

EGU21-6994, updated on 03 Dec 2021

<https://doi.org/10.5194/egusphere-egu21-6994>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



Monitoring water availability by a multi level model to address water scarcity

Homero Castanier

Water and Sanitation Public Utility of the City of Quito, Environmental Management, Quito, Ecuador
(homero.castanier@aguaquito.gob.ec)

In the framework of the Sustainable Development Goals (SDGs) – Targets - Indicators 2016-2030, the objective of this paper is to address the limitations of SDG 6 “Ensure availability and sustainable management of water and sanitation for all”, designing a model that could better approach especially target 6.4 Water use and scarcity, and among its indicators 6.4.1 Change in water use efficiency over time, and 6.4.2 “Level of water stress: freshwater withdrawal as a proportion of available freshwater resources”, considering as well the importance of the close linkages to target 6.5 Water resources management and indicator 6.5.1 Degree of integrated water resources management implementation (0-100).

Data on water resources availability and demand is a key indicator that should be approached at subnational or at main basins levels and at local level, since at a global scale, this information is not known for most local and rural communities and towns, which are vulnerable and lack of services of drinking water and irrigation for food security.[1]

In relation to indicator 6.4.2 (Level of water stress), it implies monitoring water resources assessment and availability, fundamental to life, health, food security, energy, the environment, and human well-being. However there are distortions of the indicator from national to local levels that may have different values, as i) high differences in the values of water stress between basins, and ii) towns suffer from water stress at different degrees.

As in the case of Ecuador in South America, with 6.24% of water stress (2017), a very low value that indicates that “water does not represent a particular challenge or limiting factor for economic development and sustainability”[2], which does not reflect the actual situation of cities and towns representing an estimate of 50% (or an estimate of 8.5 million inhabitants) of the country’s population affected by water scarcity. Neither the different hydric potentials of the country[3],

between the Pacific Basin with 5200 m³/year/inhab and the Amazon Basin with 82900 m³/year/inhab.

To control these distortions on the indicator, fundamental for sustainable development, the model approaches hydrological - hydrometric data from national or regional level to cities and towns levels, that would help countries with fundamental data translated in the incorporation of a complementary indicator, as the percentage of the population, whose water sources are monitored by means of adequate measuring methods, providing information on surface water and ground water regimes that influence water availability.

The model contributes to assure the information on actual water availability to control water stress at all levels, from local to subnational or basin, and to national and regional levels.

[1] Castanier, H. (2020). Assessment of Local Water Resources for Sustainable Development Goals. EGU General Assembly 2020. doi: 10.5194/egusphere-egu2020-899.

[2] Biancalani, R., Frenken, K. (2016). Monitoring of SDG target 6.4. FAO.

[3] Total renewable freshwater resources – TRWR, as the long-term average annual flow of rivers and recharge of groundwater measured as a volumetric unit.