



HAL
open science

Groundwater resources in the ECOWAS region -Expected aquifer productivity map

Alexandre Brugeron, M Heckmann, M Lewis, Ó Dochartaigh, Alexis Gutierrez, Yannick y Callec, S Broda, A Macdonald, B. Podgorski, K Upton, et al.

► **To cite this version:**

Alexandre Brugeron, M Heckmann, M Lewis, Ó Dochartaigh, Alexis Gutierrez, et al.. Groundwater resources in the ECOWAS region -Expected aquifer productivity map. Groundwater, key to the sustainable development goals, May 2022, Paris, France. <hal-03655473>

HAL Id: hal-03655473

<https://brgm.hal.science/hal-03655473v1>

Submitted on 29 Apr 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



HAL Authorization

Groundwater resources in the ECOWAS region - Expected aquifer productivity map

Brugeron, A.⁽¹⁾, Heckmann, M.⁽²⁾, Lewis, M.⁽³⁾, Ó Dochartaigh, B.⁽³⁾, Gutierrez, A.⁽¹⁾, Callec, Y.⁽¹⁾, Broda, S.⁽²⁾, MacDonald, A.⁽³⁾, Podgorski, B.⁽⁴⁾, Upton, K.⁽³⁾, Zaepeke, M.⁽²⁾

- (1) BRGM - Bureau de recherches géologiques et minières, a.brugeron@brgm.fr; a.gutierrez@brgm.fr; y.callec@brgm.fr
- (2) BGR - Federal Institute for Geosciences and Natural Resources, Matthias.Heckmann@bgr.de; Stefan.Broda@bgr.de; Markus.Zaepeke@bgr.de
- (3) BGS - British Geological Survey, mlewis@bgs.ac.uk; beod@bgs.ac.uk; amm@bgs.ac.uk; kirlto@bgs.ac.uk
- (4) EAWAG - Swiss Federal Institute of Aquatic Science and Technology, Joel.Podgorski@eawag.ch

Groundwater plays an important role in supporting agricultural and domestic water supply in West Africa, with more than 50 % of the population currently dependent on groundwater for their main drinking water source. It could play an increasingly important role in adapting to climate change in West Africa, which is projected to cause „increases in drying and agricultural and ecological droughts as well as delayed onset and retreat of the monsoon season“[1]. Consequently, hydrogeological information is essential for the Economic Community of West African States (ECOWAS) member states to undertake effective groundwater management and support the strategic, sustainable development of new groundwater resources, with consequent lasting socio-economic benefits across West Africa.

This map *Groundwater resources in the ECOWAS region* [2] capture and standardise existing groundwater data and understanding developed in the ECOWAS countries. The expected aquifer productivity map updates older regional hydrogeological maps of West Africa, to give a consistent regional overview not available from individual national maps. It provides a quantitative assessment of aquifer productivity, as a measure of groundwater potential, highlighting the suitability of aquifers for water supply at different scales and the physical limits of groundwater development potential. Building on readily available data, the expected aquifer productivity map and the accompanying inset maps show the potential for assimilating and harmonising existing hydrogeological information to improve regional groundwater mapping across Africa. Produced by a consortium of several geological surveys, this map is a contribution to the World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP) of the UNESCO Intergovernmental Hydrological Programme (IHP). It was developed under the auspices of the AMCOW Pan-African Groundwater Program (APAGroP), the ECOWAS Water Resources Coordination Centre (WRCC), and the Niger Basin Authority (NBA).

Références bibliographiques :

- [1] IPCC (2021): Regional Fact Sheet Africa. Sixth Assessment Report. Working Group 1 The Physical Science Basis. Intergovernmental Panel on Climate Change. https://www.ipcc.ch/report/ar6/wg1/downloads/factsheets/IPCC_AR6_WGI_Regional_Fact_Sheet_Africa.pdf.
- [2] Heckmann H., Brugeron A., Lewis M. (2022). Ressources en eau souterraine dans la région de la CEDEAO (Ground water resources in the ECOWAS region), 1:5 000 000. BGR, BGS, BRGM, EAWAG & UNESCO. DOI: 10.25928/GWR-ECOWAS.1 <https://doi.org/10.25928/GWR-ECOWAS.1>