University : National Chin-Yi University of Technology
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**[SDGs 17] Partnership for the Goals 全球夥伴**

**[17.3.2] Please indicate if your university publishes progress against SDG2**

National Chin-Yi University of Technology (NCUT) actively supports SDG 2: Zero Hunger through various initiatives aimed at reducing food waste**,** promoting sustainable food practices, and ensuring food security for both students and the local community. These efforts align with NCUT's commitment to **sustainability** and foster a more **resilient food system**.

## NCUT's Zero Hunger Project: Tackling Food Waste and Hunger through Innovation and Community Care

In 2022, **National Chin-Yi University of Technology (NCUT)** launched two major initiatives under the **Zero Hunger Project** to address **food waste** and **reduce hunger among vulnerable groups**. These programs not only align with **SDG 2: Zero Hunger** but also provide hands-on learning opportunities for students, fostering social innovation and meaningful community impact.

### End Food Waste: Leftovers Revamp

The **Department of Business Administration** integrated the **Zero Hunger initiative** into the **"Enterprise and Humanities" course**. This project promotes the concept of **"eating well without wasting food"** and addresses agricultural surplus by repurposing excess produce.

### Key Partnerships:

- Yinsh Precision Parts
- Cultural & Positive Education Foundation
- USR Project of the Ministry of Education's School of Management (*Smart Innovation in Local Practice - Loquats and Lychees Create a Peaceful World*)
- **Chin-Yi YSBC (Yunus Social Enterprise Center)**

### Innovative Use of Overproduced Pineapples:

- **Creation of Jams and Enzymes:**

  Students transformed **overproduced pineapples** into **jam and enzyme products**, preventing food waste while learning practical skills.

- **Social Problem-Solving Training:**

  This approach equips students with the tools to design sustainable business models and solve real-world challenges**,** empowering them to make a tangible social impact.

**Reduce Hunger among Vulnerable Groups: Community Care and Meal Delivery for the Elderly**

The **Yunus Social Enterprise Center** at NCUT also partnered with community organizations to support **elderly care** through meal delivery services and food assistance.

**Collaboration with:**

- Good Shepherd Association
- Spread Love Social Enterprise
- Changhua Nursing Center

**Project Highlights:**

- **Understanding Long-Term Care Challenges:**

  Students gain insights into the issues faced by the elderly, particularly those in vulnerable situations, by participating in meal delivery programs and assisting food banks.

- **Designing Long-Term Care Solutions:**

  Students propose innovative strategies to improve care services, fostering creative thinking in addressing community needs.

- **Practical Engagement:**

  The project encourages students to **interact with the elderly** and contribute to **long-term care strategies**, bridging the gap between academic learning and real-world impact.

## Impact and Learning Outcomes:

- **Food Waste Reduction:**

  The repurposing of surplus pineapples showcases a practical approach to food innovation and waste reduction.

- **Community Engagement:**

  Students actively engage with **elderly care programs,** contributing to the well-being of vulnerable groups.

- **Social Innovation and Sustainability:**

- Both initiatives empower students with the knowledge and experience needed to address **complex social problems** and promote **sustainable development**.

- **Holistic Education:**

  The hands-on learning model encourages students to **develop empathy**, **critical thinking**, and **entrepreneurial skills** in addressing food security and long-term care challenges.

## Fostering Social Impact through Education

NCUT's **Zero Hunger Project** exemplifies how educational institutions can lead **innovative solutions to food waste and hunger** while simultaneously training students to become **socially responsible leaders**. Through **multi-stakeholder collaboration**, practical learning, and community engagement, the project contributes to **SDG 2: Zero Hunger** and **SDG 3: Good Health and Well-Being**, demonstrating the power of education to drive **social change** and **sustainable transformation**.

Reduce hunger among vulnerable groups - community care and meal delivery for the elderly

# NCUT jointly organized a food and agriculture education package tour in Shinshe, Taichung City, attracting 300 New Taipei primary school students to experience it

The Agricultural Bureau of the Taichung City Government and the Shinshe Farmers Association collaborated to provide support for the Caitengkeng and Malipu Recreational Agricultural Zones. They organized the "Shinshe Studying and Learning Youth Reunion," which took place on May 7 at the Shinshe Paper Windmill. This package tour attracted 300 fifth-grade elementary school students from New Taipei City to the Paper Windmill Plaza, where they participated in food farming education and DIY experience activities. The event aimed to convey the concept of food farming education, from the origin to the table, using locally sourced fruits and vegetables. Friends of all ages were welcome to join in the exploration of Xinshe's agricultural landscape.

The Taichung City Government's Agricultural Bureau highlighted that the Shinshe area boasts a unique climate and terrain, resulting in high-quality agricultural products such as shiitake mushrooms, loquats, grapes, citrus fruits, and oncidium orchids, which are renowned for their excellence. Within the leisure agricultural area, there are attractions imbued with rich humanistic and historical significance, including painted trails, Shuiwei Sacred Trees, Bailenzhen, and the Water Park. Through the guidance of tour guides, visitors can gain a profound understanding of the area's historical and cultural customs.

**Participating students have the opportunity to comprehend the journey of food from production to table, delve into local agriculture and food culture, and contribute to the implementation of Sustainable Development Goal 12 (SDG12) by promoting a green economy and sustainable consumption practices.** This initiative aims to create innovative agricultural tourism experiences, enriching visitors' experiences while fostering environmental sustainability and economic growth in the region.

The Shinshe Community Farmers Association highlights the diverse features of the region throughout the year. It boasts unique attractions and various agricultural specialties such as flowers and mushrooms, which offer delightful experiences for visitors. Often referred to as the "Provence of Taichung City,"Shinshe has integrated its agriculture and leisure tourism industries, offering a range of experiential activities including flower viewing, fruit picking, DIY projects, and cultural exploration.

In recent years, the association has curated exclusive four-season itineraries that allow visitors to indulge in fresh fruits and vegetables, admire the beautiful flower seasons, or explore hidden scenic spots. These itineraries promise a delightful, delicious, and enjoyable tour for all. The Shinshe Community Farmers Association extends a warm invitation to everyone to come and experience the beauty and charm of Shinshe together.

## “End hunger, achieve food security and improved nutrition and promote sustainable agriculture"

### I. Better Environment for Growing Mushrooms:

Rising temperatures can make mushroom cultivation challenging. To address this issue, NCUT is actively involved in the MOE USR project, "Central Mushroom Industry Revitalization and Sustainable Operation Enhancement." Here are some initiatives taken:

- Simulation and improvement of an environment control facility to create an optimal growing environment for mushrooms.
- Development of a "negative pressure cooling pad system" to regulate temperature and humidity.
- Collaboration with Farmer's Associations to create a "smart clean room for spawn cultivation," ensuring cleanliness and quality.
- Installation of a "microenvironment factors monitor for plastic structure cultivation" to analyze mushroom composition and quality.
- In 2022, the introduction of a smart agriculture system for the mushroom grow bag health test, allowing remote monitoring and control of mushroom house parameters.

### II. Lychee Quality Assurance Technique:

To extend the shelf life of lychee and reduce food waste, NCUT participated in the MOE USR project, "Smart and Innovation for Local Practice – A Peaceful Time with Loquat and Lychee." The following techniques were developed:

- Minimally invasive drying of lychee using novel freezing technology to preserve quality.
- Measurement of frozen lychee's water activity before drying to ensure an extended shelf life without compromising taste.

**III. Watermelon Moving Equipment:**

Designed a specialized device for the transportation of bagged fertilizers, particularly beneficial for older farmers. This device:

- Remodeled lifters with electric-motor driven ball screws.
- Allows the front fork to move forward and backward, reducing the need for manual labor in lifting heavy bags and minimizing the risk of tearing during transportation.

These initiatives demonstrate NCUT's commitment to improving food production, ensuring food quality, and addressing challenges in agriculture and farming practices.

**IV. Improving the Production and Sales of Colorful Peppers in Native Greenhouses:**

- **Leadership and Involvement:** NCUT, under the guidance of Professor Lin Zonghong from the Department of Engineering, has been actively engaged in assisting indigenous tribes in enhancing their information literacy.

- **Focus on Native Cash Crops:** The school places significant emphasis on improving the quality and quantity of native cash crops within indigenous communities.

- **Recruitment of Returning Agricultural Youth:** NCUT also recruits returning agricultural youth from native villages to participate in these initiatives.

- **Establishment of Smart Greenhouse Agricultural Products:** The primary objective is to establish smart greenhouse agricultural products within indigenous communities, leveraging technology for sustainable development.

- **Internet Connectivity:** The school endeavors to connect rural farmers and young people to the Internet, fostering self-sufficiency and sustainable development.

- **Smart Technology Implementation:** Over the past few years, NCUT has organized its own agricultural Internet of Things initiatives. These initiatives are designed to assist indigenous tribes, such as the Wangxiang tribe in Xinyi Township, Nantou County, in implementing smart technology to enhance agricultural practices.

- **Smart Greenhouse Infrastructure:** Initiatives have included the establishment of smart greenhouse infrastructure specifically designed for growing colored peppers.

- **Agricultural Expertise:** The school has invited agricultural experts to work directly with farmers in solving challenges, collecting valuable data, and providing feedback.

- **Increased Harvest Period:** As a result of these efforts, the harvest period has been significantly extended, more than doubling the previous duration.

- **Improved Quality and Output:** Notably, the quality and output of agricultural products, such as colorful peppers, have seen substantial improvements.

- **Media Recognition:** These achievements have garnered special media reports, shedding light on the success of indigenous tribes' agricultural initiatives and contributing significantly to the university's social responsibility efforts.

Overall, NCUT's commitment to enhancing agricultural practices in indigenous communities through the application of technology demonstrates its dedication to **sustainable development, rural empowerment, and social responsibility.**

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| Environmental monitoring platform | On-site monitoring installation by students |

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| Minimally invasive lychee dryer | Students working with their own hands on thematic studies course |

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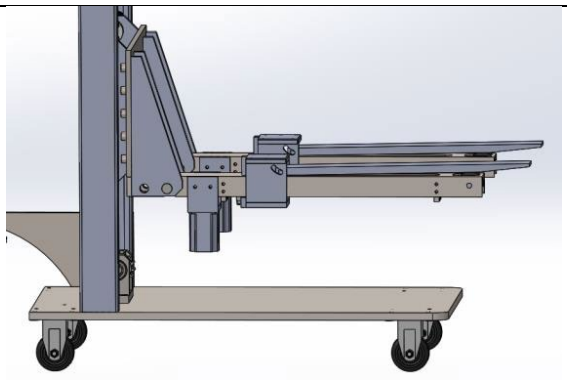
|  |  |
| Stacking fertilizer | Front fork back to position |
|  |  |
| Use smart technology to upgrade the cultivation of tomatoes, bell peppers and other crops | |

## V. Research on Sustainable Agriculture and Food Security

- **Innovation in Agriculture:** NCUT's **research centers** explore the use of **AI and IoT technologies** in agriculture to optimize food production and reduce waste.

- **Impact:**

  The insights from this research are shared with **local farmers** and **businesses**, helping them adopt **sustainable agricultural practices** that contribute to food security.