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[SDGs 6] Clean Water and Sanitation 淨水與衛生

[6.5.5] Does your university as a body cooperate with local, national, global governments on water security?

The **Institute of Global Energy & Environmental Technology Science** at NCUT serves as the university's premier technical service center, with a core mission to advance balanced energy and environmental practices. [The institute bridges academic, international, and corporate collaboration to ensure sustainable development, providing cutting-edge research and practical solutions for both local and global challenges.](#)

Purpose

- Develop forward-thinking, realistic, and applicable strategies for energy and environmental sustainability.
- Strengthen local energy-environment balance through smart industrial management.
- Facilitate independent management of industrial energy via personnel training programs.
- Promote dual certification in energy and environmental testing standards.

Key Focus Areas

1. **Water Resources Research Service Group:** Focuses on water quality measurement and the formulation of water quality standards to ensure the sustainable use of water resources.
2. **Energy Management Research Service Group:** Specializes in energy measurement, thermal power testing, and certification of heat exchanger energy, aiming to optimize industrial energy use.
3. **Sustainable Environmental Ecological Research Service Group:** Measures air quality, focusing on setting and maintaining indoor air quality standards to promote healthier living environments.
4. **Water Resources and Energy Integration Research Service Group:** Integrates water resources with energy management through the construction and management of smart energy-environment networks.

Plan Points

The institute acknowledges that the earth's ecosystem thrives on the balance between energy and the environment. However, excessive human activity, especially in the use of energy, has disrupted this balance, contributing to global issues such as **climate change** and **extreme weather**. To

counteract this, the institute focuses on reestablishing this balance through sustainable energy use at the local level.

Sustainable development seeks to achieve intergenerational equality by balancing environmental protection, social equity, and economic growth. To that end, NCUT's research in energy-environment sustainability drives the development of technologies that encourage local energy balance, preventing global displacement of emission responsibilities.

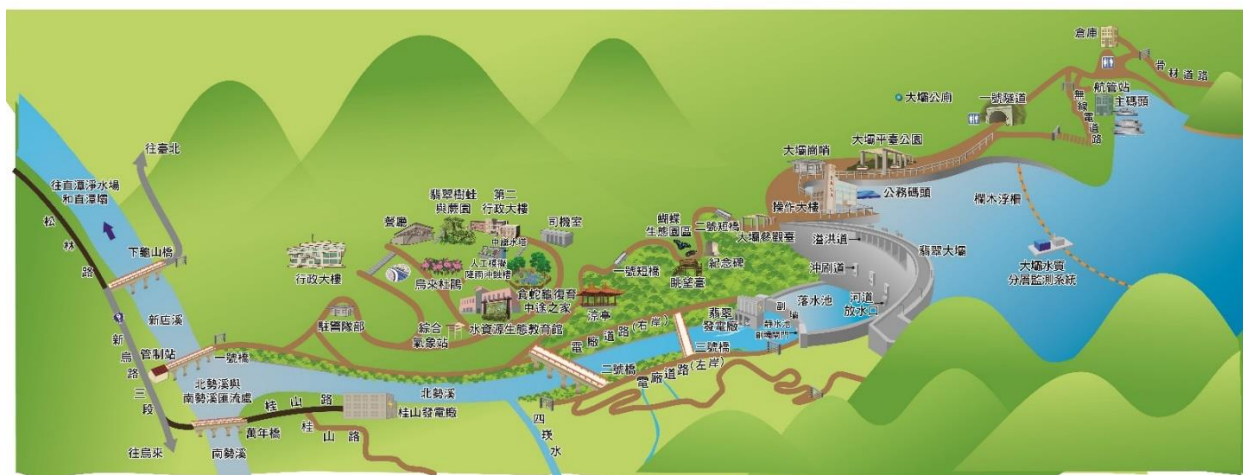
Service Offerings

The Institute offers various services to help industries and governments adopt sustainable practices:

- **Double Certification:** Assists industries with innovative standards, product certification, and third-party verification.
- **Talent Training & Certification:** Trains professionals in energy and environmental management.
- **Intellectual Property Strategy & Technology Transfer:** Provides guidance on intellectual property rights and facilitates technology transfer.
- **Entrepreneurship Counseling & Government Subsidy Application:** Supports startups and aids industries in securing government support.
- **International Cooperation:** Fosters industrial exchanges and collaboration on a global scale.

Product Technologies

The institute has developed technologies focused on **smart energy management**, integrating supply, transmission, conversion, and storage technologies. These innovations culminate in the **Water Energy Conversion System**, which showcases how local energy balances can be achieved through water resource management. This approach helps industries maintain ecological balance while improving efficiency and reducing operational costs, thereby contributing to sustainable human activities at the regional level rather than deferring emissions responsibilities globally.





National Chin-Yi University of Technology (NCUT) is actively contributing to water security at various levels through strategic collaborations with government bodies, research initiatives, and educational outreach. Here's how NCUT engages with local, regional, national, and global governments to address pressing water resource challenges:

1. Local Engagement

- **Research and Expertise:** NCUT offers its research capabilities, where faculty and students study local water resources, conservation methods, and water quality. These findings are shared with local governments to inform water security policies and practices.
- **Community Education:** NCUT collaborates with local governments to organize outreach programs, workshops, and seminars. These initiatives focus on raising awareness about water conservation and responsible usage, engaging the community in addressing water security challenges.

2. Regional Collaboration

- **Partnerships with Regional Authorities:** NCUT forms alliances with regional water authorities and environmental agencies to develop and implement joint water security initiatives. These partnerships allow the sharing of resources, research findings, and strategies to tackle regional water issues.
- **Applied Research:** The university conducts applied research on regional water challenges, such as developing innovative water purification methods and creating sustainable management plans. These efforts contribute to addressing water scarcity and improving ecosystem health.

3. National Involvement

- **Policy Advocacy:** NCUT plays an active role in shaping national water security policies. The university provides research-based recommendations to national government agencies, contributing to policy development focused on water conservation, resource management, and disaster prevention.
- **Education and Training:** Collaborating with national agencies, NCUT offers educational programs and training on water management, providing government officials, professionals, and the public with knowledge and skills to enhance water resource sustainability.

4. Global Cooperation

- **International Partnerships:** NCUT establishes global partnerships with universities, research institutions, and governmental bodies in countries facing similar water security challenges. These collaborations enable joint research projects and knowledge-sharing on sustainable water management solutions.
- **Participation in Global Initiatives:** NCUT actively participates in international forums and initiatives focused on water security, contributing to global discussions and research projects aimed at addressing water scarcity, pollution, and climate change.
- **Student and Faculty Exchanges:** The university facilitates exchange programs with institutions in regions affected by water scarcity or pollution. These exchanges provide students and faculty with opportunities for hands-on learning and research into global water security issues.

Safety Assessment Technology for Reservoir Dams

In collaboration with the Ministry of Science and Technology, NCUT is engaged in a specialized research project through its **Department of Natural Science and Sustainable Development**. The project focuses on **Disaster Prevention Technology**, targeting three core objectives related to water security:

Key Research Objectives

1. **Water Supply Enhancement:** NCUT is researching ways to improve water supply systems, especially during natural disasters or crises. The goal is to build more resilient systems to ensure a continuous and reliable water supply.
2. **Water Purification:** The project emphasizes advancing purification technologies to improve water quality, eliminate contaminants, and make safe drinking water more accessible.
3. **Reservoir Safety:** Reservoirs are critical for managing water resources. NCUT's research seeks to improve reservoir safety through enhanced monitoring systems, structural upgrades, and robust emergency response protocols.

Impact on National Water Resource Safety

NCUT's research is expected to contribute significantly to the national water security framework:

- **Data-Driven Policy:** By providing detailed research reports and improvement plans, NCUT helps inform national strategies for water resource management and disaster prevention.
- **Enhanced Resilience:** The project aims to strengthen the resilience of water supply and purification systems, making them less vulnerable to natural disasters.
- **Environmental Stewardship:** The research aligns with national environmental goals, promoting the protection of ecosystems while addressing water-related challenges.

Collaborative Approach

The collaboration between NCUT and the Ministry of Science and Technology reflects the university's commitment to solving critical societal challenges. By addressing water supply, purification, and reservoir safety, NCUT not only safeguards local communities but also contributes to national water resource safety and environmental security.

Through its comprehensive approach involving research, education, collaboration, and policy advocacy, NCUT is making a significant impact on water security and sustainability both locally and globally.



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