

# ADVANCING SUSTAINABLE DEVELOPMENT AND WOMEN'S EMPOWERMENT IN ASIA

Experiences from the SWITCH-Asia Programme



This project is funded by the European Union.



The SWITCH-Asia Network Facility is implemented by GFA Consulting Group GmbH and Collaborating Centre on Sustainable Consumption and Production (CSCP).

## IMPRESS

### Publisher

SWITCH-Asia Network Facility  
Collaborating Centre on Sustainable Consumption  
and Production (CSCP)  
Hagenauer Straße 30  
42107 Wuppertal • Germany

### Lead author

Silvia Sartori (SWITCH-Asia Network Facility)

### Co-authors

*(listed in the order of appearance of their respective project)*

Pragya Majumder and Maveen Pereira; Miranda Miranda, Shelley Cheong Holdaway and Hendriyadi Bahtiar; Schvonne Choo and Prof. Nik Meriam Nik Sulaiman; Khine Khine Nwe, Simone Lehmann and Su Tayar Lin; Surendra Chaudhary and Pratap Rai; Asad Ullah Imran and Muhammad Masood Akhtar; Pham Thái Vũ and Đỗ Thu Cúc; Khaled Golam Mortuza; Ismat Jahan, Maveen Pereira and Shahed Ferdous; Tam Le Viet, Linda Zednieck, Thibault Ledecq and Sabine Gisch-Boie; Cecep Jaelani and Santi Susanti; Moon Shrestha, Usha Pandey and Anil Maharjan; Rekha Panigrahi and Shashank Bibhu; Bastiaan Teune, Louise Bott; François Sorba and Svati Bhogle; Asad Ullah Imran and Muhammad Masood Akhtar; Hugo Agostinho, Arifeen Tuan, Senashia Ekanayake and Damitha Samarakoon; Claudia Oriolo, Ek Kunthea, Nget Long, Son Dypong, Mak Bunthoern, Prach Soengchealy and Sang Saroeun; Nguyen Thi Phuong Nhung and Ta Huong Thu.

### Review

Dr. Uwe Weber (SWITCH-Asia Network Facility)

### Proofreading

Judith Pretty

### Design

Elmar Sander

## CONTACT

Silvia Sartori  
Communication Expert  
SWITCH-Asia Network Facility  
[silvia.sartori@scp-centre.org](mailto:silvia.sartori@scp-centre.org)

## GET CONNECTED

[www.switch-asia.eu](http://www.switch-asia.eu)

 @EUSWITCHAsia

 #NetworkFacility

 SWITCH-Asia group

 SWITCH-Asia channel

## DISCLAIMER



© European Union, 2017  
Reproduction is authorised provided the source is acknowledged.

### Format

### ISBN

### DOI

### Catalogue number

Paper

978-92-79-70099-6

10.2841/548687

MN-01-17-650-EN-C

PDF

978-92-79-70100-9

10.2841/322959

MN-01-17-650-EN-N

ePub

978-92-79-69765-4

10.2841/710056

MN-01-17-650-EN-E

Cover photo sources: Front cover, top down, left to right: GetGreen project, Bio-Energy project, GetGreen project, GERES, SPRING project, GetGreen project, Sustainable Rattan project, Improved Cook Stoves project, Clean Batik Initiative project, Prospect Indonesia project, Silvia Sartori. Back cover, left to right: Silvia Sartori, Sustainable Rattan project, GERES.

# TABLE OF CONTENTS

<b>Foreword</b>	<b>5</b>
<b>Executive Summary</b>	<b>6</b>
<b>Introduction</b>	<b>8</b>
<b>Textile and garment industry</b>	<b>11</b>
<i>Introduction</i>	13
• India: Textile waste as a women’s empowerment resource	14
• Indonesia: Improving livelihoods through the use of natural dyes	17
• Malaysia: Preserving the value of a traditional craft	20
• Myanmar: Towards sustainable ‘Made in Myanmar’ garments	22
• Nepal: Sustainability starts with safety	25
• Pakistan: Cleaner cotton production, better lives for women	27
• Vietnam: Sustainable innovation by disabled ethnic women	30
<i>Conclusions</i>	32
<b>Agriculture and natural resources</b>	<b>35</b>
Jute	37
• Bangladesh: The jute supply chain	38
• Bangladesh and India: SMEs of jute diversified products	41
Rattan	43
• Cambodia, Laos, Vietnam: Sustainable rattan production	43
• Indonesia: ‘Rattan for life’	45
Forestry	48
• Nepal: Female entrepreneurship through scientific forest management	48
<i>Conclusions</i>	52
<b>Energy</b>	<b>53</b>
Cook stoves	55
• India: Better cook stoves for forest-dependent women	56
• Laos: 135 000 improved cook stoves	59
• Myanmar: Mainstreaming gender in the cook stove supply chain	63
• Pakistan: Clean energy from cotton gin waste	66
• Sri Lanka: Reviving the biogas solution	68
<i>Conclusions</i>	71
<b>Consumption</b>	<b>73</b>
<i>Introduction</i>	75
• Cambodia: It’s a woman’s world	75
• Vietnam: ‘Change Agents’ of greener consumption	78
<i>Conclusions</i>	80
<b>Conclusions and Recommendations</b>	<b>82</b>
Acknowledgements	83
Appendix: Project details	84



# FOREWORD

The European Commission's Directorate-General for International Development and Cooperation (DevCo) designed the SWITCH-Asia Programme in 2007 to promote Sustainable Consumption and Production (SCP) among Small and Medium-sized Enterprises (SMEs), business intermediaries and consumer associations in developing Asian countries.

In the course of its first 10 years, six calls for proposals have been released, resulting in 95 SWITCH-Asia grant projects supported by the Programme in 18 countries in South Asia, Southeast Asia and East Asia. A seventh call for proposals has been published in December 2016, following which more grant projects are expected to be contracted in the course of 2017.

The Programme does not have a stand-alone, gender-specific objective, but project proposals "are encouraged to promote economic and social rights and empowerment of girls and women"<sup>1</sup>.

The SWITCH-Asia Network Facility observed that in many cases projects do not include a gender perspective in their baseline reports nor do they measure their results and impact on women's empowerment. Yet several reports from individual SWITCH-Asia grant projects, field visits and interactions with implementing consortia indicated that, in their promotion of SCP, many grant projects directly or indirectly contribute to empowering women. This publication was conceived with the objective of compiling as many such cases as possible and raising awareness about their experiences.

To this end, in 2016, the SWITCH-Asia Network Facility published a call for abstracts, inviting all grant projects to submit a preliminary paper on the impact of their intervention on women's empowerment and/or the role played by women in promoting SCP. In response, approximately 20 abstracts were submitted, which the Network Facility reviewed, while also following up bilaterally with other projects. After further research and bilateral exchanges, 19 cases from both completed and ongoing projects in 11 countries were considered to have sufficient data and gender relevance to be developed into suitable case studies. These case studies are presented in this publication.

This book does not intend to be an exhaustive overview of all contributions and impact generated by the Programme as a whole on the matter of women's empowerment. By illustrating, via as much information as the Network Facility has been able to retrieve, the experiences of these 19 cases, the book rather draws attention to the mutual link between promotion of SCP and empowerment of women. Specifically, this compilation examines:

- whether and how the implementation of sustainable production and/or sustainable consumption is conducive to women's empowerment;
- the actual or potential role of women in advancing the sustainability agenda.

In compiling these case studies, the Network Facility has relied on reports and data provided by the project implementing teams during the course of 2016 and in the first quarter of 2017.

Although the SWITCH-Asia Programme targets both Sustainable Consumption (SC) and Sustainable Production (SP), most cases addressed in this publication refer to the latter. This is accounted for by two factors. Firstly, until the sixth call for proposals, the majority of SWITCH-Asia projects addressed SP and only a few tackled SC directly. Secondly, the impact on SC is less simple to quantify and measure in the three to four year lifespan of a project, whilst results related to production are easier to capture.

Many of the interventions described in this compilation may not read as technical SCP-specific actions and rather pertain to sustainable development in a broader understanding. Such measures, for instance to support financial literacy or to provide business management training, shall be understood as pre-conditions needed to create an environment conducive to the proper understanding, application and adoption of SCP.

<sup>1</sup> European Commission. "SWITCH Asia II – Promoting Sustainable Consumption and Production. Guidelines for Applicants." December 2016.

# EXECUTIVE SUMMARY

**D**uring the first 10 years since it was designed, the EU-funded SWITCH-Asia Programme has been supporting 95 grant projects across 18 developing countries in South Asia, Southeast Asia and East Asia. These projects promote Sustainable Consumption and Production (SCP) amongst Asian Small and Medium-sized Enterprises (SMEs), business intermediaries and consumer organisations. In their pursuit of SCP promotion and related contribution to poverty alleviation and sustainable, environment-friendly economic growth, project proposals are also encouraged to support women's empowerment.

Extensive consultations with projects and a review of their implementation practice indicate that to date approximately 20% of them, including both ongoing and completed projects, have directly contributed to empower women in the course of their interventions, although they do not necessarily have gendered data and reports on results and impact. During their lifetime, 19 projects generated specific results supporting women's empowerment in 11 countries in South Asia and Southeast Asia, which traditionally have some of the lowest rates of women's empowerment in the Asia Pacific region.

These 19 projects are presented as case studies in this publication. They are grouped into four main thematic areas, based on their sector of intervention: garment and textile, agriculture and natural resources (jute, rattan and forestry), energy and sustainable consumption.

Women account for a substantial proportion of the workforce in these sectors and represent a significant percentage of managers, entrepreneurs and owners of related SMEs. Their presence is, however, more abundant among lower-level and less qualified positions, where women reportedly have limited education. In the case of women working in the natural resource sector, illiteracy rates remain noteworthy at 19% in Bangladesh, 25% in Vietnam and up to 50% in Cambodia and Laos. Many poorly educated women are lacking in self-confidence, which further restricts their ability for agency and change.

Migration is a recurrent phenomenon in about half of these case studies. Many women who work in these sectors, or their husbands, are domestic migrants from rural to urban areas, from remote villages to more thriving locations. Some instances of international migration are also reported.

Household chores, notably food preparation and provision of resources, including fuel for cooking, are traditionally assigned to women, who are not financially rewarded for this work. Women from lower-income groups perform these tasks with sub-optimal, inefficient devices that expose them to health hazards and require significant amounts of time and drudgery. This, in turn, deprives women of the time for further education or income-generating activities.

The SCP interventions promoted by the SWITCH-Asia projects have empowered thousands of women, primarily by means of capacity building, training and education, improved living and working conditions, business support and business financing opportunities.

While some projects started by bringing women together into newly formed groups, others leveraged existing women's cooperation groups. This exclusive women's platform, which releases many women from household confinement, provides them with a degree of independent mobility and a comfortable space to speak up and share with peers, which in turn boosts their self-confidence. In this respect, this women's platform contributes to women's empowerment.

These groups are utilised effectively to raise awareness about members' social entitlements, to provide them with basic skills, such as financial literacy, and to train them on new or improved, environment-friendlier production skills and techniques. Training on cleaner and more resource-efficient production processes is also provided to female artisans and women's groups practising traditional crafts, such as that of *batik* making. In such cases, the SWITCH-Asia projects contribute not only to improve working conditions, introduce cleaner production practices and secure employment, but also to preserve a traditional heritage that risks disappearing, due to competition by modern production processes and decreasing appeal among younger generations.

In the work place, project interventions promote the uptake of occupational health and safety (OHS) and social compliance by the targeted SMEs, resulting in cleaner and less accident-prone workshops and factories, and improved working conditions, such as reduced overtime work. In the cases of Myanmar and Pakistan, the SWITCH-Asia project interventions further contributed to eradicate child labour.

At the household level, projects promote the adoption of improved cook stoves and biogas digesters that are more resource- and time-efficient, drudgery-saving and reduce



exposure to hazardous smokes, known to cause eye irritation, respiratory and cardio-vascular diseases. As caretakers of the house and responsible for cooking chores, women are the main beneficiaries of such improved equipment: the air quality in their living environments is improved, collecting firewood is less time consuming if not redundant, less time is needed for cooking, and fuel costs have decreased. Additionally, the estimated 600 women in Sri Lanka who switched to biogas now live in cleaner and healthier environments with an effective solution to bio-waste management.

SMEs that produce more sustainable textiles and garments, or process items made of jute and rattan, have also been supported in strengthening their business capacities. Their managers have been trained in areas such as product design, accounting, marketing, branding and sales. Though not strictly SCP interventions, this support has made these companies more productive and competitive, with twofold benefits. On the one hand, SMEs, which are traditionally resource-constrained, are now better positioned and equipped to move forward with more substantial SCP-specific investments. On the other hand, a more robust corporate performance translates into more stable jobs and higher incomes for the employees, many of them women.

In combination with production enhancements and management support, projects have contributed significantly to expanding access to markets and to diversifying the network of buyers for artisans and SMEs. The former used to work through middlemen who set the prices and kept the largest profit, the latter often had limited outreach capacity. By enhancing the management skills of female artisans, their self-help groups and SMEs, as well as linking them up to new buyers domestically and abroad, projects have reduced workers' dependency on middlemen, with ensuing higher profit margins and safer business prospects.

Besides benefitting from SWITCH-Asia interventions, women stand out also as active agents of change, promoting more responsible and sustainable consumer behaviour. Although fewer cases are available of SWITCH-Asia projects working directly in the consumption area, their experiences indicate that women are both more sensible and more responsive to calls for action that affect the environment and society positively.

At the United Nations Summit 2015, women's empowerment and SCP have become respectively Sustainable Development Goal 5 and 12 of the "Agenda 2030 for Sustainable Development". A review of the following 19 SWITCH-Asia cases illustrates how the two objectives are interlinked and mutually reinforcing: when empowered, women are significant drivers of the sustainability agenda. On the other hand, consumption and production patterns cannot be sustainable as long as they are not inclusive of a full-fledged participation of women.

# INTRODUCTION

**A**t the United Nations (UN) Sustainable Development Summit 2015, the international community adopted the “Agenda 2030 for Sustainable Development” which comprises 17 Sustainable Development Goals (SDGs) and 169 targets.

Two of these SDGs relate directly to the themes addressed in this publication. Goal 5 aims to “Achieve gender equality and empower all women and girls” by 2030. Sustainable Consumption and Production (SCP), which is at the heart of the SWITCH-Asia Programme, has been officially declared an SDG: Goal 12 intends to “Ensure sustainable consumption and production patterns”.



**Two SDGs relate directly to the themes addressed in this publication**

unless we remove persistent structural barriers that hold women and girls back. This is particularly true when we talk of Sustainable Development”<sup>2</sup>.

Twenty years after the implementation of the Beijing Declaration and Platform for Action, a global framework on gender equality and women's empowerment adopted in 1995, gender gaps and discrimination still remain substan-

The international political process set in place by the UN Summit in 2015 has created an unprecedented momentum in human history to promote a truly inclusive and sustainable development. Global political consensus has acknowledged that inclusive and sustainable development cannot be met, as long as women's empowerment is not ensured and a significant part of the world's female population is left behind.

As stated by Dr. Rebecca Reichmann Tavares, UN Women's Representative for India, Bhutan, Maldives and Sri Lanka, “We cannot achieve any of the global goals until and

tial. The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) reports that the participation of women in the labour force has even decreased over the years: the female-to-male ratio has dropped from 67 women for every 100 men in 1990 to 61 for 100 in 2016 in the Asia Pacific region. Added to which, 68% of women in South Asia, 42% in East Asia and 31% in Southeast Asia are still working in vulnerable employment<sup>3</sup>.

“The pace of improvement in expanding women's economic empowerment and closing gender gaps has been far too slow”, reports the UN High-Level Panel (HLP) on Women's Economic Empowerment, which identifies “four overarching systemic constraints to the economic empowerment of women: adverse social norms; discriminatory laws and lack of legal protection; the failure to recognise, reduce and redistribute unpaid household work and care; and a lack of access to financial, digital and property assets”<sup>4</sup>.

Announcing the HLP establishment in January 2016, former UN Secretary General Ban Ki-moon stated, “If the world is to achieve the Sustainable Development Goals, we need a quantum leap in women's economic empowerment”<sup>5</sup>.

## Empowerment, equality and equity

Gender-specific empowerment gaps refer to the inequalities between men and women in their access to political and economic opportunities that guarantee a thorough enforcement and enjoyment of their rights and responsibilities, and the ability of taking informed, independent decisions about their life and that of their families.

As the European Institute for Gender Equality explains, “The empowerment of women and girls concerns their gaining power and control over their own lives. It involves awareness raising, building self-confidence, expansion of choices, increased access to and control over resources, and actions to transform the structures and institutions which rein-

2 Dr. Rebecca Reichmann gave a keynote speech at the session on “SCP Impact on Gender and Women's Empowerment” during the October 2015 SWITCH-Asia conference in India. The full transcript of her speech is available at: [http://www.switch-asia.eu/fileadmin/user\\_upload/Events/Delhi\\_2015/Gender\\_session/UN\\_Women\\_speech.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Events/Delhi_2015/Gender_session/UN_Women_speech.pdf)

3 Shamshad Akhtar. “Closing gender gaps in Asia and the Pacific requires transformative change”. 8 March 2017. <http://www.eco-business.com/opinion/closing-gender-gaps-in-asia-and-the-pacific-requires-transformative-change>

4 UN Secretary-General's High-Level Panel on Women's Economic Empowerment. “Leave no one behind”. September 2016. <http://www.womenseconomicempowerment.org/assets/reports/UNWomen%20Full%20Report.pdf>

5 UN Women, “UN Secretary-General announces first-ever High-Level Panel on Women's Economic Empowerment”. 21 January 2016. <http://www.unwomen.org/en/news/stories/2016/1/wee-high-level-panel-launch>



force and perpetuate gender discrimination and inequality. This implies that to be empowered they must not only have equal capabilities (such as education and health) and equal access to resources and opportunities (such as land and employment), but they must also have the agency to use these rights, capabilities, resources and opportunities to make strategic choices and decisions (such as is provided through leadership opportunities and participation in political institutions).<sup>6</sup>

The concept of women's empowerment is strictly related to, but differs from, that of 'gender equality' and 'gender equity'. Gender equality refers to an equal, gender-unbiased access to rights and opportunities across all social, political and economic sectors. Gender equity ensures that men and women are able to meet their different needs and interests through a fair allocation of resources and opportunities, where any imbalance resulting from gender-based differences is addressed.

In this paper, women's empowerment shall be understood as the ability of women to make strategic choices for their life, by: having access to education; operating in enabling psychological, social and cultural environments; owning assets and resources; and enjoying active social, political and economic participation.

## Why women's empowerment matters

Empowering women and girls is first and foremost a question of human rights and social justice. It is also a smart move towards inclusive and resilient societies, poverty alleviation, sustainable economic growth, peace and security.

Social exclusion caused by gender barriers reduces the development potential of a society, while nurturing tensions and risk of conflicts. In turn, securing the active agency of women reinforces their role in supporting children's education and the wellbeing of their families. From an economic viewpoint, research conducted by the McKinsey Global Institute estimates that "in a full-potential scenario in which women play an identical role in labour markets to men's, as much as USD 28 trillion, or 26%, could be added to global

annual GDP in 2025"<sup>7</sup>. In the case of South Asia, UNESCAP estimates that "closing gender gaps in hours worked, participation and productivity could result in GDP gains of up to 48%".

Considering that "women perform the majority of unpaid household and care work"<sup>8</sup> and that "75% of women's employment in developing regions is informal and unprotected"<sup>9</sup>, the impact of comprehensive empowerment of women for a country's growth would be significant. Empowering women is thus not only right and fair. It also makes strong business sense.

Promoting more sustainable business practices among both consumers and producers is conducive to a wider, fairer and more meaningful participation of women in the labour market as well as in society at large.

6 European Institute for Gender Equality. "Concepts and definitions", <http://eige.europa.eu/gender-mainstreaming/concepts-and-definitions>

7 McKinsey Global Institute, "The power of parity: How advancing women's equality can add \$12 trillion to global growth". September 2015.

8 UN Secretary-General's High-Level Panel on Women's Economic Empowerment. "Leave no one behind". September 2016.

9 UN Women, "UN Secretary-General announces first-ever High-Level Panel on Women's Economic Empowerment". 21 January 2016. <http://www.unwomen.org/en/news/stories/2016/1/wee-high-level-panel-launch>



# TEXTILE AND GARMENT INDUSTRY



Source: Silvia Sartori



## Introduction

**A**s the 'garment factory of the world', in 2014, the developing Asia-Pacific region provided 59.5% of global exports of textiles, garments and footwear<sup>1</sup>. Four of the five top exporters of textile and clothing to the European Union are located in Asia, namely China, Bangladesh, India and Pakistan<sup>2</sup>.

Several SWITCH-Asia projects operate in the textile and garment sector, which is predominantly female-dominated despite varying degrees of female employment across the developing countries in the region. "The share of women workers in the garment, textile and footwear industry ranged from nearly three-fifths in Indonesia to around four-fifths in Cambodia", while in India and Pakistan male workers are more abundant than women, reported the International Labour Organisation (ILO) in 2015<sup>3</sup>.

For many of the countries in the region, the garment sector represents a pillar of their national exports and thus a major driving force for economic growth and employment. Nevertheless, very often the sector remains characterised by unsafe and unfair working conditions, most blatantly illustrated by the Rana Plaza accident in Dhaka in April 2013, when more than 1 100 garment workers died and 2 500 were injured, due to the collapse of an eight-storey building where several clothing factories operated. 80% of the workers in Rana Plaza were women.

Not surprisingly, a recurrent intervention by SWITCH-Asia projects that operate in this sector is directed towards occupational health and safety (OHS). Although project interventions are not usually designed based on gender, given the gender structure of this sector in Asia, many of the activities implemented by SWITCH-Asia projects in the textile and garment sector have resulted in significant improvements in women's conditions, starting from safer and healthier working environments.

---

1 "Strong export and job growth in Asia's garment and footwear sector", Asia-Pacific Garment and Footwear Sector Research Note | Issue 1 | November 2015, ILO. [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms\\_419798.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_419798.pdf)

2 Euratex, Statistics n.7, December 2015. [http://euratex.eu/fileadmin/user\\_upload/images/do\\_not\\_miss/Business\\_Statistics\\_January\\_2016.pdf](http://euratex.eu/fileadmin/user_upload/images/do_not_miss/Business_Statistics_January_2016.pdf)

3 "Strong export and job growth in Asia's garment and footwear sector", Asia-Pacific Garment and Footwear Sector Research Note | Issue 1 | November 2015, ILO. [http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms\\_419798.pdf](http://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_419798.pdf)





Source: Silvia Sartori

## India

# Textile waste as a women's empowerment resource

In 2014, the SWITCH-Asia project *Going Green* was started, with the objective of building sustainable businesses of textile artisans with improved working conditions in six textile clusters in the Indian states of Rajasthan and Uttar Pradesh. The project supports these small businesses by facilitating their access to resources and introducing cleaner and more efficient, eco-friendly production practices. Building on the work and achievements of the previous SWITCH-Asia project *SUSTEX* (2009-2013), *Going Green* also addresses the demand side, by supporting a broader uptake for green products by consumers.

As per project design, approximately 40% intended beneficiaries are women, who are supported to access better business opportunities and strengthen their bargaining power.

This chapter examines the specific interrelation between the project's intervention and women's empowerment with reference to its work in one of its six targeted textile clusters, namely that of Udaipur in the state of Rajasthan.



## Women's profile

In Salumber, Udaipur, *Going Green* has so far mobilised 1 522 women between 18 and 50 years of age. 200 of them are illiterate while the rest are literate but with a poor level of education with most cases restricted to signature alone or up to primary school, except for a few who successfully completed high school or are undergraduates.

Up to 80% of the women supported by the project are migrants who moved to the cluster from the neighbouring state of Gujarat following their marriage and were unemployed due to lack of professional skill sets. 90% of them were landless farm workers whose livelihood used to be based on subsistence agriculture.

The project's operations in this cluster are based in Salumber, 80 km from Udaipur city. Despite the relative proximity to the city, the district is extremely backward and underdeveloped: no running water is available and only 50% of the women have access to electricity. Livelihood options for both men and women were limited to marginal agriculture and running small local shops selling items of daily use.

## Project's interventions

Through a participatory needs assessment conducted by the project, the learning of a new craft was identified as a desirable goal to develop a new and sustainable livelihood option for the residents.

Aware that textile waste was being generated in the large textile hubs of the neighbouring town Surat and many small products were being created out of it for the markets in and around Udaipur, the beneficiaries expressed interest in learning to make products out of this textile waste. This provided not only an opportunity for livelihoods but also contributes to recycling and up-cycling of waste and production of eco-friendly products.

### Self-help groups

The first measure promoted by *Going Green* was the organisation of local female beneficiaries into 'Self-Help Groups' (SHGs), where about 10 local women would meet on a regular basis to receive training, share common problems and transform the newly learned skills into jobs. Each group appoints one secretary and one treasurer from within the group members who facilitate the smooth functioning of the group activities to ensure a stronger sense of cohesiveness and ownership. Additionally, field coordinators are appointed to liaise and supervise 10 groups each.

The mere fact of being able to be organised into a group and regularly meeting among female peers in a place beyond their household was a significant cultural and social

step forward for the women and the community. Prior to the launch of the SHGs, the project reached out to the local community to explain the value of such an initiative and to ensure the support and approval of male and elderly members. They reacted positively to the proposal and supported the active participation of the female community members to the project activity.

In the Udaipur cluster, *Going Green* has so far facilitated the establishment of 70 SHGs, totalling 700 members. Of these, 227 were below the poverty line and 375 above it, yet still poor. 316 of them belong to marginalised groups, such as those that the Indian Constitution recognise as 'scheduled castes' and 'scheduled tribes'. The second phase will see the formation of 80 new SHGs with 800 more women. By the project completion at the end of 2017, 150 SHGs are envisioned to be set up locally, with a total outreach to 1 500 women.

At the start, *Going Green* organised capacity-building workshops on the functioning of SHGs and basics of financial literacy, for group members to understand the governance and financial management of SHGs. In the near future, this will in turn help them tap into a dedicated support scheme established by the Government of India under its 'National Rural Livelihood Mission' (NRLM). This flagship initiative supports each one-year-old functional SHG with a small seed capital of INR 25 000 (EUR 344) to start small businesses.

By supporting the establishment and sound functioning of these first SHGs, *Going Green* is facilitating the convergence of their groups under the NRLM, which will in turn expand and sustain the overall impact of these initial initiatives.

### Skill development and new livelihoods

Capacity assessment workshops and skills development training followed, where women were trained to produce articles, such as accessories and greeting cards, from textile waste, paper bags from paper waste and to learn hand embroidery. A line of handmade fashion-jewellery was the first identified product line for training. Textile waste from neighbouring Surat is being used as a raw material by the beneficiaries, thus reducing the burden on landfills.

243 female SHG leaders were trained on the new skills, followed by cascading training to their members. Through skill development training, female beneficiaries are now developing various products. Participation in exhibitions and fairs has been adopted as a marketing platform to test-market the new products. These products have been well received in noted exhibitions in the country. Buyer-seller meetings have also been organised to facilitate direct interaction between the SHG leaders and buyers, which helps artisans to understand the needs of the market. *Going Green* is now arranging for international outreach of these projects.

### **Mobility**

Most of the women in these villages used to live confined to their homes and villages, and had no experience of travelling unescorted to urban areas. Nevertheless, they and their communities supported their travelling to Udaipur for skills enhancement training. Today, not only do they travel to Udaipur for skills training, they also travel to other clusters to impart knowledge to other women on how to build strong SHGs, bring themselves out of poverty and gain more voice in their lives. A small stipend is paid to these women leaders who travel and coach new members in other clusters.

### **Access to finance and entitlements**

When the project began working in this cluster, locals had very little awareness about their social entitlements and had hardly any financial inclusion, since most of them did not hold a bank account. The lack of access to any savings made them dependent on personal loans from money lenders at compound interest rates of 25%, which increased their burden of indebtedness instead of resolving any financial crisis.

After joining the SHGs, women developed the confidence to start communicating about and addressing their problems. As a group, they started making commitments and plans for generating regular monthly savings, income as well as credit limits from the SHGs. This allows them to borrow funds from the group savings at a reduced rate of interest and via a transparent process of collective decision-making and commitment.

By now, the 70 SHGs have generated collective savings amounting to INR 340 700 (EUR 4 764) and have distributed loans of the value of INR 129 100 (EUR 1 805), which are used by SHGs to support entrepreneurial initiatives and healthcare treatment of their members. The interest rate applied within the group is decided collectively by the members and remains significantly lower than that of the market (usually around 2% versus 9% by the formal market).

*Going Green* organised 'Village Level Camps' to provide information about opening bank accounts and access entitlements, to promote access to finance through regular banking instead of informal money-lending, and to increase awareness about various government schemes. As a result, 624 members now have received 'AADHAR cards', the official identity card issued by the Government of India, which is a mandatory requirement for availing benefits from most of government schemes, including access to loans, healthcare and life insurance. These 624 SHG members now have a bank account in the framework of the Government of India's Flagship Programme 'Pradhanmantri Jan Dhan Yojna', whereby all citizens having a valid Indian identity card are provided a free-of-charge bank account. Additionally, over

200 artisan women have gained access to individual loans of INR 50 000 (EUR 699) which, upon the first repayment, entitle them to two successive loans totalling up to INR 200 000 (EUR 2 830). The project is also working to provide SHGs with group-specific bank accounts.

### **Health and safety**

Among the range of project interventions facilitating convergence with public entitlements, *Going Green* has also linked beneficiaries to government schemes providing sanitation, following which 210 new lavatories have been built in villages that were hitherto deprived of basic sanitation facilities.

Every six months, in coordination with local hospitals, *Going Green* organises medical camps in villages in Salumber, so far providing primary health check-ups to 243 women. 49 of them were found to be suffering from fluorosis, due to untreated, contaminated local ground water, showing symptoms such as joint pain and yellow teeth. They were referred to the Salumber block health centre, which is accessible as part of basic public healthcare, but lacks specific medical facilities. For this reason, *Going Green* is currently engaging multi-specialty hospitals in Udaipur for more health camps and treatment via their corporate social responsibility (CSR) programmes.

To address water-related health hazards, the project is in talks with the CSR departments of RITES Ltd., a Government of India enterprise established under the aegis of Indian Railways, to set up a community-level water treatment plant. In this area, that has naturally existing fluoride in the water table, leading to various skin ailments, the envisaged water filtration system will supply fluoride-free water for household use and provide villagers in some of the poorest communities with access to safe drinking water.



Source: Hand-woven textiles project



## Indonesia

# Improving livelihoods through the use of natural dyes

**M**rs Wiwin Suharti, 55, was raised by a poor family in the small village of Pringgasela on Lombok island, Indonesia. Married at the age of 15 without having finished elementary school, she lives with her seven children and her carpenter husband, who is illiterate. Having learnt weaving skills from her parents, Wiwin has been a weaver for over 40 years.

Since 2013, she has been the leader of a twenty-member women's weaving group established by the SWITCH-Asia project *Sustainable Consumption and Production of Hand-Woven Textiles: Female Entrepreneurship in Indonesia and the Philippines*. Led by Hivos, the *Hand-woven eco-textiles* project supports the supply chain of hand-woven textiles, with a particular focus on those produced by women. This chapter refers to the project's intervention in Indonesia.



## Pringgasela's traditional weavers

Until 2013, the income of female weavers such as Wiwin tended to be low due to poor product quality and limited access to markets. Wiwin's only substantial sales happened during Lombok's tourist season in July and August. However low, irregular incomes pushed several women in Wiwin's neighbourhood to take up trans-migrant jobs in Malaysia and Saudi Arabia, sometimes under exploitative conditions.

Wiwin and other weavers in Pringgasela produce richly patterned pieces of woven textiles that are based on the region's distinctive weaving culture and motifs. Although they sell particularly well to domestic tourists, a lack of promotion meant that Pringgasela was not widely known as a producer of woven handicrafts until recently when the government and development programmes started promoting weaving as an integral part of Indonesia's cultural heritage, thanks also to the project's lobby and advocacy work.

## The project's approach

The *Hand-woven eco-textiles* project encouraged and improved the capacity of women's groups to provide input actively through formal meetings with the government, thus promoting the subsector. The project now has formal agreements with several local governments in Indonesia to promote hand-woven eco-textiles as their cultural heritage. At the national level, it works closely with the Ministry of Environment and Forestry in developing an eco-label for Indonesian traditional hand woven textiles and with the Ministry of Industry and Ministry of Manpower in developing the National Competency Standard for hand weavers in Indonesia. Particularly in Wiwin's area, the local government is now more supportive providing equipment, facilitating weaving training to a wider network of women artisans, and facilitating access to market. It is currently developing the area into a Lombok tourist destination.

Prior to 2013, Wiwin and other female weavers worked on their own, with no form of common organisation and produced one to two finished textiles per month, for a monthly income of approximately IDR 200 000 (EUR 14). This price barely covered the cost of raw materials, let alone labour costs.

Women used synthetic dyes without knowing about safe handling practices and the potential health risks. Several of them reported health-related issues, such as lung problems caused by smoke and steam while boiling and using synthetic dyes, and skin irritations from not using gloves during the dyeing process.

In addition, synthetic dyes – which were mostly imported – became increasingly costly in relation to the women's purchasing power, while textile prices remained low due to their poor quality. Market access was still dominated by middlemen, and promotion via the government limited.

In 2013, the project established four weaving groups in Pringgasela, with 63 members ranging from 25 to 60 years of age. For her age and experience in weaving, as well as the trust, motivation and commitment that she inspires, Wiwin was selected as a leader for one of these groups.

In this new capacity, Wiwin was trained on leadership, management and group dynamics so to be able to coordinate her group, lead marketing activities for their products, identify group needs and problems, and address them in coordination with the project's local partners.

The project trained weavers on the production of natural dyes, weaving techniques and design for improved product quality, financial literacy and marketing skills. Producers were educated about the proper handling of chemicals used in the weaving process. In Lombok, for instance, artisans have now replaced the caustic soda required for fixation with lime, which is suitable for natural dyes, and also reduced the use of naphthol, direct and Procion in their production.

While in the past the weavers used to look to their natural environments for raw materials for dyes, including leaves, flowers, husks, ochre and insects, knowledge of traditional natural colouration techniques had almost been lost in Wiwin's generation of Indonesian weavers, given the widespread adoption of synthetic dyes.

It took the project one full year to educate, convince and enable the women to switch back to the use of natural dyes. With synthetic materials being ready for use upon purchase, the production of natural dyes requires more time and effort, since raw materials are first to be harvested locally and then need to be processed to turn them into dyes.

However, once the benefits were learned and the practice acquired, female weavers have now returned to the use of natural dyes, such as indigofera, mango leaves, coconut fibres, jackfruit tree bark, which allow them to sell their products at higher prices of up to 50% or more, especially if accompanied by attractive designs and motifs. Through the collaboration with an Indonesian fashion designer, the project supported the group in improving their designs and motifs, and showcasing the products at a fashion show. The improved working conditions, non-toxic waste products and improved safety for consumers were other compelling reasons in convincing them to drop synthetic dyes and resume the use of natural raw materials.

## Access to finance and markets

Being organised into groups, weavers now enjoy easier access to loans for working capital. They have taken loans from the local NGO LPSDM, which has a business unit that provides loans at competitive rates compared to commercial banks, for bulk purchase of fibres, which substantially reduces costs. Weavers have learnt how to best manage loans to improve their businesses, and LPSDM has also assisted them in developing group management mechanisms and rules.

To improve market access, the project has linked weaving groups to domestic networks of retailers, designers, galleries and relevant government bodies (such as the District Development Planning Agency, the Tourism Agency and the Co-operative Agency of East Lombok district) who can support their activities. The project has also helped weaving groups to participate in local and national exhibitions.

To further boost sales, Wiwin and her group members have meanwhile established a small shop in Pringgasela, to showcase their products.

Wiwin's life has been transformed by the project. Her monthly income has now increased at least twofold and she is now the main breadwinner. She has started making several new products, such as hijab headscarves, and transferring her knowledge to her 17-year-old daughter, Ningsih, who is still at high school. Wiwin now takes pride in her family's legacy of weaving, especially knowing that Ningsih will be the next generation to continue this tradition.

## Project's impact

The case of Wiwin is representative of the impact generated by the project among the communities where the four Pringgasela groups operate, not only on individual female weavers but also on their families, positively impacting an estimated 300 people.

On average, women involved in the project can now produce five to six textiles per month, of higher quality and price than the one to two pieces produced before the start of the project. Thanks to their improved skills, knowledge and access to information, women are also more confident and can take stronger bargaining positions towards middlemen, whose role has now been significantly reduced. If in the past producers fully relied on middlemen to sell their products and had the price determined by middlemen, now the producers, empowered with more market access, can choose themselves where to sell their products. If the middlemen can buy the product at a competitive price, the producers will sell it to them, otherwise they will select other buyers.

The project now works with around 200 women's groups in 25 districts across 11 provinces in Indonesia, with

similar approach and outcomes. By facilitating the following activities:

- getting weavers organised into groups;
- enhancing the quality of raw materials and final products;
- training weavers on cleaner production and safer occupational practices;
- providing the groups with business management skills, especially on financial literacy and marketing;
- facilitating access to markets;
- opening new venues for access to finance,

the project is contributing to:

- creating stable and more profitable jobs;
- increasing education and awareness;
- improving working conditions and health of both producers and consumers;
- preserving local traditional crafts and promoting their inter-generational continuation;
- strengthening women's self-confidence and bargaining power.

In turn, the women benefitting from this positive impact reportedly take advantage of their improved condition to provide better nutrition, healthcare and education for their children and to start saving schemes, which are a novelty for many local households.



Source: Clean Batik Initiative project

## Malaysia

# Preserving the value of a traditional craft

**B**atik is a traditional form of textile dyeing, which uses wax as a colour-resist material to produce the desired design. According to available local records, it dates back nearly a century in Peninsular Malaysia's east coast states of Kelantan and Terengganu. *Batik* – which literally means 'to draw with a broken dot or line' – comes in various types of motifs, the most common being leaves and flowers and geometrical designs.

In Malaysia, *batik* makers are usually small family businesses that make a living by producing *batik* pieces, which are later marketed by *batik* traders. Profit margins made by traders are higher than those of *pembatik* (*batik* makers), who earn much lower profits or may just break even.

Malaysia produces three types of *batik*: hand-drawn *batik* (*canting*), block-printed (*cop*) *batik*, and screen printing *batik*. Their production is also differentiated by gender. *Batik canting* is almost exclusively produced by women. Stamped-*batik* (*cop*) and screen printing are usually done by men, since the process requires more physical strength both for the use of a metal-block under hot humid conditions and for the handling of fairly large screens.



Generally, the *batik* making industry is neither highly capitalised nor technologically advanced. For the *batik* industry to remain relevant and competitive, upgrading and improving the technology is imperative. The transformation, however, requires holistic changes in knowledge and mind-set, as well as craft apprenticeship and on-the-job training.

To support the industry in shifting to more sustainable production and consumption practices and develop eco-friendly *batik* products, the SWITCH-Asia project *Clean Batik Initiative (CBI)* was implemented in Indonesia and Malaysia between 2009 and 2013.

The case study addressed in this paper refers to the project experience in Malaysia, where it was coordinated by the Malaysian-German Chamber of Commerce (MGCC).

*CBI* selected 100 *batik* SMEs from the states of Kelantan and Terengganu. *Batik* canting is locally the most common process, whereas block printing is practised by less than 10% of the population. The 100 *batik* producers that were coached by the project in Kelantan and Terengganu represent about one fifth of the entire Malaysian *batik* industry.

In these states, *batik* making still revolves around traditional, Malay Muslim family-run businesses with three to thirty employees. There are only a handful of really big players in the *batik* textile industry in Malaysia.

22% of the *batik* SMEs engaged by *CBI* are owned by women. These business owners struggle to ensure the survival and sustainable preservation of an industry with multiple issues, such as safety in the work place, inefficient use of resources, unsafe handling of chemicals and almost non-existent treatment of copious amount of highly-coloured wastewater. Business survival is particularly threatened by increasing costs of raw materials, such as cloth and chemical agents, as well as by talent sourcing and retention from the younger generation who are reluctant to take over from the ageing artisans, especially in the block-printing process and when the physical infrastructure and working conditions are unsafe and unattractive.

*CBI* provided technical training on cleaner production, covering aspects of quality, costs, safety of workers and attention to the environment. Awareness was raised on safety in the work place environment and simple-to-do housekeeping measures that can lead to safer and more cost-effective production, thanks to energy savings and lower use of materials.

*Batik* SMEs that successfully implemented this know-how were eligible for various types of trade and promotional assistance from the sustainable consumption component of the project. This included marketing consultancy, media exposure and participation in domestic and international trade fairs. In parallel, public awareness campaign events were conducted with various consumer groups, in order to encourage a switch of consumption habits towards environment-friendlier products, such as cleaner *batik*.

After the project's intervention, an increased number of women were observed in the industry's workforce, especially in canting, colouring, ironing and the packaging process. Women showed increased interest in employment in the *batik* industries.

In line with the local tradition of female entrepreneurship in the East coast of Malaysia, they also confirmed their leading presence in entrepreneurial roles following the implementation of the project.

*CBI* made them aware of the need to implement greener processes with reduced environmental impact during the production, use and disposal. These cleaner products can be sold at a better premium in the market. Besides, *batik* workers have a cleaner and safer working environment. The project estimates that the introduction of cleaner production practices resulted in:

- a 10% to 30% more efficient usage of chemical agents;
- energy savings for those SMEs that converted to a more efficient boiling process for de-waxing (around 20%-30%);
- at least pre-treatment of waste water before discharge.

The neighbouring community also expressed relief for having a less polluting industry in their vicinity. These transformations enhanced the industry's business reputation, making it more attractive also for consumers who can now benefit from an ampler selection of eco-friendlier *batik* products.

Three years after the project's official completion, a couple of SMEs whose performance during the project was particularly outstanding, are now pursuing further cleaner production enhancements through local grants.



Source: SMART Myanmar project

## Myanmar

# Towards sustainable 'Made in Myanmar' garments

**W**omen constitute 94% of the workforce<sup>4</sup> in Myanmar's garment sector, whose exports have increased almost threefold from 2010 to 2015<sup>5</sup>. The SWITCH-Asia project *SMART Myanmar* was launched in 2013 and continued into a second phase that started in 2016, with the objective of supporting the local industry to develop sustainably, and turning the 'Made in Myanmar' garment label into a symbol for an ethical industry.

### Women's profile

The women employed in the sector and thus supported by the project's intervention are mostly internal migrants who moved to Yangon from neighbouring areas as well as from far away provinces where employment opportunities are scarce. Their age ranges from 18 up to 55, with new factories usually employing women aged 20 to 25 and older factories

4 As explained by Ms. Khine Khine Nwe, Secretary General of the Myanmar Garment Manufacturers' Association (MGMA) during an interview with the SWITCH-Asia Network Facility in Yangon, Myanmar, on 26 July 2016.

5 HKTDC Research. "Myanmar Rising: The Garment Sector Takes Off", 22 June 2016. <http://economists-pick-research.hktdc.com/business-news/article/Research-Articles/Myanmar-Rising-The-Garment-Sector-Takes-Off/rp/en/1/1X000000/1X0A6IQS.htm>

having mostly women in their thirties, explained Khine Khine Nwe, Secretary General of the Myanmar Garment Manufacturers Association (MGMA)<sup>6</sup>, a partner in the project. Few are graduates but all are literate and usually have a middle school education. The minimum wage that came into force in September 2015 amounts to MMK 3 600 (EUR 2.46) per day for eight hours of work. According to Ms Khine Khine Nwe, an average monthly salary for a seamstress ranges between USD 150 to 400, depending on the worker's skills and also on productivity in the case of factories that pay by piece-work. She remarked that "although the garment sector is a frequent focus for negative media stories, Myanmar's garment factories pay wages which are higher than unskilled and low-skilled employees can receive in other industries."<sup>7</sup>

In addition to women accounting for the majority of the workforce in the sector, "more than three quarters of Myanmar's locally-owned garment factories have a senior manager, director or owner who is a woman", she noted.

Women's presence and role are thus significant among all layers of the sector. It is thus understandable that a socially and environmentally responsible development of the industry would inevitably impact positively on women.

## Project's approach

The project concentrated many of its initial efforts into raising awareness on and increasing compliance with international standards on safety, such as the Business Social Compliance Initiative. Issues such as blocked emergency exits, lack of access to medical services, dangerous wiring and long working hours were repeatedly addressed during workshops, training and individual consultancies with some 150 garment factories in the Yangon area.

In 2014, the project established a 'Compliance Academy' that trained factory managers on social and environmental aspects of compliance via workshops, lectures and consultations by experts who visited participating factories, reviewed their internal management systems and procedures, and provided recommendations on long-term improvements. So far, 31 factories signed up to the initiative, also for their recognition of the increasing importance of complying with such standards in order to attract and retain international buyers, and to remain competitive on the global market.

Following the project's intervention, the participating factories took measures such as including evacuation maps, creating new emergency exits and providing fire prevention training and personal safety equipment. As a result, some of

the participating factories recorded an increased compliance of 54 to 76%, and their improved management systems led to a reduction in working hours.

The project also trained 81 local garment factories and 142 human resource (HR) managers on modern HR management, which is a precondition for work safety, fair worker treatment and compliance on issues such as overtime and child labour. Managers were trained on understanding not only existing policies and regulations but also the importance of setting in place, ensuring and communicating clear management procedures within the factory. Social dialogue was strongly emphasised as an effective management approach to improve communication within the factory and better address internal problems, thus preventing conflicts and tensions. The factories that joined both the Compliance Academy and the HR management training established a comprehensive child labour prevention and remediation policy, with a strictly defined age verification process. 17 of the 22 factories that the project's Academy supported completed the child labour prevention and remediation plan.

70% of all those who participated in the SMART Myanmar capacity-building measures were female, while 75% of the project's trainers themselves are women.

*SMART Myanmar* was instrumental in helping the MGMA develop its first 'Code of Conduct' for the local garment industry, which sets minimum standards based on Myanmar's labour laws, ILO core conventions and the Business Social Compliance Initiative, and a new CSR desk. The code is voluntary and several local factories adhered to it, setting a new benchmark within the industry.

OHS is one very important part of the broader social compliance that the project has been fostering since its inception in 2013 and is now further promoting during its second phase. In the framework of social compliance, *SMART Myanmar* has also addressed issues of overtime, child labour, skills training, chemical handling and first aid training.

Child labour, in particular, has been a sensitive issue, and one that the industry's new Code of Conduct also incorporates. Khine Khine Nwe explained that now the garment industry does not recruit workers below the age of 14, which would qualify as child labour by UNICEF standards, and that MGMA encourages employment from the age of 16 and above, in line with ILO standards. What may still happen is that factories that in the past would have hired a worker aged 14-15, under the new environment retain him/her for work but for fewer working hours per day and provide additional education, in line with a 'remediation policy' that foresees four hours of work and four hours of education per day. *SMART Myanmar's* work in the area of environmental compliance has been addressing issues of waste reduction and resource efficiency, by introducing and supporting implementation of quality assurance, good housekeeping sys-

<sup>6</sup> The SWITCH-Asia Network Facility interviewed Khine Khine Nwe in Yangon on 26 July 2016.

<sup>7</sup> As stated during her speech at the SWITCH-Asia conference session on "SCP Impact on Gender and Women Empowerment" in New Delhi, India, on 6 November 2015.

tems, pattern lay-out and cutting techniques, machine repair and preventive maintenance as well as efficient use of energy and water. Low-cost investment upgrades, such as energy saving bulbs, installation of individual light switches for work stations, insulation of steam pipes and reduction in the use of compressed air were the most easily picked up measures by companies assisted by *SMART Myanmar*.

In the 2013-2015 phase, the project also trained factories on productivity enhancement measures.

Starting from its second phase in 2016, the project has launched a dedicated stream of activities on women's empowerment. They revolve around so-called 'Sunday Women's Cafés', community centres established near industrial zones for female garment workers to meet, relax and be trained on labour law issues, in order to educate them about their rights and responsibilities.

To date, *SMART Myanmar* has been supporting the local NGO Thone Pann Hla in scaling up its 'Sunday Café' in Yangon which has been operating in an industrial zone since early 2014 for 15 000 female workers. Facilitated by *SMART Myanmar*, a second café opened on 22 January 2017. In July 2016, the project held a fieldtrip to visit Bangladesh, where Sunday Cafés have a long-standing tradition, to learn effective ways to run a women's community centre focused on improving the lives and livelihoods of garment factory workers. Discussions with local counterparts confirmed that such centre-based initiatives have contributed to resolving conflicts with factory management on various issues of workers' rights, resulting in a significant decrease of instances of abuse and mistreatment of workers, and labour unrest.

In conjunction with the Sunday Cafés initiatives, *SMART Myanmar's* SCP consultants provide training on OHS and labour law to a group of leaders, who will then run self-help groups of women working in the garment sector, for more extensive knowledge dissemination.

On the themes of OHS and labour law, the project also developed a new smart phone application to enhance female workers' awareness of their rights and responsibilities, and protect them from fraud and mistreatment.

## Impact

*SMART Myanmar* has been impacting positively on the condition of female garment workers through its interventions in several areas. By:

- improving occupational health and safety in their working environments;
- fostering social and environmental compliance;
- advancing workers' technical skills;
- improving the management practices in their working environment;
- facilitating access to markets and buyers for their products;
- initiating education activities on employment law, rights and responsibilities,

the project has contributed to creating safer and healthier working environments for female garment workers, improving their working conditions (better jobs, reduced overtime, increased salaries) and educating them both on technical and production-related matters as well as on their entitlements and responsibilities.

Although specific quantitative data are not yet available and will be more explicitly collected during the project's second phase, *SMART Myanmar* estimates that more than 50 000 female workers are benefitting from its cooperation with more than 100 garment local factories. Once the full core of trainers and female groups has been established, the project believes that this approach and transfer of knowledge will be disseminated easily among peers in the industry, with the potential of contributing to empower an even larger number of female garment workers in Myanmar.





Source: Silvia Sartori

## Nepal

# Sustainability starts with safety

**M**rs Rakhi Mishra leads the cleaner production team within Gayatri Pashmina Inc., a family-owned SME established in 2012 in the Kathmandu Valley. Her husband's company produces shawls, scarfs, caps, mufflers, blankets and other such products made from cashmere, wool and silk yarn. 43 years old, Rakhi Mishra, who comes from a middle-class family and holds a bachelor's degree, oversees and manages the company's 24 employees, out of which 17 are women.

Mrs Rakhi is one of the participants in a three-phase cleaner production training conducted by the SWITCH-Asia project *Sustainable Carpet and Pashmina* (2014-2017). Led by MercyCorps and its partner SEED Nepal, the project supports the development of cleaner, more resource-efficient and sustainable carpet and pashmina industries in Nepal. Despite being among the major export-oriented sectors of the country's economies, these industries are jeopardised by out-dated manufacturing practices and technologies, which negatively affect their efficiency, productivity and environmental impact.

Gayatri Pashmina Inc. is one of the SMEs cooperating with the SWITCH-Asia project to improve their environmental and economic performance. The project is working with 19 carpet wool dyeing industries, 22 carpet washing industries and 30 pashmina industries, altogether 71 industries in the Kathmandu Valley. 43% of their workforce is made up of women.

The majority of the workforce employed in the carpet and pashmina industries are migrants from nearby districts, where livelihoods are based on subsistence agriculture in small landholdings, who move to the valley in search of better jobs. They are generally uneducated and without marketable skills. The project observed that female workers are particularly lacking in self-confidence, due to very limited education and to cultural norms that in the rural areas traditionally assign women to household chores and men to income-earning activities. Being used only to household and farming activities, once employed in a company women are unaware of hazardous working practices.

*Sustainable Carpet and Pashmina* has already sensitised the workforce of 71 SMEs in the Kathmandu Valley on OHS, resource efficiency and waste. 18 of these SMEs took part in three-phase cleaner production training courses and in-house assessments on cleaner production, which addressed the principles of 'reduce, reuse and recycle' and good housekeeping practices.

OHS measures account for an important proportion of the training sessions, considering that female workers especially are more exposed to health and safety risks, due to long hair and the type of clothes they wear while working with machinery equipment, such as dyeing cabinets, boiler houses and semi-automatic looms, where instances of hair and apparel being caught in equipment and belts can happen, resulting in serious accidents.

The industries taking part in the training reported positive changes following the implementation of just a few key OHS measures, such as guarding of the motor v-belt, marking of demarcation in and around dyeing and washing sections, storage of raw and finished goods, and unhindered walk-way passages to exits in case of emergency. The number of incidents occurring in these SMEs has decreased. Their employees, especially women, were observed to have become more cautious in managing their apparel while working with motors, hydro-extraction machines and other equipment. They also started wearing masks, rubber boots and gloves while working.

Approximately 16% of the trainees were women. Some of them reported transferring the practices learned in this training to their households, realising the benefits also at home of safer and resource-efficient practices, in terms of financial savings, improved health and lower medical expenses, cleaner and more hygienic living environments.

While these cleaner production and OHS interventions may have less tangible immediate returns on investments, they demonstrated great potential for both the industries and their workforce: the improved working environment enhances productivity which translates into long-term job security for the employees, and improved branding and sustainable business operations for the SMEs.

Mrs Mishra was one of the female trainees. After the training, she established a cleaner production team in their family business. Key learning lessons for her have been the advice and applied practices on waste reduction, appropriate handling of chemicals and dyes, safe working practices, saving of resources, understanding about resource efficiency and cleaner production. In the company, she shared her learning with colleagues and started implementing the new practices. For instance, she explains, "I was using compact fluorescent lamps (CFL) and tube lights (TL) since the establishment of the company. Before, I wasn't aware that by simply using light emitting diodes we can save energy. But this training has turned out to be an eye opener for me and my team". She replaced 50 CFL and TL with LED, for a total cost of NPR 60 000 (EUR 513). This action has resulted in the saving of 2 900 kWh electricity energy, annually amounting to NPR 23 500 (EUR 201), which represents 21% of the total 13 500 kWh electricity energy annually consumed by the company. Although the payback will occur in slightly more than two years, LED will last longer than ordinary CFL lights and are thus a long-term saving for the company.

After the training, she also reported an improvement in housekeeping practices within the company: spillages and leakages were reduced and occupational risks were prevented, thanks to improved practices of handling of hazardous substances. Resources were saved, and the savings generated through improved practices enabled the company to set aside funds that were used to provide workers with a bonus.





Source: SPRING project

## Pakistan

# Cleaner cotton production, better lives for women

**T**he cotton and textiles sector accounts for 40% of Pakistan's total labour force and nearly 60% of its exports. Almost all cotton picking is done by women, who are mostly poorly educated and unaware of the health hazards associated with exposure to pesticides in the cotton fields.

## Cotton pickers

Between 2012 and 2015, the SWITCH-Asia project *Sustainable cotton production in Pakistan's cotton ginning SMEs ('SPRING')* promoted sustainable cotton production among over 500 cotton ginning SMEs.

The project, led by WWF Pakistan, reached out to more than 5 000 women from the rural communities of cotton growing areas in the Sindh and Punjab provinces. Their ages ranged from 16 to 50. They were all poor, finding seasonal labour as cotton pickers or in farms, earning less than EUR 2 per day, when they had any form of employment. When the cotton picking season was over, they had no access to other jobs, which exacerbated the low household income level.

In partnership with other projects that it was running under the Better Cotton Initiative, WWF Pakistan established 100 'Women Open Schools' (WOS) at the farm level in the areas where *SPRING* was operating. Every WOS consisted of 25 or more women and the sessions were held fortnightly during the cotton harvest season, from September to November, with a total of six sessions being organised during the three months.

WOS provided female workers with training on safety measures such as wearing long sleeves, gloves and face masks when working, not picking until at least 15 days after spraying and not working in the fields when pregnant. As stated by Asad Imran, *SPRING* project manager, "We're helping the women take care of their own health and that of their families."

As one cotton picker declared, "Because of not wearing gloves, our hands and fingers were badly affected. Spiky, woody plant parts damaged them, too. Sometimes the sores and cuts meant we were unable to pick cotton or do other work, and we wouldn't get any pay for those days." Another one added, "We had a practice of leaving our shoes outside the field – we'd have bare hands and feet while picking the cotton."

Women were also trained about fibre quality, decent work, health risks of direct and indirect exposure to pesticides and safe work practices on the cotton farm. The rural families have now learned to dispose of empty chemical containers instead of reusing them in the kitchen. The empty pesticide bottles and containers are buried in pits outside residential areas.

Keeping children away from the fields has also been addressed by *SPRING*. One mother, also working as cotton picker, recalls, "My children used to accompany me for picking, because I thought they will collect extra cotton and help get a little bit more money. But they used to get sick. Now I've realised that only I should work, and my children should go to school and stay healthy and safe from diseases."

*SPRING* has been raising awareness about child labour among parents, landowners, community elders and within the industry. At farm level, significant improvements have been seen through reduced incidences of children involved in farm activities and an increased enrolment of 10 to 15% in schools, wherever these are available.

Thanks to the project's lobbying, in 2013 Pakistan's Cotton Ginners Association, the main entity representing the ginning industry in the country, abolished child labour among its members which account for all of Pakistan's 1 200 ginning SMEs. As a result, ginning SMEs participating in the project are now 100% free of child labour.





Source: SPRING project

## From waste to food

Cotton gins generate a large quantity of waste material during the production process, which itself is a challenge. Older ginning facilities generally generated an estimated 7% waste, whereas more modern techniques and disposal methods bring the rate down to 2.3%.

As it explored new and eco-friendly ways to utilise gin waste, *SPRING* assessed the use of cotton gin waste for growing oyster mushrooms, an uncommon ingredient in the local cuisine.

WWF-Pakistan collaborated with the Institute of Horticultural Science, University of Agriculture, Faisalabad (UAF) who tried and tested the process in the laboratory. Oyster mushroom strains were selected for cultivation as these are the easiest one to grow on small-scale.

WWF and UAF then arranged a week-long training by university experts, exclusively reserved to WOS women. The trainers illustrated the nutritional value of oyster mushrooms and also the possibility of turning their cultivation into an additional source of employment and income.

24 women, belonging to different rural communities and including farmers, students and housewives, were trained directly as master trainers. In turn, they trained other women in their own village, reaching out to more than 200 women. Five women eventually established demonstration sites with support from the SWITCH-Asia project.

Participants were trained about mushroom growing, types of mushrooms, monetary benefits, cultivation scope, health benefits, and the medicinal and nutritional importance of oyster mushrooms. Practical training complemented

the theoretical courses by teaching participants at their homes about all minor details regarding mushroom cultivation.

In three months, the women who had participated in the full training and had established five demonstrations in their homes, produced 3 200 kilos of mushrooms.

Upon completion of the training, the College of Tourism and Hotel Management in its branch in Bahawalpur held a culinary event based on mushroom recipes, where the local chef instructed all women present, who were from universities and colleges as well as housewives, on qualities, varieties and nutritional value of mushrooms, which were not typically part of the rural communities' cuisine. On the second day, a cooking competition took place where participants were divided into groups and asked to replicate the recipes.

This stream of initiatives generated long-lasting interest among the women, who now intend to take the business further. To overcome the problem of getting spawn for mushrooms, WWF is establishing a direct link between a farmer organisation and a university mushroom lab for timely provision of spawns.





Source: Hoa Ban+



## Vietnam

# Sustainable innovation by disabled ethnic women

Between 2010 and 2014, the SWITCH-Asia project *Sustainable Product Innovation ('SPIN')* was implemented in Cambodia, Laos and Vietnam with the objective of fostering innovation across several sectors, in particular food processing, furniture, footwear, textile and handicrafts in order to improve the environmental and societal quality of products and enhance their competitiveness.

*SPIN* supported 500 companies in various ways that encompassed development of new products, re-designing products, marketing support and training on sustainable product innovation, resulting in better design, improved quality and higher value of products that were created locally through cleaner processes. The following chapter refers to the assistance provided by *SPIN* to the social enterprise Hoa Ban+.

Established in 2013 and based in Mai Chau district in Vietnam's northwest Hoa Binh province, Hoa Ban+ promotes the local textile tradition and employs local women who belong to the Dao and H'Mong ethnic groups.

Many of these women are disabled: some suffer from blindness, limited vision and partial deafness, others are humpbacks or have upper or lower limb disabilities. Before being hired by Hoa Ban+, they were unemployed and their household incomes depended solely on seasonal local farming activities that would provide USD 100-200 per month. Aged between 15 and 50, they had limited education, having attended secondary school at most. The SWITCH-Asia *SPIN* projects supported Hoa Ban+ by:

- introducing sustainable production concepts and practices;
- innovating the design of their products;
- raising awareness about environmental protection;
- improving working conditions.

40 women were directly impacted by the project's intervention, in three main ways.

Firstly, *SPIN* facilitated the development of a training infrastructure whereby a workshop was built for 15 local women who would otherwise have been unable to travel far from their homes. Daily meals were provided and women were organised into groups, which strengthened their sense of community and their self-confidence in developing their skills.

Secondly, *SPIN* helped these women and their children to study English. Women were also trained in working skills, such as sewing, embroidery and weaving and were taught how to make their products more sustainable and competitive, for instance, by reducing the amount of materials used for production. The project brought together Vietnamese and foreign designers who had studied local ethnic crafting values and traditions. They consulted the disabled women through a co-creation design process that ultimately empowered women to produce and sell innovative products.

The upgrade of skills provided the women with access to a suitable and stable job producing handicrafts, which earns them a monthly salary of USD 100-300. Prior to the project's intervention, they would earn USD 50-100 per month.

Thirdly, *SPIN* and Hoa Ban+ facilitated access to new markets and buyers for the improved products created by these women. Thanks to the project, the women's products – grouped into the four categories of fashion, workplace, kitchen and travel – are now sold domestically and abroad at competitive prices only slightly higher than that of conventional products in the market. The Hanoi-based NGO 'Center for Creativity and Sustainability Study and Consultancy (CCS)', which developed out of the *SPIN* project, still acts as a channel for further networking and dissemination of Hoa Ban+ products.

In conclusion, the project's support to the social enterprise Hoa Ban+ benefitted local poor, low-educated, disabled and socially marginalised women by:

- generating new employment opportunities and raising their incomes;
  - providing education and occupational training;
  - creating a socially inclusive business,
- while simultaneously contributing to the preservation of traditional local ethnic culture.

## Conclusions

**T**he case studies provided in this chapter cover interventions in seven Asian countries across different sub-sectors of the textile and garment industries. They range from traditional hand-made crafts produced by individuals to larger, mass productions manufactured in factories.

These differences notwithstanding, women stand out as an industry resource of key relevance as they account for most of the sector's workforce, besides also very often being managers or owners of garment-manufacturing companies.

Those women who work in workshops or companies are the largest group of women impacted by the SWITCH-Asia projects operating in these sectors. Such female workers are usually characterised by a very low level of literacy and limited professional skills. Their profile, vulnerable livelihoods and search for more stable jobs turn them into domestic migrants (such as in the cases from India, Myanmar, Nepal), or, in the case from Indonesia, even into potential international migrants.

The interventions promoted by the projects illustrated in this chapter can be generally grouped in the following areas:

- organisation of artisans and workers into groups;
- training on cleaner production and resource-efficiency;
- education on OHS;
- business management training;
- access to markets and financial linkages.

Many projects started by establishing women's groups as the basic platform for their training and support activities (case studies from India, Indonesia, Myanmar, Pakistan and Vietnam). This first measure alone already represents a significant step forward for the targeted women, whose very low or non-existent literacy level, lack of financial independence, limited professional skills, absence of stable jobs and often ethnic-social background make them most vulnerable and usually confined to household chores. If the technical training (e.g. on cleaner production and enhanced product design) empowered them to have access to employment for the first time (such as in the cases from India and Vietnam) or to improve their jobs (as with women from the Indonesian case), the active participation in women's groups constitutes an intangible, yet not less crucial, form of empowerment. For many of these women, the groups are an unprecedented opportunity to start crafting a life of their own beyond their household, to learn about their rights and entitlements and to have a say in personal and household matters. Having the chance and being encouraged to share their problems among peers has been a first step to develop self-confidence, which in turn enables them to play a more active role in taking decisions about their life and their household. Individual women have grown into



*group leaders and community trainers. The women's groups from the Indonesian case have also been supported in successfully conducting advocacy and lobbying activities with their governmental counterparts.*

*Education and training provided by the projects produced five most noticeable effects among the communities and individuals they reached out to.*

*Firstly, working environments and working conditions have become cleaner, safer and fairer. By applying cleaner production practices, using more natural materials, implementing OHS measures and strengthening compliance with international standards, SMEs and workshops have witnessed a reduction of occupational hazards and accidents. As the case from Nepal illustrates, women were often the most exposed to such risks, due to their lower level of education, the roles they perform and the clothes that they wear. Additionally, having learned these corrective measures and witnessed their benefits, in some cases, women have reportedly also transferred them to their homes.*

*Secondly, business units (whether women's groups or factories) have become more efficient, production quality has improved and productivity increased, resulting in higher industry competitiveness and more stable and profitable jobs. Combining training on production processes with upgrades of designs has enabled the development of new products that are more appealing to markets and sell at premium prices.*

*Thirdly, renewed self-confidence, a strengthened professional profile and more diversified access to markets have increased women's bargaining power towards middlemen. Many case studies illustrate how profit margins were usually set by middlemen, to the detriment of producers and with the largest gains pocketed by business intermediaries. By expanding and diversifying the portfolio of potential buyers as well as enhancing the quality of products, the featured projects have placed women in the position to decide whether to turn to middlemen at all and, in such cases, to learn how to negotiate. Both scenarios allow for wider profit margins for producers.*

*Fourthly, women have become more financially included and business-savvy, and are provided with business financing options other than moneylenders. As a platform for financial education and provision of basic business management skills, women's groups have enabled women to set-up an alternative, more transparent and fair system to save money, releasing them from the burden of indebtedness towards loan sharks, whilst also teaching them to manage basic entrepreneurial operations such as applying for loans or developing basic business plans.*

*Fifthly, improved production processes and upgraded product quality have enhanced or restored the reputation and appeal of traditional crafts and skills, contributing to their preservation and intergenerational transfer, as the cases from Malaysia and Indonesia show.*

*It is important to note that these practices and ensuing benefits have also been applied to and successfully adopted by most vulnerable female beneficiaries, such as disabled women in Vietnam and scheduled castes and tribes in India.*

*The above positive impact is relevant not only for its direct effects on individual women. Case studies suggest that empowering women has a positive multiplier effect on their household as a whole, particularly children. When benefitting from higher incomes, women reportedly use it first to enhance education and nutrition for their children, as well as for healthcare needs of the family.*

*A few cases – Myanmar and most noticeably Pakistan – also point to a direct correlation between improved and safer working conditions and reduction in child labour.*

*When working conditions and environments become fairer, safer and altogether more sustainable, the whole workforce benefits and added-value is also generated for local children, households and communities.*

# AGRICULTURE AND NATURAL RESOURCES



Source: Sustainable Rattan project





## Jute

**B**angladesh and India's West Bengal State are the world's top producers of jute. Being a highly versatile resource, popularly known as 'golden fibre', is used in the agricultural, textile, woven and non-woven sectors.

Jute used to play a significant role in the local economy until the early 1980s, when it started to suffer from competition from synthetic substitutes. As demand for jute kept on decreasing, so followed investment in the sector. Farmers became less eager to cultivate jute due to fluctuations in the jute price and unfavourable profit margins, given the large share earned by middlemen. For jute growers, it became more difficult to access good quality, high yielding seeds, clean water to soak raw jute and appropriate technologies to reduce production costs.

Taken together, these factors caused a significant decrease of interest in traditional jute products among both producers and buyers. While the labour force in Bangladesh's jute mills is male dominated, women represent 60 to 70% of the entire workforce employed in the off-farm production of non-traditional jute products. Many women are also working as labour, especially after harvesting, during jute fibre extraction from jute stem.

Until the early 1980s, jute was used mostly for packaging purposes. At the beginning of the 21<sup>st</sup> Century, with awareness about climate change and demand for natural, eco-friendly fibres increasing, jute experienced a revival, especially for jute diversified products (JDPs), such as jute bags, rugs, paper and handicraft products. Recent policy changes prompted an increased demand for jute sacks, as they have become compulsory for packaging certain food items.

In this context, two SWITCH-Asia projects were designed and implemented. 'Eco-Jute' (2010-2014) and 'Jute Diversified Products' (2013-2016) supported the development of JDPs by fostering sustainable agricultural practices and inclusive, pro-poor and up-skilled businesses, so to strengthen the sustainability and competitiveness of the sector. Led by Traidcraft Exchange, 'Eco-Jute' operated in Bangladesh and India's West Bengal State, while 'Jute Diversified Products', managed by CARE, focused on Bangladesh alone. The former focused on building the capacity of SMEs producing JDPs, while the latter developed a comprehensive approach addressing the entire jute supply chain.



Source: JDP project

## Bangladesh

# The jute supply chain

### Female workforce

The project *Jute Diversified Products* addressed the whole jute value chain from the pre-harvest (cultivation of jute, retting, extraction of fibre, production of JDPs) to the post-harvest stages (linkages to domestic and export markets), engaging 16 000 small and marginalised producers, 60 organic fertiliser producers, 2 000 JDP workers, 20 SMEs as well as national industry associations in the south-west and north-west regions of the country.

Women accounted for a large majority of the beneficiaries, with 99% of the JDP workers, all of the fertiliser producers and 22% of the jute producers being women. Women also headed eight of the 20 SMEs that in turn employ a significant number of women in their workforce.

According to the project's baseline report, the majority of its 3 576 female jute producing beneficiaries are aged between 25 to 45 years and have only a primary level of education, while 11% are illiterate. For almost all of them, farming represents the primary source of income and two thirds own the land they cultivate. Their household income is mostly in the range of BDT 5 001 to 10 000 (ca. EUR 60-120) per month. The profile of the 1 982 female JDP workers and 60 women producing organic fertilisers is more critical. They are mostly in the 25-35 age group and 14% of the workers and 32%

of the fertiliser producers are illiterate, while 51% and 38% of the two beneficiary groups respectively possess primary education. They mostly live on farming, but 6% of the JDP workers are unemployed. Their household monthly income ranges between less than BDT 5 000 (EUR 60) – for 47% of the JDP workers and 41% of the organic fertiliser producers – up to BDT 10 000 (EUR 120) for approximately half of them.

Of the three groups profiled, on average, 30% achieved a secondary level of education. Almost all beneficiaries, who are usually married, live at the district, sub-district and village level. Because of traditional social and cultural norms in Bangladesh, women face stereotypical and socially stigmatised patriarchal barriers that also apply to their work outside the household. Although almost all major fieldcrop production activities require women labour, especially in the post-harvesting stages when they extract jute fibres, clean and dry them, women are effectively not treated as agricultural labour. In some cases, they are paid less than their male counterparts or do not get paid at all as their work is considered as part of the family labour. The workload on these women is very demanding and tiring: in addition to their inadequately appreciated agricultural work, they have to take care of their household and engage in income-generating activities (such as daily household labour in other dwellings, rearing of cattle, goats, chickens and ducks), to support the family's livelihood.

Prevailing norms on women's privacy and public presence mean that women are traditionally excluded from markets. Consequently, those women who manufacture products are usually unable to sell them in the local markets themselves and thus to control related earnings.

### Project's approach to empower women

The project noted that while the overall cultural situation is slowly improving in the country, in some places it is however becoming more conservative. The project strove to integrate women through all the production stages and in all the activities it conducted, including cultivation of jute, production of JDPs and domestic and international market outreach.

The project facilitated the establishment of 640 groups of jute producers and 80 groups of JDP workers. Each group has on average 25 members, including both women and men, and is headed by a leader who coordinates the production, business development and marketing functions. Many of the groups are headed by women, especially in the case of JDP worker groups where women make up the majority of the membership.

The groups assist their members in negotiating acquisition of quality inputs and fairer prices for jute products. The project's integrated network of jute producer group leaders,

service providers and jute mill representatives enabled the development of a more sustainable, inclusive and equitable supply chain that ensures both quality jute fibres and better margins through economies of scale. The price that used to be controlled by the intermediaries is now subject to a competitive market and the farmers earn a bigger and fairer margin from the sales of their products.

Through the projects, female beneficiaries learned many new and modern techniques about jute cultivation, such as the line sowing method, how to choose good seeds and varieties, sources of good seed, use and usefulness of organic fertilizers over chemical fertilizers, retting methods, ribbon retting techniques of fibre extraction, drying and grading of fibres. 2 000 women were trained for six months on 'Jute diversified product making skills'. The establishment and smooth functioning of local groups allowed for a wider dissemination of the knowledge imparted during these training initiatives.

At the enterprise level, the project developed relations with SMEs producing JDPs, which facilitates the integration of women in this sector and the channelling of their products into national and international markets, at fairer prices. The project actively engaged in the identification and development of market linkages to generate demand for JDPs and to promote an enabling policy environment. Via domestic and international fairs, international buyer visits and business matchmaking workshops, it initiated linkages with national and international buyers as well as with policymakers, business associations and SMEs.

### Impact

The project's comprehensive approach targeting the whole jute supply chain has been conducive to improved employment and income opportunities for local rural women.

The mid-term review conducted by the project in 2015<sup>1</sup> revealed that, after its intervention, almost 90% of the female JDP workers are taking part in household decision making with their male counterparts, versus an initial 50% when the project started in March 2013. These women now have a say on purchase of raw materials and general household activities, and almost half of them can also decide about their children's education.

65% of the women JDP workers reported a monthly increase of income of BDT 1 150 (EUR 14), while the income level for 60% of the women organic fertilizer producers increased by 30%.

<sup>1</sup> At the time of writing this chapter, the project is compiling its final report. The information provided in this chapter refers to the data and trends collected up to December 2015 for the mid-term report, which was finalised in February 2016.

Most notably, 60% of the female producers reported improved social and gender positions, in addition to increased participation in the domestic decision-making process. Both at the household and social levels, female beneficiaries enjoy higher degrees of acceptance as they can now better support the household financially. They are now treated socially as skilled JDP workers and in some cases as JDP artisans. 55% of the JDP workers reported that neighbours acknowledge them as 'knowledgeable persons'.

Across the groups of female beneficiaries, the improved social status and economic standing has also strengthened women's self-confidence and awareness across a wide spectrum of matters. 7% of them even started openly voicing their opposition to early marriages and dowries, which are known to hinder the freedom and empowerment of women.

Various project reports indicate that community leaders are now encouraging the decision making of women and that female beneficiaries are taking important decisions together with their husbands.

Some of these women now aspire to become JDP entrepreneurs, after the project provided them with JDP making skills and links to SMEs for orders of JDP accessories and products. In some cases, they are receiving individual and group-based JDP product making orders.





Source: Eco-Jute project

## Bangladesh and India

# SMEs of jute diversified products

In the jute sector, not only do women account for a large proportion of the workforce at the production level, they also play a key role in the SMEs that produce JDPs. As the *Eco-Jute* project noted, “many women came to this sector to start their own business or lead the organisation”<sup>2</sup>. In Bangladesh, the project worked directly with 68 SMEs, one third of which were either owned or headed by a woman. In India, women led 41 of the 94 SMEs supported by the project.

Two problems common to these SMEs, and which the project intervened to address, were the limited capacity in product design and development, coupled with limited market access for their final products. The project approach was twofold, combining capacity building within the SMEs and expanded market outreach.

The SME capacity was enhanced by means of training on general management issues (accounting and bookkeeping, computer operations) and specific technical aspects (design methodology, product development, quality control, dyeing, pattern making). Follow-up and SME-specific training were also arranged. The project engaged local and European designers to help the SMEs develop new ranges of JDPs. Products were also improved by applying eco-friendly pro-

<sup>2</sup> Ismat Jahan, speaking at the SWITCH-Asia session on ‘SCP impact on gender and women empowerment’, New Delhi, 6 November 2015.

duction practices, such as environment-friendly dyeing processes, use of azo-free dyes, minimisation of solid and liquid waste, and reusing solid jute waste, as fuel, filler or raw material. Waste management and carbon footprint calculations were introduced, so that SMEs became aware of where they could save energy and how they could reduce their carbon footprint. The new ranges of JDPs made wide use of natural substances, both as raw materials and accessories. In terms of market access, *Eco-Jute* facilitated SME participation in multiple fairs and exhibitions and arranged meetings with buyers, some of them resulting in lasting commercial partnerships.

Although it did not have a specific gendered approach and its outcomes were not gender-specific, during the selection of SMEs and in providing capacity-building support the project prioritised SMEs led by women or with a high employment of female workers. This improved the working prospects of many women employed in this sector, through new production practices, improved product quality and new commercial opportunities.

The case of Ms. Razia Sultana is indicative. Razia Sultana is the CEO of Shakh Crafts, a company in Dhaka that employs seven workers and produces jute shopping bags, fashion bags, folders, handicrafts and decoration products for the domestic market. Prior to the project's intervention, the SME was struggling with very limited product development capacity (they did not have a professional designer) and quality assurance. Both aspects are critical to ensure the survival and sustainable development of a company.

*Eco-Jute* trained the company on costing and bookkeeping, design methodology and pattern making, design and product development, eco-friendly production processes, carbon footprint calculations and quality assurance. With the guidance of one European and one Asian designer, Shakh Crafts produced 11 new ranges of JDPs for the 2013 Jute Lifestyle Expo, including jute key rings and pouches.

Thanks to the multiple support received, the SME improved its production capacity and quality, and is now recognised as an established JDP producer. From the 2013 exhibition and market linkages facilitated by the project, the company received many new orders for multiple products. In 2012, one year after its engagement with *Eco-Jute*, Shakh Crafts' turnover doubled, from BDT 500 000 (ca. EUR 6 000) to BDT 1 000 000 (ca. EUR 12 000). The SME is now targeting the export market. As it expands, it intends to create new employment opportunities for the local poor.

Furthermore, the new know-how instilled innovative ideas: Razia Sultana, who also works in landscaping and ready-made garments, is now considering to integrate jute into her landscaping business and to mix jute with denim in her garment business.

## Rattan

**R**attan is a liana belonging to the palm tree family that grows in tropical climates. It grows by climbing the trees in the rainforest, thus helping to preserve forests and their local wildlife (such as orang-utans in Indonesia). Additionally, it contributes to cleaner air by offsetting CO<sub>2</sub> emissions and to flood-prevention as its sprouts that are up to 200 metres long retain and store substantial amounts of water.

A non-timber product, rattan is in fact a multifunctional material. Although it is generally used for furniture and construction, it also serves as a natural dye, a medicinal herb, as well as for handicrafts. Its seeds can be used as a condiment to chilli sauce and young rattan shoots are a culinary delicacy, similar to bamboo sprouts.



Source: Sustainable Rattan project

**Cambodia, Laos and Vietnam**

## Sustainable rattan production

**R**attan represents an important source of income for poor rural communities and ethnic groups in Cambodia, Laos and Vietnam, and women account for a high percentage of the labour force working in the sector.



The rapidly expanding demand for natural resources is negatively affecting the rural poor, due to the continued degradation of the natural resource base on which they rely for their subsistence. From 2009 to 2011, a SWITCH-Asia project worked in these three countries for *Establishing a Sustainable Production System for Rattan Products*. Led by WWF, the *Sustainable Rattan* project supported the development of sustainable production models that could fuel continued sectorial growth, while benefiting rural communities in the long term.

The project was not planned specifically on the basis of a gender-differentiated approach, yet it engaged and impacted on a number of women, as rattan is a predominantly female labour-intensive sector. Over the project period, 50 to 55% of the 22 000 villagers engaged were women, particularly disadvantaged ones. With no or limited access to land to conduct any farming activities and poor health conditions to perform any heavy work on farms, they mostly operated in off-farm activities, especially pre-processing, weaving and processing, working in the fields as well as in the factories that manufacture rattan-based products.

Despite addressing three different countries, the project detected similarities in the profile and role of the women occupied in the sector. Their age varied between 16 to 50 years and their level of education was generally low. In Cambodia and Laos, as many as 50% of them were illiterate, versus 25% among Vietnam's ethnic women.

The project was implemented in rural villages and communities. Across the three countries, at least half of the villagers engaged were women, whose main challenges were identified as follows:

- In rattan processing and handicraft production, highly toxic substances, such as pesticides, synthetic surface finishing, glue, petrol, diesel and bleaches, are used and directly discharged on the environment, contaminating soil, water and air as well as causing potential health disorders for the local community;
- Women are usually discriminated against in terms of education opportunities within poor local families. Men are prioritised, while women are assigned to household work.
- As a consequence of this, women earn a lower income compared to men. This is a result of men's higher education, better labour skills and social networks.

*Sustainable Rattan* addressed the entire rattan supply chain, including harvesting, processing and trading. It provided training to introduce cleaner and healthier production techniques, supported more efficient supply chains and strengthened the capacity of pre-processors in bargaining with traders. It organised specific market linkages, facilitating and supporting the exposure of producers to international markets and buyers.

In Laos, one important outcome of the market link work was the order from the Swiss retailer 'Coop' that led to a large export of sustainable rattan baskets from Laos to the Swiss market. In order to cover this big order, handicraft groups from seven villages were involved in the production process, working closely with WWF and one SME. In total, 346 villagers were involved, 70% of them women. The Business Social and Compliance Initiative (BCSI) was followed. Not only did the income of villagers increase fivefold. They were also able to improve their handicraft and management skills. As this was also the first time that they produced products for the international market, it also strengthened their confidence. Today, these women are leading a rattan village enterprise, certified by the Forest Stewardship Council (FSC).

Furthermore, the project provided on-the-job training in weaving, sanding and rattan cane splitting, and cooperated with over 220 SMEs, about one third of which had a woman as business manager or director.

In cooperation with these SMEs, the project trained 22 000 people across 100 villages on sustainable forest management and rattan cultivation, harvesting and processing. Although specific data are not available, the project estimates women to account for at least one fifth of all trainee beneficiaries. Women were especially trained on rattan processing (e.g. weaving and sanding), and the project supported qualified female trainees to find employment after the training. These female trainees who were then employed reported an increase of income in the range of 5 to 45%.

In Cambodia, a women's group was established at Toap Cheang community, which became a main supplier of final rattan products. In March 2011, the Rattan Association of Cambodia officially joined the World Fair Trade Organisation (WFTO), thus committing to the organisation's principles of non-discrimination and gender equity.





## Indonesia

# ‘Rattan for life’

**D**espite harvesting about 80% of the world’s rattan, Indonesia is currently using only 20% of its resource stock. A vast potential thus remains for the industry to tap into, to expand domestic as well as international sales of rattan-derived products, which are more environment friendly than modern plastic-based, cheaper alternatives. The industry was also negatively impacted by the massive exports of good quality raw material until 2011 when the Indonesian government stepped in to ban the export of raw rattan that had deprived the domestic industry of good raw material for their national production. Because of massive exports and illegal logging of its support trees, a number of rattan species have already disappeared.

Despite these limitations, rattan remains a major source of income for at least 400 000 Indonesians, including farmers, rattan collectors, craftsmen, workers and exporters<sup>3</sup>. While only 10% of the country’s rattan is cultivated, in the areas where it naturally grows (Sumatra, Kalimantan, Sulawesi, Aceh and Papua), the livelihood of entire villages depends on it.

<sup>3</sup> Prospect Indonesia’s estimates.

Under the motto 'Rattan for Life', the SWITCH-Asia project *Prospect Indonesia* took place from 2013 until January 2017 to revive and strengthen this traditional industry. By training farmers, designers and producers and establishing new business linkages, the project contributed to improving the quality and design of rattan products, and raising awareness about the eco-friendly characteristics of rattan products.

The project worked both with farmers in the upstream areas where rattan is cultivated (such as Aceh, Kalimantan and Sulawesi) as well as with SMEs in the downstream areas (West, Central and East Java), where rattan is transformed into various products.

Up until the end of its third year of implementation – the latest timeframe for which verifiable data on project's impact are available – *Prospect Indonesia* has contributed to increasing by 25 000 tonnes the amount of sustainably harvested rattan and by EUR 140 000 the value of eco-friendly rattan products, through a combination of cleaner production and OHS training, technical assistance on management, market linkages and access to finance support, undertaken either by the project autonomously or in cooperation with local stakeholders (such as the Indonesia Central Bank in Aceh, the Department of Industry and Trade in Palu, Cirebon, and Solo and the Department of Manpower and Transmigration in Cirebon and Solo).

Rattan farmers and processors were educated on cleaner production techniques, innovative design, sustainable cultivation and eco-friendly product standards. Rattan farmers' associations were established in three pilot areas, and collaborations among different stakeholders (policy makers, finance institutions, designers and industry associations) were fostered. Business linkages with ten buyers were set up.

Although women were not a stand-alone target group of the project, they were largely engaged by *Prospect Indonesia* as the sector is predominantly female labour intensive. Women accounted for approximately 25% of the beneficiaries at the upstream level and 30% of the beneficiaries at the downstream level.

The women involved in this project were in the 25-45 age group, with an education level ranging from elementary to high school. No illiteracy was reported. In the upstream area, women typically work as farmers and in their spare time weave rattan, which they then sell. In the downstream areas, many women work full time as rattan weavers, either as employees in or as sub-contractors to rattan companies.

As to their rattan-related work, in the upstream areas, women usually take care of processing (e.g. cleaning raw rattan, weaving, production of handicrafts) and less often they are directly involved in cultivation or harvesting. In the downstream areas, almost 90% of the rattan weaving work is performed by women, as they tend to be better skilled and are more detail-oriented and patient as required by this work.

Despite not having a gendered target, *Prospect Indonesia* effectively empowered women by upgrading their skills and strengthening the quality, productivity and market access of the SMEs where they were employed or subcontracted. These interventions contributed to improving job security, better working conditions and increased sales, which translated into higher incomes for the female beneficiaries.

The specific approach and impact varied based on the different locations where the project was rolled out.

In Aceh Besar, Sumatra's northwest tip, around 50 female farmers across four districts were associated with *Prospect Indonesia* from 2013 to 2015. Often organised into groups, local women used to collect small rattan, clean it after it had been harvested and weave it, to produce traditional local products such as food covers, fish baskets, laundry baskets, and many kinds of handicrafts based on the local cultural heritage. *Prospect Indonesia* cooperated with the local government organisation, PLUT Aceh Besar, to support these groups through market access and training activities on technical production skills, entrepreneurship, management and SME development. As a result, the women's weaving skills increased and they now receive more orders. Sales of their hand-made products earn them IDR 500 000-1 500 000 (EUR 35-95) per month.

In Central Kalimantan, rattan has a particular meaning in the local culture of Dayak people, who use it for their rituals and religious rites. Locally, rattan is commonly used for daily items like mats, baskets, strings or baby slings. Here, women are involved in almost all stages of the production process, starting from cultivation until rattan is transformed into final products. In the Katingan District where the project was operating, locals used to plant rattan in their backyards, for planting and harvesting convenience. 30% of the farmers involved with the project were women, who produce local items for direct sales to customers or indirectly via distributors. Most of the rattan processing is performed by women. This project also facilitated the inclusion of local rattan workers into government schemes, which increased their income by 25-30%.

In Central Sulawesi, women work in two areas of the rattan sector: rattan nursery and production of handicrafts. They do not take part in harvesting activities due to the difficulties in accessing the forest, which can require one to two weeks. During the project, 78 women took part in the rattan nursery component, 60 of them preparing the nursery (e.g. packing the soil into polythene bags and putting in seeds), while the other 18 took care of the nursery maintenance. In addition, 25 more women weaved rattan to produce baskets and other handicrafts. Their work with rattan provided them with an additional source of income.

The role of women in downstream areas, where the rattan industries are located, can be exemplified by the case of

Cirebon, in West Java. Female workers usually work in the binding of rattan (joining rattan parts), weaving, sandpapering, cleaning and packaging. Typically, they work from home and receive assignments from subcontractors, who then pay them by piecework. On average, these female workers earn around IDR 2 000 000 (EUR 140) per month, which is enough to complement their husband's income, as evidenced by the fact that they do not concurrently work in other industries, unlike many other women in the country. The main challenge they face relates to the lack of adequate health insurance: being informal workers, the industry does not provide them with healthcare coverage. In addition, as they work at home, their occupational health and safety is minimised, as they do not have necessary equipment and tools, such as dust masks and fire extinguishers. The project's interventions addressed the improvement of technical skills, introduction of cleaner and more efficient production practices and OHS promotion. Employers were encouraged to provide health insurance to their workers. The companies that took part in the project's activities reported a 30% increase of their productivity, which in turn provided female workers with higher salaries.



## Forestry



Source: Bio-Energy project



### Nepal

## Female entrepreneurship through scientific forest management

**C**handra Kala Rijal and Tridevi Rawat are landless residents of Bara district. Their husbands work in the nearby industry as labourers, earning low daily salaries in the range of NPR 500-700 (EUR 4.5-6.3).

Mrs. Chandra Kala Rijal, who has studied up to the eighth grade, had previously worked in pulverised spice packaging and wholesaling until she had to quit, due to commuting distance and lack of sufficient knowledge about the subject matter. She tried to generate income through livestock farming, but could not sustain it, as she was alone and lacking help. The entire family of four members, including two school children, was relying on her husband's earnings,



which were insufficient. Therefore, she was looking for additional income to support her family and ensure a better future for her children.

Barely literate, Mrs. Tridevi Rawat had worked as an employee in a tailoring shop and was earning NPR 500 (EUR 4.5) on average per day. However, because of problems with her back and eyes, she could not continue working in the tailoring business.

When Mrs. Rijal and Mrs. Rawat were searching for suitable alternative work, they learned about charcoal production via a demonstration. In 2014, a SWITCH-Asia project was launched to *Up-scale the production and consumption of bio-energy to reduce carbon emissions and enhance local employment in Nepal*.

Nepal has a large forest area, amounting to 40% landcover. However, the health of these forests has been degrading due to invasive species. Approximately, one hectare of forest yields 7-12 tonnes of invasive species. These weeds and invasive species not only prevent forest regeneration but are also a major cause of fire hazards. Removing invasive species from the forest is labour intensive and costly. Thus, despite many efforts from the government and community forest user groups, invasive species still prevail in the forest area.

The SWITCH-Asia project, led by HELVETAS Swiss Intercooperation, turned the problem into an economically-viable venture with multiple benefits: by training the poorest and most disadvantaged members in the forest communities to remove the invasive species and turn their biomass into charcoal to be sold as a source of energy, *Bio-Energy* designed a comprehensive solution to conserve the forest and provide local employment to the poorest, whilst contributing to meet the country's energy needs.

From its very onset, the *Bio-Energy* project actively engaged with the private sector to establish and strengthen the market development of charcoal and provide local communities with market access. Through public calls, the project selected four SMEs that are involved in charcoal processing and were interested in expansion of their businesses. Most of them are interested in processing charcoal to produce briquettes and densified briquette (pellets), while some are interested in retailing ground charcoal to various industries, including incense factories and brick kilns.

These companies effectively operate as the interface of the project with local communities in the forest areas. They clustered the 16 Nepali project districts covered by the project into four areas and work in the whole value chain from building the capacity of local communities in the charring process to strengthening the charcoal collection mechanism, processes and marketing.

The direct involvement of the private sector, which is also an actor in the charcoal value chain, strengthens local ownership and ensures market access to the products that would

otherwise be inaccessible to local communities. The charcoal is eventually purchased back by the private companies, who then decide whether to process it further, based on the requirements of the different market segments they cater to.

The private companies are responsible for establishing and strengthening the value chain. They start by first introducing the charring concept in general and then demonstrating the related technology and process. To the villagers interested in the charring business, the companies provide an intensive five-day training course on the technologies associated with the process, safe working practices, as well as a business and management tutorial on accountancy, finance, book keeping and basic entrepreneurship principles.

The locals who are interested in engaging in the business form a group of two to three and set up a basic charcoal production unit. While the scale of the charring unit is too small to qualify legally as an enterprise, multiple charring units clustered together can apply for legal registration.

Acting as intermediaries between the charring units and the SMEs, collection centres are established. One collection centre collects the production of five to ten charring units and then sells it to the retailers or processors. Thus, the collection centres are important actors that link the charcoal producers with the market.

The purchase of a charring kiln is the only investment required to start the business at this stage of the value chain. There is a range of charring units depending on their capacity, location and cost, costing between EUR 100 and EUR 300. The project promotes a subsidy-free business approach where each actor in the value chain has to find finance for the required budget. *Bio-Energy*, however, facilitates the link with financial institutions. Initially, *Bio-Energy* liaised with banks for possible financial linkages to the local communities and entrepreneurs-to-be. The commercial banks find the cost per unit too small and the operational cost to manage the loan in a rural context too high. However, local cooperatives found it feasible to finance the charring units and the financial linkage from such cooperatives is also more acceptable for local communities.

There are various payment modalities for the charring kiln. The locals can either purchase them directly from the manufacturers or take a loan from the cooperative. Alternatively, the private companies invest in the kilns and a certain amount is deducted when purchasing the charcoal from the villagers. This latter arrangement proved very appropriate for poor households as they do not have to arrange finance for the upfront payment or to take a loan.

As they joined the demonstration event, Mrs. Rijal and Mrs. Rawat were pleasantly surprised to learn that the invasive species they had been considering waste could generate income and they could do so while utilising the free time they get while taking their livestock for grazing.

“We don't have any other work to do, we don't own land”, they explained. “In the past, every time we entered the forest premises with our livestock we used to cut or root out those invasive alien species and other unwanted shrubs, to make the grazing easy. With only a little more additional work of charring them, we can now earn money.”

They decided to work together to optimise the free time they get while their cattle graze and earn extra income through charcoal production from weeds and invasive species from the forest.

With the project's intervention, charcoal producers have shifted from traditional pit systems to kiln systems. Kilns are much safer, cleaner and the smoke and dust exposure is significantly reduced. Similarly, the project has introduced a series of technology adjustments to make the system more user-friendly, affordable and efficient. It also integrated OHS throughout the training. First aid, use of masks, gloves and suitable shoes, and a basic OHS manual are key components of the training provided by the SMEs.

Mrs. Rijal and Mrs. Rawat took a loan of NPR 20 000 (EUR 180) to purchase their charring unit and started producing charcoal: working three-to-four hours, on average they each earned NPR 600-750 (EUR 5.4-6.7) per day. By working around 20 days in a month, they were able to earn NPR 12 000-15 000 (EUR 108-135) each. This is a significant amount of money for them. In their new capacity as entrepreneurs, for the first time they have some financial independence: they now have their own pocket money to invest in their household, including buying food and stationery for their children.

Within their first two and half months of charring work, Mrs. Rijal and Mrs. Rawat were able to produce 5.5 tonnes of charcoal and earned NPR 82 500 (EUR 742) in total. Their husbands, who initially did not want them to do this job, are now happy with the additional income.

Community members also appreciate the two ladies' work. On average, they produce three tonnes of charcoal in a month, which means that they utilise 15 tonnes of weeds and invasive species from community forest. The production yield is 20%, i.e. the biomass used is five times more than the charcoal produced. In this ratio, if they produce charcoal for 6-8 months in a year, they produce 18-24 tonnes of charcoal annually. Thus, the total annual biomass (weeds and invasive species) removed from forest is 90-120 tonnes. In so doing, they are preserving and optimising approximately 10-13 hectares of their community forest via 'scientific forest management' that maintains and enhances the environmental, social and economic benefits of all types of forests for the current and future generations.

As the forest conditions improved, villagers are thankful towards them and have started calling them 'Safai Toli', meaning 'cleaning group'. Besides, other women of the community have approached them to initiate charcoal produc-

tion and now there are five women entrepreneurs producing charcoal in the area.

During the initial years of the project, there were hardly any women in this business. Traditionally, charcoal production was considered a dirty job suitable only for men, because of its exposure to smoke and dust, and the use of heavy technology. Thus, only the poorest men would dare do it.

Mrs. Rijal and Mrs. Rawat set an example by earning profit from charring business and thus paved the way for increased female participation in the sector. This has not only given economic empowerment to housewives, but also increased their social status as people are appreciating their contribution in community forest management. Nowadays, most of the interested parties who want to start a charring unit are women. This varies by caste and social group, for example, in Brahmin communities, the female participation is still low, while among marginalised, poor households their participation is increasing.

To date, *Bio-Energy* has trained 1 274 trainees, 40% of whom are women. 420 kilns have been set up, at an average unit cost of NPR 20 853.33 (ca. EUR 180) and for an overall investment in charring units of NPR 8 758 400 (EUR 78 773). Most of the investments are loans, while some have been funded by government and community organisations under various programmes that focus on poorest of poor.

Up to March 2017, 1 100 people are working as charcoal producers, of whom 440 are women, and they have produced 2 000 tonnes of charcoal. Thus, NPR 30 000 000 (EUR 269 820) has been channelised to the charcoal producers and 10 000 tonnes of waste biomass have been used, thereby contributing to better management of 1 000 hectares of forest.

A charcoal value chain system has already been established, with an annual production and consumption capacity of around 6 000 tonnes. Thus, in the production unit only, the annual cash flow to the communities is estimated to be approximately NPR 90 000 000 (EUR 809 460).

An annual production of 6 000 tonnes of charcoal consumes 30 000 tonnes of biomass and thereby contributes to the forest management of more than 3 000 hectares of forest. Clearing of invasive species promotes regeneration of the preferred species in the forest so that overall productivity of the community forest increases. Besides, the invasive species are the main cause of forest fires during the dry season. Forest users have reported that, since the start of the SWITCH-Asia project, fires in the forest have reduced.

The *Bio-Energy* project not only proves to be economically viable for rural communities with no or little access to the job market but also promotes scientific forest management with meaningful people's participation. The waste biomass that would otherwise cause forest fires has been converted into an income source for poor households, while generating a sustainable source of renewable energy.

The 6 000 tonnes of charcoal produced annually results in a matched reduction in the use of coal, which reduces consumption of imported coal and fossil fuels, to the benefit of the national economy.

This is a win-win situation from the forest management, environment, renewable energy promotion and economic empowerment perspectives and thus has the potential to be replicated throughout the country once the private sector sees profit from this value chain.

Against the scarce local income-generating options and for a workforce with low education aged 30-45, charring is now appreciated as a valuable source of additional income that can be conveniently combined with cattle grazing. As a further incentive, the buyback is ensured since there is high demand for and a limited supply of this product. The charcoal products produced (briquettes, pellets, incense sticks) are primarily intended for use by SMEs, that in turn benefit from cleaner and healthier energy sources. Yet, they could also be applied to households, once the production capacity is expanded. This is a clear possibility for the longer-term sustainability of the project.

## Conclusions

**T**he sectors associated with natural resources employ large numbers of women, albeit not always formally. Further, as the cases from Bangladesh and Southeast Asia illustrate, women's contributions are often not financially compensated or are rewarded less than those of their male counterparts.

This discrimination notwithstanding, the livelihoods of entire female groups depend exclusively on processing natural resources. In this area, the experiences from SWITCH-Asia projects are related to the cases of jute, rattan and forestry in Bangladesh, India, Cambodia, Laos, Vietnam and Nepal.

Similarly to what was reported about the textile and garment industries, the presence of women is significant, both as workforce in the field as well as managers or owners of SMEs that process and sell products made from natural materials. However, in contrast to the cases reported in the textile and garment chapter, many of those cases about the natural resource sector report significant levels of illiteracy among its workforce in the field: 19% in Bangladesh, 25% in Vietnam and up to 50% in Cambodia and Laos.

Women working in the fields are very often among the most vulnerable and marginalised. Living in rural communities with basic living standards, illiterate or limitedly educated, with little capital and land ownership, they depend exclusively on local farming.

The most significant presence of women in this sector is to be detected at the processing stage: activities such as weaving of rattan or manufacturing of jute products are performed almost exclusively by women.

Considering their additional roles as entrepreneurs and managers, women are active throughout the supply chain, although with a different ratio at the different stages of cultivation, processing and retail.

The interventions supported by SWITCH-Asia have shown to impact women from this sector in five main ways.

Firstly, the active promotion of OHS and training on cleaner production have improved working conditions for women, reducing their exposure to hazardous practices and substances.

Secondly, SMEs producing items made of natural materials have started adopting cleaner production and resource saving measures, which increases their overall efficiency and productivity. In turn, this has generated higher income for the women working in these companies.

Thirdly, the market access support provided by the projects has reduced dependency on middlemen and increased workers' bargaining power towards them. At the same time, it has opened up new outlets for distribution and sales, generating additional profit.

Fourth, product design and quality have been enhanced, providing for more stable and substantial income from sales.

Fifth, the managerial capacity of companies manufacturing and selling products made from natural resources has been strengthened. Whether managed by men or women, the companies selling products made of jute or rattan now possess stronger business, design and marketing skills. As a result, their performance improves, contributing to more stable and profitable incomes for both their managers and workers.

It is important to note that the cases from Bangladesh and Nepal, where cultural and social norms on gender are stronger, also highlight a significant improvement in women's social status, following their skill upgrade enabled by the projects. Strengthened social reputation of women gives them a stronger decision-making power in household matters, particularly regarding children's education, as per project in Bangladesh.



# ENERGY



Source: Improved Cook Stoves project



## Cook stoves

**O**ne dimension of poverty that particularly affects women, especially those belonging to most vulnerable groups, is energy poverty, namely limited access to clean and efficient energy services.

Considering that women are still the main caretakers of family chores in poor and rural areas in developing countries, the lack of access to clean and efficient stoves and fuel translates for them into an increased workload, worsened living conditions and broad exposure to health hazards.

Household cook stoves represent a key and meaningful instance, and one field in which several SWITCH-Asia projects operate. In Laos, the 'Improved Cook Stoves' (ICS) project was implemented between February 2013 and January 2017, led by Oxfam and implemented by the local NGO ARMI, with technical assistance from SNV. The development NGO GERES is leading the 'Myanmar cook stoves' project (2014-2018), in partnership with ETC-Foundation Energia, Ever Green Group and Improved Cookstoves Producers and Distributors Association in Cambodia. 'Women-centered ICS' is the latest addition, launched in India in 2016 and coordinated by CARE India.

Whether explicitly targeted – as in the case of the project in India – or indirectly referred to, women effectively constitute the main beneficiaries of such actions, being the main users of cook stoves and most frequently those who cook within the household and collect firewood as fuel for traditional stoves.

Cook stoves traditionally used in developing Asia's rural areas depend primarily on biomass, i.e. predominantly firewood and also charcoal. When they can afford them, customers prefer electric and LPG stoves, which are to be found in urban and peri-urban areas. The most affordable cook stoves are those made of stone, bricks or clay, as well as stoves made of iron. Despite being cheap, they have very low thermal efficiency and – except for the iron stoves – have a very short lifespan.

The indoor use of solid fuel is a major health hazard, exposing users to pollution, causing eye and respiratory problems. The World Health Organisation (WHO) reports that:

- “around 3 billion people cook and heat their homes using open fires and simple stoves burning biomass (wood, animal dung and crop waste) and coal;
- over 4 million people die prematurely from illness attributable to household air pollution from cooking with solid fuels;
- more than 50% of premature deaths due to pneumonia among children under 5 are caused by the particulate matter (soot) inhaled from household air pollution;
- 3.8 million premature deaths annually from non-communicable diseases, including stroke, ischemic heart disease, chronic obstructive pulmonary disease (COPD) and lung

cancer, are attributed to exposure to household air pollution.”<sup>1</sup>

Women and children in poor areas are the main victims of these hazards, as they spend the most time in the house being exposed to and using solid fuels for heating and cooking.

Thus, facilitating access to and introduction of cleaner and more efficient cooking devices directly impacts the health of household dwellers, in particular women and children. In addition, improved cook stoves also contribute to:

- a. diminishing the amount of time needed for cooking;
- b. reducing the drudgery needed for collecting woods;
- c. decreasing the pressure on natural resources (especially firewood);
- d. cutting emissions of carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and particulate matters (PM 2.5);
- e. saving on fuel costs.

As identified by 'Women-centered ICS', four main factors hamper the adoption of ICS, namely: awareness, availability, access and affordability. The three referenced SWITCH-Asia projects have been operating in their respective countries to address these same challenges with tailored interventions.

<sup>1</sup> <http://www.who.int/mediacentre/factsheets/fs292/en>





Source: CARE India

## India

# Better cook stoves for forest-dependent women

**T**he SWITCH-Asia project *Evolving a Women-centered Model of Extension of Improved Cook Stoves for Sustained Adoption at Scale*, in short *Women-centered Improved Cook Stoves*, started in January 2016 and promotes the adoption of ICS among forest-dependent households (FDHs) in the three districts of Jashpur in the state of Chhattisgarh and Kalahandi and Kandhamal in the state of Odisha, India.

This project explicitly targets women as the main beneficiaries: it specifically aims at reaching 10 000 poor and vulnerable women from the local FDHs. In Odisha and Chhattisgarh, the poor account for 36% and 45% respectively of the local population. Around 70% of the households targeted by the project in the two states belong to scheduled tribes and 15% to scheduled castes<sup>2</sup>. Their main source of livelihood is farming, most commonly of the subsistence type. Most farmers hold small and marginal amounts of land, an average 2-2.5 hectares each, which they work seven to eight months per year. Other locally-available sources of income are non-timber forest products and seasonal labour (for instance at construction sites or as personnel in private house-

2 Official designation of historically disadvantaged indigenous groups of people in India.



holds). The level of literacy in the project districts is very limited: most women are illiterate and only a few are able to write.

Being the main users of cook stoves and usually in charge of cooking, women were selected as the main target group of the project, which strives to capacitate them to take informed decisions towards cleaner and healthier cooking solutions.

Traditionally, local women use primarily mud stoves that are mostly constructed by the women in the family and are fixed in place. A survey of 552 FDHs conducted by the project indicates that, in Jashpur, a little more than half of the surveyed households use single pan stoves; in Kalahandi, 55% of the surveyed households use double pan stoves; and in Kandhamal, single pan stoves are more prevalent. A detailed situational analysis conducted by the project indicates that all households using mud stoves depend on firewood collected from the forest as the major source of fuel. Adopting improved and more fuel-efficient cook stoves would thus also contribute to forest preservation.

According to the information provided by female users of cook stoves, the lifespan of mud stoves in Chhattisgarh is less than three years, whereas in Odisha, it is between five to eight years, subject to periodic maintenance of the stove.

Switching to improved cook stoves would provide safer and more durable and energy efficient cooking devices, while also relieving women's drudgery and hardships as they cook and collect fuelwood. Traditional local stoves are not comfortable for the posture they require, their height, and exposure to heat and air pollutants. They cause health conditions, such as eye irritations, cough, headaches, loss of hair, due to the smoke emitted, added to which is a high risk of potential burns, fire and related accidents. In terms of performance, besides not being fuel efficient, traditional cook stoves are also difficult to ignite and cook slowly, making the task more time-consuming for women. They require frequent maintenance and blacken the walls of the house. Additionally, mud stoves do not provide the possibility to regulate the flames and, if fixed, cannot be used in different locations (such as indoors and outdoors). For all these reasons, the transition to improved cooking devices contributes to enhancing significantly both living and working conditions for women and their households.

Unlike other initiatives in this field, *Women-centered ICS* does not intend to promote any specific ICS model. The project is working towards creating an environment where female users take informed decisions to select and purchase an ICS of their choice. It proposes to the intended beneficiaries a selection of locally relevant and applicable cook stoves that are already available. For its capacity-building and demonstration activities, a database of ICS models has been compiled which mentions the technical features (such

as thermal efficiency, fuel savings, durability and price) of several ICS options. In the event where available ICS models do not meet the expectations of the female users in terms of convenience of use, affordability, smoke emissions and efficiency, the project also facilitates a participatory process with female users and cook stove manufacturers, to modify or improve the stoves based on the female users' feedback. While the project has the option of designing and evolving new ICS and has provision for undertaking testing of new stoves with the support of the India Institute of Technology in Delhi (IIT-D), it cannot pursue any major alteration in the design of existing stoves due to IPR reasons.

A holistic process has been designed to reach the 10 000 target women and enable a larger scale adoption of ICS, which includes capacity building and awareness-raising activities, and engagement with men, local youth, opinion makers and community leaders, to ensure that all decision-makers are informed and support women's transition towards cleaner cook stoves. Acting as 'clean energy ambassadors', men are motivated to raise awareness and information with their peers, in favour of wider adoption of ICS.

To reach out to its female target group, the project acts via women's collective platforms called 'Self-Help Groups' (SHGs); 381 existing SHGs with a total membership of 4 281 women from 107 villages are part of the project. The project is forming Sustainable Household Energy (SHE) schools on these SHG platforms. The SHE-schools function as learning cohorts for female users, facilitating participatory learning and peer influence on clean cooking. Through an incremental approach, capacitated SHGs and couples who are early adopters of ICS will act as SHE influencers with the objective of reaching out to those women who are not part of SHGs.

Concurrently, the project aims to work with 100 ICS value chain actors comprising of ICS manufacturers and suppliers, clean energy technology providers, financial institutions, local administration and line functionaries of government departments, to strengthen its capacity and promote women's inclusiveness. The project will specifically promote female entrepreneurship and train female technicians to ensure that the participation of women is enabled along all stages of the cook stove value chain, including in the production, supply, maintenance, distribution and retail phases. Direct interactions between cook stove users and value chain representatives are being organised regularly, to facilitate women's understanding about the different cook stoves available and to support their selection process.

Once the cook stoves have been selected by the female beneficiaries, the project will also provide specific support for their penetration in the project villages. With the objective of developing local entrepreneurs and technicians, interested local individuals and groups already engaged or interested in business activities will be capacitated and sup-

ported to initiate enterprises on supply, maintenance, sales and after-sales services of the most popular selected ICS.

Cooperation with banks and financing institutions in the region, as well as local and national policy-makers, will also be pursued, to facilitate financial access to cook stoves and promote a regulatory environment supportive to ICS value chain actors.

From its second year onwards, through an inclusive and consultative approach, the project will design, test and promote exclusive financial products in coordination with existing institutions that already have financing models promoting ICS, in order to facilitate access to credit for the purchase of ICS, especially for those women who are not members of any SHG.

Through SHE Champions, the project will assess the funds required by FDH women to switch to the ICS option of their choice. Concurrently, the project will help local SHGs to design financial savings products for ICS acquisition by female members who prefer to save and wait before purchase. Further, women will be encouraged to make self-investment to purchase ICS and SHGs in sound financial conditions will be supported to lend out to members to purchase ICS.

The project will also support women ICS entrepreneurs in accessing business finance individually or as a group, by enabling formulation of sound business plans and then facilitating their linkages to financial service providers.

As of December 2016, the project had grounded activities with 50 SHE-schools in 50 project villages and organised 83 awareness sessions and 31 joint sessions for female cook stove users and ICS value chain actors. During the awareness sessions, 2 093 women learned about the features and benefits of ICS, while 1 302 women took part in joint sessions with ICS manufacturers and suppliers who demonstrated different ICS models.

The project is confident that, once these steps are completed, the concept has the potential for replication among 800 million rural households in India.



Source: Improved Cook Stoves project

## Laos

# 135 000 improved cook stoves

**W**hen the *Improved Cook Stoves (ICS)* project was launched in Laos in 2013, more than 90% of local households cooked with stoves fuelled by wood or charcoal. In urban and peri-urban areas, which were the main targets of the project, the most common stoves were portable, ceramic stoves. A feasibility study on cook stoves, conducted in 2010 ahead of the start of the project, showed that consumers were unsatisfied with the local stoves as they broke too easily and were inconvenient to use.

### Testing and production

In its initial baseline study in 2010, the project observed that in the unregulated local cook stove market, a large variety of designs were available, most of them with low performance and a short lifespan. Testing and quality control during the production process were missing and no quality standards for cook stoves existed. There were variations in quality both between and within the different stove varieties of stoves on the market, with no proof of which ones worked more efficiently.

During the pilot phase preceding the SWITCH-Asia project, the first stove testing facilities were established in 2011 in Savannakhet and in 2012 in Champassack. The ICS project made it possible to add one more laboratory in the capital, Vientiane, in 2013. In setting up the laboratories and training lab staff, the project developed the technical capacities of technical staff under the Ministry of Science and Technology, who own and operate these labs.

After testing many ICS prototypes, the project was able to develop several new models of improved cook stoves that use charcoal and firewood and met the project's criteria of efficiency and user-friendliness, making them viable for the Lao market. The ICS uses some familiar design elements of existing stoves for ease of adoption, as no change in cooking behaviour is required. The ICS is, however, superior in quality, durability and efficiency.

The most common local stove, the 'Tao Dum' or black stove, is the baseline stove against which efficiency tests were conducted to compare the new prototypes. Testing results proved that all competing stoves available in the market were inferior to the improved cook stove developed by the project. Compared to regular cook stoves, the ICS reduces fuel consumption by 29%<sup>3</sup> and cuts cooking time by 30 to 40<sup>4</sup> minutes per day.

While supporting the development of testing facilities and practices, the ICS project also worked on the production side. New production tools and techniques, such as moulds and clay mixing machines, have resulted in a significant reduction in drudgery, particularly for female workers. Prior to using a clay mixer, women used their feet: they needed two to three hours to mix a batch of clay sufficient to produce eight stoves. After the introduction of the clay mixing machine, in 15 minutes, women can produce enough clay for 15 stoves.

The ICS is designed to use traditional materials and lend itself to traditional cooking methods, to make it acceptable to both producers and consumers, and easy to integrate into the market.

As with many enterprises in Laos, cook stove production is often run by small informal family businesses, whose ownership belongs to men in 80% of cases<sup>5</sup>.

The ICS project worked with 21 stove producers across five provinces and currently has nine female accredited ICS producers and four female accredited producers of buckets, a component of the stove.

The project supported producers via both technical and entrepreneurial training, and also provided peer mentoring via other experienced producers. Once stove makers are able to meet a series of quality standards, the project signs a cooperation agreement and the producer receives an accreditation certificate.

For most producers, an investment in new equipment and workshop upgrades was necessary, ranging between USD 3 000 and USD 10 000, up to 50% of which could be supported by the project and the remaining through loans at local banks. As most banks were not familiar with the ICS market and did not agree on loans, in its last year of implementation the project also launched its own revolving fund, amounting to EUR 9 300, to support accredited producers facing financial constraints. In its first year of operation, 12 producers made use of this facility, borrowing a total of EUR 7 500. Half of the borrowers were female producers: two producers of ICS and four of buckets. The loans were given at an interest-free rate and lasted on average 45 to 60 days. It is anticipated that this loan facility will continue due to its success and popularity among producers.

In each province, the project set up both formal and informal business associations for producers to share ideas on how to develop the sector further and help members stick to quality production standards and fair pricing.

By the end of 2016, the project enabled the production of 135 000 ICS, with an average monthly production capacity by accredited producers of 4 000-5 000 units.

The three testing centres were also entrusted with guaranteeing standards, consistency and quality of production from the stove producers affiliated to the project. The testing facilities in each province receive samples of stoves from each producer to test and validate fuel savings. Prior to this, the stoves only pass quality control procedures that involve its dimensions being measured by ICS quality control officers to ensure that the stoves have been produced to meet the standard design parameters. These stove standards have been endorsed by the Ministry of Science and Technology. However, if stove samples match the standards of the project, the producers receive stove labels that inform retailers and consumers that the stove meets quality standards. The blue sticker stove label is a distinguishing feature of the ICS and is recognised by both retailers and consumers. In 2015, the project's distinct logo was successfully registered as a legal trademark.

---

3 Kitchen Performance Test 2016 (among 180 households).

4 W+ Feasibility Assessment for the ICS Programme in Lao PDR Exploring alternatives to carbon finance, Wocan 2014.

5 Gender Mainstreaming Opportunities in the Lao ICS Programme, Quick Gender Scan, SNV, Energia 2014.



## Disabled Lao Women

A particularly noteworthy case of ICS producers is that of the Lao Disabled Women Development Centre (LDWDC). This centre hosts, on a rotating basis, some 25 young disabled women from disadvantaged families throughout the country for nine months of training on skills such as weaving, handicrafts, paper arts and computer competencies.

LDWDC helps disabled women improve their general confidence and self-esteem within a society where disabled people are still stigmatised and over-concerned family members prevent them from taking part fully in public and social life.

Knowing LDWDC for their work on paper-made products, SNV reached out to the Centre as part of the Nordic Development Fund's project 'Harnessing Climate Change Mitigation Initiatives to Benefit Women', managed by the Asian Development Bank, and in which SNV is a partner.

SNV started by taking LDWDC members to nearby ICS producers and to promotional events to observe the production and sales processes. The Centre assessed the market feasibility of engaging in this field. They first started with door-to-door sales of ICS purchased from nearby producers, while also dedicating a section of their souvenir shops to displaying ICS stoves. Through a strategic partnership, the ICS promotions team, together with the Lao Women's Union, helped them prepare for the promotional activities.

Acknowledging that indeed the demand for ICS was high and stable enough to justify the investment, the Centre decided to establish an ICS production workshop. The SWITCH-Asia project signed an agreement with LDWDC, which was handled like any other producer. The NDF-funded project filled the capacity gaps (e.g. additional mentoring by senior ICS producers). Additional support, including financial, was provided to eight LDWDC members, not as a charitable action, but as a business operation based on performance and results.

Unlike other ICS producers from the private sector, LDWDC was accustomed to operating based on charity, grant offers or volunteer initiatives. Thus, the project first had to develop the Centre's capacity towards a new business approach, closer to that of the private sector. Nevertheless, LDWDC showed extreme commitment and support in pursuing this new stream of activities, which compensated for initial difficulties due to their different business approach.

Compared to traditional producers, LDWDC's accreditation process took slightly longer due to the Centre's lack of experience in cook stove production as well as the producers' physical conditions. Their first two batches did not meet the quality control benchmarks, but by mid-October 2015, a third batch was able to pass inspection. Consequently, a sample of this lot was sent to the laboratory under the Min-

istry of Science and Technology for testing, the efficiency standards were met and the centre received its accreditation status. By December 2016, the LDWDC produced and put on sale 1 232 ICS.

Like other ICS producers, the main challenge experienced by LDWDC was a bottleneck in the production of ICS, as the increased demand for the new stove was not able to be met. Taking note of this, the Centre is currently reorganising its internal management so to streamline the production process. With that in place, the Centre will be in a position to produce 500 cook stoves per month. Generating an average net profit of USD 2 per stove, the optimised ICS production will provide the Centre with a very welcome stable income to invest in its core activities, whereas possible future carbon finance could help it to branch out and expand the production even further.

## Retailers and consumers

The 135 000 improved cook stoves locally produced by the 21 family businesses have been sold through an incentive-free market mechanism, via a network of over 1 200 retailers.

In 90% of the cases, retail points – be they roadside stalls, local markets or family mini-marts – were managed, operated or owned by women.

Experience garnered from the project also indicates that it is easier for female shop owners to be granted loans from banks, since credit providers consider women to be more careful in spending money. On the other hand, women often refuse to take credit in the absence of sufficient financial guarantees, as they do not want to expose their families to any financial risk.

At the beginning of the project, retailers found some difficulties in convincing potential customers to spend money on a more expensive cook stove – depending on its size, an ICS costs between USD 4 to 5, compared to USD 3.5 for a traditional stove such as the 'Tao Dum'. However, as awareness and reputation of the ICS grew, an increasing number of customers appreciated the fast pay back (on average six months), longer durability of ICS (two years, compared to six months of a traditional stove) and savings on fuel costs. According to the project's calculations, households using an ICS save USD 2.4 per month on charcoal costs.

With an average profit margin of USD 1, ICS have also become a very profitable item for retailers.

As main users of cook stoves, women, mostly from the urban and peri-urban middle class, also constituted the majority of the customers purchasing ICS. Towards its conclusion, the project estimated that 20% of the country's households were using an improved cook stove. According to project estimates, as much as 150 000 tonnes CO<sub>2</sub>e were avoided

through the adoption of these ICS in the four years. In the meanwhile 40 000 Voluntary Emission Reduction Certificates have been released through Gold Standard. Its sales will help the market to continue to grow.

As one of its strategies to reach out to consumers, the project team established a close relationship with the Lao Women's Union (LWU), its members living in communities nationwide and their mission being to address the well-being of all women. Once the Union's leadership started using the stoves themselves, their interest to partner with the project gained momentum and the enthusiasm to promote the product increased. Project staff trained the LWU members about the basics of cook stove technology, organised exchange visits to stove producers and retailers and supported cooking demonstrations logistically at local markets. Their direct engagement was instrumental for 173 promotional activities in the market and expansion into new territories in the country.



## Myanmar

# Mainstreaming gender in the cook stove supply chain

**U**p-scaling *Improved Cook Stove Dissemination in Myanmar through Replication of Best Practices from Cambodia and the Region* is a SWITCH-Asia project launched in Myanmar in 2014 and led by GERES. The project, shortened into *Myanmar cook stove*, strengthens the production capacity of and supports the demand for ICS, particularly in the rural and semi urban areas where ICS have had little penetration to date. Considering that two thirds of the country's population live in rural areas, the potential outreach is vast, with an estimated two million customers.

## The status quo of cook stoves in Myanmar

According to the project's 2015 'Myanmar Cook Stoves Market Assessment', more than 85% of the population in Myanmar relies on biomass for cooking, and cooks daily with inefficient and highly polluting cook stoves. In rural areas, 80% of them operate on unsustainably logged wood<sup>6</sup> and 95% of the households use firewood for cooking, requiring an average of 57 kilos of firewood per week for cooking<sup>7</sup>.

Usually the collection of firewood is assigned to women and occupies 217 hours of their time per year<sup>8</sup>. Often men also take on the responsibility of collecting firewood while herding cattle. Over the years, the time required for collecting firewood has been increasing as firewood has become scarcer due to increasing deforestation, growing market demand and an expanding population. Because of increasing unavailability of firewood and longer distances to be travelled to collect it, more and more households are currently purchasing it, at a monthly cost of MMK 4 000 to 6 000 (EUR 2.8-4.2), equivalent to two days of women's paid work.

The market assessment reports that "the most common type of stove used across the country is the three-stone open fire (35%), followed by the charcoal/multipurpose stove (27%) and the electric stove (15%). Charcoal stoves (46%) and electric stoves (35%) dominate in peri-urban environments, while the three stone is the most predominant stove in rural environments (50%). The penetration of LPG stoves is extremely low, due to the 2014 spikes in the price of liquid petroleum."<sup>9</sup>

The project's 'Baseline Gender Assessment Report' adds that, in rural areas, only 13% of the population "used some kind of fuel efficient improved cook stove", a ratio that increases to 75% for urban and peri-urban households<sup>10</sup>.

According to the project's assessment, price and limited awareness about ICS benefits are the main barriers hindering the adoption of an ICS. While the three-stone open fire comes at very low cost, the price for a charcoal-multipurpose stove is very diverse as it is sold in many different models. An A1 model stove costs between MMK 2 500 and 4 000 (EUR 1.7-2.7), while the starting price for an electric stove is MMK 15 000 (EUR 10.4). Depending on maintenance and use, these stoves last, in most cases, one to five years.

## Women in the ICS supply chain

According to the Global Burden of Disease Assessment, household air pollution from solid fuels is one of the three major health risk factors in Myanmar<sup>11</sup>. As main users of cook stoves, women are the most vulnerable to these hazards. The elderly and children follow next as the most-exposed groups.

Despite being the most vulnerable, women are, however, less aware than men about the harmful effects of inefficient cook stoves. During group discussions, the project observed that when asked about health impacts of smoke, women were not forthcoming and it was the men who reported incidences of coughing, breathing and eye irritation.

The *Myanmar cook stove* project inserted a gender dimension into its action plan, "to enhance the adoption of efficient improved cook stoves, thus improving women's well-being and reducing their vulnerabilities" through gender-friendly communication materials, promotion of ICS among female users and mainstreaming of gender into the cook stove supply chain.

The project's baseline analysis shows that there are very few, although highly competent, women producing stoves and that there is some gender stereotyping along the stove production process, with women doing more skilled work and men doing work requiring higher physical labour. The survey, conducted for the Gender Rapid Assessment, added that, "many women would make their conventional cook stove themselves in the house but were keen to shift to an efficient stove"<sup>12</sup>.

Prior to this SWITCH-Asia project, five to twelve groups of women existed in Myanmar producing stoves. Earlier experience by other organisations, such as the Forest Research Institute and Food and Agriculture Organisation, showed that initiation and operation of women-owned ICS production units was not easy and that these units took longer to stabilise. Yet, once the initial efforts were overcome, the female stove producers were more motivated and were able to increase production and scale up operations much faster.

The presence of women is more abundant in the cook stove production and retailing phases. Few women own an ICS company or work in the ICS distribution. The *Myanmar cook stove* project aims at raising the number of female distributors and owners of companies selling ICS, besides targeting an increase in women's incomes from production and supply of cook stoves.

6 Emerging Markets Consulting. 'Myanmar Cookstoves Market Assessment', June 2015. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/Cook-stove\\_Market\\_Assessment.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/Cook-stove_Market_Assessment.pdf)

7 ENERGIA International Network on Gender and Sustainable Energy (2015). 'Baseline gender assessment report', StovePlus, a programme by GERES. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/Gender\\_baseline.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/Gender_baseline.pdf)

8 Mercy Corps-Myanmar, 2012 as quoted in the project's 'Gender Action Plan' [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/SCALE\\_Gender\\_Action\\_Plan.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/SCALE_Gender_Action_Plan.pdf)

9 Emerging Markets Consulting. 'Myanmar Cookstoves Market Assessment', June 2015. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/Cook-stove\\_Market\\_Assessment.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/Cook-stove_Market_Assessment.pdf)

10 ENERGIA International Network on Gender and Sustainable Energy (2015). 'Baseline gender assessment report', StovePlus, a programme by GERES. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/Gender\\_baseline.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/Gender_baseline.pdf)

11 Institute for Health Metrics and Evaluation [[https://www.healthdata.org/sites/default/files/files/country\\_profiles/GBD/ihme\\_gbd\\_country\\_report\\_myanmar.pdf](https://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_myanmar.pdf)] as quoted in the project's 'Gender Action Plan' [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/SCALE\\_Gender\\_Action\\_Plan.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/SCALE_Gender_Action_Plan.pdf)

12 ENERGIA International Network on Gender and Sustainable Energy (2015). "Baseline gender assessment report", StovePlus, a programme by GERES. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/SCALE/Gender\\_baseline.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/SCALE/Gender_baseline.pdf)



Women are typically the main decision makers for the selection of ICS, which they choose first of all based on the convenience of use of the stove type. Men are usually those who travel and thus purchase the stoves, hence the project also engages them in its awareness-raising and promotional activities. Additionally, some of the women surveyed by the project mentioned that setting up family businesses producing ICS would also contribute to avoid migration of male family members abroad.

## The project's intervention

In 2015, in collaboration with the Forest Research Institute, the project established a cook stove testing laboratory in Yezin, the first and only laboratory in Myanmar with the capacity to test the efficiency, emissions, health impact and cooking performance of cook stoves.

*Myanmar cook stove* also improved and standardised two new cook stove designs: one for the A1 wood stove and one for the charcoal Pathein stove. Evolving from already existing traditional cook stoves, these improved cook stoves have the same lifespan as their predecessors but are 50% and 25% respectively more energy-efficient than traditional wood- and charcoal-based stoves.

By December 2016, the project had provided technical and quality training on ICS production as well as business management training to 27 producers in the Dry Zone to manufacture A1 firewood standard stoves, 15 of them women. The project introduced the clay-mixing machine for clay raw pot producers and helped them build a concrete floor in their workshop, so to have a dedicated, mud-free area for stove production.

By the end of 2016, *Myanmar cook stove* supported 41 SMEs, including 14 distributors and retailers, generating 120 new jobs. Women own 15 of the 27 production units, as well as 9 of the 14 distribution and retail points.

830 improved cook stoves respecting A1 standards were produced and put on the market. The newly produced ICS sell at a premium price of approximately 20%. The market response so far has been satisfactory but the project intends to work closely with producers to develop more easily identifiable ICS branding.

On the policy front, *Myanmar cook stove* is currently working with a dedicated working group nominated by the Ministry of Energy on the development of a National ICS Standard. In 2016, it developed a draft National Strategic Plan of the improved cook stove sector that shall serve as a reference for a multi-stakeholder workshop later in 2017.



Source: SPRING project

## Pakistan

# Clean energy from cotton gin waste

Every year, Pakistan's cotton ginning SMEs generate 1.1 million tonnes of waste, which is usually burned openly in brick kilns. This releases hazardous emissions into the environment, such as carbon dioxide, carbon monoxide, particulate matter and polycyclic aromatic hydrocarbons.

In its efforts to identify new venues to utilise and value the waste produced by the cotton ginning industry, the SWITCH-Asia project *Sustainable Cotton Production in Pakistan's Cotton Ginning SMEs* ('SPRING') has assessed the feasibility of turning the industry's waste into a source of energy.

Although cotton gin waste has a higher heating value than that of bagasse and corn cob, it was not possible to use it in conventional household stoves because of its rapid burning, emission of excessive smoke and particulate matter.

The project undertook a collaborative research study with the Department of Chemical Engineering of the University of Engineering and Technology in Lahore, with the idea of designing a household gasifier, fuelled by cotton gin waste, as a cleaner source of energy for domestic cooking, and that releases fewer emissions.

After several trials, a prototype has been developed that works on the basic principle of gasification, converting the biomass to a synthesis gas (syngas). By mixing rice husk and cow dung, cotton gin waste pellets were made, which have proven to be 50 to 60% more heat efficient than raw waste.

While different agro-waste gasifiers are in use in the world, in Pakistan, it was *SPRING* that pioneered its design and fabrication.

The household gasifier stove resulting from the project's cooperation with the University and which uses agro-waste as fuel is both clean for cooking and cost-effective, with its unit price ranging between EUR 30 and 40. A medium-size Pakistani rural family of 5-6 members uses fuel wood for open burning and requires, on average, 240 kg of wood per month, for an estimated monthly cost of EUR 33.6. By switching to raw cotton gin waste, 216 kg are sufficient to provide the same results, and for a monthly cost of EUR 6.48.

In comparison, and factoring in both the stove price and fuel costs, traditional stoves used in rural areas cost on average per month for a family of six persons:

- EUR 36.95 for a mud or cement stove;
- EUR 47.18 for a kerosene oil stove, and
- EUR 75.67 for LPG operated stoves.

In urban areas, natural gas stoves are also available, for a total monthly cost of EUR 32.05.

This clean source of domestic energy improves living and working conditions for women, as less time is required for cooking compared to conventional fuels and as agro-waste and pellets are more easily and conveniently available than fuel wood. On average, rural women spend five hours per day to prepare three meals. By switching to agro-waste gasifiers, the cooking time is reduced by half.

A wider use of this simple and user friendly gasifier has the potential of not only meeting the domestic fuel requirements of rural communities, but also of reducing the tendency of rural communities to cut trees for domestic cooking use.

The *SPRING* project team has demonstrated the use of this stove among rural communities, especially those living around ginning SMEs, for wider dissemination and adoption.

Besides vendors and fabricators being trained about the design and technical specifications of the new gasifier, more than 300 women were also trained through 11 workshops. 25 gasifier units were distributed among rural women, who use it for household cooking in the project areas of Bahawalpur, Rahim Yar Khan and Sukkur. At first, very curious about a solar operated gasifier, women were excited to see this simple, efficient and clean source of energy.

The *SPRING*-promoted gasifier is a significant contribution to financial savings, tree preservation and health, given its more limited emissions that significantly cut the risks of pulmonary and eye diseases.

In addition to cotton gin waste, the gasifier can also efficiently operate on other agro-waste as fuel, such as rice husk, wheat straw and agro-waste pellets, etc. These other agro-waste pellets are available in markets produced by local vendors, whereas cotton gin waste pellets so far were only produced for demonstration purposes.

The new gasifier is widely applicable for household cooking, in small culinary businesses and in the kitchens of cotton ginning factories. It has not been patented as the project intends to keep it open for everyone to use and fabricate. However, in order to scale up the results and further disseminate the tested prototype, *SPRING* developed a proposal for a social enterprise based around an agro-waste gasifier fuelled by cotton gin waste in its raw form, to be used by households in rural areas, and to be developed with the support of WWF-Switzerland. The venture has been included in the three finally selected business ventures, and is expected to start in mid-2017.



Source: Sri Lankan renewable energy project

## Sri Lanka

# Reviving the biogas solution

**B**iogas is produced by converting organic materials and raw waste primarily into methane and carbon dioxide, which can then be used as a clean and renewable source of energy for heating, electricity, and the remaining fermented organic waste as fertiliser.

In Sri Lanka, biogas has been in use since the 1970s, with estimated 10 000 units being built in the country. However, the lack of qualified technical capacity for maintenance and quality assurance has hindered a broader uptake of this technology, concurrently causing mistrust and reluctance among potential users.

In 2014, a SWITCH-Asia project was launched, *Promoting renewable energy as a driver for sustainable development and mitigation of climate change in Sri Lanka*. Shortened into *Sri Lankan renewable energy*, the project specifically aimed at scaling up the use of biogas in the country, especially in areas and among beneficiaries that had not previously had access to it.

Working in the Central, Western, North Western, Eastern and Southern Provinces, the project has enabled the adoption of biogas units among 600 households and farms, 29 hotels, 250 schools and 50 other institutions by the end of 2016.



Prior to the project's interventions, these new users would dump organic waste in their backyard or have it collected by local authorities. Following their transition to biogas, they produce cleaner energy (using the gas for cooking or converting it into electricity), have an effective solution for managing their waste and generate organic bio-slurry for their gardens.

Switching from LPG to biogas also provides financial savings: an eight-cubic metre biogas unit can take up to 60 kg of organic waste per day and can produce up to the equivalent of 180 LPG cylinders (12.5 kg) per year. At the current price of LPG in Sri Lanka, the project estimates potential savings of up to LKR 4 000 (EUR 25) per month.

Biogas is also a time-efficient solution, since cooking times are reduced compared to firewood use and households no longer need to spend hours collecting firewood, which in turn reduces pressure on forestry. It is estimated that by switching to biogas-fuelled stoves, women can save up to 1.5 hours per day on their cooking chores. Very importantly, switching from firewood to gas stoves for cooking significantly reduces exposure to hazardous fumes that cause eye irritation and respiratory diseases.

These benefits are particularly meaningful for women as the main household caretakers. In Sri Lanka, women are usually in charge of collecting firewood and of cooking, which also makes them the more exposed to smoke emitted by stoves. Switching from traditional firewood-fuelled stoves to biogas units enables women to optimise their time, preserve their health and live in a cleaner environment, to the benefit of the entire household.

The *Sri Lankan renewable energy* project itself did not prototype new models of biogas units. It focused on promoting the existing ones, especially the fixed dome model (known as 'Chinese model'), Low-Density Poly Ethylene (LDPE), Sri Lak Umaga and Sri Lak Umaga Fibre. In addition, it promoted compact units that are new in design and which make bio-gas accessible to a larger population, as they are suitable for users with smaller land areas and lower daily generation of waste.

All of these models of biogas units are locally produced. The LDPE and the Sri Lak Umaga Fibre model are 'plug and play' and easily portable since they are installed above ground. The Chinese model and the SriLak Umaga are built with bricks and concrete, normally come in larger sizes and are fixed, below the ground. If properly used and maintained, these models last decades.

While not developing brand new types of biogas units, the project did however work with the Sri Lanka Standards Institution to review the Biogas Standard and have the Sri Lak Umaga included for the first time. At the time of writing, this model is part of the reviewed standard that is in the process of being approved by the Sri Lanka Standards Institution Sectorial Committee and which is expected to be published by April 2017.

On the policy side, *Sri Lankan renewable energy* worked with provincial governments. In the North Western, Eastern and Southern provinces, in 2016, the government incorporated biogas as part of its latest energy plan for the next five years. The Central and Western provinces have a provincial biogas programme action plan, albeit not designed in coordination with the provincial energy plans, as these are still in the making.

When the project started, the local market of biogas unit producers was very limited and occupied by few key players. The project actively developed corporate technical capacity so to ensure a more robust and sustainable market, and help overcome the quality barriers that had in the past hampered a broader uptake of this technology and made prospective users sceptical about it. 42 MSMEs were trained on construction and maintenance of biogas units, as well as on business development, marketing and sales. In this traditionally male-dominated industry, five women were trained in the construction of fibre units.

255 professionals, including livestock development inspectors, technical officers in engineering services and environmental engineers, were trained as biogas promoters, 20 of them women.

The project raised awareness via campaigns in the press and 50 promotional events, addressing 1 800 people directly. Among households, urban families were the main targets, but in the rural areas also farmers joined the promotional events and welcomed the technological upgrade.

In response, 600 rural low income and urban middle-income families swapped to biogas solutions. Prospective users were initially unconvinced by this technology, due to past experiences with poor domestic technical capacity and quality. Additionally, especially in the more urban areas, it was thought that cattle were necessary to run a biogas unit. In practice, the technology available to date can effectively cater to any type of organic waste, also including human, food and garden waste.

The project did not have a gendered approach and as such does not have gender-specific data on the response to the promotion of biogas. While men were still noted to be the main decision-makers at the household level, often being the only formal breadwinners, it was concurrently observed that, especially in rural areas, women were the most enthusiastic supporters of a switch to this cleaner energy and became part of the related decision-making process.

Two case studies are representative of these transitions. Sathyanandam Rajeshwari (31) from Batticaloa in the Eastern Province is a cattle farmer and labourer with three children. Her little farm comprises of four cows, thirteen goats and nine chickens. Her family installed a biogas plant primarily to manage cattle waste. Once in place, however, she not only found a solution to waste management, but also a

new source of clean energy for cooking, replacing firewood for both her and her sister's family, who lives next door. Prior to the plant, she and family members would walk on Saturday morning to a jungle almost 10 km away, to gather enough firewood for a week. After installing the biogas unit, Mrs Rajeshwari spends that extra time with her children and producing palmyra-based handicrafts that she sells as an extra income source for her family.

Thirty-four year old Thachchana Murthi is a rural dweller from the Eastern Province. A mother of two, she used to sell rice until the birth of her children. Her husband left to work in the Middle East in 2015 to support the growing family. Mrs Murthi and her father work in the cattle shed and fruit and vegetable patch. Donations from third parties enabled the household to install a biogas unit, primarily to manage cattle waste. The new biogas-powered cook stove allows her to cook faster and reduces exposure to fumes. Furthermore, she is using the slurry to fertilise her vegetable and fruit patch, and no longer needs to purchase or collect firewood, when she reluctantly used to have to leave her children in neighbouring houses.

As part of its holistic approach, the project also tackled the financial dimension of the transition to biogas, to enable households and hotels to invest in this new technology. With the starting price of a bio-digester set at LKR 50 000 (EUR 311) and going up to LKR 150 000 (EUR 934), the project supported the establishment of dedicated loan facilities. In 2016, it successfully launched loan schemes with two banks: the Regional Development Bank (active in the North Western Province) and Sanasa Development Banka (island-wide). Both banks had different criteria and agreed to provide tailored loan schemes to customers based on the specific industries in their database. The loan scheme provided through the Regional Development Bank offers a 6% interest rate for cattle farmers and 6-8% for hoteliers, households, industries and piggeries. The Sanasa Development Bank offers an 8% interest rate for industries with a repayment period of three years, and competitive rates also for households and hotels. These two banks receive on average 40 queries per month, however not all successfully result in loans. In addition to them, other local financial institutions are providing loans for the purchase of biogas units, albeit not through exclusive biogas credit products.

As the project explained, costs per se were not a barrier to the uptake of this new technology, since by the time they could potentially turn into such a barrier, the project had already set in place the loan facilities. The main challenge was educational: strengthening the corporate technical capacity and raising awareness among potential users about the benefits and quality assurance of biogas.

## Conclusions

**T**he case studies covered in this chapter illustrate five different interventions that provide women with access to cleaner energy in India, Laos, Myanmar, Pakistan and Sri Lanka. The described solutions apply to urban, peri-urban and rural residents but have a stronger impact on rural and poorer beneficiaries among whom conventional inefficient cooking devices prevail and who suffer most from energy poverty.

The improved cook stoves (ICS) and gasifiers, as well as bio-digesters promoted by the five projects, represent cost-effective solutions with multiple advantages, of which women are the primary beneficiaries in their capacity as the main home caretakers.

Most of all, these improved devices are of paramount importance because they reduce exposure to hazardous smokes that cause eye and breathing issues. The WHO reports that over four million people die prematurely every year because of illnesses caused by household air pollution from cooking with solid fuels. As primary users of cooking equipment, women benefit most from this enhanced health impact. Besides women, the elderly and children are also positively affected, because they are largely exposed to indoor air polluted by smoke and particulate matter from inefficient devices.

Further, more efficient cooking devices make women's household chores less time consuming: the ICS in Laos allows the saving of 30-40 minutes per day, Sri Lanka's biogas saves 1.5 hours and the agro-waste gasifier developed in Pakistan cuts up to 2.5 hours of cooking time per day. Increased stove efficiency reduces women's workload in that efficient devices require less firewood and thus reduce household fuel expenses. Together with charcoal, it is the fuel most used by the households in these case studies. Firewood collection is usually assigned to women, who have to walk long distances or start purchasing firewood after deforestation and increasing demand have made it scarcer. While ICS users need less firewood to operate their stoves, the 600 Sri Lankan households who have swapped to biogas solutions no longer need any firewood at all, and have additionally found a useful way to manage their bio-waste.

Each SWITCH-Asia project followed its own approach: for instance, in Laos, it prototyped new models of ICS, in Myanmar it promoted design adjustments, whereas in India it focuses on compiling information, examining the specifications of and raising awareness about locally available cook stoves. These differences notwithstanding, projects adopt holistic approaches that also include substantial interventions in the areas of technical and quality assurance, standardisation, support to producers and strengthening of supply chains as a

whole. The lack of a comprehensively regulated market with quality assurance standards was a common barrier initially encountered, which projects in Laos and Myanmar addressed by establishing professional cook stove testing laboratories.

Throughout the presented case studies, women benefit not only as end-users of improved equipment and technology. The projects also support the active participation of women along related supply chains, and in so doing boost female entrepreneurship. Women account for approximately one third to one half of the ICS producers in the case of the Laos and Myanmar projects. The case of Laos is also noteworthy for having successfully established an ICS production unit within the Lao Disabled Women Development Centre, thus providing an additional avenue for empowerment to an exceptionally vulnerable group of women.

While the presence of women in the cook stove production and retailing phases is significant, it remains limited in other distribution phases. The biogas technology sector in Sri Lanka remains heavily male-dominated.

Across the presented cases, women stand out as main decision-makers regarding the selection and adoption of these improved devices. The decision is taken collectively within the family, but women seem to be the driving force behind the choice of the device, even if the actual purchase is made by their husbands for reasons of social status or mobility.

In line with observations in the other chapters of this publication, and as observed in the case of access to energy, the SWITCH-Asia projects fostered the uptake of technological upgrades by supporting business and management capacity within the supply chains. They are training current and prospective SMEs, improving their ability to navigate the business environment and develop sustainably. The case studies from India and Laos point again to the importance of inclusive platforms, such as existing self-help groups or ad hoc created business associations. They are used effectively as multipliers and efficient channels for awareness-raising and capacity building.

The solutions promoted in the energy sector are particularly outstanding for their far-reaching potential and their contribution to achieve SDG 7 "Ensure access to affordable, reliable, sustainable and modern energy for all". They represent low-investment, cost-effective, but multi-benefit solutions that can address outstanding needs and change the living and working conditions of millions of households. In India alone, the 'Women-centered Improved Cook Stoves' project estimates that 800 million households could benefit from improved cook stoves.



# CONSUMPTION



Source: Plastic Bag Waste project



## Introduction

**D**espite being fewer in number, the SWITCH-Asia projects addressing issues of unsustainable consumption are among those that most clearly illustrate the powerful role that women can play as a driving force for change towards sustainable development.

In the countries covered by these projects, women are traditionally in charge of taking decisions about the family's consumption habits, starting from food and nutrition. Their

decisions and behaviour on matters of consumption determine their family's choices and influence those of the surrounding community.

The projects featured in this chapter show how leveraging the role of women on consumption matters increases ownership, at the grassroots level, of initiatives promoting more responsible behaviour and expands their impact and resonance.



Source: Plastic Bag Waste project

### Cambodia

## It's a woman's world

**T**he SWITCH-Asia project *Plastic Bag Waste* addresses the excessive consumption of plastic bags in Cambodia by promoting the replacement of multiple, poor quality plastic bags with the use and reuse of one single, better quality and more spacious bag, especially in urban wet markets.



Research conducted by Fondazione ACRA<sup>1</sup>, the project's leading partner, showed that one urban Cambodian on average consumes every year ten times more plastic bags than a European urban consumer. The plastic bags used in Cambodia are made of polyethylene (PE) and usually contain, as additives, plasticisers for fluidity, colorants and inks for colour, and antioxidants and stabilisers to protect against thermal decomposition during manufacturer. They also commonly include heavy metals, like cadmium and lead, in colorants.

The lack of adequate waste collection, segregation and management facilities causes many consumers to dispose of their unused plastic bags via open burning, which provokes serious health hazards to those exposed as well as polluting the surrounding environment.

The impact of excessive plastic bag consumption in Cambodia, in terms of damage to the urban environment, environmental contamination, health hazards and disruption of tourism, has been estimated to amount to hundreds of millions of Euro per year<sup>2</sup>.

The main distributors of plastic bags in Cambodia are wet markets. They account for approximately half of all the plastic bags distributed, and, on average, provide shoppers with five plastic bags per visit<sup>3</sup>.

When interviewed<sup>4</sup> about their decision to engage women, Mr Rishabh Sachdeva from Quicksand, the innovation lab contracted by the project to design an alternative system to reduce plastic bags, explained that they "didn't have an option". Theirs was less a gender-oriented decision than a business and marketing strategy. With women accounting for about two thirds of all market vendors and 95% of all fruit and vegetable vendors in the markets covered by the project's campaign, reaching out to them and getting their buy-in was essential, if a behavioural change were to be rolled out successfully. Women are the main decision-makers throughout the retail process, placing purchase orders, setting prices, selecting packaging materials, and interacting with customers and neighbour vendors.

The project reported<sup>5</sup> that as many as 85% of their surveyed sample, among 606 consumers and retailers in Phnom Penh, Siem Reap and Sihanoukville, had particularly high awareness about the side effects and hazards caused by plastic, particularly when being burned. Yet, concurrently,

more than 90% admitted to continue practising plastic burning in the open, in the absence of alternative viable waste management solutions.

In August 2016, the project launched a full-fledged Behavioural Change Campaign (BCC) that makes use of a communication initiative, TV commercials and incentives at the markets, in order to encourage shoppers and vendors to switch from many small plastic bags when shopping to one larger bag, where more items can be stored and which can be used at successive visits to markets and shops.

Concurrently, up to February 2017, the project trained 975 fruit and vegetable vendors in two wet markets in Siem Reap, three in Phnom Penh, and one in Sihanoukville. 95% of the trained vendors are women. The training focused on vendors selling fruit and vegetables because these are the most suitable shopping items to be combined into one bag, whereas fish and meat would require separate packaging.

The training focus on three behavioural aspects, namely: 'Combine in one bag', 'Combine in existing bag' and using signs to convince shoppers. In introducing the campaign, the project team explains the harmful effects of plastic bags, the benefits of their proposed alternative and helps vendors to calculate the financial savings that a reduced consumption of plastic bags would grant them.

Most vendors purchase plastic bags on a daily basis and only a few wholesalers buy them less frequently and in bigger amounts. The market cost of the most commonly-used plastic bags ranges between KHR 7 000 (EUR 1.6) and KHR 10 000 (EUR 2.3) per kilo, with transparent bags being more expensive than the colourful, yet more harmful, ones.

Prior to, during and after the training, the team has been collecting data on the number of plastic bags used by each vendor. Based on project's experience in their targeted wet markets, vendors use on average 0.769 kilos of plastic bags per day, at a daily cost of KHR 6 600 (EUR 1.5). Evidence available up until February 2017 shows that immediately after the training, the consumption of plastic bags among vendors dropped between 20.8 to 45% depending on the market. An average reduction of 30% lowers the daily cost to KHR 4 600 (EUR 1), resulting into a daily saving of KHR 2 000 (EUR 0.46).

Observations from the project during the campaign indicate that women are more responsive than men: they are more aware of the side effects of plastic bags, more eager to take part in the campaign and tend to participate more in training. They are also easier to approach for organising meetings related to the campaign.

Women play a key role in the whole campaign, not only in their capacity of vendors, but also as shoppers. The project estimates that approximately 80% of all shoppers are women. As main caretakers and responsible for the household budget, besides often working full-time, women also take care of daily shopping chores. In light of this, and added to

1 SWITCH-Asia project 'Plastic Bag Waste' – 17 Triggers. 'Behaviour Change Communication Campaign: Market Research Report', November 2015. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/Plastic\\_bags/Market\\_Research\\_Report.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/Plastic_bags/Market_Research_Report.pdf)

2 SWITCH-Asia project 'Plastic Bag Waste' – Fondazione ACRA 'Tools for Policy Development. Assessment on the Cost of Plastic Bags in Cambodia. Full Research Report', January 2016. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/Plastic\\_bags/Cost\\_of\\_Plastic\\_Bags.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/Plastic_bags/Cost_of_Plastic_Bags.pdf)

3 SWITCH-Asia project 'Plastic Bag Waste' – 17 Triggers. 'Behaviour Change Communication Campaign: Market Research Report', November 2015. [http://www.switch-asia.eu/fileadmin/user\\_upload/Project%20news/Plastic\\_bags/Market\\_Research\\_Report.pdf](http://www.switch-asia.eu/fileadmin/user_upload/Project%20news/Plastic_bags/Market_Research_Report.pdf)

4 The SWITCH-Asia Network Facility met and interviewed the project at their office in Phnom Penh, Cambodia, on 18 July 2016.

5 Ibid.



most vendors being women, it seemingly facilitates interaction with customers and makes it easier to persuade them to adjust their consumption habits.

The initial response to the BCC suggests that approximately 70% of all shoppers agreed to switch to one, more capacious bag. Reluctance to change was explained by finding the traditional multiple bags more convenient, considering them more suitable for storage in the fridge, limited time when shopping during rush hours and general scepticism towards the campaign.

This response confirms how mind-sets can change and that new consumption habits require time to be fully appreciated and implemented. Concurrently, the enforcement of national legislation limiting the use of plastic bags will be a driving force to support this change.

In this respect, the project is supporting Cambodia's Ministry of Environment in developing a regulatory environment conducive to a reduced use of plastic bags and enhanced waste management infrastructure. As a result, in 2016, a sub-decree was drafted which is expected to come into force soon. Integrating the project's recommendations, the sub-decree includes a set of provisions such as a minimum price charge on plastic bags in supermarkets and a ban on plastic bags with thickness lower than 30 microns and width lower than 25 cm. With Cambodian plastic bags being almost exclusively imported (from Vietnam and Thailand), the sub-decree also foresees constraints on imports of plastic bags, in the attempt to incentivise eco-alternative packaging solutions. The project has been training local authorities in the province of Siem Reap to support the enforcement of these general norms into effective policies. In the course of 2017, it will also provide technical assistance to local officials in Sihanoukville to establish local ordinances and bylaws.

In its efforts to ensure a comprehensive mind-set change, the project has recently also started to raise awareness about the plastic bag problem and promote more sustainable consumption habits in schools. In collaboration with the National Committee for Clean Cities Assessment (NCCA), an inter-ministerial body with Prime Minister Hun Sen as honorary chairman and the Minister of Tourism as Chairman, the project is mainstreaming sustainable waste management practices among 20 primary and high schools across the provinces of Siem Reap and Sihanoukville. A key feature of this educational programme is the creation of so-called 'Eco-Clubs', where students are invited to develop a collaborative work plan of activities that generate a positive impact on their surrounding environment, families and communities. The project and NCCA will then progressively monitor the impact of the suggested activities, which are being implemented with the support of teachers and school leaders.

Prior to its completion in August 2017, the project expects to bring its upcoming BCC campaign in the two remaining

target markets in Phnom Penh, expand its social media outreach nationally, provide capacity building to Sihanoukville officials to support the enforcement of policies aiming at curbing plastic bag waste, and complete the school programme in the provinces of Siem Reap and Sihanoukville. In addition, it will compile a report on the best practices and relevant cases studies from community-based and social businesses regarding waste management practices to reduce, repurpose or recycle plastic.



Source: GetGreen project

## Vietnam

# ‘Change Agents’ of greener consumption

In Vietnam, a dedicated SWITCH-Asia project was carried out between 2012 and 2015 to educate consumers about sustainable products and to promote their wider use. The *GetGreen* project engaged 52 consumer groups, each of them composed of 25 to 30 participants. Project trainers ran calls for participants in selected organisations, schools and communities. The majority of respondents were women, as in Vietnam they take care of most household and shopping chores.

The women engaged with the project were aged between 18 and 70, included students, office workers and housewives, and came from the middle classes living in the urban areas of Hanoi, Da Nang, Ho Chi Ming City and Can Tho.

During its test phase, *GetGreen* found that the target consumers showed considerable awareness about the environmental impact of products, yet only had a vague understanding of the term ‘sustainable consumption’ and of how it would relate directly to their consumption patterns and the environment. Some had a deeper understanding of these issues, but were afraid to act differently from the mainstream behaviour within their communities, or feared opposition of family members. As many participants admitted during the project activities, husbands and other family

members were not supportive of their attempts to change consumption patterns, or to persuade others to do so. While this was a challenge, on the other hand, the wide and active participation of women made it easier to convey the project message, as women are more familiar with and directly exposed to consumption-related matters.

The project engaged women at various levels: women joined *GetGreen* groups individually and many of the actions were aimed at their households. These groups were established by the project, who gathered participants from the same living or working context (e.g. same university, same neighbourhood, same organisation) into a group, so that the behavioural changes could be encouraged more easily. Several of the groups were community groups, while the project's networking events were held at the city level (Ho Chi Minh City, Hanoi, Da Nang).

Via these groups, *GetGreen* provided training on how to switch to sustainable consumption. The training not only provided participants with knowledge on environmental issues and climate change, but also equipped them with methods, tips and guidelines on how to practise this new lifestyle.

A 'GetGreen Guidebook' was developed, which related to eight themes linked to living, working and studying, and included 75 green tips, as a guideline for the participants to start their process to become change agents. Green tips included, for instance, preference for purchases of local food, use of natural light and ventilation, and the monitoring of food waste<sup>6</sup>. These tips offered useful information on environmental impacts, personal benefits, effects on future generations and necessary steps to achieve certain green actions.

Throughout the training, each group had opportunities to experience and observe the application of the green tips by other communities. At the end, a combination of information sessions and fieldtrips was used to narrow down the knowledge-application gap and broaden the network of sustainability practitioners.

As a result of the project, out of a total of 1 099 participants, 874 women were certified as 'GetGreen Vietnam's Change Agents'. Their behaviour was surveyed before and after the training for two to three months. In the survey prior to the training, participants were asked if they were implementing any of the 75 specific green tips and how often. After the training, the project re-surveyed the same actions and monitored whether additional green actions had been taken, and how many other people (family and friends) had been inspired.

After the training, on average, participants showed an improvement rate in implementation of all sustainable actions (e.g. recycle plastic and paper waste into useful items for domestic use, develop their own green office model) from 65 to 78%. Several Change Agents also produced short video clips illustrating their improved lifestyles.

Despite the project being completed for about two years, the former trainers continue to apply the project methodology and use the project training materials in their activities for students and the community.

As a follow-up to *GetGreen Vietnam*, the Asian Institute of Technology in Vietnam (AIT-VN), one of the project partners, developed a green education programme for children, based on the methodology and experiences of *GetGreen Vietnam*. The National Television for Youth (VTV6) has recently agreed to use the project materials, including guide booklets and video clips, for their programme for secondary schools.

Another former project partner, the Vietnam Cleaner Production Centre (VNCPC), applied the co-creation methodology for food products developed by *GetGreen Vietnam* into a new SWITCH-Asia project on the sustainable supply chain of pangasius in Vietnam<sup>7</sup>. *GetGreen* groups have been invited to join the co-creation activity of this project, considering their knowledge of sustainable consumption and sustainable products.

<sup>6</sup> A comprehensive list of the green tips provided by the project is available on its website at: <http://getgreen.vn/>

<sup>7</sup> 'Establishing a sustainable pangasius supply chain in Vietnam' (2013-2017), more information at: <http://www.switch-asia.eu/projects/pangasius-supply-chain-in-vietnam>

## Conclusions

**G**iven their roles as main family caretakers, mothers, food preparers and shoppers, in Asia, women are the most exposed to and active agents of consumption-related decisions.

Two SWITCH-Asia projects have been working specifically in the promotion of sustainable consumption, in Cambodia and Vietnam respectively. They both reported that women are the main actors of consumption-related decisions.

Irrespective of their professional background and age group, women accounted for the majority of respondents to the initiatives the projects launched, to raise awareness about sustainable consumption and promote alternative behaviours. Whether young or old, housewives, employees or still students, in both case studies, women stood out as influencers at the family and community levels. They acted effectively as the main channel to spread the projects' message and foster more environment-conscious consumption choices.

Not only were women's initial response to and interest in the projects higher, their uptake of new habits as promoted by the projects was also remarkable. In Vietnam, about 80% of the certified 'Change agents' were women. In Cambodia, 70% of the trained shoppers adopted the new storage solution. Considering that 95% of the Cambodian trainees were women, it can be assumed that they also accounted for a vast number of those positive responses.

The experience from these two projects thus seems to indicate that engaging women to promote more sustainable products and consumption patterns is both pivotal, in order to influence consumption patterns, and more likely to generate a positive return, in terms of behaviour changes. As main decision-makers of consumption choices and key multipliers at the family and community levels, women have the potential to spearhead significant impact, for the benefit of improved family and community wellbeing.





Source: Sustainable Rattan project

# CONCLUSIONS AND RECOMMENDATIONS

**T**he SWITCH-Asia experiences from South and Southeast Asia compiled into this publication first and foremost point to a very significant presence of women throughout the sectors addressed by the individual SWITCH-Asia grant projects. In their capacities as employees and manufacturers, managers, owners, retailers and consumers, women are essential players and beneficiaries of all interventions that promote more sustainable production and consumption practices. Women matter both for their ability to influence and determine production and consumption patterns, as well as for the impact that such patterns exert on them.

Despite the quantitative relevance of women's participation in these sectors, their full-fledged qualitative participation remains hindered by persistent barriers, the major ones being their lack of or limited education, hazardous living and working environments, as well as, in some countries, restrictive cultural norms. Not surprisingly, then, the projects in these case studies mostly contribute to empower women by means of awareness-raising, education and training, especially on cleaner production, resource efficiency and occupational health and safety. Cleaner, safer and healthier working environments and devices, in both SMEs and households, are crucial to ensure the basic wellbeing of female users and a level playing field for their further empowerment. Concurrently, the provision of technical and professional skills, even if at a basic level, goes a long way in enabling women to enter the job market, apply for more qualified jobs, benefit from more secure occupations and earn higher incomes.

Furthermore, these case studies show that projects provide an essential, however intangible, resource to empower women, namely self-confidence. Self-worth and self-esteem are key components of women's psychological empowerment, all the more for those women who are poorly educated, lack strong professional skills and are confined to their households by traditional cultural and social norms.

By turning women into more responsible consumers, educated workers and skilled entrepreneurs, women are not only empowered with an understanding of their entitlements and rights, they are also encouraged to pursue their abilities and aspirations for change. This is a precondition to enable them to become real agents of change for their life, that of their families and for the communities around them. In turn, affecting women's living and working conditions has

a far-reaching impact that goes beyond the female individuals and influences their household as a whole. Children, in particular, benefit the most of an improved living and working status of women: they enjoy more and better nutrition, receive support for their education, live in healthier environments and can spend more time with their mothers.

When enabled to perform their actions with proper education and in safe workplaces, women can better support their families' wellbeing, take care of the local environment and contribute to preserving local skills and traditions. The multiplier impact of empowered women should thus not be underestimated. Wasting the potential of empowered women charges a heavy price to families, societies and the environment.

From an operational point of view, it was noted that many projects, even if not gender-oriented by nature, did nevertheless produce worthwhile results in advancing women's empowerment. Very often, however, projects are not designed taking into account the gender dimension, which limits their awareness of and ability to capture the impact of their interventions in this area.

By taking into consideration gender data and related variables from the onset, projects would be better able to track and report both the role of women in their intervention as well as their impact on women's empowerment. The case of the Bangladeshi project *Jute diversified products* serves as a good example in this respect: accurate data on the profile of women and the barriers to their empowerment were collected from the project's beginning and measured along its intervention. In this way, the project team was able to monitor the progressive impact of their intervention on women and take adjustments if needed. As the project approached conclusion, it was possible to draw an overview of how the condition of women had changed as a result of its intervention. This, in turn, added to the other important sets of results achieved by the project.

Formally, SWITCH-Asia project proposals are encouraged to promote women's empowerment. Evaluating and assessing prospective projects by considering also their proposed action plan related to gender would help ensure that issues of women's empowerment and the potential role of women are more thoroughly and consistently captured and included into the projects' logframes, action plans and reports.

## Acknowledgements

The SWITCH-Asia Network Facility would like to thank the following project team members for the abstracts, follow-up data and information they provided in the course of the production of this publication. Their input and cooperation have been most valuable in the making of these case studies. We list them hereafter in the order of appearance of their project in this publication.

### **Textile waste as a women's empowerment resource**

*Going Green, India:*

Pragya Majumder and Maveen Pereira (Traidcraft Exchange).

### **Improving livelihoods through the use of natural dyes**

*Hand-woven eco-textiles, Indonesia:*

Miranda Miranda, Shelley Cheong Holdaway and Hendriyadi Bahtiar (Hivos).

### **Preserving the value of a traditional craft**

*Clean Batik Initiative, Malaysia:*

Schvonne Choo (formerly with the Malaysian-German Chamber of Commerce (MGCC)) and Prof. Nik Meriam Nik Sulaiman (University of Malaya).

### **Towards sustainable 'Made in Myanmar' garments**

*SMART Myanmar:*

Khine Khine Nwe (MGMA), Simone Lehmann (sequa gGmbH), Su Tayar Lin (SMART Myanmar).

### **Sustainability starts with safety**

*Sustainable Carpet and Pashmina, Nepal:*

Surendra Chaudhary and Pratap Rai (Mercy Corps).

### **Cleaner cotton production, better lives for women**

*SPRING, Pakistan:*

Asad Ullah Imran and Muhammad Masood Akhtar (WWF Pakistan).

### **Sustainable innovation by disabled ethnic women**

*SPIN, Vietnam:*

Pham Thái Vũ (CCS), Đô Thu Cúc (Hoa Ban+).

### **The jute supply chain**

*Jute Diversified Products, Bangladesh:*

Khaled Golam Mortuza (formerly with CARE).

### **SMEs of jute diversified products**

*Eco-Jute, Bangladesh and India:* Ismat Jahan, Maveen Pereira and Shahed Ferdous (Traidcraft Exchange).

### **Sustainable rattan production**

*Sustainable Rattan, Cambodia, Laos, Vietnam:*

Tam Le Viet, Linda Zednieck, Thibault Ledecq, Sabine Gisch-Boie (WWF).

### **'Rattan for life'**

*Prospect Indonesia:*

Santi Susanti and Cecep Jaelani (PUPUK).

### **Female entrepreneurship through scientific forest management**

*Bio-Energy, Nepal:*

Moon Shrestha and Usha Pandey (Helvetas), Anil Maharjan (Staric).

### **Better cook stoves for forest-dependent women**

*Women-centered ICS, India:*

Rekha Panigrahi and Shashank Bibhu (CARE India).

### **135 000 improved cook stoves**

*Improved Cook Stoves, Laos:*

Bastiaan Teune and Louise Bott (SNV Netherlands Development Organisation).

### **Mainstreaming gender in the cook stove supply chain**

*Myanmar cook stove:*

François Sorba (GERES) and Svati Bhogle (ENERGIA).

### **Clean energy from cotton gin waste**

*SPRING, Pakistan:*

Asad Ullah Imran and Muhammad Masood Akhtar (WWF Pakistan).

### **Reviving the biogas solution**

*Sri Lankan renewable energy:*

Hugo Agostinho and Arifeen Tuan (People in Need), Senashia Ekanayake and Damitha Samarakoon (Janathakshan).

### **It's a woman's world**

*Reducing plastic bag waste, Cambodia:*

Claudia Oriolo, Ek Kunthea, Nget Long, Son Dypong, Mak Bunthoeurn, Prach Soengchealy, Sang Saroeun (Fondazione ACRA).

### **'Change Agents' of greener consumption**

*GetGreen Vietnam:*

Nguyen Thi Phuong Nhung (VNCPC) and Ta Huong Thu (AIT-VN).

## Appendix: Project details

Short name	Full name	Timeline
<i>Going Green</i>	Going Green	2014 - 2017
<i>Hand-woven eco-textiles</i>	Sustainable Consumption and Production (SCP) of handwoven textiles: Female Entrepreneurship in Indonesia and the Philippines	2013 - 2017
<i>Clean Batik Initiative</i>	Encouraging and Implementing Sustainable Production and Consumption of Eco-Friendly Batik in Indonesia and Malaysia	2009 - 2013
<i>SMART Myanmar</i>	SMEs for Environmental Accountability, Responsibility and Transparency	2013 - 2015
<i>SMART Myanmar II</i>	SMEs for Environmental Accountability, Responsibility and Transparency	2016 - 2019
<i>Sustainable carpet and pashmina</i>	Enhancing Sustainability and Profitability of the Carpet and Pashmina Industries in the Kathmandu Valley	2014 - 2017
<i>SPRING</i>	Sustainable Cotton Production in Pakistan's Cotton Ginning SMEs	2012 - 2015
<i>SPIN</i>	Sustainable Product Innovation in Vietnam, Cambodia and Laos	2010 - 2014
<i>Jute Diversified Products</i>	Jute Diversified Products – sustainably produced and consumed	2013 - 2016



	Partners	Location	Website
	Traidcraft Exchange (TX); All India Artisans and Craftworkers Welfare Association (AIACA)	India	<a href="http://www.switch-asia.eu/projects/going-green">http://www.switch-asia.eu/projects/going-green</a>
	Humanist Institute for Cooperation with Developing Countries (Hivos); Association for Women in Small Business Assistance (ASPPUK); Non-Timber Forest Products-Exchange Programme (NTFP-EP); Cita Tenun Indonesia – CTI (Indonesian woven textiles association)	Indonesia, Philippines	<a href="http://www.switch-asia.eu/projects/hand-woven-textiles">http://www.switch-asia.eu/projects/hand-woven-textiles</a>
	European Business Chamber of Commerce in Indonesia (EKONID); Malaysian-German Chamber of Commerce (MGCC); IHK-Akademie München	Indonesia, Malaysia	<a href="http://www.switch-asia.eu/projects/clean-batik-initiative">http://www.switch-asia.eu/projects/clean-batik-initiative</a>
	sequa GgmbH; Sheffield Chamber of Commerce and Industry LBG (SCCI); Confederation of the German Textile and Fashion Industry (CGTFI); Republic of the Union of Myanmar; Federation of Chambers of Commerce in Myanmar Business (UMFCCI); Myanmar Garment Manufacturers Association (MGMA); Association of Development Financing Institutions in Asia and the Pacific (ADFIAP)	Myanmar	<a href="http://www.smartmyanmar.org">http://www.smartmyanmar.org</a>
	sequa GgmbH; Myanmar Garment Manufacturers Association (MGMA); Association of Development Financing Institutions in Asia and the Pacific (ADFIAP); Foreign Trade Association of German Retail Trade (AVE); Stichting Made-by Label (Made-by)	Myanmar	<a href="http://www.smartmyanmar.org">http://www.smartmyanmar.org</a>
	Mercy Corps; Society for Environment and Economic Development- Nepal (SEED-Nepal)	Nepal	<a href="http://www.switch-asia.eu/projects/sustainable-carpet-and-pashmina">http://www.switch-asia.eu/projects/sustainable-carpet-and-pashmina</a>
	WWF-Pakistan; WWF-UK; Pakistan Cotton Ginners' Association (PCGA); Better Cotton Initiative (BCI); National Textile University (NTU), Faisalabad	Pakistan	<a href="http://www.switch-asia.eu/projects/cotton-production">http://www.switch-asia.eu/projects/cotton-production</a>
	Delft University of Technology; Vietnam Cleaner Production Centre; Asian Institute of Technology in Vietnam (AIT-VN); Lao National Chamber of Commerce and Industry (LNCCI); Cambodian Cleaner Production Programme (CCPP); United Nations Environment Programme (UNEP)	Cambodia, Laos, Vietnam	<a href="http://www.switch-asia.eu/projects/spin-vcl">http://www.switch-asia.eu/projects/spin-vcl</a>
	CARE France; UTTARAN; Sheba Manab Kallyan Kendra (SMKK); Debi Chowdhurani Palli Unnayan Kendra (DCPUK); Eco Social Development Organization (ESDO)	Bangladesh	<a href="http://www.switch-asia.eu/projects/jute-diversified-products">http://www.switch-asia.eu/projects/jute-diversified-products</a>



Short name	Full name	Timeline
<i>Eco-Jute</i>	Jute: an eco-friendly alternative for a sustainable future	2010 - 2014
<i>Sustainable Rattan</i>		2009 - 2011
<i>Prospect Indonesia</i>	Promoting Eco Friendly Indonesia Rattan Products	2013 - 2017
<i>Bio-Energy</i>	Up-Scaling the Production and Consumption of Bio-Energy to Reduce Carbon Emissions and Enhance Local Employment in Nepal	2014 - 2017
<i>Women-centred ICS</i>	Evolving a Women-centered Model of Extension of Improved Cook Stoves for Sustained Adoption at Scale	2016 - 2019
<i>Improved Cook Stoves</i>	Improved Cook Stoves Programme Laos PDR	2013 - 2017
<i>Myanmar cook stoves</i>	Up-scaling Improved Cook Stove Dissemination in Myanmar through Replication of Best Practices from Cambodia and the Region	2014 - 2018
<i>Sri Lanka renewable energy</i>	Promoting Renewable Energy as a Driver for Sustainable Development and Mitigation of Climate Change in Sri Lanka	2014 - 2017
<i>Reducing plastic bag waste</i>	Reducing Plastic Bag Waste in Major Cities of Cambodia	2014 - 2017
<i>GetGreen Vietnam</i>	GetGreen VN – Sustainable Living and Working in Vietnam	2012 - 2015

	Partners	Location	Website
	Traidcraft Exchange (TX); Margdarshak Development Services; Training, Assistance and Rural Advancement Non-Government Organization (TARANGO)	Bangladesh, India	<a href="http://www.switch-asia.eu/projects/jute-an-eco-friendly-alternative-for-a-sustainable-future">http://www.switch-asia.eu/projects/jute-an-eco-friendly-alternative-for-a-sustainable-future</a>
	WWF Austria; Vietnam Cleaner Production Center (VNCPC); Artisans' Association of Cambodia (AAC); Lao National Chamber of Commerce and Industry (LNCCI)	Cambodia, Laos, Vietnam	<a href="http://www.switch-asia.eu/projects/sustainable-rattan-industries">http://www.switch-asia.eu/projects/sustainable-rattan-industries</a>
	Innovationszentrum Lichtenfels e.V. (IZL); Netherlands Development Organisation (SNV)	Indonesia	<a href="http://prospectindonesia.org">http://prospectindonesia.org</a>
	International Union for Conservation of Nature and Natural Resources (IUCN); Asia Network for Sustainable Agriculture and Bio resources (ANSAB); Sustainable Technology Adaptive Research & Implementation Center / Nepal (STARIC/N); Winrock International (WI)	Nepal	<a href="http://www.bioenergy.org.np">http://www.bioenergy.org.np</a>
	CARE India; CARE France	India	<a href="http://www.switch-asia.eu/projects/women-centered-ics">http://www.switch-asia.eu/projects/women-centered-ics</a>
	Oxfam Nobiv; SNV-Netherlands Development Organisation; Association for Rural Mobilisation and Improvement (ARMI)	Laos	<a href="http://icslao.info">http://icslao.info</a>
	Groupe Energies Renouvelables Environnement et Solidarités (GERES); Ever Green Group (EGG); ETC Foundation (ETCF) - ENERGIA; Improved Cookstoves Producers and Distributors Association in Cambodia (ICoProDAC)	Myanmar	
	People In Need (PIN); Janathakshan	Sri Lanka	<a href="http://lankabiogas.com">http://lankabiogas.com</a>
	Fondazione ACRA - CCS; Department of Environment - Phnom Penh Municipality (DoEPP); Royal University of Phnom Penh (RUPP); International Development Enterprises UK (iDE UK)	Cambodia	<a href="http://excessbaggage-cambodia.org">http://excessbaggage-cambodia.org</a>
	Delft University of Technology; Vietnam Cleaner Production Centre; Asian Institute of Technology in Vietnam (AIT-VN)	Vietnam	<a href="http://www.switch-asia.eu/projects/getgreen-vn/">http://www.switch-asia.eu/projects/getgreen-vn/</a>

***The UN Sustainable Development Summit in 2015 has created an unprecedented momentum in human history to promote a truly inclusive and sustainable development. Global political consensus has acknowledged that inclusive and sustainable development cannot be met, as long as women's empowerment is not ensured and a significant part of the world's female population is left behind.***

***The Sustainable Consumption and Production (SCP) interventions promoted by the SWITCH-Asia projects have empowered thousands of women, primarily by means of capacity building, training and education, improved living and working conditions, business support and business financing opportunities. Simultaneously, they show that, when empowered, women are effective drivers of the sustainability agenda. Empowering women is thus not only right and fair. It also makes strong business sense.***

***Through a review of 19 case studies from South Asia and South-east Asia, this book illustrates how women's empowerment and SCP are interlinked and mutually reinforcing.***



The European Commission's Development Cooperation Office (DevCo) designed the SWITCH-Asia Programme in 2007 to promote Sustainable Consumption and Production (SCP) among Small and Medium-sized Enterprises (SMEs), business intermediaries and consumer associations in developing Asian countries. Up to 2017, the Programme has been supporting 95 grant projects and six Policy Support Components in 18 countries. The SWITCH-Asia Network Facility conducts studies on SCP, promotes the uptake of SCP policies and facilitates knowledge sharing and networking among projects and with Programme stakeholders, in order to maximise the impact of individual project activities and promote their replication.