

## **Suitaiology — Water resource creation from fog in mountains**

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### **Abstract:**

For a long time, human have been plagued by droughts and floods. Facing disasters, traditional measures for flood or drought often fail. It highlights the major shortcomings of traditional understanding of water resources and the deficiency of the existing water science to adapt climate changes. Suitaiology is a new branch of water science for creation of water resources and optimization of water management to meet the challenges of climate change. Applied in the field of agriculture, it can help achieve sustainable agricultural development and food security. While the mainstream traditionally deals with flooding, drought, erosion, water resources, eco-systems and agriculture, respectively, suitaiology treats them all together in a comprehensive system of nature environment, water and human (NEWH) and studies the interrelationship and interaction amount these internal members. The NEWH system in mountains is much more complicated than in other sites of a water basin. Water, plays an active important role in the system. It can be angel-like, breeding life, nurturing life and bringing vitality to the earth, provide protection for the survival and development of humanity. However, it can also be devil-like, eroding the soil, destroying the existing landscapes, resulting in mudflow, inducing landslides, and producing flood downstream. Since a mountain area is usually the recharge area of water resources in the basin, if the mountain traps water insufficient, it is easy to suffer serious drought in the whole basin. Suitaiology abandons the traditional case-by-case treatment method, but studies the situation of water in various forms (such as fog, snow/ice, raindrops and runoff). So called water situation is the tendency of water action towards a specific feature or behavior type in a given space, moment, action goal and the characteristics of water itself. From the perspective higher than the overall system, suitaiology finds, identifies, understands, analyzes, responds and disposes the possible safety hazards of a healthy NEWH system. It aims to completely eliminate the potential disasters of debris flow, landslide and waterlogging as far as possible, fully create water resources, ensure a good eco-environment and the sustainable development of forestry, agriculture and livestock farming in mountainous areas, and alleviate or even avoid floods and droughts in the whole basin. This lecture focuses on the fog situation in mountains and the creation of water resource by fog collection.

**Keywords:** suitaiology; situation; water, human and natural environmental (WHNE); water resource creation; fog collection

## **Biography:**

Dr. Dachang Zhang received the B.S. and M.S. degrees in hydrogeology & Engineering Geology from the Changchun Institute of Geology and Chinese Academy of Sciences in 1982 and 1985 respectively, then became a researcher at Chinese Academy of Sciences. After his PhD degree in geography from the University of Vienna in 1996 with significant contributions to a national water project of Austria, he was a postdoctoral fellowship and researcher at the University of Waterloo, Canada from 1997-2000. And then, he worked as a consultant in Canada and U.S.A. and become a License Professional Geologist of the State of California in 2007. He also worked for the University of Bijie, China, as a Professor and the Deputy Dean of the Academy for Bijie Experimental Region for water management and rural development in impoverished mountainous areas from 2008 to 2014. He is the Founder and President of the Water & Eco Crisis Foundation, USA, since 2010. In 2012, Dr. Dachang Zhang and his team set out to create a new water science—Suitaiology, which was first released at the 1st Edition of Global Conference on Agriculture and Horticulture (AGRI 2021) in 2021.