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*Editorial*

# Hydroecology and Engineering Editorial

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At nearly the end of the 4.6 billion-year process of Earth's evolution, ecosystems formed the niche for the birth of humanity. In the two million years since the emergence of humans, we have rapidly evolved from a natural species to a uniquely intelligent species on Earth: we have developed a complex scientific system that explains the workings of natural systems and, at the same time, a technological system that has helped and been helping us to be freed from most of nature's limitations. However, along with the achievements in science and technology, we find that one thing bothers us: global climate change is causing human beings to lose the practical support of ecosystems gradually, and what is even more ridiculous is that human activities are one of the critical drivers of this climate change that does not meet our expectations. We now realize that there is an obvious flaw in the scientific system humans constructed in the past: we have not carefully understood the differences between natural processes and human imagination and have not fully understood the principle of how the existing ecological systems of the Earth are formed and maintained. Regarding sustainability, we still haven't been able to avoid the blind spots altogether, and we might probably think we're all set. This is why creating an academic exchange platform for multidisciplinary discussions on the interaction between ecosystem processes and human engineering modification is not just a suggestion but an urgent necessity that demands immediate attention. The time for action is now; this platform could catalyze the change we desperately need.

Fortunately, the scientific knowledge systems that have improved our understanding of the world can rectify our cognitive shortcomings. The Internet has ushered in a new era of collective intelligence, where traditional disciplines converge, and our perception of the world becomes more grounded in reality. In this context, the creation of an academic exchange platform is not just necessary but a powerful tool. It can facilitate structured, multidisciplinary discussions on the interaction between ecosystem processes and engineering modification, thereby providing the scientific and technical support needed to establish a sustainable development system for humanity. This platform holds immense potential to instill hope for a better future.

Hydroecology and Engineering was founded in response to the above mission. After long deliberation and discussion, we felt that the combination of hydroecology and engineering science could better cover the purpose of our aims. Here, on the one hand, we need to deeply understand the importance of hydrological processes that match climate processes for the benign development of natural ecosystems. On the other hand, we also need to understand the adverse ecological consequences caused by the mismatch between hydrological and climatic processes due to the changes in hydrological processes caused by human engineering and geomorphological structure changes. Of course, because human beings cannot give up engineering means to create a livable environment at this stage, we also need to explore an effective way to build an "engineering-nature hybrid ecosystem", a term we use to describe a balanced ecosystem that incorporates both natural processes and human needs, to avoid uncontrollable catastrophe in the ecosystem that supports our survival before human beings are indeed freed from the constraints of nature.

This journal covers, but is not limited to, the following topics: natural ecosystem processes and their structural causes, formation and inducing mechanism of ecosystem catastrophes, early warning and prevention of typical ecological disasters such as eutrophication, coordination between river exploitation and natural environmental protection, restoration of fish passages and river connectivity, biological integrity evaluation of rivers and lakes, physical and biological integrity evaluation of rivers and lakes, eDNA technology and its applications, conservation of

aquatic endangered species and water biodiversity, theory and technology of ecological restoration, natural hydrological processes and engineering interventions, environmental management of reservoirs, hydrological-ecological-social coupling simulation and regulation of rivers and lakes, etc.

With great privilege, I assume the editor-in-chief role overseeing this journal's academic direction and overall growth. We eagerly anticipate your involvement and support. Your input, whether in manuscripts on topics such as natural ecosystem processes, hydrological-ecological-social coupling simulation, and eDNA technology, or comments on the journal's establishment, is highly valued. Together, let's forge a future-oriented, inclusive, multidisciplinary communication platform. We sincerely appreciate your potential contributions and look forward to their transformative impact on our collective understanding of hydroecology and engineering. Thank you!