UNIVERSIDAD DE MÁLAGA

CEHIUMA
CENTER OF HYDROGEOLOGY OF UNIVERSITY OF MALAGA

CEHIUMA'S COMMENTS ON THE DRAFT OF THE SUPPLEMENTAL GROUNDWATER SPECIFICATIONS FROM THE UNITED NATIONS FRAMEWORK CLASSIFICATION FOR RESOURCES

The United Nations Economic Commission for Europe (UNECE) Expert Group on Resource Management (EGRM) published the document "Draft United Nations Framework Classification for Resources Supplemental Specifications for Groundwater Resources" for public comment. The Center of Hydrogeology of the University of Málaga (CEHIUMA), as a research center focused on the study of groundwater with extensive experience in research and applied projects in the field of hydrogeology, expresses several objections to the content of the mentioned draft. In particular, the observations focus on the definitions related to *Groundwater*, the perception of this resource as an economic good rather than an inherent common good for nature and society, and the proposed management strategies. In this comment letter some references to *aquifers* (geological formations where groundwater flows and is generally stored) and the science of *Hydrogeology*, which studies *Groundwater* and aquifers, are also made. All objections are detailed below:

- All *Groundwater* (including that referred to as deep groundwater in the draft document) is an active and essential part of the hydrological cycle. It is vital for the maintenance of ecosystems and life, as well as for humankind, not only for the economic development of societies but also for the very survival of human beings. For all those reasons, *Groundwater* should not be treated as an economic resource but as a natural and human heritage, indispensable to guarantee the human right of access to water. Indeed, it is a usable heritage, but always in a sustainable way.

- The separation between shallow and deep groundwater (p.5) is unjustified and needs to be clarified. Particularly worrying is the conception of deep groundwater as a resource disconnected from the surface and not renewable at the human-time scale. This definition has certain analogies with the idea of fossil fuels, and its inclusion as it is in the United Nations Framework Classification for Resources could justify the indiscriminate application of groundwater mining, given that, from that focus, it would not affect shallower groundwater or ecosystems dependent on them. That is not true and could bring disastrous consequences on groundwater availability. Instead of shallow and deep, *Groundwater* should be separated into *groundwater resources* and *groundwater reserves*, as the hydrogeological community accepts. This classification considers the renewal capacity of the resources, regardless of their location, which is what really matters in terms of their use and management.

- The definition of *groundwater source* (p.8) is imprecise for several reasons. Firstly, it does not even include the word "*aquifer*". It is essential to understand that groundwater is stored and transmitted because porous and permeable geological formations hold it. These formations have lithological characteristics, as well as specific dimensions, limits, and geometries that condition the quantity and natural quality of the resource and its hydrogeological functioning (recharge,

Center of Hydrogeology of the University of Málaga. C/Arquitecto Francisco Peñalosa, 18; E-29071, Málaga (Spain) .
Telf: +34 952 952 952. E-mail: cehiuma@uma.es

discharge, residence time, vulnerability to pollution, among others). Secondly, defining *Groundwater* as naturally occurring water beneath the earth's surface distances it from its conception of a renewable resource since its origin is in the recharge of rainwater or surface water. Additionally, managed aquifer recharge is a key water management strategy in many regions that allows groundwater storage through human intervention. Therefore, it is not "naturally occurring" but must also be considered as a "*groundwater source*".

- The definition of *Groundwater* as a product (p.8) is misrepresentative and potentially dangerous, as it may lead to groundwater being understood as a market good, as is already the case in some places. *Groundwater* is a natural resource that provides essential services to humans and nature. For this reason, and for those already mentioned regarding its heritage value, the United Nations must ensure that groundwater belongs to humanity and not allow nor provide any interpretation that conceives its use as a commodity to be bought and sold. Expenses associated with its use (e.g., pumping, treatment, distribution) shall be recovered, indeed, but *Groundwater* itself must always be free of charge. Ultimately, the United Nations must ensure that it promotes ethical water use that benefits all humanity and the natural environment instead of exploitation based on market interests.

- Groundwater extraction has practically no analogy with exploiting fossil fuels or other mineral resources. Except in cases such as supplying big cities, there are usually no large infrastructures for groundwater withdrawal. Pumping is generally done from wells, often belonging to unrelated individuals or small communities. Therefore, it does not make sense to propose a series of guidelines for carrying out groundwater exploitation projects as a basis for sustainable resource management. Instead, the United Nations should encourage sustainable groundwater governance, carried out primarily at the aquifer level, but also at the river basin level. To this end, it is essential to promote initiatives to characterise the hydrogeological functioning of aquifers, to monitor groundwater quality and quantity, and to propose exploitation models based on hydrogeological knowledge, always taking into account the effects of groundwater withdrawal on dependent ecosystems. This strategy would contribute to the proper management of *Groundwater* and, by extension, of the whole water cycle, which is essential for achieving the sustainable development goals of the 2030 Agenda.

Based on all the previous statements, we encourage the Expert Group on Resource Management to reconsider the approach taken in the draft and encourage it to seek the advice of the major scientific hydrogeological associations.

Málaga, 11 January 2004

Center of Hydrogeology of the University of Málaga. C/Arquitecto Francisco Peñalosa, 18; E-29071, Málaga (Spain) .
Telf: +34 952 952 952. E-mail: cehiuma@uma.es