Chapter 1
Assessment of Water Consumers Literacy

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Abstract Nowadays, an increasing amount of water is used without the awareness that this resource is not inexhaustible. In fact, pollution, environmental degradation and/or climate change caused by human activities lead to the degradation of the quality of available water. In 2015, the United Nations warned about the risk of reaching a water deficit of 40%, in 2030, if consumption patterns are not changed. Indeed, population growth is one of the main causes for this deficit. The protection and

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E. Balaji et al. (eds.), *Emerging Technologies for Water Supply, Conservation and Management*, Springer Water, https://doi.org/10.1007/978-3-031-35279-9_1
27 pp.

sustainable consumption of water is one of the United Nations' Sustainable Development Goals, to ensure that the world's population has access to clean water, free from pollution and managed responsibly. Thus, governments and non-governmental organizations must promote the conscious and informed use of water by the population. It is mandatory that the population becomes aware of the need for efficient management of water resources, ensuring their quality and preventing their degradation, in order to not compromise/jeopardize their future availability. The knowledge of the population's literacy on water issues and on water quality—health interconnections is essential to design plans leading to the implementation of eco-sustainable practices. The goal of this research was to evaluate the literacy of water consumers and to establish a forecast model for water literacy managing. The collection of information was conducted through the inquiry by questionnaire technique and applied on a cohort encompassing 453 participants. The questionnaire includes three main dimensions (*Water Quality*, *Disease Prevention* and *Sustainability/Public Health Promotion*) and in each dimension, four competencies were evaluated (*obtain*, *understand*, *assess* and *apply* information regarding water consumption). The results obtained allow to assert that in the two first dimensions, the competence in which participants show more difficulty is *assess*. Regarding the *Sustainability/Public Health Promotion*, the participants show more difficulty in the competence *apply*. The model presented in this research, grounded on the connectionist paradigm, has shown great efficiency in the forecast of the target variable. The key contribution of the present research is to present an integrated and systematic approach that can give a contribution to the increase of water literacy, which allows the implementation of eco-sustainable practices.

Keywords Artificial intelligence · Artificial neural networks · Sustainable use of water · Water literacy assessment · Water management · Water quality