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# Scaling-up bio-circular economy solutions: Learning from Asia and Europe– by SWITCH-Asia Pacific

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# SWITCH-Asia Pacific Programme strategy for upscaling Sustainable Consumption and Production and Circular Economy



**Objective:** Support the transition of the region to a **low-carbon, resource efficient and circular economy**, whilst promoting more **sustainable supply chains and products** between the region and Europe.



**Geo-coverage:** As of 2023, SWITCH-Asia covers 42 countries across **Asia**, the **Pacific**, and the **Middle-East**.



**Economic sectors supported:** key polluting industries and export-led value chains in the region (e.g. food-systems, textiles and leather, plastics, sustainable tourism, construction).

## **POLICY SUPPORT COMPONENT**

Supports the development of **policies and industrial practices** that lead to reducing the environmental and carbon footprints and comply with international agreements.

## **GRANT PROJECTS**

Test and uptake of SCP practices in MSMEs and by consumers.



**33 ongoing**

# Launched Technical Advisories



ACEBA: ASEAN Circular Economy Business Alliance



ASEAN Circular Economy Stakeholder Platform



SCP and Climate Change



SCP Finance and Investment



Plastics Governance Engagement



Sustainable / Green Public Procurement for Transformation



Building for a Circular Future: Policies and Partnerships for the Construction Sector



Circular Economy Knowledge Generation, Management & Sharing



Enabling Effective Extended Producer Responsibility (EPR) Systems



EU Green Deal Policies - Relevance in Asia-Pacific



Sustainable Tourism Enhancement in the Pacific (STEP)



Strengthening Climate Policy Ambitions of the Pacific through SCP



SCP Policies and Actions in the Pacific



Strategic Foresight for Tourism with a Food Angle in Central Asia

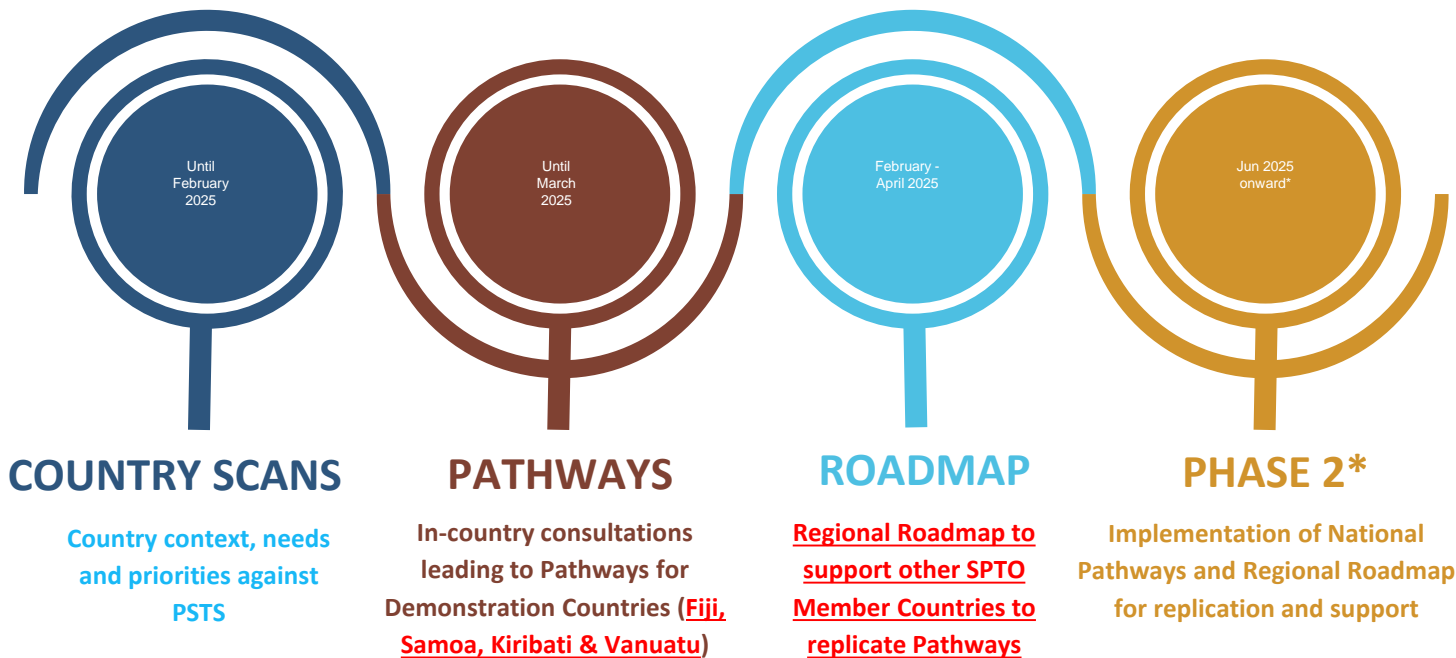


Enhancing Climate Ambition through SCP and Circular Economy in Central Asia



Circular Economy Policy Dialogues with the Parliamentarians' Platform in Central Asia

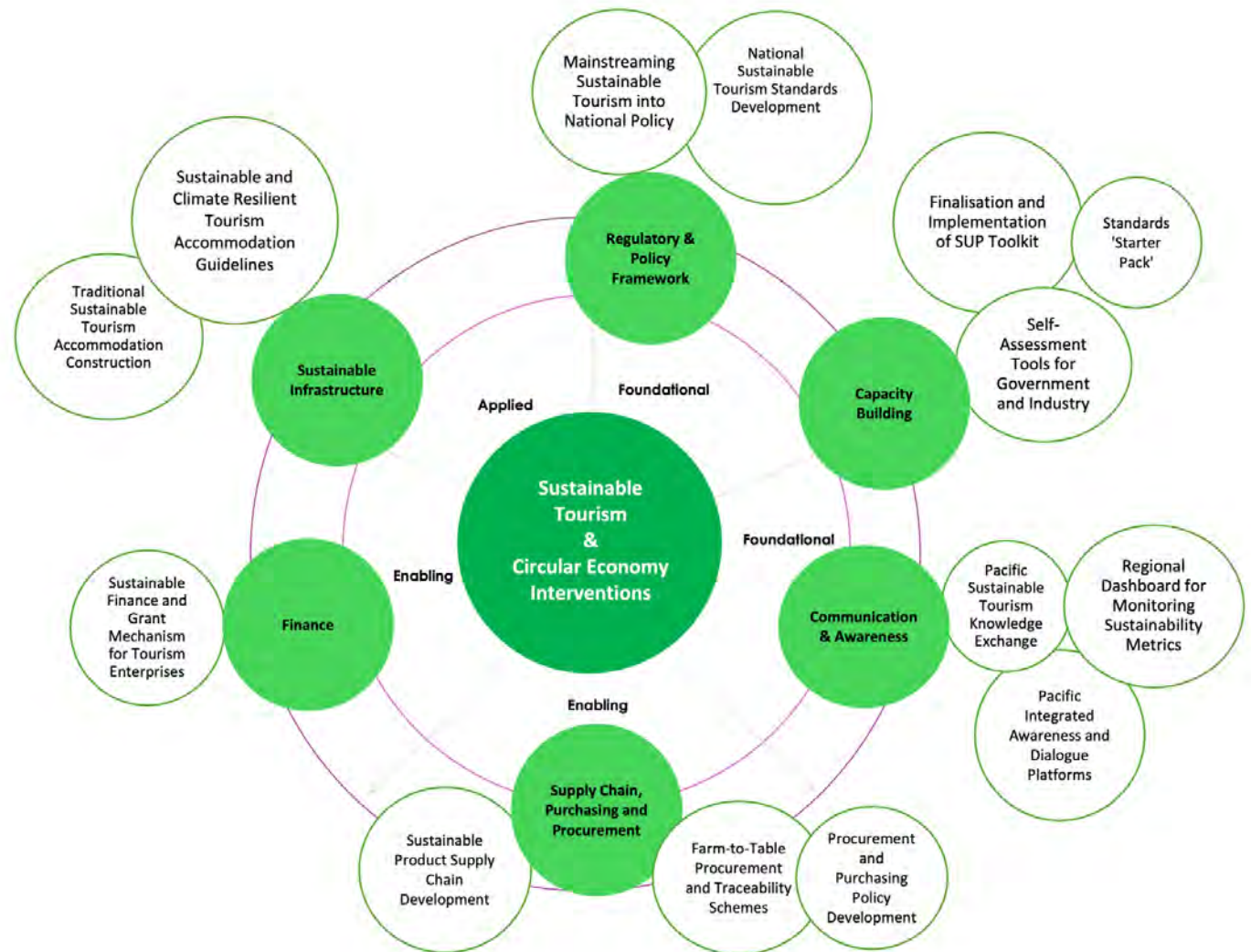
# Sustainable Tourism Enhancement in the Pacific (STEP) – technical advisory on the request of SPTO



\* Based on the results of Phase 1, Phase 2 will involve implementation of the roadmaps/pathways in consultation with identified nations.

## STEP II

### Suggested areas of actions





# Launched Technical Advisories



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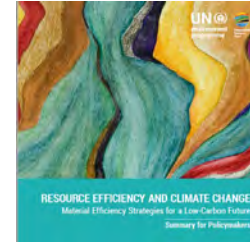
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# Why SCP and Circular Economy (CE) Matter for Climate Action?

- SCP and CE are not only mitigation tools but also essential for **adaptation, resilience building**, and addressing **climate-induced Loss & Damage**.
- SWITCH-Asia is leveraging the opportunity presented by **NDC 3.0** to integrate SCP and CE more systematically into national climate strategies across the region.



Material efficiency reduces material cycle emissions and reduces operational energy use, adding to life cycle emission reductions

# Initial Findings from Pacific NDC Review

- Our preliminary analysis shows that most **Pacific NDCs currently lack explicit SCP/CE targets**, though many contain **indirect links** through sectoral actions in energy, agriculture, and waste.
- This highlights a key opportunity for **strengthening climate ambition** through better SCP/CE integration in NDC 3.0.
- Alignment of work across line-ministries dealing with the climate and with material use is the strategy for bringing the best benefits to the countries economically and environmentally
- Our aim is to ensure that our technical advisory is **complementary** to broader NDC support efforts in the Pacific and aligned with what's already underway.



# SWITCH-Asia Synergies with Jaipur Declaration in the Pacific

## Applied 3R and Circular Economy in Tourism

- Country pathways in Fiji, Kiribati, Samoa, Vanuatu
- Focus on plastic reduction, food waste prevention, procurement and reuse in tourism
- Focus on prevention across supply chains

## Integration of 3R into National Policy Frameworks and linking policy domains

- TAs on resource efficiency & climate action support CE/3R roadmaps
- Tools for mainstreaming SCP/CE into national climate and development plans
- Focus on technical and policy capacity for 3R implementation by connecting material use and climate, and with focus on supply chains

## Localised, SIDS-Relevant Approaches

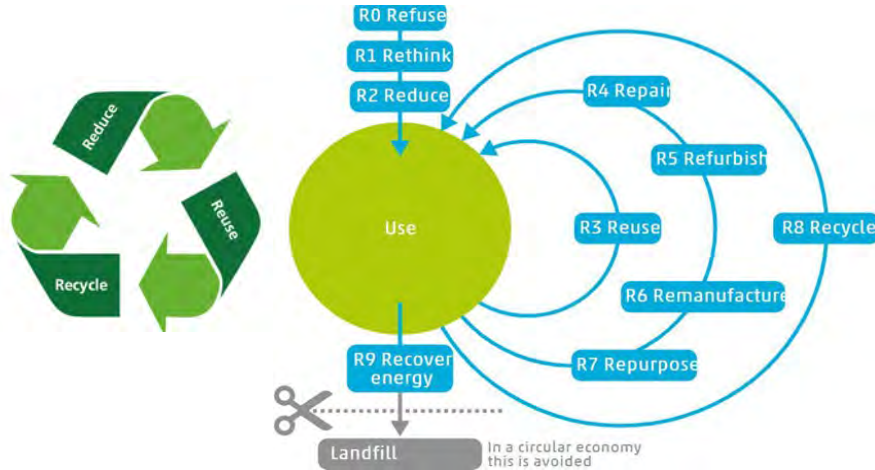
- Focus (in STEP II) on local practices to be mainstreamed (through exchanges and training to the region)
- Focus on identification of regional hotspots in connecting climate and resource actions through policies – with the purpose to build towards long-term systemic actions
- Engaged with regional partners - SPREP, PIFS, ministries, private sector



# Inspirations from Asian Experiences lessons form ACEBA (ASEAN Circular Economy Business Alliance) *Supported by SWITCH-Asia*

# Circular Economy

- Change from take, make, use and **throw away** linear production and consumption model to a take, make, use, **recover and repeat** circular model



**Circular Economy ≠ Recycling Economy**

Not making new things	REFUSE Making solutions redundant or offer the same function with a radically different approach				
Making things in a different way	RETHINK Change manufacturing and design solutions to make the service use more intensive such as through sharing or multifunctionality	CIRCULAR SOURCING Use renewable, sustainably sourced, or recovered resources that can be easily recycled and returned back to nature in a safe way	REDUCE Efficiency in manufacturing increased or the amount of resources needed is reduced		
Making things last longer as they are	REPAIR Fix a damaged or defective part/product so that it can be used in its original functionality longer	REUSE When a discarded product is put into use again for its original function	REFURBISH Restore the original functionality of the product during its life so it can perform at a similar quality	REPURPOSE Change the use of an existing product to a new function without major changes to the chemical or physical structure	REMANUFACTURE Recapture and return through an industrial process so that it's restored to a similar functionality
Cycle resources around the economy	CASCADE Move recovered materials from one loop to another to increase use in multiple cycles		RECYCLE Material recovery that achieves the same or lower quality outcomes via collecting, sorting, cleaning and reprocessing		
Recovering resources from end of life facilities	RECOVER ENERGY Recovered resources used to generate useful energy		REMINE Extracting resources from landfills and incineration plants		



ISO 59004

## ASEAN Circular Economy Business Alliance (ACEBA)

- ASEAN centric, business led initiative in support of regional circular economy transition
  - Contribution to 2021 ASEAN Circular Economy Framework and national strategies in ASEAN Member States
- Participants pledge to lead by example in adoption of circular economy
  - ACEBA provides visibility for and a voice to participating companies
- ACEBA will
  - Document and showcase good business practices and innovative solutions
  - Facilitate learning and sharing among ACEBA companies and beyond
  - Promote operational tools and metrics that are appropriate to the ASEAN region, relevant to ASEAN Member States and specific to their leading and emerging business sectors

# Guiding principles – Developed by businesses of ASEAN

## Net zero for climate, nature and environment

- CE targets net zero by ending unsustainable resource use as common root cause of climate change, loss of nature & biodiversity, & accumulation of waste & pollution, collectively the triple planetary crisis

## Resource circularity, efficiency and substitution

- CE closes natural resource use loops by designing in resource circularity, resource efficiency & resource substitution

## Responsible business

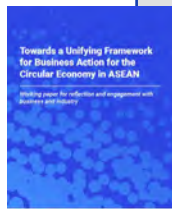
- CE involves business taking responsibility for impacts on environment & society of materials & other natural resources that are required throughout lifecycles of its products & services

## Ideation and co-creation

- CE frames ideation & co-creation by business in its value chains to innovate & develop circular products & service solutions

## Net benefits

- CE de-risks economy & society from impacts & risks of their unsustainable use of natural resources to generate net socio-economic benefit



# Southeast Asian business cases

**BUSINESS CASES** Found: 14 Results

Q ADVANCED SEARCH

Country: Indonesia

Country: All Cambodia (16) Thailand (16) Indonesia (14) Philippines (14) Vietnam (13) Malaysia (3) Laos (2)



## Business Cases

### Modular: future for sustainable construction

Resource efficient factory-based production of pre-fabricated and prefitted building modules, with inclusion of secondary materials as fillers, that significantly reduces total material use for the bu...

Building & Construction

Indonesia

11 Views

READ MORE →



## Business Cases

### Recycling nickel slag into concrete bricks

Utilization of nickel slag (by-product of ferro nickel smelting) into bricks as substitute for concrete and ceramic bricks in road and building construction.

Building & Construction

Indonesia

9 Views

READ MORE →



## Business Cases

### Municipal solid waste as alternative fuel in cement industry

Use of biomechanically processed municipal solid waste and other industrial wastes as alternative fuel for cement making.

Cement

Indonesia

11 Views

READ MORE →

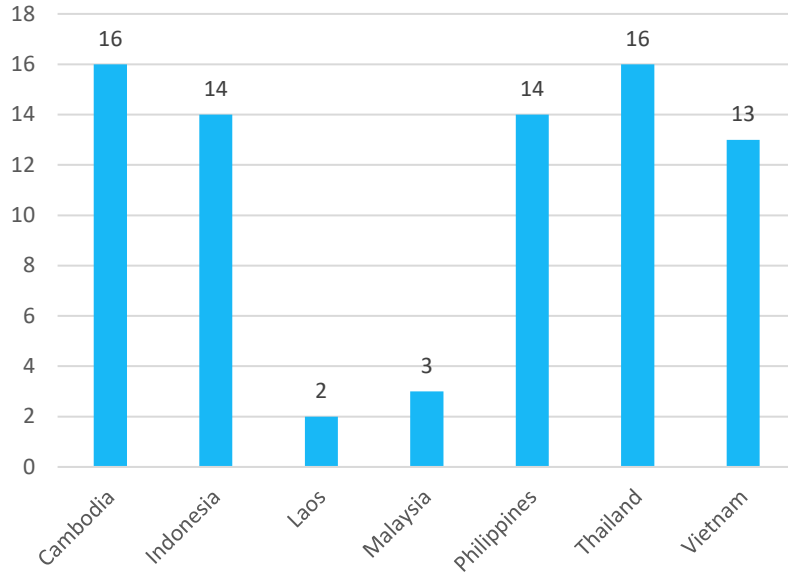
Total of 78 business cases analysed and documented from Cambodia, Indonesia, Laos, Malaysia Philippines, Thailand and Viet Nam – more to follow!



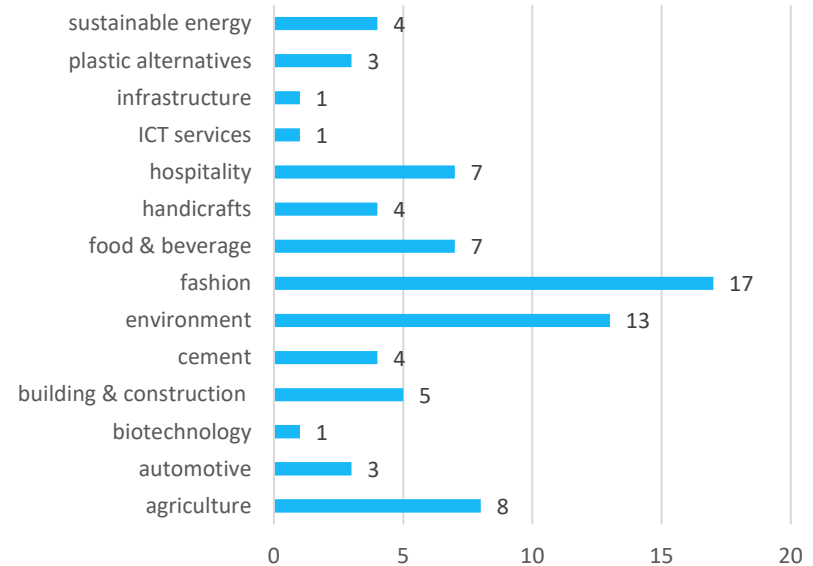


# Southeast Asian business cases

Country (N=78)



sectors (n=78)



# Bio- Circular Economy: good practices - Thailand

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



### Pinmisa

- 📍 Samut Sakhon Province, Thailand
- 🏭 Cosmetic
- 🌐 [www.facebook.com/pinmisa](https://www.facebook.com/pinmisa)
- ★ Analysis period: 2019-2023

#### Circular Economy in Skin Care Products

- ✓ Development and manufacturing of skin care products using hyaluronic acid extracted from fish bone waste

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



### Sivatel Bangkok Hotel

- 📍 Bangkok, Thailand
- 🏨 Tourism and Hospitality
- 🌐 [www.sivatelbangkok.com](https://www.sivatelbangkok.com)
- ★ Analysis period: 2016-2023

#### Service Design and Waste Recovery in Sustainable Boutique Hotel

- ✓ Comprehensive food waste reduction programme in back-of-the-house and food service areas,
- ✓ Onsite Black Soldier Fly insect farming and composting with reuse in onsite garden and by food suppliers.
- ✓ Local and organic sourcing of food items. Single use plastics eliminated. Improved operations management for energy and water conservation.

# Bio- Circular Economy: good practices - Indonesia



- ✓ Reuse of fruit processing waste as animal feed and bromelain production
- ✓ Recovery and use of biogas and organic fertilizer from manure
- ✓ Improved efficiency of use of water and farm chemicals
- ✓ Packaging with recycled materials



- ✓ Produces sustainable leather-like materials (mycelium leather) derived from organic raw material through fermentation-like processing using different mushroom varieties (uses waste from mushroom cultivation) .
- ✓ Less water use and less GHG production in comparison with bovine leather processes

# Bio-Circular Economy: good practices – Cambodia

CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



**Husk Ventures Cambodia**

- 📍 Phnom Penh, Cambodia
- 🌱 Agriculture/Rice/Carbon based fertilizers
- 🌐 [www.huskventures.com](http://www.huskventures.com)
- ★ Analysis period: 2019-2024

**Biochar Innovation in Agriculture**

- ✓ Customising the known pyrolysis technology for the specific characteristics of rice husk as raw material -> maximising the char output.
- ✓ The water released during pyrolysis recovered and marketed separately as a natural insect repellent.
- ✓ Succeeded in obtaining carbon removal credits

CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



**Khmer Green Charcoal (KGC)**

- 📍 Phnom Penh, Cambodia
- 🔪 Char briquettes
- 🌐 [kgc-cambodia.com](http://kgc-cambodia.com)
- ★ Analysis period: 2012-2023

**Char Briquettes from Coconut Shells**

- ✓ Transforming, through pyrolysis, waste coconut shells into high quality char briquettes (coconut shells lose about 80% of the original mass in conversion to charcoal)
- ✓ GHG emission reductions from preventing deforestation, capturing and using methane emissions during the process, and gaining efficiency in the production and use of charcoal.

# Bio-Circular Economy: good practices – Vietnam/Philippines

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



### An Dinh Co. Ltd.

- 📍 Thai Binh province, Vietnam
- 🌱 Agriculture
- 🌐 [www.andinh.com.vn](http://www.andinh.com.vn)
- ★ Analysis period: 2017-2023

### New Rice Farming Practices to Reduce Climate Emissions and Improve Yields

- ✓ Reduce GHG emissions from rice cultivation and reduce the use of fertilizers through halving of rice planting density, application of alternative wetting and drying irrigation system, improved fertilizer management and enzyme accelerated decomposition of crop residue, while regenerating soil health and maintaining yields.

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



### Pico Sands Hotel and Pico de Loro Beach and Country Club

- 📍 Batangas, Philippines
- 🏨 Hotel and tourism
- 🌐 [www.picosandshotel.com](http://www.picosandshotel.com)
- ★ Analysis period: 2018-2023

### Sustainable Resort Operations

- ✓ 60% food waste reduction per guest meal (savings of EUR125,000 in first 4 years)
- ✓ Food waste composting and use in onsite garden
- ✓ Replacement of single use plastics (bottles etc)
- ✓ 36% reduction in water use through efficiency and reuse measures
- ✓ Energy efficiency, enabling cost saving of EUR 225,000 over 4 years



# Bio-Circular Economy: good practices - Philippines

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



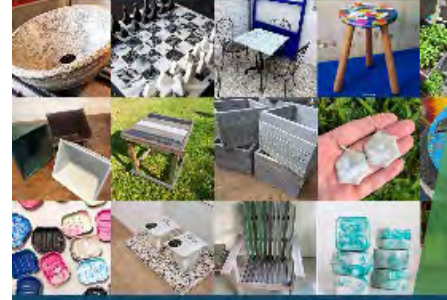
### Axel Integrated Farm

- 📍 Samar, Philippines
- 🌿 Agrifood, coconut farming
- 🌐 [www.facebook.com/farmni Axel](https://www.facebook.com/farmni Axel)
- ★ Analysis period: 2021-2023

#### Organic Coconut Farming with Commercialization of Co-products

- ✓ Optimization of coconut production using appropriate agronomy practices with soil and water analysis and intercropping with banana, taro and sweet potato.
- ✓ Product diversification through comprehensive utilization of previously discarded byproducts into coconut sap wine, nectar syrup, nectar aminos, nectar instant drink and coconut vinegar.

## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



### Precious Plastics Philippines

- 📍 Antipolo Rizal, Philippines
- ♻️ Plastics Recycling
- 🌐 [preciousplasticph.com](https://preciousplasticph.com)
- 👤 Butte Ivan Metz, Founder
- ★ Analysis period: 2017

#### Appropriate Technology for Small Scale Recycling

- ✓ Developer and supplier of low cost, small scale appropriate mechanical recycling equipment for plastics and developer of network of grassroots plastic waste collection and recycling initiatives that produce and sell recycled plastic board-based furniture and decorative items.



# Southeast Asian business cases



Total of 78 business cases analysed and documented from Cambodia, Indonesia, Laos, Malaysia Philippines, Thailand and Viet Nam  
– *more to follow!*

# Thank You



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