**Global Research Outreach\_2025\_Call for Proposal**

**Theme: Environment Tech. for Sustainability**

**- Sub-Theme: Sustainable Energy Management System**

**(Technology for Removing Slime-Causing Bacteria in Water Showering System)**

The WSS system plays a crucial role in ion removal and humidification. The WSS system operates on a loop consisting of Tank-Pump-Filter-UV Lamp-OAC-Tank, continuously draining approximately 10% of its volume while replenishing it with UPW (Ultra Pure Water). This maintains pH and conductivity at stable levels to ensure proper water quality management. However, over time, slime forms within the piping and filtration media, contaminating them and leading to significant costs associated with cleaning or replacing the filters. Analysis of the slime revealed that soil bacteria such as *Parasediminibacterium paludis*, *Sphingomonas echinoides*, *Undibacterium terreum*, *Variovorax boronicumulans*, *Bradyrhizobium japonicum*, and *Hydrotalea sandarakina* were the causative agents. Therefore, there is a need to develop technology capable of eliminating these bacteria. However, introducing chemical disinfectants into the recirculating water poses limitations due to potential contamination issues from chemicals entering cleanrooms.

Detailed Objectives:

1. Development of technology to remove slime and its causative bacteria in the WSS system
2. Development of a filter for removing slime-causing bacteria incoming through air

※ *The topics are not limited to the above examples and the participants are*

*encouraged to propose the original idea.*

※ *Funding: Up to USD 150,000 per year*