RUTS | SDG 2025

SDG 12

RESPONSIBLE CONSUMPTION AND PRODUCTION

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns



https://sdgs.rmutsv.ac.th/evidence-2025/sdgs-12

Circular Resource Use and Value Creation from Waste Materials

Rajamangala University of Technology Srivijaya (RUTS) promotes circular resource use by transforming discarded materials and production residues into practical products. In 2025, the Faculty of Science and Technology collected 20 kilograms of discarded plastic bottle caps and investigated suitable moulding conditions to produce chair seats. The resulting seats were assembled into 20 chairs and donated to Na Mai Phai Subdistrict Administrative Organisation for community use.

The university also collaborated with Regional Industrial Promotion Center 11, Department of Industrial Promotion, to support Ton Nga Chang Community Enterprise for Local Products and Processed Cocoa in Hat Yai District under the Bio-Circular-Green (BCG) Economy Model. The project developed two prototype products from cocoa pod husks: paper bags and paper cup sleeves. The paper bags had a production cost of THB 28.74 and a selling price of THB 35 per unit, while the paper cup sleeves cost THB 6.13 and sold for THB 10 per unit. The project reported a value increase of 120.83% for both products and estimated greenhouse gas emission reductions of 40.64% and 40.65%, respectively, compared with a landfill disposal baseline.



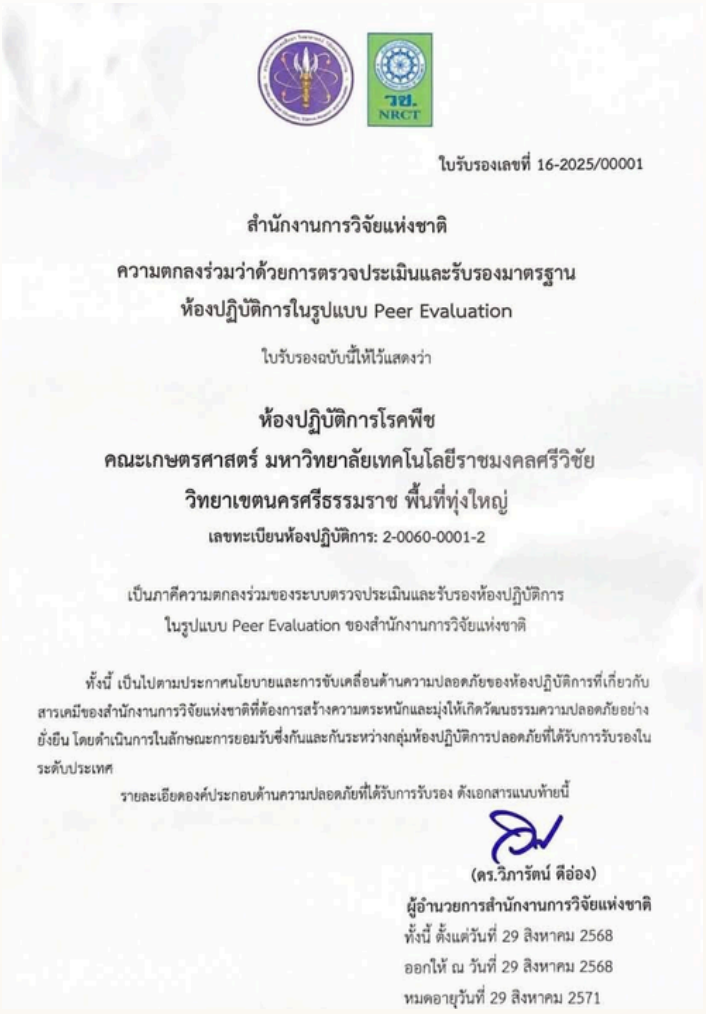






Responsible Waste Management and Community-Based Solutions

RUTS addresses both the recovery of useful materials and the safe management of waste requiring risk controls. At the Plant Pathology Laboratory, Faculty of Agriculture, Nakhon Si Thammarat Campus, Thung Yai, hazardous waste management practices are implemented alongside biosafety requirements and appropriate authorization for research involving biological resources. In 2025, the laboratory obtained laboratory safety certification associated with the National Research Council of Thailand and completed a peer assessment covering eight safety management components. It achieved 92.00% for hazardous waste management and 100% for the component addressing biosafety-related requirements. These results provide measurable evidence of compliance with assessed standards and support responsible research operations.



ใบรับรองเลขที่ 16-2025/00001

สำนักงานการวิจัยแห่งชาติ

ความตกลงร่วมว่าด้วยการตรวจประเมินและรับรองมาตรฐาน
ห้องปฏิบัติการในรูปแบบ Peer Evaluation

ใบรับรองฉบับนี้ให้ไว้แสดงว่า

ห้องปฏิบัติการโรคพืช
คณะเกษตรศาสตร์ มหาวิทยาลัยเทคโนโลยีราชมงคลศรีวิชัย
วิทยาเขตนครศรีธรรมราช พื้นที่ทุ่งใหญ่
เลขทะเบียนห้องปฏิบัติการ: 2-0060-0001-2

เป็นภาคีความตกลงร่วมของระบบตรวจประเมินและรับรองห้องปฏิบัติการ
ในรูปแบบ Peer Evaluation ของสำนักงานการวิจัยแห่งชาติ

ทั้งนี้ เป็นไปตามประกาศนโยบายและการขับเคลื่อนด้านความปลอดภัยของห้องปฏิบัติการที่เกี่ยวกับสารเคมีของสำนักงานการวิจัยแห่งชาติที่ต้องการสร้างความตระหนักและมุ่งให้เกิดวัฒนธรรมความปลอดภัยอย่างยั่งยืน โดยดำเนินการในลักษณะการยอมรับซึ่งกันและกันระหว่างกลุ่มห้องปฏิบัติการปลอดภัยที่ได้รับการรับรองในระดับประเทศ

รายละเอียดองค์ประกอบด้านความปลอดภัยที่ได้รับการรับรอง ดังเอกสารแนบท้ายนี้

(ดร.วิภารัตน์ ดีอ่อง)
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At the community level, RUTS collaborated with PTT Exploration and Production Public Company Limited (PTTEP) on a research and innovation project addressing marine waste in Hua Khao Community, Singhanakhon District, Songkhla Province. The project involved the Faculties of Business Administration, Architecture, and Liberal Arts and focused on recovering discarded materials for practical use. Recovered high-density polyethylene (HDPE) and low-density polyethylene (LDPE) bags were processed into four types of products: tote bags, waist bags, document bags, and cosmetic bags. The project also developed marine waste management equipment, including waste drying racks and bamboo floating booms, to support community-based waste collection and resource recovery.





This interdisciplinary collaboration connected material processing and product design with marketing knowledge and community participation. It established practical options for collecting waste, recovering materials, and developing products with potential economic value. The documented outputs are the products and management tools developed; quantities of waste reduced and income generated were not reported. The initiative therefore provides evidence of progress in community-based waste management and innovation development.

Environmental Education and Community Participation

RUTS promotes responsible consumption through environmental education and community engagement. The Resource and Environmental Management Program, Faculty of Science and Technology of Fisheries, Trang Campus, collaborated with the Southern Center for Technology Transfer in Waste Disposal and Wastewater Treatment under the Royal Initiative and partner organisations to organise World Environment Day activities. The event featured exhibitions supported by 17 organisations, waste segregation demonstrations, material reuse activities, a recycled-material costume competition, and environmental discussions to raise awareness of waste management and plastic pollution.

Environmental education also extended to local schools. The Resource and Environmental Management Program collaborated with the Southern Regional Center of the Laem Phak Bia Royal Initiative Project to conduct an environmental learning activity at Ban Chang Lang School, Trang Province. The activity involved 55 school students and integrated the university's Environmental Communication course with community outreach. University students delivered learning activities on waste segregation, the 3Rs (Reduce, Reuse, and Recycle), water quality, and wastewater treatment, providing practical environmental education while developing their communication skills.



Sustainable Materials Research and Practical Applications





RUTS researchers have combined natural rubber with agricultural and industrial residues to develop sustainable materials for practical applications. Researchers from the Faculty of Science and Technology developed boxing ring floor mats using natural rubber, natural fibres, sawdust, and ground waste tyres. By incorporating waste materials into the production process, the research explored opportunities for resource recovery and value creation. The mats were put into practical use at Phumiphat Boxing Stadium in Nakhon Si Thammarat Province and presented at the Young Smart Innovation & IP Camp attended by 35 participants, including lecturers, entrepreneurs, students, and members of the public. This application demonstrates how material research can be translated into products that meet practical user needs.

Another innovation, “Low-Carbon Rubber Flooring for Elderly,” developed by the Faculty of Engineering, received a Gold Medal at the 8th International Invention and Innovation Show (INTARG 2025), held in Katowice, Poland. The research focused on developing double-layer rubber composites by incorporating natural rubber and recycled components while optimising material formulations and processing conditions. The reported optimal formulation included 80 parts of sawdust per 100 parts of rubber, processed at 110°C. Designed for applications involving older adults, the innovation demonstrates the potential of combining natural resources and recovered materials to develop functional products while promoting more responsible material utilisation.