

IMPACT SHEET • SWITCH-ASIA PROJECT  
**SCALING SUSTAINABLE CONSUMPTION AND PRODUCTION  
IN THE SOYBEAN PROCESSING INDUSTRY IN INDONESIA**

**Promoting eco-friendly production  
in Indonesian tofu and tempeh industry**



**The project introduced higher efficiency equipment and new certification leading to a reduction in GHG emissions of 83 200 tonnes per year**



## The Challenge

Indonesia's soy-based food processing industry generates around EUR 57 million per year and serves as a source of income for 85 000 businesses. The industry supports 285 000 workers, of whom 40-50% are women. Indonesia's tofu and tempeh industry, with its vast number of micro, small, and medium-sized enterprises (MSMEs), still uses environmentally damaging production practices. The problems in the processed soy-based food industry are inefficiency, inadequate waste disposal, lack of hygiene, insufficient access to credit, and a low awareness about new technologies. Without business development services, support, or regulation, these enterprises suffer from avoidable inefficiencies that not only reduce profitability and productivity, but also lead to environmental damage.

## Objective

The *Soybean Processing (SCoPE)* project aimed at reducing energy consumption and increasing sustainable growth in the urban food processing industries in Indonesia by promoting sustainable production and consumption of tofu and tempeh. The specific project objectives were:

- to increase linkages between urban food-processing MSMEs, government programmes and financial institutions supporting environmentally friendly technology uptake;
- to improve the capacity of Indonesian business intermediaries to promote sustainable production practice;
- to increase awareness of the importance of sustainable production and healthy consumption among consumers to result in an increased demand for clean and sustainably produced tofu and tempeh products.



### TARGET GROUPS

- NGOs providing business development services
- Cooperatives of tofu and tempeh producers as platforms to distribute cleaner technology
- Government ministries eager to promote environmentally sustainable production
- Financial institutions
- Private sector equipment suppliers looking for new markets
- Consumers

**Final beneficiaries** are 600 tofu and 200 tempeh micro, small, and medium-sized factories in Greater Jakarta and other urban areas of Java.

## Activities / Strategy



### Push and Pull Strategies for Promotion of Sustainable Technologies

The Soybean Processing (SCoPE) project sought to address the inefficient use of energy in the soy-based food industry. The project promoted sustainable technologies by taking a demand-driven, market-based approach to promoting a switch to sustainable production.

The first step was to demonstrate to producers that using energy-efficient technologies was in their best interest. The entrepreneurs of micro and small-sized soybean processing enterprises are primarily concerned with their profit margins. The project engaged associations and cooperatives to mobilise MSMEs to participate in cost-benefit analyses, to visit model factories, and take part in cross-visits and demonstrations, and incentive-based competitions for technology upgrades.

Secondly, the project facilitated a switch to more sustainable technologies. It built linkages with government programmes and financial institutions offering incentivised loans, financial literacy training, and capacity building for local business intermediaries in assessing, promoting, and supporting sustainable production and consumption (SCP).



### Dissemination Campaigns to Increase Demand

Thirdly, the project conducted information campaigns to increase demand for sustainable consumption. This comprised mobilising consumer groups, a media study of consumers, building awareness through media campaigns, and developing certification schemes for incentivising sustainability.



### Scaling-up Strategies to Ensure Replication

Lastly, the project scaled-up its results by mapping and using social networks for technology transfer, leveraging professional associations and cooperatives, building capacity in government outreach programmes and local business intermediaries, and using media and communications technology.



*Improved factory*

# Scaling-up Strategy



## Engagement with Cooperatives and Associations

By engaging with cooperatives and associations of tofu and tempeh producers, the project ensured outreach across the sector. It built capacity in business intermediaries expanding their range of services, technology, and equipment available for SMEs. To interested SME owners who often did not see the need for services considering them too costly, the project combined services in attractive and affordable training packages. Less sought-after services on bookkeeping were organised together with training sessions that could lead to generation of additional business.



## Enabling Access to Finance

Liquidity among small and medium-sized producers was low and access to credit was one constraint preventing them from upgrading their factories. The project, therefore, linked tofu and tempeh SMEs to financial institutions. Depending on the size of the companies, such links to financial institutions included micro-leasing for equipment, green financing schemes, and commercial loans for larger companies. Depending on the financing need, the project supported SMEs with financial literacy education, built strong financing proposals and chose the appropriate and most efficient equipment.

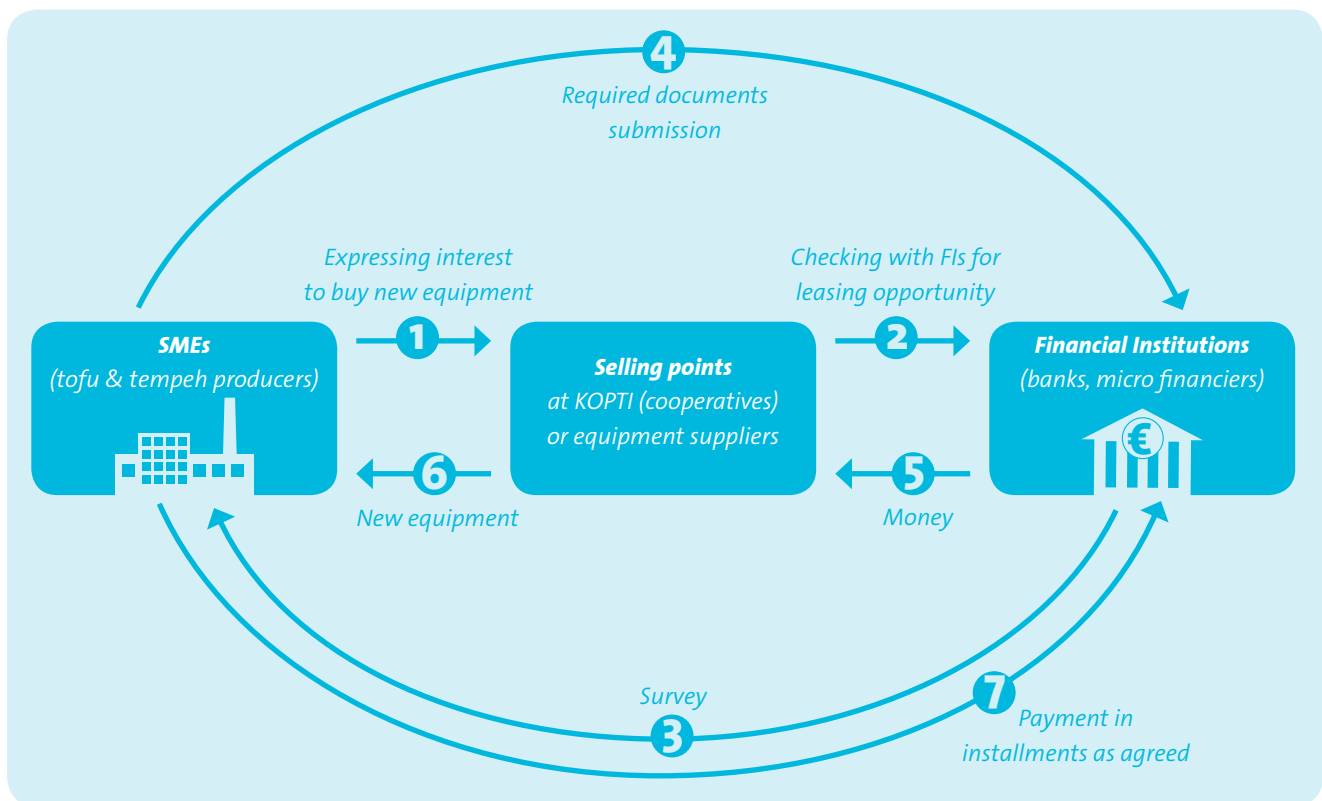


Seminar on SCP for tofu and tempeh SMEs



## Promoting Innovation

The project promoted innovation – in equipment and product ranges. It liaised with a chefs' association to promote new processing and cooking techniques that helped SMEs to widen their product ranges and to reach new customers. With market research, it supported a voluntary certification scheme. Seventy per cent of high-income consumers confirmed in a survey that they were willing to pay higher prices for more hygienic products, which offers opportunities for SMEs willing to join this certification scheme. The project also worked with equipment suppliers to improve the energy-saving capacity of their equipment and to increase the nutritional value of soybean products.



**Leasing is found to be the most suitable financing scheme for the tofu and tempeh sector. SME producers can easily obtain credit by using the new equipment as collateral**

## Results



### Six Model Factories Established

The project contributed to the setting up of six demonstration factories:

- Indonesian Tempeh House in Bogor, West Java;
- Tofu and tempeh production clusters in South Jakarta;
- Tempeh House in Kranggan Bekasi, West Java;
- KOPTI Bandung Tofu Factory, Bandung West Java;
- Gunung Kidul Tempeh House in Gunung Kidul District, Jogjakarta;
- Cimandala Tofu Factory in Bogor, West Java.

The model factory functions as a one-stop service, as well as functioning as a learning and demonstration centre. It is equipped with technology, which meets the national food standard regulation for hygiene and consumer safety. All model factories demonstrate the use of a biogas and liquid waste filtering system in order to avoid environmental pollution, and support producers and stakeholders in their purchasing decisions for new equipment. By the end of programme, the 590 producers had purchased new equipment used by 771 producers, with 181 producers renting equipment. One hundred and fifty producers were successfully assisted to obtain loans from financial institutions to acquire new equipment.



### Sustainable Production Case Studies

Promoting sustainable technologies works best by building strong business cases among the communities of tempeh and tofu entrepreneurs. Peer communication stating the benefits of technological and methodological upgrade is the most convincing. To support technology upgrades, the project developed some training material, including financial literacy education for SMEs, cost benefit analyses, a hygiene manual and a manual on eco-friendly tempeh production. By the end of programme, 1 508 SME producers had attended project events.



### Certification for Producers Conducted

The project facilitated tofu and tempeh producers to gain the “P-IRT” (household food industry) certificate from the Ministry of Health local offices where the SMEs operate. The certificated producers followed training on good hygiene practice and regular official assessments. Some benefits of P-IRT certificate are:

1. The certificate complies with food safety standards;
2. It has governmental regulation supporting the certification;
3. P-IRT certificates are requested by supermarkets, in order for the tofu and tempeh producers to be suppliers;
4. There is growing awareness among consumers of the P-IRT certificate.



Certified tempeh



### Promoting Market Links

With the P-IRT certificate, consumers are able to identify sustainable and hygienic products. However, the consumer survey showed that availability of hygienic and eco-friendly tofu and tempeh products is still a challenge. The project therefore worked on marketing concepts in order for hygienic and eco-friendly tofu and tempeh to be able to reach local markets and modern markets more readily. The model factory of Rumah Tempe Indonesia (RTI), facilitated by the project, works with an intermediary and distributes fresh tempeh to 78 modern market stores in the Greater Jakarta and Bandung area.









*I had produced tempeh for 20 years; initially I used a rusty oil drum to boil the soybean and firewood as fuel. I always wanted to produce tempeh in a clean and good way but I did not know how to start because I lacked knowledge and did not see the appropriate equipment for sale in the market. Since KOPTI and Mercy Corps introduced the new equipment and convinced me to switch to equipment that is newer and more efficient and to use LPG instead of firewood, I have enjoyed many benefits. Now my production rooms are cleaner as well as being smokeless, and my workers and I are happier to work in better conditions.*

*Mr. Sudirin,  
Tempeh Producer, Bogor, West Java*



## Impact in Numbers

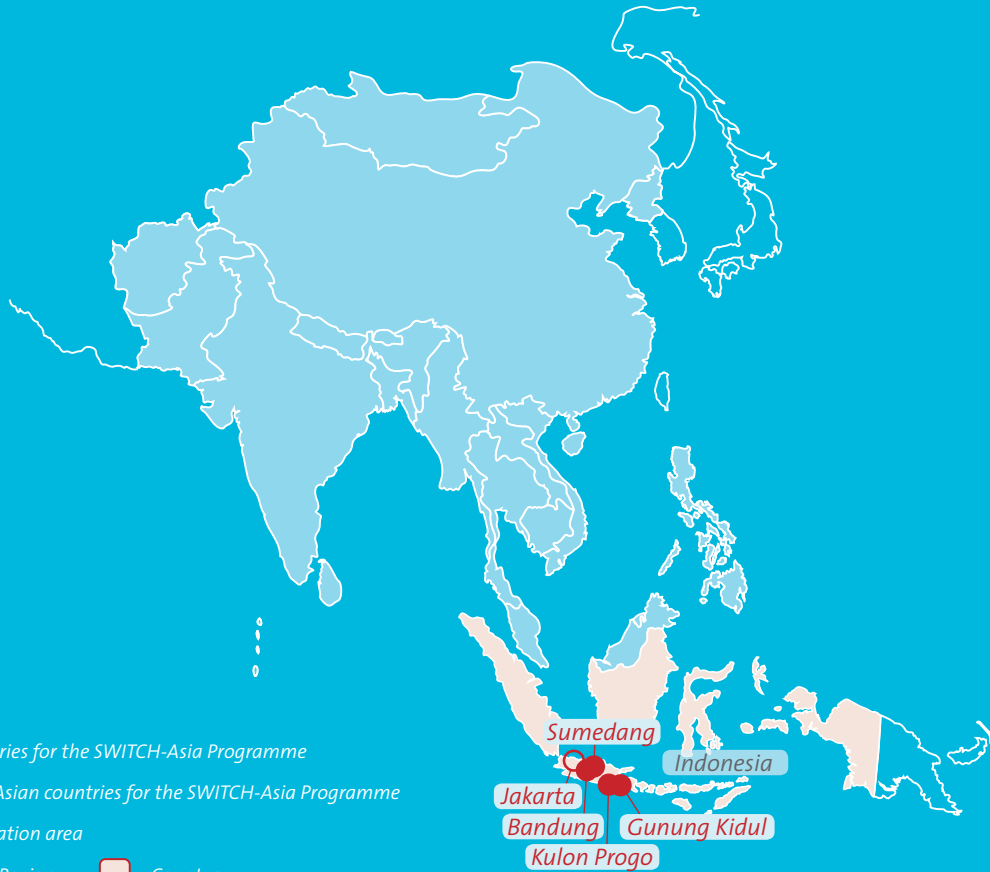
<p><b>Economic Impact</b></p> 	<ul style="list-style-type: none"> <li>Created new business opportunities for energy efficient equipment</li> <li>Created a market for more hygienic tofu and tempeh products</li> <li>Achieved annual saving of EUR 1 350 per SME</li> </ul>	<p><b>Green Finance</b></p> 	<ul style="list-style-type: none"> <li>Actively engaged financial institutions (FIs), such as Bank Syariah Mandiri, Intan Jaya Finance, Universal Finance, CV Gemilang, and Sinar Bintang Finance, to offer loans to SMEs wishing to invest in new and more efficient equipment</li> <li>150 SMEs assisted to apply for loans with 144 having received credits and 6 in progress</li> <li>Leasing is found to be the most suitable financing scheme for the tofu and tempeh sector. SME producers can easily obtain credit by using the new equipment as collateral and FIs only require simple administrative inputs, such as an ID card and a survey to the producer's factory.</li> <li>Total amount of green finance leveraged for SMEs was EUR 70 000</li> </ul>
<p><b>Environmental Impact</b></p> 	<ul style="list-style-type: none"> <li>Reduced water pollutants by promoting the use of biogas digesters</li> <li>Increased the efficiency of water use by 33% (previously 15 litres water per 1 kg soybean, now 10 litres)</li> </ul>	<p><b>Target group Engagement</b></p> 	<ul style="list-style-type: none"> <li>More than 1 500 SMEs were engaged in project activities such as training sessions, workshops and marketing campaigns</li> <li>Engaged with more than 45 stakeholders, i.e. cooperatives, government, business associations, private companies, banks, micro finance institutions, NGOs, and media</li> <li>Conducted about 70 stakeholder engagements, e.g. technical training, funding of the model factory, business linkages, technology promotion events, media promotion</li> </ul>
<p><b>Social Impact</b></p> 	<ul style="list-style-type: none"> <li>Health and safety risk reduction measures introduced in SMEs:                             <ol style="list-style-type: none"> <li>Removing smoke from production room</li> <li>Replacing existing equipment with the more energy efficient one and following the Good Hygienic Practice</li> </ol> </li> <li>Improved the livelihood of surrounding communities by reducing pollutants discharged by tempeh and tofu factories</li> <li>Improved the worker income per day by 25%</li> </ul>		
<p><b>Climate Benefits</b></p> 	<ul style="list-style-type: none"> <li>Reduced carbon emission 83 200 tonnes per year as SMEs shifted from firewood to liquid petroleum gas (LPG)</li> <li>Improved energy efficiency by 27%</li> </ul>		



**Applying sustainable production and consumption to the tofu and tempeh industry resulted in many positive outcomes. Tofu and tempeh producers benefit from smokeless tempeh production rooms, cleaner and better working conditions, a reduction in the fuel cost and minimal social conflict with neighbours due to smoke and odour emitted by producers. The SCOPE project also succeeded in promoting the change by scaling up the proven business model. Despite the project being completed, the project partners – such as KOPTI – continue to promote SCP by providing equipment and services to the tofu and tempeh producers.**

Mr. Muhammad Ridha  
Project Manager, Mercy Corps





**Legend**

- Eligible countries for the SWITCH-Asia Programme
- Non-eligible Asian countries for the SWITCH-Asia Programme

**Project implementation area**

- City
- Region
- Country

*The boundaries shown on this map do not imply on the part of the European Union any judgment on the legal status of any territory or the endorsement or acceptance of such boundaries.*

**OBJECTIVES**

The project aimed at reducing energy consumption and increasing sustainable growth in the urban food processing industries in Indonesia, by promoting sustainable production and consumption of tofu and tempeh.

**DURATION**



**PROJECT TOTAL BUDGET**

EUR 900 000  
(EU contribution: 80%)

**PROJECT CONTACT**

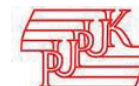
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**PARTNERS**



Mercy Corps, Scotland



Perkumpulan Untuk Peningkatan Usaha Kecil (PUPUK) – The Association for Advancement of Small Business



Indonesian Ministry of Environment (MoE)



Indonesian Association of Tofu and Tempe Producers (PRIMKOPTI)