

**Shinshu University** (University Functions to be Enhanced: 1. Boost academic excellence in specific areas of the university's strength, 2. Generate innovation that can help solve global issues and advance societal reform, 3. Take a lead in resolving regional issues through collaboration with regional communities.)

Participators : University of Yamanashi, The University of Tokyo, Nagoya University, Tokyo University of Science, University of Dares Salaam, The Nelson Mandela African Institution of Science and Technology, University of Eldoret, Chulalongkorn University, King Mongkut's Institute of Technology Ladkrabang, Vietnam National University, Beijing University of Chemical Technology, The Saline Water Conversion Corporation

## Overview of Initiatives

### [University's Vision for Next 10 Years]

## Universities co-creating pioneering solutions using research expertise in aqua regeneration

The Vision for Greater Shinshu University concept\* will be fulfilled through a **three-pronged strategy of research excellence, innovation, and regional contribution.**

\* VGSU Concept: To **Extend** the features and strengths of our research, education, and social contribution, to **Expand** the breadth and depth of our collaborations, not only with the Shinshu region, but also with local research institutes and industries, as well as the international community, and to **Enrich** society and shape a better future



### [Plan for Realizing the University's Vision in 10 Years]

## Aqua Regeneration (ARG), a new academic discipline

**Integration of water-related disciplines focused on regeneration of the Earth's environment, such as water circulation and water-based green hydrogen production and utilization**

- Boosting research capabilities (both quality and quantity) for SDGs Goal 6 to world level
- Solving global water and energy challenges through international co-creation
- Combining local problem-solving with economic development

### Core ARG research

- Water treatment and water circulation materials
- Reverse osmosis membrane and carbon materials
- Separation, concentration, adsorption, and extraction
- Visible light-responsive photocatalysts
- AI computing
- Fuel cells

Water and material cycles

Energy cycling

Integration of various peripheral disciplines in partnership with participating universities (Japanese and international)

International and local empirical research involving companies and start-ups

Water safety and utilization

Life, water culture, and systems

### Function I Research Excellence

#### Establish the Institute for ARG

- ◆ Concentrate resources (people, goods, money) in ARG and set up framework centered on top researchers from Japan and abroad
- ◆ Concentrate research resources at the ARG Co-Creation Research Center and perform leading-edge research and co-creation

### Function II Innovation

#### Build a demo system for international co-creation to solve water and energy issues

- ◆ Receive human resources and needs from countries faced with pressing water issues (e.g., Middle East, Africa, Asia) using graduate school water-related specializations or disciplines as a hub

### Function III Regional Contribution

#### Form model towns to lead the way in solving local problems and development (Iida and Matsumoto)

- ◆ Set up future visions and problem-solving scenarios
- ◆ Develop products, services, and start-up ventures by trialing and evaluating water circulation and water-based green hydrogen, etc.

Common to Functions I to III

- ◆ Integrated promotion of research and education by setting up new **water-related specializations or disciplines connected with ARG at graduate schools (master's and doctoral)**
- ◆ Horizontal deployment of results and involvement through university-wide organizational management of **the university's administrative HQ (AHSU)** and stabilization of university's management foundation

# Institute for Aqua Regeneration

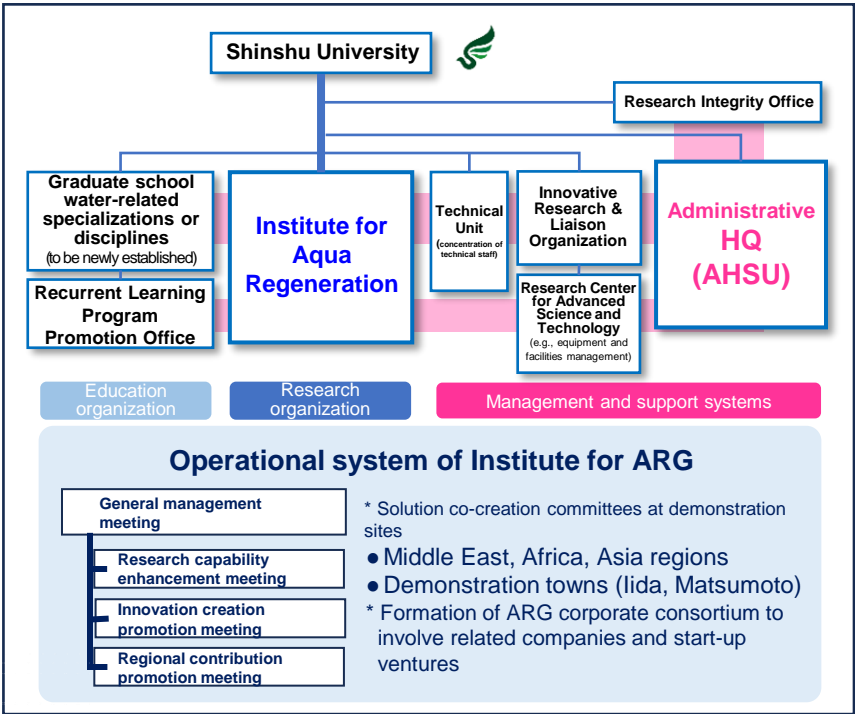


Research unit led by  
top-level researchers  
Principal Investigator (PI)

## [Research Unit]



- Participation of researchers from all faculties (Engineering, Textile Science and Technology, Agriculture, Science, Medicine, Arts, Economics and Law, and Education) (collective knowledge)
- Use of Aqua Regeneration Co-Creative Research Center as a base for concentrating research resources
- Appointment of full-time URAs, international CDNs and other management personnel (in collaboration with AHSU).
- Establish a new full-time administrative organization, training professional administrative staff and deploying them in the university
- University-funding and external funding, for self-sustaining operation



## Administrative Headquarters (AHSU)

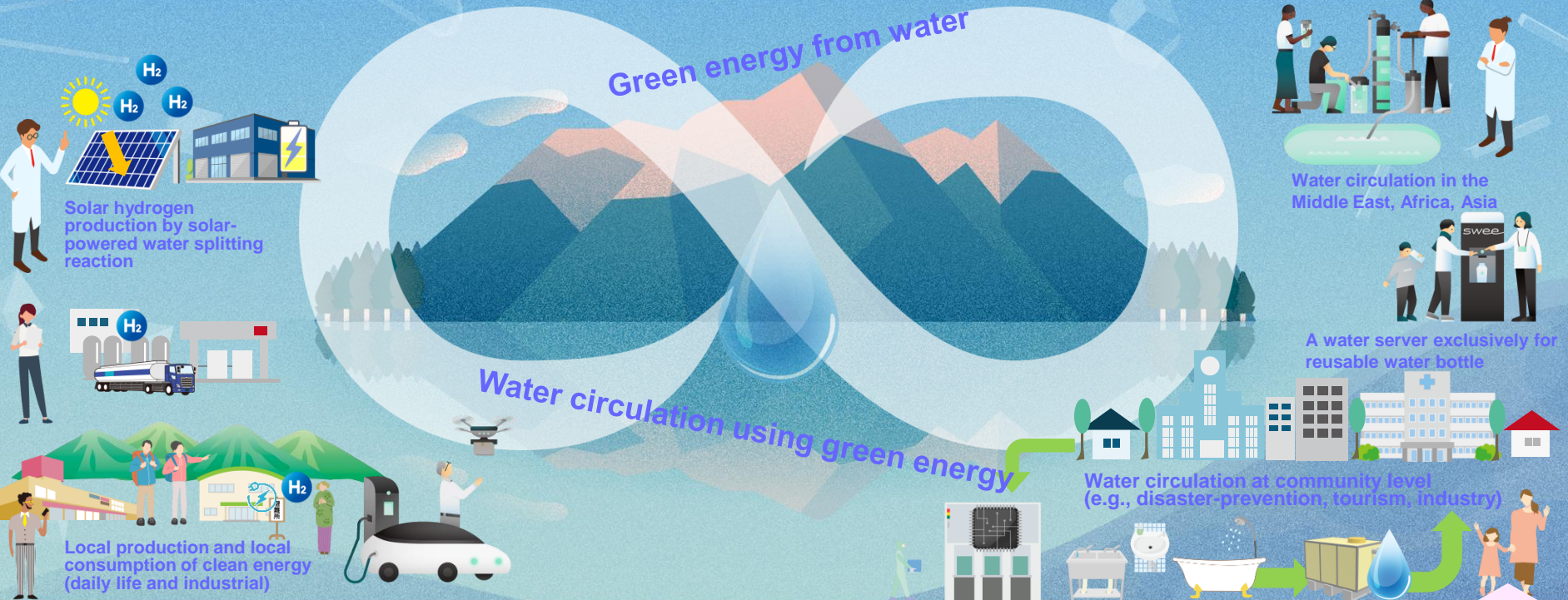
### University General Command "Tower" AHSU (Head: President)

- For strategies to promote research excellence, innovation creation, and regional contribution, organic collaboration with research organizations, educational organizations, and university management organizations, implementation of university-wide management, and **deployment of a university-wide scheme to improve research capabilities**
  - <AHSU Steering Committee> Made up of President, General Manager, director/s in charge of research, industry-academia-government social collaboration and educational affairs, the Director of ARG, etc.
  - Deep involvement of administrators and other management personnel**
- Development of an implementation system for regional and international co-creation, developed in collaboration with Institute for ARG
- **University-wide support for research integrity, intellectual property, technical support, etc.**



# ~Toward Regenerating the Water Planet, Earth~

Shaping a society featuring both economic growth and sustainability through circulation and local production/consumption of water and water-based green hydrogen energy



	2023	2024	2025	2026	2027	2028	
Function I: Outstanding research capabilities in field of aqua regeneration (Research Excellence)	Set up Institute for ARG (concentrate ARG resources)		Full operation of Institute for ARG (build system centered on top researchers from Japan and abroad)				10-year Vision
	Strengthen ARG field by collaborating with participating universities and enhancing research capabilities (quality and quantity) for SDGs Goal 6						
Function II: Demonstration and diffusion of solutions of ARG involving countries with pressing water issues (Innovation Creation)	Set up international and regional co-creation system (in cooperation with AHSU)		Headquarter Institute for ARG to develop radical solutions to water issues from world to region				A university that co-creates pioneering solutions utilizing research capabilities in the field of aqua regeneration
	Conduct demonstrations in countries with pressing water issues (Middle East, Africa, Asia), develop products and services through demonstration and evaluation of water circulation, water-based green hydrogen, etc., and promote start-up ventures						
Function III: “Centripetal” regional development based on ARG research capabilities and demonstration towns (Regional Contribution)	Prepare to set up demonstration “towns” (Iida City, Matsumoto City)		Form demonstration towns to pioneer solutions to regional problems and development (form ARG corporate consortium)				
	The Aqua Regeneration Co-Creative Research Center serves as a base for concentrating equipment necessary for activities and a base for regional demonstrations where diverse stakeholders gather						
Common to Functions I to III			Accept international students from countries with pressing water issues Strengthen ARG-related recurrent and reskilling education		Set up water-related specializations or disciplines in graduate schools (master’s/doctoral)		