








Natural Resource Use Indicators in the SDGs

For more information, please visit
<http://www.unep.org/asiapacificindicators>
 or contact janet.salem@unep.org

SDG Goal	SDG Target	IAEG Indicator ¹	Year 2015	
			Thailand	Asia-Pacific Developing
6 CLEAN WATER AND SANITATION 	6.4 – Increase water-use efficiency	6.4.1 – Water Intensity (<i>litres per US dollar</i>)	219	220
7 AFFORDABLE AND CLEAN ENERGY 	7.2 – Increase share of renewable energy	7.2.1 – Renewable energy share in total primary energy supply ² (<i>percentage</i>)	19%	18.3%
	7.3 – Improve energy efficiency	7.3.1 Energy Intensity (<i>megajoules per dollar</i>)	21.8	25.1
8 DECENT WORK AND ECONOMIC GROWTH 	8.4 – Resource efficiency and decouple economic growth from environmental degradation	8.4.1 and 12.2.1 – Material Footprint Total (<i>million tonnes</i>) Per capita (<i>tonnes</i>) Per dollar (<i>Kilograms per dollar</i>)	751 11.1 2.9	40,728 10.8 4.5
		8.4.2 and 12.2.2 – Domestic Material Consumption Total (<i>million tonnes</i>) Per capita (<i>tonnes</i>) Per dollar (<i>kilograms per dollar</i>)	601 8.9 2.3	47,813 12.7 5.3
12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	12.2 – Sustainable management and efficient use of natural resources			
17 PARTNERSHIPS FOR THE GOALS 	17.11 – Exports of developing countries	17.11.1 – Developing countries and least developed countries export value		
		Exports (<i>million dollars</i>)	206,936	3,189,657
		Exports (<i>million tonnes</i>)	128.3	2,304
		Unit price of exports (<i>dollars per kilogram</i>)	1.6	1.4

¹ According to the "Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators", Item 3 (a) of the provisional agenda, Forty-seventh session of the Statistical Commission on 8-11 March 2016 at <http://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-SDGs-Rev1-E.pdf>

² Share of Renewables and Hydro of the Total Primary Energy Supply.



Materials

Materials are the 'things' that make up the products and infrastructure of our society. They include biomass (crops, livestock, forest products, fish), fossil fuels (coal, oil, gas), metals and minerals.

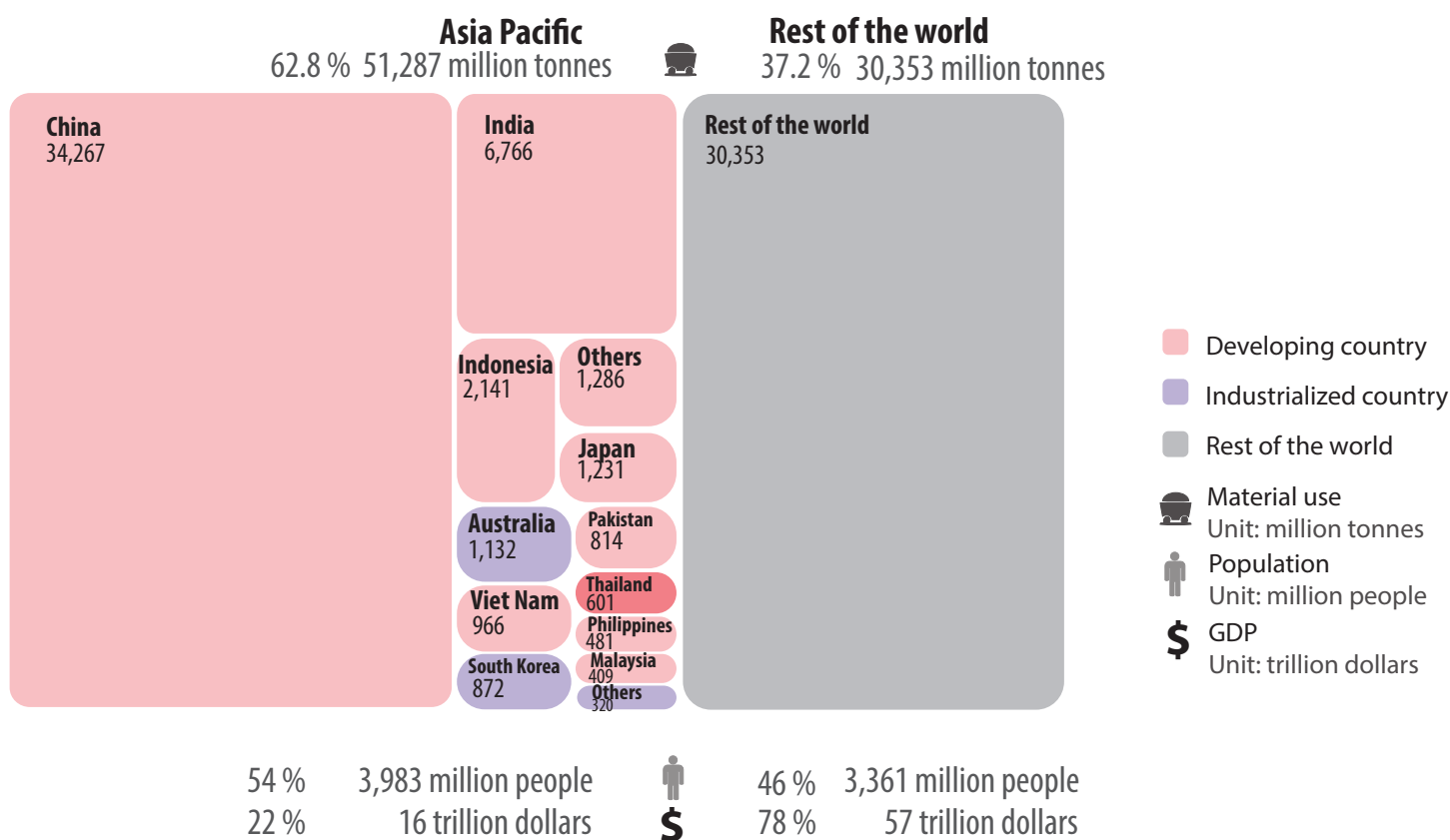
These materials underpin human nutrition and health, fuel energy systems and provide the structural base for buildings, transport networks, vehicles and all consumer goods.

The SDGs relevant to materials are:

SDG Target	IAEG Indicator	Thailand		Asia-Pacific Developing	
		2010	2015	2010	2015
8.4 – Resource efficiency and decouple economic growth from environmental degradation	8.4.1 and 12.2.1 – Material Footprint				
	Total (<i>million tonnes</i>)	649	750	28,833	40,729
	Per capita (<i>tonnes</i>)	9.8	11.1	7.9	10.8
	Per dollar (<i>Kilograms per dollar</i>)	2.9	2.9	4.4	4.5
12.2 – Sustainable management and efficient use of natural resources	8.4.2 and 12.2.2 – Domestic Material Consumption				
	Total (<i>million tonnes</i>)	519	601	33,885	47,813
	Per capita (<i>tonnes</i>)	7.8	8.9	9.3	12.7
	Per dollar (<i>Kilograms per dollar</i>)	2.3	2.3	5.2	5.3

IAEG indicator 12.2.2:

Thailand has a domestic material consumption of 601 million tonnes of materials per year. It grew by 15.7% between 2010 and 2015.



IAEG indicator 12.2.1:

Thailand's Domestic Material Consumption is 601 million tonnes. This consists of 589 million tonnes of extraction from its environment, and 140 million tonnes of imports. From that we subtract the 128 tonnes of materials that were exported.

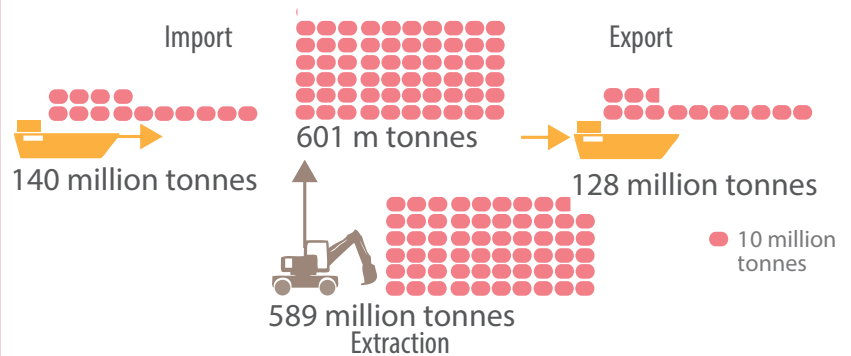
IAEG indicator 12.2.2:

Thailand uses 2.3 kilograms per dollar – this is called material intensity. It is 57% lower than other developing asia pacific countries.

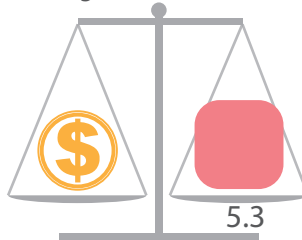
IAEG indicator 12.2.1

What about material footprint per capita in 2015?

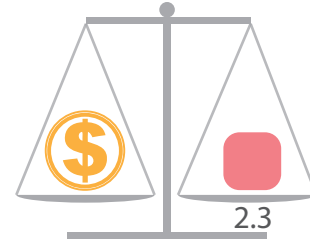
Domestic Material Consumption



Average in the Asia-Pacific



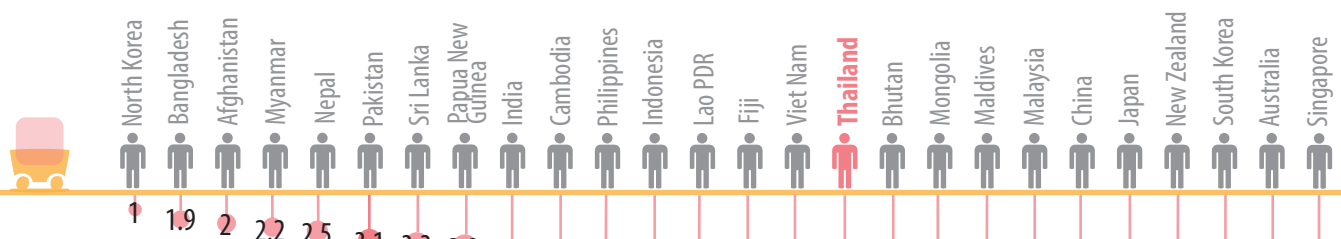
Thailand



Units: Kilograms per dollar

Material

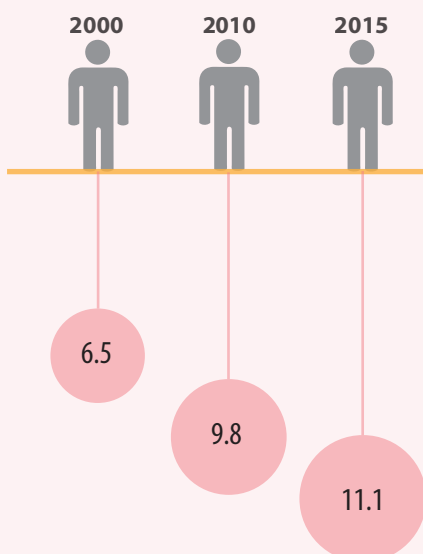
1 USD



The rise of per capita material footprint

(Unit: tonnes per person)

Material footprint



If we only look at Thailand's material use for its own consumption, and exclude materials used to make exports, then we have the Material Footprint. For Thailand, this was 751 million tonnes in 2015, far more than its Domestic Material Consumption.

The material footprint of Thailand is 11.1 tonnes per capita per year, which is comparable with the regional average. It grew by 14% in the past 5 years.

(Unit: tonnes per person)

Material footprint

40

76



Energy

Energy use is measured with the indicator primary energy supply. This indicator reports the total amount of energy (in joules) available to businesses and households in an economy by summing up domestically produced energy and energy imports and subtracting energy exports. The supply of primary energy may come from different energy sources including coal, petroleum, natural gas, uranium, and renewable energy sources such as hydro, solar and wind. Electricity is only included if it is exported or imported – in all other cases it is derived from one of the energy sources already measured.

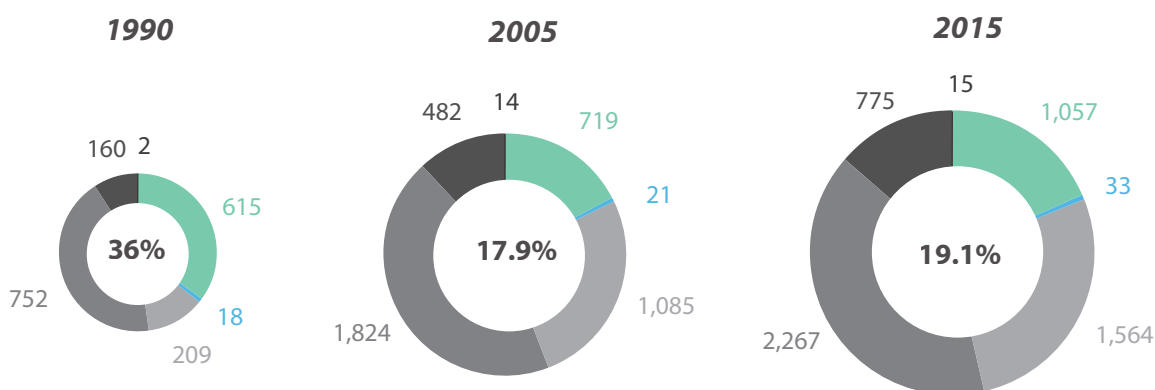
The SDGs relevant to materials are:

SDG Target	IAEG Indicator	Thailand		Asia-Pacific Developing	
		2010	2015	2010	2015
7.2 – Increase share of renewable energy	7.2.1 – Renewable energy share in total primary energy supply ³ (percentage)	19.6%	19.1%	17.7%	18.32%
7.3 – Improve energy efficiency	7.3.1 – Energy Intensity (Megajoules per dollar)	21.9	21.8	25.0	25.1

IAEG indicator 7.2.1:

Thailand used 5,711 petajoules of energy in 2015. Of this, 19% was renewable.

The amount of renewable energy grew each year, but the amount of non-renewable energy grew faster, therefore the share of renewable energy is declining between 1990 and 2015.



Unit: Petajoules



Renewables



Hydro



Natural gas



Petroleum



Coal

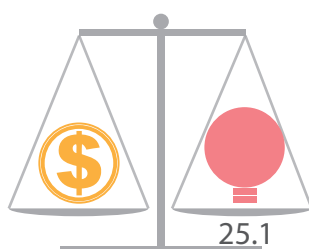


Other

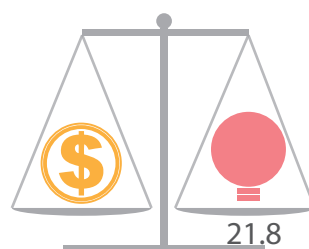
IAEG indicator 7.3.1:

Thailand uses 21.8 megajoules per dollar. This is slightly less than the regional average for Asia-Pacific.

Average in the Asia-Pacific



Thailand



Units: Megajoules per dollar



Energy



1 USD

³For this report we include "renewables" and "hydro" as renewable energy sources.



Trade

No country is 100% self sufficient in its resource use. Each country imports products that complement domestic supplies, and exports products to generate export earnings. SDG target 17.11 calls on developing countries to increase their share of global exports, measured in economic value. Countries may wish to monitor the amount of natural resources that are exported as well as the value. This will determine whether developing countries are able to increase their share of exports by adding value to their natural resource exports or by increasing the physical amount of exports.

The SDGs relevant to materials are:

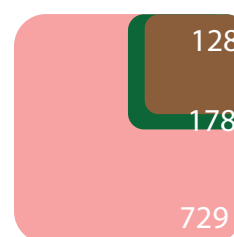
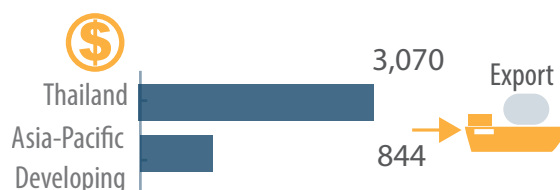
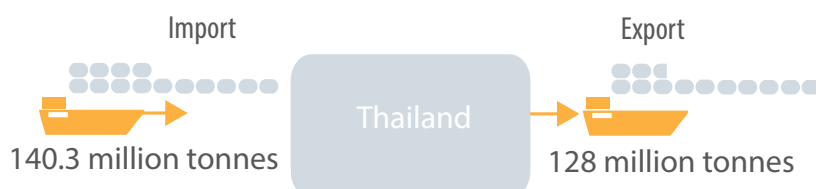
SDG Target	IAEG Indicator	Thailand		Asia-Pacific Developing	
		2010	2015	2010	2015
17.11 – Exports of developing countries	17.11.1 – Developing countries and least developed countries export value				
	Exports (<i>million dollars</i>)	165,709	206,936	2,299,614	3,189,657
	Exports (<i>million tonnes</i>)	111	128	1,706	2,305
	Unit price of exports (<i>dollars per kilogram</i>)	1.5	1.6	1.3	1.4

Thailand exported 128 million tonnes of materials in 2015. On a per capita basis, this is 1,903 kilograms per year.

In 2015 the value of exports was 207 billion dollars in total, or 3,070 dollars per capita, which was more than three times the average for Asia-Pacific developing countries (\$844).

The unit price for exports was \$1.61 per kg, which is higher than the regional average of \$1.38/kg.

The footprint of the exports was 178 million tonnes in 2015, which was 24% of materials entering into Thailand's economy.



- Materials exported:** 128 million tonnes
- Materials needed to produce exports:** 178 million tonnes
- Materials entering Thailand's economy:** 729 million tonnes



Water

Unlike other natural resources, water is often reused multiple times in the same year. Furthermore, the great majority of it is extracted from sources which will replenish themselves naturally, via the hydrological cycle, so issues of its usage are really those of managing a renewable resource flow rather than managing a depleting non-renewable resource stock. The water use indicator presented here reports total fresh water abstractions for use in agriculture, industry and in the residential sector, from all surface and underground sources. Direct rain fed onto crops is not included. The total water withdrawals indicator by itself is not an indicator of water stress as it does not include information on the natural availability of water in the region where withdrawals take place.

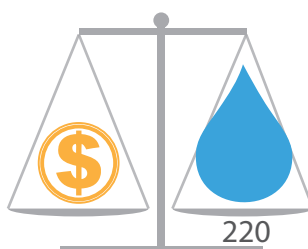
The SDGs relevant to materials are:

SDG Target	IAEG Indicator	Thailand		Asia-Pacific Developing	
		2010	2015	2010	2015
6.4 – Increase water-use efficiency	6.4.1 – Water Intensity (<i>litres per US dollar</i>)	254	219	304	220

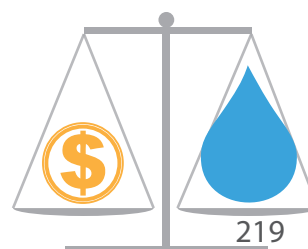
IAEG indicator 6.4.1:

Thailand used 219 liters of water per dollar GDP in 2015. This is equal to the average for the Asia-Pacific region.

Average in the Asia-Pacific



Thailand



Units: litres
per dollar



Water



1 USD

Want to know more information?

Indicators for Resource Efficient and Green Asia

<http://www.unep.org/asiapacificindicators>

Indicators data

<http://uneplive.unep.org/>

UNEP

www.unep.org

SWITCH-Asia

<http://www.switch-asia.eu/news/indicators-for-a-resource-efficient-and-green-asia-and-the-pacific>



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For further information please contact:

Janet Salem

Programme Officer, UNEP

Bangkok, Thailand

janet.salem@unep.org