

## Water security in the Amazon region: importance and challenges in the future

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### Highlights:

- Problems related to water in the Amazon region.
- Water security has emerged as a relevant topic of study.
- Literature review on the concept and assessment of water security in the Amazon region.
- The concept of water security in the Amazon has been little used and developed.

Keywords: water security; Amazon region; literature review.

## INTRODUCTION

In the Amazon River Basin, most Amazonian cities and rural areas do not have drinking water due to technological, political, natural and managerial barriers (Imada et al. 2016; Ochoa 2019). In addition, anthropogenic activities, climate phenomena and climate change have affected and could continue to affect the quantity and quality of surface water, which is used for drinking, cooking, washing and sanitation in populations and communities in the Amazon region (Torres-Slimming et al., 2020).

Given the threats and challenges of water, the concept of water security has emerged as a relevant topic of study for researchers in the last years due to the importance of securing water resources (Chiluwe y Claassen 2020). Water security has had multiple definitions (Zeitoun et al. 2016). For example, Grey & Sadoff (2007) define the concept of water security as “the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies”. Water security has been assessed at various disciplines, particular perspectives, and geographical scales in different parts of the world. Conceptual and methodological frameworks have been developed for its assessment (Babel et al., 2020).

The aim of this study is to present a literature review on the concept and assessment of water security in the Amazon region to identify the importance and challenges in the future.

## METHODOLOGY

A comprehensive literature review was conducted using the Web of Science and Google Scholar databases to search the concept of water security in the Amazon region. In addition, searches were conducted using terms "water security", "indigenous", "indigenous people", and "Amazon" on the title and abstract to identify relevant studies. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was used for systematic review. 40 articles were selected for review and analysis. The articles were grouped by found themes such as health and food security.

## RESULTS AND CONCLUSIONS

Water security has had multiple definitions over time. Definitions have been determined according to particular institutional objectives, disciplines, geographic scales, and perspectives (Cook y Bakker 2012; Gerlak et al. 2018; Octavianti y Staddon 2021). Water security has been assessed at different geographic scales (global, national, regional, transboundary, watershed, urban, rural, community, and household). Also, water security has been worked on in various disciplines such as agriculture, economics, health, engineering, environmental sciences, natural sciences, and social sciences. Within the perspectives we can find the inclusion of the indigenous knowledge perspective as a complement to the scientific definition of water security. For Octavianti y Staddon (2021), the assessment of water security in a specific geographic location will become more frequent in the future because these areas have different challenges related to water management.

In the scientific literature, the concept of water security in the Amazon has been little used and developed. But the articles found are scarce and focus on one or two disciplines. Some authors emphasize the relationship between water security and health, arguing that at a higher level of water security there will be less likelihood of diseases, such as diarrhea (Rosinger 2018; Tallman 2019; Tallman et al. 2022). A multidisciplinary study can help achieve water security because diverse factors can be included, and the challenges related to water access can be understood in a holistic manner. Also, the inclusion of an indigenous perspective could provide a complementary view, better understand, and assess water security in the Amazon region.

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