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**ASSESSMENT OF GROUNDWATER VULNERABILITY AND TOTAL ORGANIC CARBON IN THE  
SHALLOW GROUNDWATER OF  
WONOSARI CITY AND ITS SURROUNDINGS AREA, GUNUNGKIDUL REGENCY, SPECIAL PROVINCE  
OF YOGYAKARTA,  
INDONESIA**

Soutsadachan Chandalasouk, Dr.rer.nat, Doni Prakasa Eka Putra, S.T.,M.T ; Dr. Wahyu wilopo,S.T., M.Eng  
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## REFERENCES

- ARGOSS, 2002, Assessing Risk to Groundwater from On-site Sanitation: Scientific Review and Case Studies, British Geological Survey Commissioned Report, England.
- Azwar, S. 2010. Penyusunan skala psikologi. Yogyakarta: Pustaka Pelajar.
- Badan Perencanaan Pembangunan Daerah Kabupaten Gunungkidul. 2016. *Buku Putih Sanitasi Kabupaten Gunungkidul*. Gunungkidul: Pemerintah Kabupaten Gunungkidul, 121p.
- Djaeni, A., 1982, Peta Hidrogeologi Indonesia Lembar Yogyakarta, skala 1: 250.000, Direktorat Geology Tata Lingkungan Bandung.
- Domenico, P.A., and schwartz, F.W. 1998. Physical and Chemical Hydrogeology. 2<sup>nd</sup> Edition, John Wiley and Sons Inc., New York.
- Das, K. R., and Imon, A. H. M. R. 2016. A brief review of tests for normality. *American Journal of Theoretical and Applied Statistics*, 5(1), 5-12.
- Whitehead, p., 2021, Total Organic Carbon (TOC) and its Measurement:  
<https://www.elgalabwater.com/blog/total-organic-carbon-toe>.  
(Accessed, 1 Maret 2019)
- ESRI, 2015, World Terrain Base [basemap], skala tidak diberikan diambil Kembali dari ESRI:  
[http://goto.arcgisonline.com/maps/World\\_Terrain\\_Base](http://goto.arcgisonline.com/maps/World_Terrain_Base)  
(Accessed, Maret 2019)
- Fetter, C.W., 2001, Applied Hydrogeology, 4th Ed., Prentice Hall, Upper Saddle River.
- Foster, S., Hirata, R., Gomes, D., D'Elia, M., Paris, M., 2002, Groundwater Quality Protection: A Guide for Water Utilities, Municipal Authorities, and Environment Agencies, The World Bank, Washington, D.C.
- Ghazavi, R., and Ebrahimi, Z. 2015. Assessing groundwater vulnerability to contamination in an arid environment using DRASTIC and GOD models. *International Journal of Environmental Science and Technology*, 12(9), 2909-2918.



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- Ghasemi, A., and Zahediasl, S. 2012. Normality tests for statistical analysis: a guide for non-statisticians. *International journal of endocrinology and metabolism*, 10(2), 486.
- Harter, T. dan Walker, L. G., 2001, Assessing *Vulnerability of Groundwater*, California Department of Health Services, California.
- Hartono, G., dan Bronto, S. 2007. *Asal-usul pembentukan Gunung Batur di daerah Wediombo, Gunungkidul, Yogyakarta*. Jurnal Geologi Indonesia, Vol. 2 No. 3 September 2007: 143 – 158.
- Haryono, E., Widartono, B. S., Lukito, H., dan Kusumayuda, S. B. 2016. A Comparison of Lineament and Fracture Trace Extraction from LANDSAT ETM+ Panchromatic Band and Panchromatic Aerial Photograph in Gunungsewu Karst Area, Java-Indonesia. IOP Conference Series: Earth and Environmental Science (47).
- Hoelting, B., and Coldeway, W.G., 2013, Hydrogeologie; Einfuehrung in die Allgemeine und Angewandte Hydrogeologie, Springer Spektrum, 438 p.
- Khorida, P., A., 2019, Pemetaan Kerentanan Air Tanah Regional Daerah Istimewa Yogyakarta, Skripsi, Departemen Teknik Geologi, Fakultas Teknik, Universitas Gadjah Mada, (Tidak dipublikasikan).
- MacDonald and Partners., 1984, Greater Yogyakarta Groundwater Resources Study Volume 3: Groundwater, 116 p, Directorate General of Water Resources Development Project (P2AT), Ministry of Public Works, Government of The Republic of Indonesia.
- Morris, B. L., Lawrence, A. R. L., Chilton, P. J. C., Adams, B., Calow, R. C., Klinck, B. A., 2003, Groundwater and its susceptibility to degradation: a global assessment of the problem and options for management, United Nations Environment Programme, 126pp.
- Mudarra, M., Andreo, B., Barbera, J.A., and Mudry, J., 2014, Hydrochemical dynamics of TOC and NO<sub>3</sub><sup>-</sup> contents as natural tracers of infiltration in karst aquifers, Environmental Earth Science Vol. 71, Springer, p.507-523. DOI 10.1007/s12665-013-2593-7.
- Jonathan, S. (2006). Metode penelitian kuantitatif dan kualitatif, [Electronics and Computer Science](#) at the University of Southampton.
- Pavlis, M., and Cummins, E., 2014, Using Total Organic Carbon for The Assessment of Groundwater Vulnerability in Karst Regions at



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Regional Scales, Environmental Earth Science Vol. 72, Springer,  
p.1993-2007. DOI 10.1007/s12665-014-3415-2.

Peraturan Menteri Kesehatan Republik Indonesia No. 32, 2017, Standar Baku Mutu Kesehatan Lingkungan dan Persyaratan Kesehatan Air Untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua, dan Pemandian Umum.

Peraturan Pemerintah Republik Indonesia No.82 , 2001, Pengelolaan Kualitas Air Dan Pengendalian Pencemaran Air.

Putra, D. P.E, 2007, The Impact of Urbanization in Groundwater Quality: A Case Study in Yogyakarta City – Indonesia, RWTH Aachen.

Rahardjo, W., Sukandarrumidi, dan Rosidi, H. M. D., 1995, Peta Geologi Lembar Yogyakarta, Jawa, skala 1:100.000, Pusat Penelitian dan Pengembangan Geologi, Bandung.

Rahaningmas, F., 2017, Kerentanan Airtanah Terhadap Pencemaran di Kota Wonosari dan Sekitarnya Kabupaten Gunungkidul Daerah Istimewa Yogyakarta, Master Tesis, Departemen Teknik Geologi, Fakultas Teknik, Universitas Gadjah Mada, (Tidak Dipublikasikan).

Saidi, S., Bouri, S., dan Dhia, H. B., 2011, Sensitivity Analysis in Groundwater Vulnerability Assessment Based on GIS in the Mahdia-Ksour Essaf Aquifer, Tunisia: A Validation Study: Hydrological Sciences Journal, v. 56 (2), p. 288-304, DOI: 10.1080/02626667.2011.552886.

Sudarno. 1997. Kendali Tektonik Terhadap Pembentukan Struktur Pada Batuan Paleogen Dan Neogen Di Pegunungan Selatan, Daerah Istimewa Yogyakarta Dan Sekitarnya. Tesis Magister Institut Teknologi Bandung, 167p.

Surono, Toha, B., dan Sudarno, I., 1992, Peta Geologi Lembar Surakarta-Giritontro, skala 1:100.000, Pusat Penelitian dan Pengembangan Geologi, Bandung.

Setiawan, T., and Asgaf, N. M. A., 2016, Analisis Karakteristik Akuifer dan Zonasi Kuantitas Air Tanah di Dataran Kars Wonosari dan Sekitarnya, Kabupaten Gunungkidul, Provinsi Daerah Istimewa Yogyakarta. *Jurnal Lingkungan dan Bencana Geologi*, 7(3), 155-167.

Thurman, E.M. 1985, Organic geochemistry of natural waters, Springer Netherlands, 497 p.

Van Bemmelen, R. W., 1949, The Geology of Indonesia vol. 1A: General Geology of Indonesia and Adjacent Archipelagoes, The Hague.



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Vias, J.M., Andreo, B., Perles, M. J., dan Carrasco, F., 2004, A Comparative Study of Four Schemes for Groundwater Vulnerability Mapping in a Diffuse Flow Carbonate Aquifer Under Mediterranean Climatic Conditions: Environmental Geology, v. 47, p. 586-595, DOI: 10.1007/s00254-004-1185-y.

Vbra, J., and Zaporosec, A. (1994), Guidebook on Mapping Groundwater Vulnerability. International Association of Hydrogeologists (International Contributions to Hydrogeology 16). Verlag Heinz Heise, Hannover.

Widiastuti, A. P. dan Widystuti, 2012, Zonasi Kerentanan Air tanah Bebas terhadap Pencemaran dengan Metode APLIS di Kecamatan Wonosari Kabupaten Gunungkidul: Jurnal Bumi Indonesia, v. 1(2), p. 38-46.