air Danau Tondano*. Direktorat Jenderal Pengendalian DAS dan Hutan Lindung, Kementerian Lingkungan Hidup dan Kehutanan.

Borrelli, P., Robinson, D. A., Fleischer, L. R., Lugato, E., Ballabio, C., Alewell, C., Meusburger, K., Modugno, S., Schütt, B., Ferro, V., Bagarello, V., Van Oost, K., Montanarella, L., & Panagos, P. (2017). An assessment of the global impact of 21st century land use change on soil erosion. *Nature Communications, 8*(1), 2013. https://doi.org/10.1038/s41467-017-02142-7

Breiman, L. (2001). Random forests. *Machine Learning, 45*(1), 5–32. https://doi.org/10.1023/A:1010933404324

Budiyono, & Faisol, A. (2021). Evaluasi data Climate Hazards Group Infrared Precipitation with Station (CHIRPS) dengan data pembanding Automatic Weather Stations (AWS) dalam mengestimasi curah hujan harian di Provinsi Papua Barat. *Jurnal Teknik Pertanian Lampung, 10*(1), 64–72.

Chen, C., Yang, X., Jiang, S., & Liu, Z. (2023). Mapping and spatiotemporal dynamics of land-use and land-cover change based on the Google Earth Engine cloud platform from Landsat imagery: A case study of Zhoushan Island, China. *Heliyon, 9*, e19654. https://doi.org/10.1016/j.heliyon.2023.e19654

Darmawan, A., Santoso, H., Hardiyanti, N., & Hermawan, R. (2024). Land use and land cover classification using Random Forest algorithm based on Landsat imagery. *Jurnal Sylva Lestari, 12*(3), 978–989.

Demissie, B., Beyene, A., Triest, L., & Hoekstra, P. (2017). Impact of land use land cover changes on ecosystem service values in the Central Rift Valley of Ethiopia. *Environmental Systems Research, 6*(1), 1–12. https://doi.org/10.1186/s40068-017-0080-6

De Oliveira Serrão, E. A., Silva, M. T., Ferreira, T. R., De Ataide, L. C. P., Dos Santos, C. A., De Lima, A. M. M., Da Silva, V. D. P. R., De Sousa, F. A. S., & Gomes, D. J. C. (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, 37*, 54–69. https://doi.org/10.1016/j.ijsrc.2021.03.003

Dharmawan, I. W. S., Pratiwi, P., Siregar, C. A., Narendra, B. H., Undaharta, N. K. E., Sitepu, B. S., & Sari, N. (2023). Implementation of soil and water conservation in Indonesia and its impacts on biodiversity, hydrology, soil erosion, and microclimate. *Applied Sciences, 13*(13), 7648. https://doi.org/10.3390/app13137648

UNIVERSITAS
GADJAH MADA
EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR PADA SUB DAS PANASEN SULAWESI UTARA
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Dhoke, M.E., Kusumandari, A., dan Senawi. (2018). Tingkat Erosi dan Rancangan Teknik Konservasi Tanah dan Air di Sub DAS Waewoki, DAS Aesesa, Kabupaten Ngada, Provinsi Nusa Tenggara Timur. *Jurnal Manusia & Lingkungan*, 25(1):7–17.

Dibaba, W. T., Demissie, T. A., & Miegel, K. (2020). Drivers and implications of land use/land cover dynamics in Finchaa catchment, Northwestern Ethiopia. *Land, 9*(4), 113. https://doi.org/10.3390/land9040113

Diop, M., et al. (2022). Soil and water conservation in agricultural landscapes. *Sustainability, 14*(20), 13425. https://doi.org/10.3390/su142013425

Du, S., Shi, P., Van Rompaey, A., & Wen, J. (2022). Effects of terracing and check dams on runoff and sediment yield in mountainous watersheds. *Catena, 210*, 105902. https://doi.org/10.1016/j.catena.2021.105902

Fadhil, M. Y., Hidayat, Y., Murtilaksono, K., & Baskoro, D. P. T. (2021). Perubahan penggunaan lahan dan karakteristik hidrologi DAS Citarum Hulu. *Jurnal Ilmu Pertanian Indonesia, 26*(2), 213–220.

García-Ruiz, J. M., Beguería, S., Nadal-Romero, E., González-Hidalgo, J. C., Lana-Renault, N., & Sanjuán, Y. (2015). A meta-analysis of soil erosion rates across the world. *Geomorphology, 239*, 160–173. https://doi.org/10.1016/j.geomorph.2015.03.008

Gashaw, T., Bantider, A., & Hagos, H. (2021). Evaluating InVEST model for estimating soil loss and sediment export in data scarce regions of the Abbay (Upper Blue Nile) Basin. *Environmental Challenges, 5*, 100285.

Gorelick, N., Hancher, M., Dixon, M., Ilyushchenko, S., Thau, D., & Moore, R. (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. *Remote Sensing of Environment, 202*, 18–27. https://doi.org/10.1016/j.rse.2017.06.031

Halim, M., Tiwow, V., & Manginsela, F. (2013). Analisis beban sedimen Sub-DAS Panasen terhadap sedimentasi Danau Tondano. *Jurnal Ilmiah Sains, 13*(1), 45–54.

Hamel, P., Chaplin-Kramer, R., Sim, S., Mueller, C., & DeClerck, F. (2015). A new approach to modeling the sediment retention service (InVEST 3.0): Case study of the Cape Fear catchment, North Carolina, USA. *Science of the Total Environment, 524–525*, 166–177. https://doi.org/10.1016/j.scitotenv.2015.04.027

Hikmatullah. (2008). Andisol dari daerah Tondano, Sulawesi Utara: Sifat-sifat dan klasifikasi. *Jurnal Tanah Tropika, 13*(1), 77–85.

Kassam, A. (2014). Global achievements in soil and water conservation: Conservation agriculture systems. *International Soil and Water Conservation Research, 2*(1), 5–20. https://doi.org/10.1016/S2095-6339(15)30046-6

Kementerian Kehutanan Republik Indonesia. 2009. *Peraturan Menteri Kehutanan Nomor P.32/Menhut-II/2009 tentang Tata Cara Penyusunan Rencana Teknik Rehabilitasi Hutan dan Lahan Daerah Aliran Sungai (RTkRHL-DAS)*. Jakarta: Kementerian Kehutanan Republik Indonesia.

UNIVERSITAS
GADJAH MADA
EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR PADA SUB DAS PANASEN SULAWESI UTARA
FIQH CHAIRUNNISA, Prof. Dr. Ir. Ambar Kusumandari, M.ES., IPU.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Kironoto, B. A., Yulistiyanto, B., & Olii, M. R. (2020). *Erosi dan konservasi lahan*. Gadjah Mada University Press.

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159–174. https://doi.org/10.2307/2529310

Lann, T., Bao, H., Lan, H., Zheng, H., Yan, C., & Peng, J. (2024). Hydro-mechanical effects of vegetation on slope stability: A review. *Science of the Total Environment, 926*, 171691. https://doi.org/10.1016/j.scitotenv.2024.171691

Liu, H., Wu, J., Lin, H., & Zhang, X. (2020). Soil conservation efficiency assessment based on land use change using the InVEST SDR model. *Land Use Policy, 99*, 104846. https://doi.org/10.1016/j.landusepol.2020.104846

Mandala, M., Indarto, I., Rodhi, N.N., Saputra, A.A., & Hakim, F.L. 2024. *Land Use and Land Cover Change in East Java from 2015 to 2021: Use Optical Imagery and Google Earth Engine*. Environmental & Socio-economic Studies, 12(1): 69–80.

Maulana, H., Hermita, N., Fatmawaty, A. A., & Firnia, D. (2024). Analisis erodibilitas tanah untuk budidaya Talas Beneng berkelanjutan berdasarkan elevasi. *Jurnal Ilmiah Membangun Desa dan Pertanian (JIMDP), 9*(6), 533–546. https://doi.org/10.37149/jimdp.v9i6.1536

Menteri Kehutanan Republik Indonesia. (2009). *Peraturan Menteri Kehutanan Republik Indonesia Nomor P.32/Menhut-II/2009 tentang Tata Cara Penyusunan Rencana Teknik Rehabilitasi Hutan dan Lahan Daerah Aliran Sungai (RTkRHL-DAS).* Jakarta, Indonesia.

Moningkey, A. T., Rampengan, M. M. F., Tumengkol, A. A., & Kumaat, J. C. (2022). Study of bathymetry and sedimentation in Tondano Lake. *IOP Conference Series: Earth and Environmental Science, 986*(1), 012038. https://doi.org/10.1088/1755-1315/986/1/012038

Montgomery, D. R. (2007). Soil erosion and agricultural sustainability. *Proceedings of the National Academy of Sciences, 104*(33), 13268–13272.

Moriasi, D. N., Gitau, M. W., Pai, N., & Daggupati, P. (2015). Hydrologic and water quality models: Performance evaluation. *Transactions of the ASABE, 58*(6), 1763–1785.

Naharuddin, N., Wahid, A., Rachman, I., Akhbar, A., & Golar, G. (2022). Assessment of land and water conservation practices against runoff and erosion. *Polish Journal of Environmental Studies, 32*(1), 207–213. https://doi.org/10.15244/pjoes/152836

Natural Capital Project. (2023). *InVEST sediment delivery ratio (SDR) model documentation*. Stanford University.

Nurrahma, A. F. (2024). Analisis faktor-faktor yang memengaruhi alih fungsi lahan sawah di Kabupaten Klaten. *JEPA UB*. https://jepa.ub.ac.id/index.php/jepa/article/download/2061/730

Padminda, H. B. G. D., Abeysingha, N. S., Amarasekara, T., Ray, R. L., & Samarathunga, D. K. (2025). The use of InVEST-SDR model to evaluate soil erosion and sedimentation in the lower Malwathu Oya Reservoir catchment.

EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI
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International Journal of Sediment Research, 40(2), 101–112. https://doi.org/10.1016/j.ijsrc.2024.05.002

Panagos, P., Ballabio, C., Borrelli, P., Meusburger, K., Klik, A., Rousseva, S., et al. (2015). Rainfall erosivity in Europe. *Science of the Total Environment, 511*, 801–814. https://doi.org/10.1016/j.scitotenv.2015.01.008

Panagos, P., Borrelli, P., Meusburger, K., Van Der Knijff, J., Montanarella, L., & Alewell, C. (2015). The new assessment of soil loss by water erosion in Europe. *Environmental Science & Policy, 54*, 438–447. https://doi.org/10.1016/j.envsci.2015.08.012

Patel, D. P., Chandniha, S. K., & Mishra, P. K. (2024). Assessment of soil loss from a trans-national Rapti River Basin using empirical and InVEST-based models. *Geomatica, 78*(3), 247–262. https://doi.org/10.1139/geomat-2022-0071

Pedregosa, F., Varoquaux, G., Gramfort, A., Michel, V., Thirion, B., Grisel, O., Blondel, M., Prettenhofer, P., Weiss, R., Dubourg, V., Vanderplas, J., Passos, A., Cournapeau, D., Brucher, M., Perrot, M., & Duchesnay, E. (2011). Scikit-learn: Machine learning in Python. *Journal of Machine Learning Research*, *12*, 2825–2830.

Peraturan Presiden Republik Indonesia Nomor 60 Tahun 2021 tentang Penyelamatan Danau Prioritas Nasional. *Lembaran Negara Republik Indonesia Tahun 2021 Nomor 120*.

Prasad, I. G. N. G. G., Trigunasih, N. M., & Sumarniasih, M. S. (2021). Prediksi erosi dan perencanaan konservasi tanah dan air pada daerah aliran sungai Yeh Ho di Kabupaten Tabanan. *Jurnal Agroekoteknologi Tropika, 10*(2), 161–172.

Pravitasari, A. E., Indraprahasta, G. S., Rustiadi, E., Rosandi, V. B., Stanny, Y. A., Wulandari, S., Priatama, R. A., & Murtadho, A. (2024). Dynamics and predictions of urban expansion in Java, Indonesia: Continuity and change in mega-urbanization. *ISPRS International Journal of Geo-Information, 13*(3), 102. https://doi.org/10.3390/ijgi13030102

Precinoto, R. S., Prieto, P. V., Figueiredo, M. S. L., & Lorini, M. L. (2022). Edges as hotspots and drivers of forest cover change in a tropical landscape. *Perspectives in Ecology and Conservation, 20*, e01216. https://doi.org/10.1016/j.pecon.2022.07.001

Putra, R. A. (2019). *Dinamika perubahan tutupan lahan di daerah tangkapan air (DTA) Danau Toba* (Tesis, Institut Pertanian Bogor).

Pyne, M., Pal, S., Ghosh, S., & Dutta, D. (2025). Analyzing soil erosion trends and future predictions using the RUSLE model integrated with climate and land use change scenarios in the Dwarakeswar River Basin, India. *Environmental Challenges, 12*, 100947. https://doi.org/10.1016/j.envc.2025.100947

Roba, Z. R., Moisa, M. B., Purohit, S., Deribew, K. T., & Gemeda, D. O. (2025). *Assessment of soil erosion and sediment yield in response to land use and land*

UNIVERSITAS
GADJAH MADA
EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR PADA SUB DAS PANASEN SULAWESI UTARA
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

cover changes using geospatial techniques in Dumuga Watershed, Ethiopia. All Earth, 37(1), 1–18. https://doi.org/10.1080/27669645.2025.2460917

Rotinsulu, W., Walangitan, H., & Ahmad, A. (2018). Analisis perubahan tutupan lahan DAS Tondano, Sulawesi Utara selama periode 2002 dan 2015. *Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan, 8*(2), 161–169. https://doi.org/10.29244/jpsl.8.2.161-169

Supriyono, S., Utaya, S., Taryana, D., & Handoyo, B. (2021). *Spatial-Temporal Trend Analysis of Rainfall Erosivity and Erosivity Density of Tropical Area in Air Bengkulu Watershed, Indonesia*. Quaestiones Geographicae, 40(3), 125–142. https://doi.org/10.2478/quageo-2021-0028

Sharp, R., Chaplin-Kramer, R., Wood, S., Guerry, A., Tallis, H., Ricketts, T., et al. (2020). *InVEST 3 user guide*. Natural Capital Project, Stanford University.

Tallis, H., Kareiva, P., Marvier, M., & Chang, A. (2012). An ecosystem services framework to support both practical conservation and economic development. *BioScience, 62*(3), 271–283.

Tamire, C., Gashaw, T., & Dile, Y. T. (2022). Spatiotemporal dynamics of soil loss and sediment export in the Gilgel Abay watershed, Upper Blue Nile Basin, Ethiopia: An application of the InVEST model. *Sustainability, 14*(3), 1334. https://doi.org/10.3390/su14031334

Tang, C., Liu, Y., Li, Z., Guo, L., Xu, A., & Zhao, J. (2021). Effectiveness of vegetation cover pattern on regulating soil erosion and runoff generation in red soil environment, southern China. *Ecological Indicators, 129*, 107956. https://doi.org/10.1016/j.ecolind.2021.107956

Teixeira, D. B. S., Cecílio, R. A., Oliveira, J. P. B., Almeida, L. T., & Pires, G. F. (2022). Rainfall erosivity and erosivity density through rainfall synthetic series for São Paulo State, Brazil: Assessment, regionalization and modeling. *International Soil and Water Conservation Research, 10*, 355–370.

Teshome, D. S., Moisa, M. B., Gemeda, D. O., & You, S. (2022). *Effect of Land Use-Land Cover Change on Soil Erosion and Sediment Yield in Muger Sub-basin, Upper Blue Nile Basin, Ethiopia*. Land, 11(12), 2173. https://doi.org/10.3390/land11122173

Tolessa, T., Senbeta, F., & Kidane, M. (2017). The impact of land use/land cover change on ecosystem services values in the central highlands of Ethiopia. *Ecosystem Services, 23*, 47–54. https://doi.org/10.1016/j.ecoser.2016.11.010

Undang-Undang Republik Indonesia Nomor 37 Tahun 2014 tentang Konservasi Tanah dan Air. *Lembaran Negara Republik Indonesia Tahun 2014 Nomor 299.*

USDA Natural Resources Conservation Service. (2022). *Effects of implementation of soil health management practices on infiltration, Ksat, and runoff* [Research summary]. USDA NRCS.

UNIVERSITAS
GADJAH MADA
EVALUASI EROSI DAN SEDIMENTASI MENGGUNAKAN MODEL INVEST-SDR UNTUK PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR PADA SUB DAS PANASEN SULAWESI UTARA
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Wahyuni, N. I., Hasyim, A. W., & Soemarno. (2021). Dinamika perubahan penggunaan dan tutupan lahan di Kabupaten Banyuwangi. *Jurnal WASIAN, 8*(2), 121–132.

Wei, P., Chen, S., Wu, M., Deng, Y., Xu, H., Jia, Y., & Liu, F. (2021). Using the InVEST model to assess the impacts of climate and land use changes on water yield in the upstream regions of the Shule River Basin. *Water, 13*(9), 1250. https://doi.org/10.3390/w13091250

Wiwoho, B. S., McIntyre, N., & Phinn, S. (2024). Assessing future land-uses under planning scenarios: A case study of the Brantas River Basin, Indonesia. *Environmental Challenges, 15*, 100873. https://doi.org/10.1016/j.envc.2024.100873

Wolka, K., Mulder, J., Biazin, B., & Sterk, G. (2018). Effects of soil and water conservation techniques on crop yield and soil properties in the Ethiopian highlands: A review. *Agriculture, Ecosystems & Environment, 256*, 132–144. https://doi.org/10.1016/j.agee.2017.09.023

Wu, H., Cheng, S., Wang, T., Li, Z., Li, P., Geng, Y., & Guo, X. (2024). Research on the relationships between river erosion and sedimentation and energy loss in the Yangtze River Basin of China. *Heliyon, 10*(10), e39153. https://doi.org/10.1016/j.heliyon.2024.e39153

Zhang, X., Liu, L., Chen, X., Gao, Y., Xie, S., & Mi, J. (2020). Mapping and spatiotemporal dynamics of land-use and land-cover in China using Google Earth Engine. *Remote Sensing, 12*(3), 301. https://doi.org/10.3390/rs12030301

Zhou, M., Deng, J., Lin, Y., Belete, M., Wang, K., Comber, A., Huang, L., & Gan, M. (2019). Identifying the effects of land use change on sediment export: Integrating sediment source and sediment delivery in the Qiantang River Basin, China. *Science of the Total Environment*, 686, 38–49. https://doi.org/10.1016/j.scitotenv.2019.05.336