

CLIMATE CHANGE and Sustainable Consumption and Production in **AFGHANISTAN**

GREENHOUSE GAS EMISSIONS



Lack of water and energy available for operations and



Damage to infrastructure, machinery, and transport routes



Supply chain disruptions

productions

Very low relative per capita GHG emissions, but highly prone to extreme natural events

COUNTRY BACKGROUND

MITIGATION AND ADAPTATION

BY 2030 AFGHANISTAN AIMS TO



Reduce GHG emissions by 13.6% compared to the business-as-usual level.



Increase more than 30% of GHG emission reduction between 2020 – 2030.

CLIMATE FINANCE



EUR **5.61** billion

Afghanistan needs an estimated financial support of EUR 14.749 billion (2020-2030).



SMEs contribute

to 50% of GDP

Afghanistan received grant funding of EUR 157.53 million from the **Global Environment Facility**.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION





GDP:

Afghanistan is still in economic recovery. SMEs make up 80% of businesses, contributing to **50% of GDP**.

SMEs contribute to economic and social resilience. 70-80% SMEs are informal and employ more than **30%** of the labour force.





Priority SME sectors are vulnerable to climate change, e.g. agri-processing, livestock products, and timber and carpentry.

SMEs can help **conserve** scarce water and energy resources.

SCP HELPS AFGHAN SMEs TO



KEY MITIGATION AND ADAPTATION AREAS



Increase energy efficiency and renewable energy production



Improve industrial processes and extractive industries



Implement waste management



Reduce GHG emissions and pollution

Clean environment

Introduce clean technologies and water resource management

Sources: USAID (2016); Afghanistan INDC (2015); M. Mashal (2014); Global Carbon Atlas; SWITCH-Asia Afghanistan country fiche





CLIMATE CHANGE and Sustainable Consumption and Production in **BANGLADESH**

GREENHOUSE GAS EMISSIONS





Reduced rice and wheat production



Raw material spoilage



Heightened price and market volatility



6 million SMEs in Bangladesh

years due to

climate shocks:

EUR 11.3 billion

COUNTRY BACKGROUND

60% of the country's land is **barely 5 metres above** sea level

an annual loss of 2%

of GDP by 2050 and

9.4% of GDP by 2100

contribute to 25% to GDP

MITIGATION AND ADAPTATION

CLIMATE FINANCE BY 2030 BANGLADESH AIMS TO BCCTF BCCRF GLOBAL ENVIRONMENT FACILITY In 2010-17 Bangladesh Total funding received In 2014-18 Bangladeshi In 2009-17 Bangladesh Reduce its GHG emissions in the power, government allocated Climate Change Trust **Climate Change** from Global transport, and industry sectors by EUR 5.2 million for Fund (BCCTF) invested **Resilient Fund Environment Facility:** 36 million tonnes CO₂ equivalent or EUR 377 million. EUR 137.09 million climate change (BCCRF) allocated 15% below BAU emissions. efforts. EUR 118.5 million* * with technical assistance from the World Bank. WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



SMEs account for 50% of manufacturing sector and over 90% of industrial enterprises, and 40% of gross manufacturing output.



SMEs provide over 75% of household income.



SMEs operate in **high impact sectors** such as electronics, plastic goods, leather goods and footwear, and agroprocessing.



Leather industry is highly polluting. Its toxic **tanning** wastewater enters rivers and waterbody.

SCP HELPS BANGLADESHI SMEs TO



KEY MITIGATION AND ADAPTATION AREAS





Sources: Sustainable Asia (2017), SWITCH-Asia 2017 Bangladesh country fiche (2017), CIA World Factbook (online), BCCRF Annual Report 2016, Global Carbon Atlas (2016), Le Quere, C. et al. (2016), Asian Development Bank (2014), Uddin, M. (2014)





CLIMATE CHANGE and Sustainable Consumption and Production in **BHUTAN**



GREENHOUSE GAS EMISSIONS





56.3% of the total population are engaged in agriculture vulnerable to climate change



Reduced hydropower production: Hydropower sector is a main economic driver producing almost 100% of electricity. The sector comprises 14.13% of the country's GDP in 2014.

COUNTRY BACKGROUND



COUNTRY FACTS

750,125



Bhutan has 70% forest coverage



Bhutan's economy relies on hydropower production, agriculture and service (tourism) which are highly vulnerable to climate change.



Cottage, small- and medium-sized enterprises (CSMES) constitute more than 96% of enterprises, dominating in services and scanty in manufacturing.

Gross National Happiness

Bhutan places environmental conservation at the core of its "Gross National Happiness" development strategy, and is working to

MITIGATION AND ADAPTATION

BY 2030 BHUTAN AIMS TO



Be carbon neutral. Greenhouse gas emissions will not exceed carbon sequestration of the forests, which is estimated at 6.3 million tonnes of CO₂



Offset up to 22.4 million tonnes of CO₂ equivalent per year by 2025 through the export of electricity from hydropower projects.



Maintain at least 60% of total land under forest cover and will maintain current forest cover at 70.46%.



CLIMATE FINANCE

2013 public environmental expenditure: EUR 33.06 million



The Bhutan Trust Fund for Environmental Conservation provides endowment of EUR 18.89 million.



Total amount of funding received from the Global Environment Facility (GEF) for climate change activities: EUR 164.6 million

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION





CSMEs make up approximately 98% of all enterprises in **Bhutan**

In 2014, CSMEs accounted for 4.4% of GDP.



Most enterprises rely on agriculture, forestry and tourism.

CSMEs have a big role in reducing environmental impacts through:

"High value – low impact" business model in the tourism

Greening public procurement. The sector amounted to approximately 35% of GDP in 2012/13.

SCP HELPS BHUTANESE SMEs TO



Save energy

Resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS



Sustainable tourism











Sources: Green public procurement (GPP) in Bhutan (2017), Sustainable Asia (2017), CIA World Factbook (online), SWITCH-Asia country fiches (online); Global Carbon Atlas (2016), Bhutan State of the Environment Report 2016, Bhutan INDC 2015





CLIMATE CHANGE and Sustainable Consumption and Production in CAMBODIA



COUNTRY BACKGROUND

GREENHOUSE GAS EMISSIONS



MITIGATION AND ADAPTATION

BY 2030 CAMBODIA AIMS TO



Achieve 27% reduction of CO₂ emission in key industries such as energy, manufacturing, and transportation



Increase forest cover to 60% of national land area



Achieve **reduction of** 7,897 gigatonnes of CO₂ by 2030 from land use, land use change, and forestry

CLIMATE FINANCE

EUR 175,000,000

2014 total climate change expenditure was KHR 847 billion (EUR 175 million).



The amounts allocated from domestic resources for climate-relevant expenditure increased steadily from EUR 18 million in 2009 to EUR **44.5 million** in 2014.



Cambodia has received EUR 243.33 million from Global **Environment Facility** (GEF).

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



1.67 million jobs.

There are over 500,000 SMEs representing an estimated



97% are micro enterprises. SMEs represent 2.7% of the total number of enterprises.



13.1% of SMEs are in manufacturing. Tourism is the third largest sector after agriculture and the garment industry.



Garment, textile, food processing, and brick kiln manufacturers produce **high GHG** emissions due to the use of diesel oil, fossil fuels and wood.



The Cambodian industry is highly energy inefficient, with energy consumption per unit of output being more than two times compared to other countries in the region.

SCP HELPS CAMBODIAN SMEs TO



Resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS



Sustainable agriculture & forestry



Sources: Sustainable Asia (2017); SWITCH-Asia country fiches (online); CIA World Factbook (online); Cambodia's Intended Nationally Determined Contribution (2015); Global Carbon Atlas. (2016), Le Quere, C. et al. (2016).





CLIMATE CHANGE and Sustainable Consumption and Production in CHINA



GREENHOUSE GAS EMISSIONS



Impacts to SMEs and INDUSTRY



Threat to domestic food security and global food prices. Rice sector suffered an economic loss of EUR 23.8 million to EUR 57.3 million in the past decade.



Damage to infrastructure which has contributed around 70% to China's economic growth since 1952

Decreases in labor and work production due to increase of heat-related and water-borne illnesses

COUNTRY BACKGROUND



1,370,000,000

With a **population** for 10% of human climate change.

It is the **world's** largest agricultural China is responsible economy, producing 18% cereal grains, 29% meat, and nearly 50% vegetables.



The country produces almost 50% the world's crude steel and cement.



SMEs account for 98% of all businesses and contribute to 60% of China's GDP.



Lack of water and energy availability for business operations. 30% of lakes and rivers are unfit for irrigation or human use due to pollution.



MITIGATION AND ADAPTATION

BY 2030 CHINA AIMS TO



Reduce CO₂ emissions per unit of GDP by 60% to 65% from the 2005 level



Increase the share of non-fossil fuels in primary energy consumption to around 20%



Increase the forest stock volume by around 4.5 billion m³ on the 2005 level



CLIMATE FINANCE

China seeks to reach CNY 41 trillion (EUR **5.2 trillion**) in the next 15 years in areas related to energy saving, environmental protection and low-carbon development.



The state budget provided a total of RMB 821.07 billion (**EUR 104.67 billion**) for climate change mitigation and adaptation actions. (2010-2014 period)



China received Global **Environment Facility** (GEF) grant commitments of EUR 127.17 million. (2010-2014 period)

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



China has around 56 million SMEs.



Labor-, energy-, and resourceintensive production methods are still widely used, which cause severe air and water pollution.



SMEs consume 2.5 times as much energy as largescale manufacturers do to produce the same goods.



SMEs have the potential to save 25% of energy using energy efficiency measures

SCP HELPS CHINESE SMEs TO



Save energy

Resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS



Renewable energy



Reducing GHG emissions from key industrial sectors like iron, steel, and chemicals

Waste management



Sources: SWITCH-Asia Bangladesh country fiche (2017); CIA World *Factbook (online); China First Biennel Update to UNFCC (2016);* Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Li, B. et al. (2016); Carter, C. A. (2011); Asian Development Bank (2015); IFC (2012).





CLIMATE CHANGE and Sustainable Consumption and Production in INDIA



GREENHOUSE GAS EMISSIONS





Water and energy shortages for operations and productions





Damage to infrastructure, machinery, and transport routes



heat-related and water-borne illnesses

Decreases in labor and work

production due to increase of

Threat to SMEs' business survival due to financial losses

use (IPPU) sector at 8%.

COUNTRY BACKGROUND

Contributing to GHG emissions through consumption, India's overall consumer spending is expected to grow to reach EUR 6.16 trillion in 2030

SMEs are vulnerable to

climate change as many rely on old machinery and have limited awareness and skills on issues such as resource efficiency.



Supply chain interruptions

Achieve about 40%

cumulative electric

power installed

capacity from non-

fossil fuel based

energy resources

MITIGATION AND ADAPTATION

BY 2030 INDIA AIMS TO



Reduce emissions intensity of its GDP by 33% to 35% from the 2005 level



Create an additional carbon sink of 2.5 to **3 billion tonnes of CO**₂ equivalent through additional forest and tree cover.

CLIMATE FINANCE

EUR 77,500,000,000

In 2013-14 **total** spending on developing adapting capacity and adaptation was around EUR 77.5 billion.



In 2015-16 India's National Adaptation Fund allocated EUR 44.6 million for cleaner technology in sectors such as agriculture, fisheries, water and forestry.





National Clean **Energy Fund** received funding from the Indian government of around EUR 1 billion.

In 2016-17 the In 2017 grant funding received from Global **Environment Facility** (GEF) reaches EUR 625.8 million

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



There are 49 million **MSMEs** in India employing **111.4** million people



MSME sector contribute about 38% to India's GDP. with manufacturing MSMEs contributing 7% and service sector MSMEs 30.5%



SMEs consume 48% of the total energy consumed by the industrial sector



SMEs are particularly vulnerable to climate change, as many rely on old machinery and have limited awareness and skills on issues such as resource efficiency



Transfer of clean technology to SMEs can greatly **improve** India's overall energy efficiency and reduce **GHG** emissions

SCP HELPS INDIAN SMEs TO



Save energy



Resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS









Sources: SWITCH-Asia India country fiche (2017); CIA World Factbook (online); Global Reporting (online); KPMG (online); Statista (online); World Bank Poverty Data (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); India INDC (2015); India Bureau of Energy Efficiency (2015); World Bank (2015).





CLIMATE CHANGE and Sustainable Consumption and Production in INDONESIA



COUNTRY BACKGROUND

GREENHOUSE GAS EMISSIONS



Decreases in labor and work production due to increase of heat-related and water-borne illnesses

Industry sectors provide employment to 18.6% of the total workforce working in major sectors such as mining, textile & apparel and tourism.

Supply chain interruptions

machinery, and transport

MITIGATION AND ADAPTATION

BY 2030 INDONESIA AIMS TO

routes

CLIMATE FINANCE



Reduce GHG emissions by 29% against the business as usual scenario by 2030 and achieve a reduction of up to 41% with international support



Embark on a mixed energy use policy with at least 23% coming from renewable energy sources by 2025



The Indonesia Climate Change Trust Fund (ICCTF) has approximately **EUR 12.7 million**) in 2015-18. Projects focus on land-based mitigation, adaptation and resilience, and energy.



Up to 2017 Indonesia has received grant funding from Global Environment Facility of around EUR 634 million.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



SMEs comprise 99% of all enterprises, or over 56.5 million, and employ 95% of the workforce.



SMEs represent 99.96% of the total number of enterprises (3.27 million) in manufacturing sector.



SMEs contribute to 18.1% of the GDP and approximately 56% of the manufacturing sector's GDP.



SMEs contribute a large amount of pollution and resource depletion due to outdated technology and inefficient energy and resource use.

SCP HELPS INDONESIAN SMEs TO



Resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS





Waste management

Sustainable agriculture and forestry



Maritime and fisheries

Sources: SWITCH-Asia Indonesia country fiche (2017); CIA World Factbook (online); Global Reporting (online); KPMG (online); Global Carbon Atlas (2016); ICCTF (2016); Le Quere, C. et al. (2016); USAID (2016); Indonesia INDC (2015); SWITCH-Asia green finance country study (2015); Fatimah, Y. et al. (2013).





CLIMATE CHANGE and Sustainable Consumption and Production in **LAOS**



COUNTRY BACKGROUND

GREENHOUSE GAS EMISSIONS



Heightened price and market

Decreases in labor and work

production due to increased

number of cases of diseases



Laos is **vulnerable to droughts and floods**, which are increasing in frequency and severity, affecting food security, drinking water supply and irrigation, public health systems, environmental management and lifestyle.

MITIGATION AND ADAPTATION

Damage to infrastructure,

machinery, and transport

Lack of water and energy

availability for operations

- hydropower production

BY 2030 LAOS AIMS TO

routes

at great risk



Increase forest cover to 70% of land area, i.e. to 16.58 million ha, by 2020, reducing 60,000 to 69,000 kilotonnes CO₂ equivalent.



E

volatility

Increase the share of small-scale renewable energy to 30% of total energy consumption by 2030, reducing 1,468,000 kilotonnes CO₂ equivalent.

CLIMATE FINANCE



In 2012 **government** climate change expenditure reached **EUR 11.80 million**.



The **financial needs** for implementing identified **mitigation and adaptation policies and actions** are estimated to be **EUR 1.2 billion and EUR 0.82 billion respectively.**



Laos' financing for climate change actions predominantly comes from international sources. The country currently received approx. **EUR 275 million** in grants from Global Environment Facility.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



SMEs in general, and especially in rural areas, were the **main contributors to the average annual 8% GDP growth rate** in recent years.



SMEs provide 63% of all jobs.



In 2013 there were 178,557 enterprises of which **158,915** (89.9%) are **SMEs**.



SMEs are largely engaged in industrial activities such as **retail,** wholesale trade and services, and semi processing business.



The largest foreign income earners are tourism, sales of hydroelectric power, timber and textile exports.

SCP HELPS LAO SMEs TO



Save energy

Resource efficiency



Reduce GHG emissions

and pollution

KEY MITIGATION AND ADAPTATION AREAS







Sources: SWITCH-Asia Laos country fiche (2017); CIA World Factbook (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Soukvina, P. (2016); UNDP country report (2016); Lao PDR INDC (2015); GFDRR (2011). This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of GFA Consulting Group GmbH and can in no way be taken to reflect the views of the European Union. Published in November 2017.



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CLIMATE CHANGE and Sustainable Consumption and Production in MALAYSIA



GREENHOUSE GAS EMISSIONS



Lack of water and energy availability for operations and productions



supply chain disruptions



Rice production decrease by 10% in yields for every 1°C degree increase in temperature

Decreases in labor and work production due to increase

COUNTRY BACKGROUND

and sustainable by 2020



SMEs contribute 36% of GDP, en route to 41% by 2020

MITIGATION AND ADAPTATION

BY 2030 MALAYSIA AIMS TO

CLIMATE FINANCE



Reduce its GHG emissions intensity of GDP by 45% relative to the emissions intensity of GDP in 2005



Malaysia receives technical as well financial assistance since its entry into the UNFCCC



Total amount of funding received from the Global Environment Facility (**GEF**) for climate change activities: EUR 39.69 million

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION





Over 600,000 registered SMEs: 90% in the services sector, 6% in manufacturing, and 3% in construction

Contribute 65% employment and 18% to exports

Account for 96.6% of organisations in the manufacturing sector



Consume large amounts of unsustainable oil and gas, and the use of coal is on the rise

SCP HELPS MALAYSIAN SMES TO



KEY MITIGATION AND ADAPTATION AREAS



Increase the use of renewable energy by **SMEs and energy efficiency**



Demand Side Management to reduce energy consumption



Adopting sustainable consumption and production



Sources: Le Quere et al. (2016), Global Carbon Atlas (2017), The World Factbook (2017), SCP Malaysia, Government of Malaysia (2017; 2015), World Bank (2016), Devendra (2012), SME Corporation Malaysia (2016); SWITCH-Asia Malaysia country fiche





CLIMATE CHANGE and Sustainable Consumption and Production in MONGOLIA



GREENHOUSE GAS EMISSIONS



and construction, agriculture and trade.

and industries Extreme events like dzud and heat waves damage infrastructure and

activities in agriculture







Large livestock losses



Decrease in economic productivity due to climaterelated diseases



COUNTRY BACKGROUND

Primarily rain-fed wheat production is projected to decline by 15% by 2030 due to climate change.

MITIGATION AND ADAPTATION

BY 2030 MONGOLIA AIMS TO

facilities

CLIMATE FINANCE



Reduce 14% of total national GHG emissions from energy, industry, agriculture, and waste sectors compared to a business as usual scenario



Reduce GHG emissions from deforestation and forest degradation by 2% by 2020 and 5% by 2030.



Green Climate Fund (GEC) disbursed funding through XacBank to finance MSMEs investing in energy efficiency and renewable energy. Funding given: EUR 420,000 grants and EUR 17 million loans. Using blended financing, GEC disburses loans of EUR 40 million for low carbon projects.



To achieve the adaptation goals, **Mongolia estimates** a need of around EUR 2.8 billion for technology transfer and capacity building.



Total grant funding received from Global **Environment Facility:** EUR 225 million.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION





SMEs make up 98% of all enterprises (about 80% of which are microenterprises) in Mongolia.

The **SME sector** contributes 25% to GDP and **employs** 52% of the workforce.



The majority of **SMEs use** outdated and inefficient equipment, processes and **buildings** – resulting in relatively large emissions of greenhouse gases.



Mongolia's economy is heavily reliant on the mining industry,

while having the lowest rate of resource efficiency in the Asia-Pacific region, needing 17 kg of natural resources per dollar of economic output, compared to the regional average of 3 kg.

SCP HELPS MONGOLIAN SMEs TO



Save energy

Achieve resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS



Water and resource management







Sources: SWITCH-Asia Mongolia country fiche (2017); USAID Mongolia country fact (2017); CIA World Factbook (online); UNEP (online); World Bank: Agricultural land (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); The Guardian (2016); Mongolia INDC (2015); IFC: SMEs in Mongolia (2014).





CLIMATE CHANGE and Sustainable Consumption and Production in **MYANMAR**

GREENHOUSE GAS EMISSIONS



Impacts to SMEs and INDUSTRY



Damage to infrastructure, machinery, and transport routes



ductions

illnesses



Disrupted economic activities in delta and coastal belt regions due to floods



Reduced rice yields





COUNTRY FACTS



Population of 56.8 million



The population is **concentrated the Delta area** (most exposed to recurring tropical storms, cyclones and floods and potential storm surge) and the 'Dry Zone' area (exposed to chronic droughts).



Myanmar has 43% forest cover, but the 3rd **highest deforestation rates** in the world.



Myanmar is ranked as the **2nd most** vulnerable country in the world to extreme weather events over the last 20 years.

MITIGATION AND ADAPTATION



Lack of water and energy avai-

lability for operations and pro-

Decreased labour and work

productivity due to increase of heat-related and water-borne

registered enterprises and **employ** 70% of total workforce.

facturing sector. Major industrial sectors include agricultural processing, manufacturing, construction and transportation.

over 50% of the employment and 20% of exports.





Sources: SWITCH-Asia Myanmar country fiche (2017); USAID Myanmar country fact (2017); CIA World Factbook (online); RVO NL (online); UNDP (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Myanmar INDC (2015); OECD (2014).





CLIMATE CHANGE and Sustainable Consumption and Production in **NEPAL**



GREENHOUSE GAS EMISSIONS



Impacts to SMEs and INDUSTRY



Damage to infrastructure, machinery, and transport routes





Supply chain disruptions



During the dry season power shortage impacts are estimated at EUR 2.45 billion from the period 2014-2050

Hydro-electricity providing 90%

of total electricity is at risk



Lack of water and energy availability for operations and productions



Lost productivity due to increase of climate-related diseases The country is a predominantly **agricultural economy** with around 80% of its workforce employed in the agricultural sector. The manufacturing sector employed just 6.6% of the total workforce.

COUNTRY BACKGROUND

Climate change caused increased frequency of flash floods posing more than 1.9 million people to high vulnerability and exposing additional 10 million people to the risks of climate induced disasters.



Nepal is ranked as the **4th most vulnerable country** to climate change.

MITIGATION AND ADAPTATION

CLIMATE FINANCE BY 2030 NEPAL AIMS TO GLOBAL ENVIRONMENT FACILITY Achieve 80% electrification Maintain forest cover In the fiscal year Out of 2013 GDP of 55% of climate **Reduce** dependency EUR 18.31 billion, the through renewable energy on fossil fuels by 50% 40% of the total area 2013-14, the expenditure comes sources having appropriate government's **total** financing for climate from donors such as climate change the Global Environenergy mix by 2050 related programs was about budget amounted ment Facility (GEF). Develop its electrical to 3.1% of the total EUR 567.67 million. Nepal has received Strive to **decrease** (hydro-powered) rail GDP. a total of air pollution by 2025 network by 2040 EUR 185.63 million grants from GEF. WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



SME sector **employs 1.75 million people** and account for 22% of GDP.



There are 111,442 operational SMEs. **90% operate in industrial sector**, contributing to over 70% of the industrial sector's contribution to GDP.



Most SMEs involved in manufacturing of handicrafts, textiles, garments, food items, and tourism.



SMEs have low production processes and technology which contribute to GHG emission.

SCP HELPS NEPALI SMEs TO





Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS





Sources: SWITCH-Asia Nepal country fiche (2017); CIA World Factbook (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Deepmala, S. (2014); Kaur, K. (2014); Nepal Ministry of Science (2014); UNIDO (2014); Nepal Climate Change Impact Survey (2016). This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of GFA Consulting Group GmbH and can in no way be taken to reflect the views of the European Union. Published in November 2017.



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CLIMATE CHANGE and Sustainable Consumption and Production in **PAKISTAN**



COUNTRY BACKGROUND

GREENHOUSE GAS EMISSIONS



Some 55 million people, or 28% of the total population, do not have access to modern sources of energy.

Supply chain disruptions

MITIGATION AND ADAPTATION

BY 2030 PAKISTAN AIMS TO

routes

CLIMATE FINANCE

and water-borne illnesses



Reduce 20% of its projected GHG emissions



In 2014 total climate change expenditure was approximately EUR 323.36 million.



Pakistan's federal climaterelated expenditure was between 5.8 and 7.6% of the total expenditures in 2015 budget.



reduction goal, Pakistan

requires investments of

approximately EUR 36

billion (at 2016 prices).

To reach the 20% emissions Pakistan's adaptation needs range between EUR 6 - 12 billion per annum.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



There are 3.2 million enterprises, 99% are SMEs.



SMEs make up 80% of non-agricultural labor force. Major industries include cotton and textile, cement, sugar, steel, tobacco, chemicals, machinery, and food processing.



The cotton and textile sector accounts for nearly 60% of exports and almost 40% of the employed labour force.



SMEs current practices are inefficient, leading to resource depletion and pollution.



Due to national energy deficit, SMEs need to adopt highly efficient technology and renewable energy to lower GHG emissions.

SCP HELPS PAKISTANI SMEs TO



Save energy



Achieve resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS



Highly efficient technologies



Promote of a green economy

Create new business opportunities

Improve working environment



Sources: SWITCH-Asia Pakistan country fiche (2017); Ahmad, I. (online); CIA World Factbook (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Pakistan INDC (2016); State Bank of Pakistan (2016), UNDP Pakistan (2016), Wahqa et al. (2015).





CLIMATE CHANGE and Sustainable Consumption and Production in the PHILIPPINES

GREENHOUSE GAS EMISSIONS





Damage to infrastructure, machinery, and transport routes



Reduced hydropower production



Supply chain disruptions

Lack of water and energy

productions

available for operations and



C

Decreased labour productivity due to increase of heat-related and water-borne illnesses

COUNTRY BACKGROUND

The economy is moving away **from** agriculture to labour-intensive manufactured goods industry



Experiences 19 - 20 cyclones per year, of which 7 - 9 reach the land

MITIGATION AND ADAPTATION

BY 2030 THE PHILIPPINES AIMS TO CLIMATE FINANCE

Reduce 70% of GHG emissions relative to its business-as-usual scenario



Public climate change expenditures totaling **EUR 1.9 billion** in 2016



Allocation for climate change adaptation projects received from the Global through the People's Survival Fund (PSF) with PHP 1 billion (EUR 18 million)



Total grant funding Environment Fund (GEF): **EUR 500 million**

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



99.5% or around 900,000 businesses in the country are micro, small- and mediumsized enterprises (**MSMEs**)



MSMEs provide 61.6% of total jobs.



49.9% of SMEs are in the wholesale and retail industry, 14.7% in manufacturing, 12.3% in the hotels and restaurant industry and 5.9% in real estate.

SCP HELPS PHILIPPINE SMEs TO



KEY MITIGATION AND ADAPTATION AREAS







Sources: SWITCH-Asia 2017 Philippine country fiche (2017), AUSAID (2017); CIA World Factbook (online), Global Carbon Atlas (2016), Le Quere, C. et al. (2016), MSME Statistics (2015); The Philippines INDC (2015).





CLIMATE CHANGE and Sustainable Consumption and Production in SRI LANKA



GREENHOUSE GAS EMISSIONS



2015 CO₂ consumption emissions

million tonnes CO₂e

COUNTRY BACKGROUND



COUNTRY FACTS

11 21,200,000

Population of 21.2 million

As a small island in the Indian Ocean, the coastal region (nearly 25% of the island) is susceptible to changes in sea level



44% of the country's GDP originates in the coastal areas impacted by sea level rise (key industries of coastal areas include fishing, tourism, trade and manufacturing)



ADB estimates Sri Lanka will **lose 1.5%** of annual GDP by 2050 due to climate change

SMEs play a key role in the economy, contributing 52% of the GDP



Floods



Water scarcity, drought

Impacts to SMEs and INDUSTRY



Damage to infrastructure, machinery, and transport routes



Ø



Decrease in tea production – a major export – due to heavy rainfall



Lack of water and energy available for operations and productions

Decrease in work production due to heat-related and water-borne illnesses

Biodiversity loss

Human health issues

Over 60% of the tourist hotels are located in the coastal areas. vulnerable to extreme weather events. Tourism is the 4th largest foreign exchange earner.

MITIGATION AND ADAPTATION

BY 2030 THE SRI LANKA AIMS TO

CLIMATE FINANCE



Reduce GHG emissions against a business-as-usual scenario by 20% in the energy sector and by 10% in other sectors (transport, industry, forests, and waste)



Increase the forest cover of Sri Lanka from 29% to 32% by 2030



Total grant funding received from Global Environment Facility (GEF) is EUR 224 million and from Green Climate Fund is EUR 32.5 million.

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



SMEs account for 75% of all businesses, contributing to 45% of employment



More than 90% of SMEs are in the **service sector**



About 40% of SMEs are engaged in **food processing** industry



SMEs are in **need of clean** technology to increase their energy efficiency which will reduce GHG emissions, and reduce environmental pollutions.

SCP HELPS SRI LANKAN SMEs TO





Improve resource efficiency



Reduce GHG emissions and pollution

KEY MITIGATION AND ADAPTATION AREAS







Sources: SWITCH-Asia 2017 Sri Lanka country fiche (2017), CIA World Factbook (online), Ministry of Industry (online), World Bank (online), Global Carbon Atlas (2016), Le Quere, C. et al. (2016), Sri Lanka INDC (2016), Shaw, R et al. (2010).





CLIMATE CHANGE and Sustainable Consumption and Production in **THAILAND**



COUNTRY BACKGROUND

GREENHOUSE GAS EMISSIONS



Decreases in labor and work production due to increase

population rely

41% of GDP

MITIGATION AND ADAPTATION

BY 2030 THAILAND AIMS TO



Reduce its greenhouse gas emissions **by 20%** from the projected business-as-usual level.

CLIMATE FINANCE



Thailand has received EUR 438.13 million in Global Environment Facility (GEF) grants

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



3 million SMEs in Thailand, representing 98.5% of total businesses



SMEs contribute 41% to GDP and 80% of total employment



High need of **environmental impact reduction** of SMEs in industries such as **ferrous metals**, **glass**, **textiles**, and **food processing**

SCP HELPS THAI SMES TO



KEY MITIGATION AND ADAPTATION AREAS



Sustainable transport system, agriculture and tourism





Improve working environment



Sources: Le Quere et al. (2016), Global Carbon Atlas (2017), CIA World Factbook (online), Office of Small and Medium Enterprises Promotion (2016), Thailand INDC (2015), CGIAR (2014), SWITCH-Asia Thailand country fiche





CLIMATE CHANGE and Sustainable Consumption and Production in **VIETNAM**

GREENHOUSE GAS EMISSIONS





In 2016, Vietnam missed its yearly growth target of 6.7% due to environmental issues – drought and salinisation – impacting the agricultural sector. However, annual GDP growth was 6.2%, reflecting strengthening domestic demand and strong manufacturing exports.



Vietnam produces 13% of world's rice and 17% of world's coffee

Reduced rice and coffee yields;

Damage to infrastructure, machinery, and transport routes



Lack of water and energy available for productions

Rapid industrialisation and urbanisations have led to

collectively contribute 21% of GDP and

employs over 47% of the labour force.

environmental degradation.

MITIGATION AND ADAPTATION

BY 2030 THE VIETNAM AIMS TO





Reduce GHG emissions by 8% compared to businessas-usual scenario in which: a) Emission intensity per unit of GDP will be reduced by 20%; b) Forest cover will be increased to 45%.



With international support Vietnam aims to reduce its GHG emissions by 25%.



In 2013 government climate change expenditure was around EUR 13.8 million.



Ministry of Planning and Investment (MPI) estimates that around EUR 4 billion will be required annually to finance climate change activities until 2020.



Total grant funding will be received from Green Climate Fund: EUR 25.1 million



Total grant funding received from Global **Environment Facility** (GEF): EUR 407 million

WHY SMES ARE RELEVANT FOR CLIMATE CHANGE MITIGATION & ADAPTATION



40% of GDP



SMEs account for **98% of** businesses, provide 51% of jobs, and make up 31% of industrial production



Outdated and inefficient technologies are still used in high-energy sectors – such as power generation, steel, concrete and chemicals causing significant waste.



SCP helps SMEs adopt cleaner production that will improve energy efficiency and reduce GHG emissions, and reduce pollutions.

SCP HELPS VIETNAMESE SMEs TO



KEY MITIGATION AND ADAPTATION AREAS







Sources: Atkinson, K (2017); N. T. Thong et al. (2017); SWITCH-Asia Philippine country fiche (2017); CIA Vietnam Factbook (online); Global Carbon Atlas (2016); Le Quere, C. et al. (2016); Vietnam INDC (2015); Priambodo, C. et al (2013).

