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Suitaiology: Systematic control of water in mountainous regions for sustainable development

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Abstract

Mountainous areas play a vital role for eco-environment, agriculture, forestry, tourism, and water supply. However, extreme weather events such as heavy rainfall, floods, and droughts, as well as the resulting geological disasters, endanger the mountain environment, ecology and economy.

Our efforts to combat floods and droughts is an Asymmetrical Competition (AMC) with the forces of nature. The fragmented static research in existing water sciences, resulting in narrow thinking, limited societal awareness and separated strategies for flood and drought protection, cannot effectively direct this competition. Human interventions cannot solve the water problems effectively, but may harm ecosystems and increase disaster vulnerability.

In response to this gap, the new water science, Suitaiology, focuses on, instead of just water itself, more on the state and trends in the dynamic interactions between water and other members of the Water-Human-Environment (WHE) system, which is called the water situation. Suitaiological studies explore that the water's natural situation is primarily destructive, and water Dimensionality-Reduction-Attacks (DRA) can wreak havoc, such as floods, droughts, erosion, and geological hazards.

Although humans cannot control the forces of nature and natural disasters, Suitaiology's insights equip us the ability to weaken the natural destructive situation of water and to create water resources by dimension adjustment and situation transformation, harmonize the needs of humans and eco-environment, achieve sustainable management of water, and secure the delicate balance within the WHE system.

Keywords: suitaiology; situation; water, Water-Human-Environment (WHE) system; water resource creation; Asymmetrical Competition (AMC); Dimensionality-Reduction-Attacks (DRA); flood; drought