SOLAR HEATING & COOLING PROGRAMME
INTERNATIONAL ENERGY AGENCY

Solar Heat Worldwide Edition 2020

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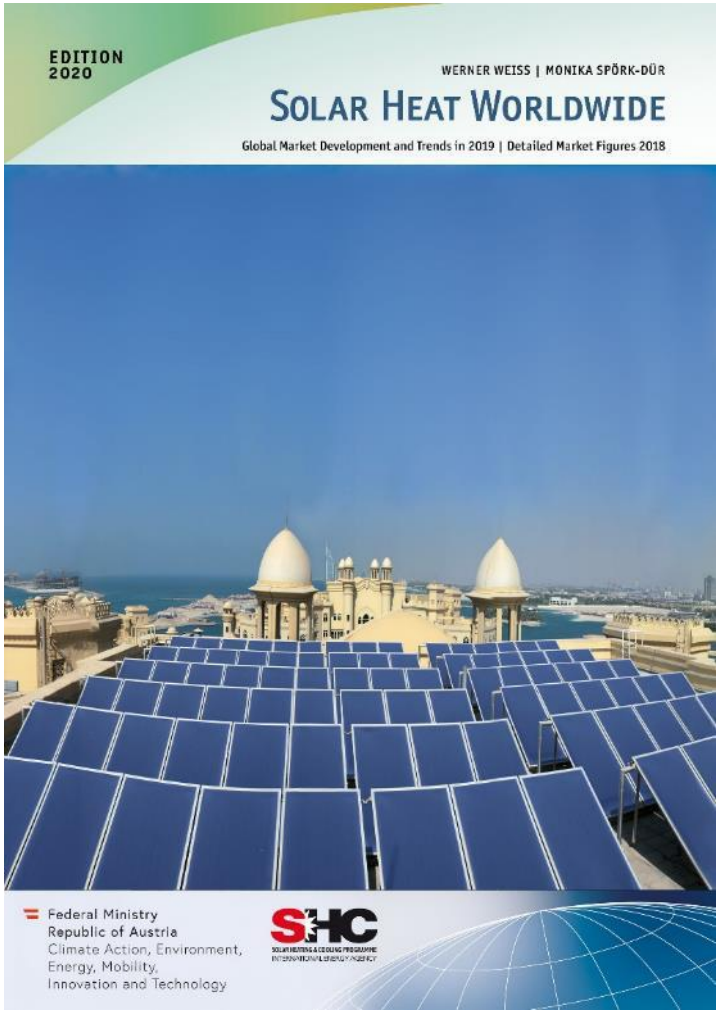
Solar Heat Worldwide

Global Market Development and Trends in 2019

Detailed Market Figures 2018



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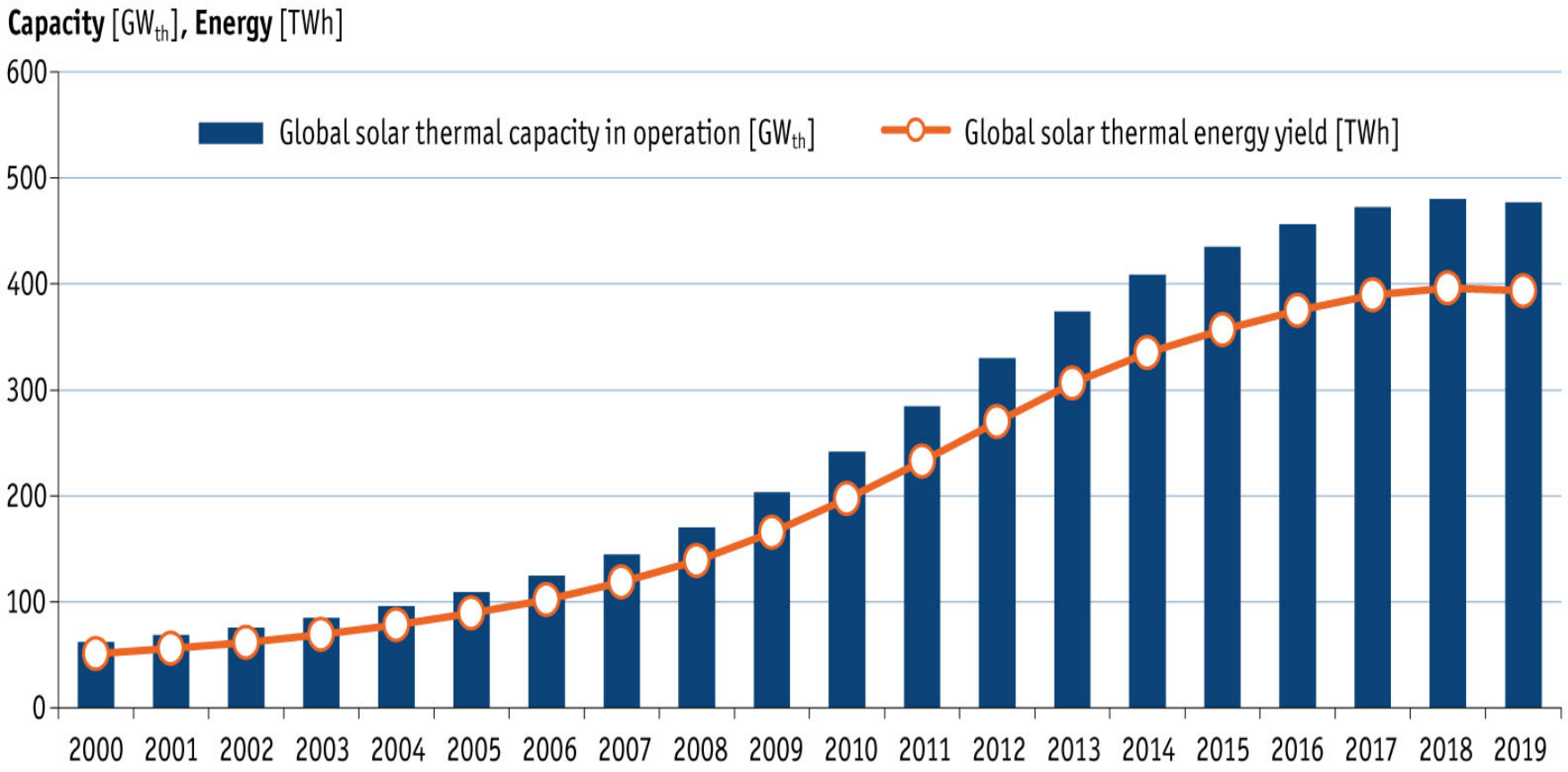
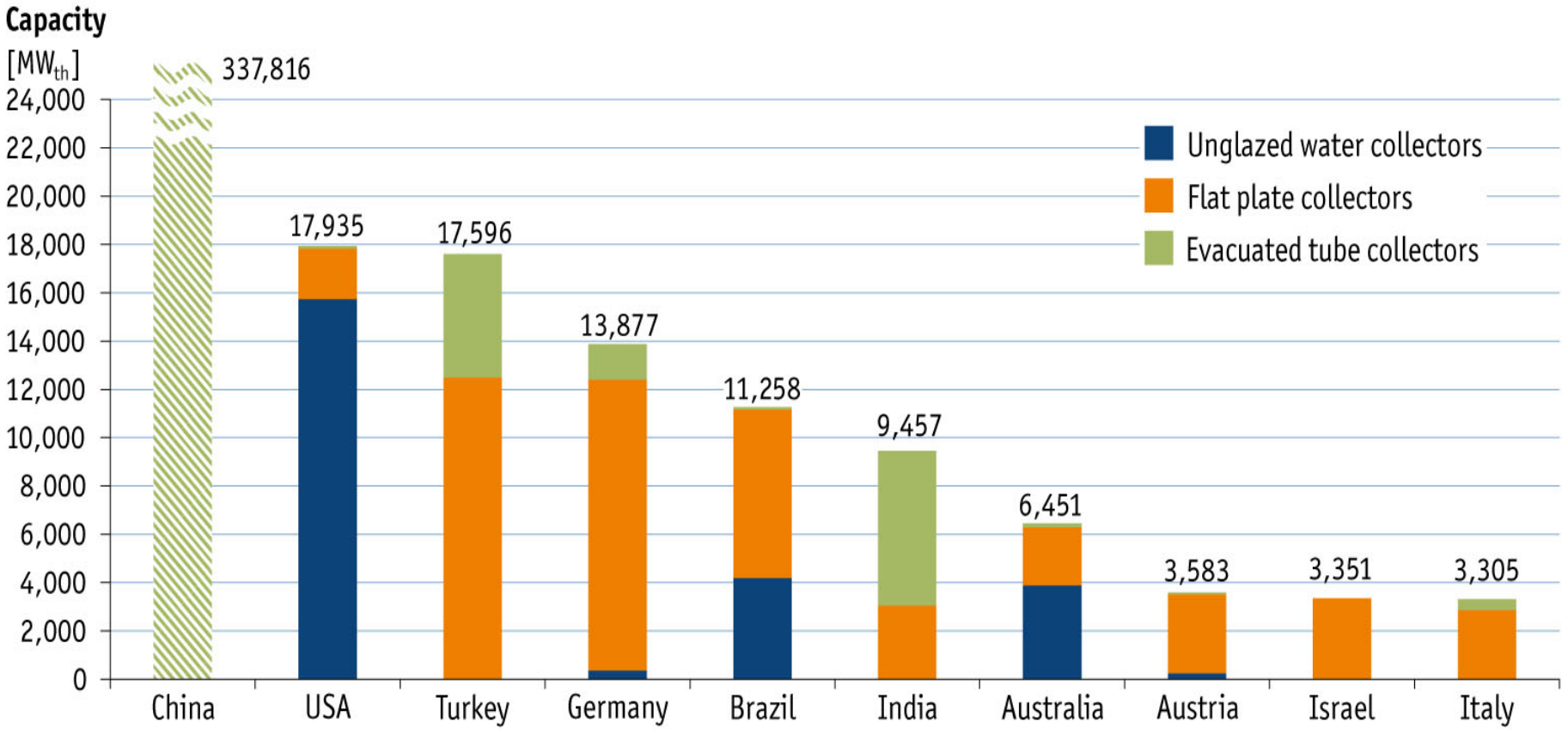
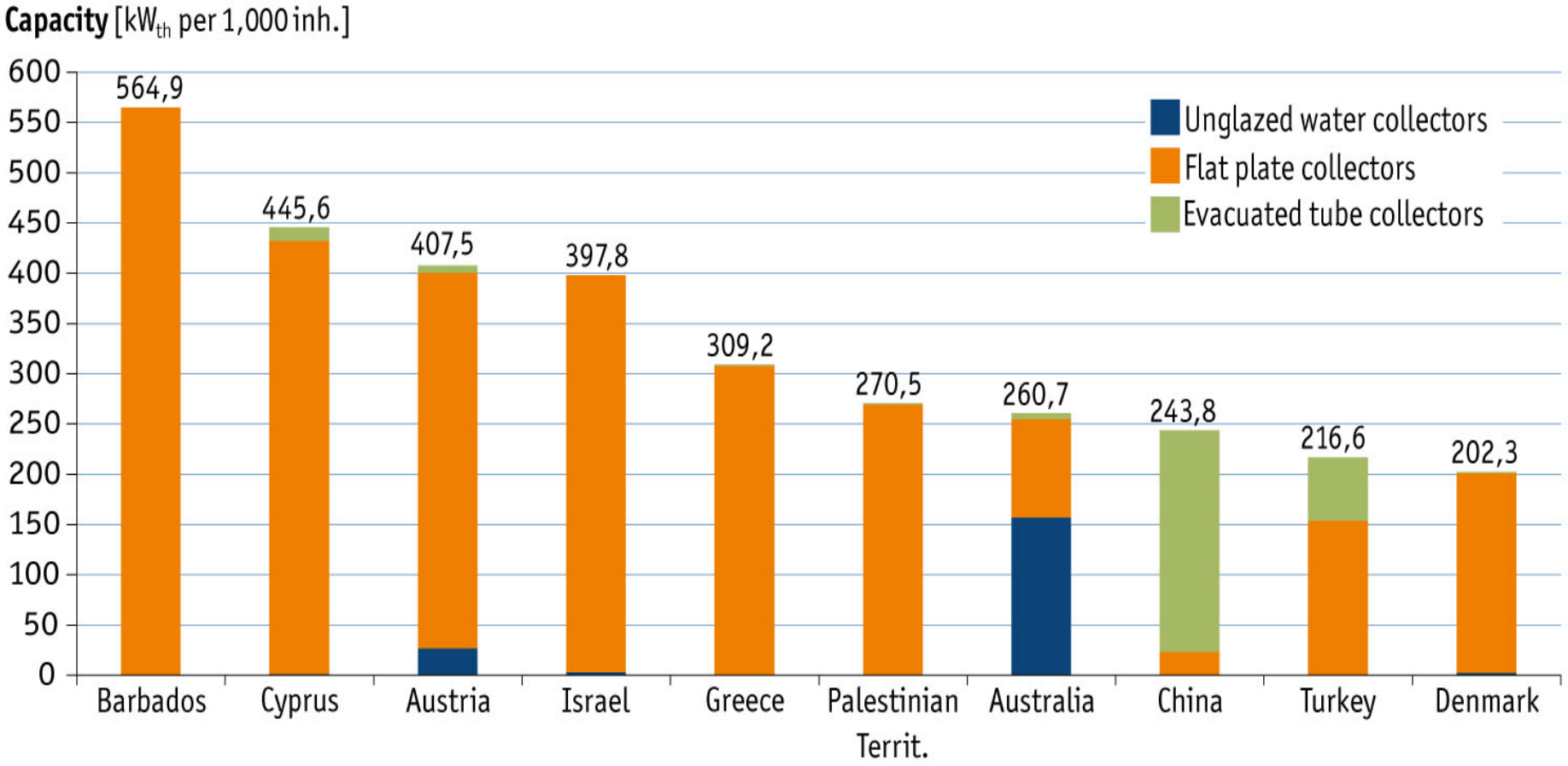
Global solar thermal capacity in operation and annual energy yields 2000-2019



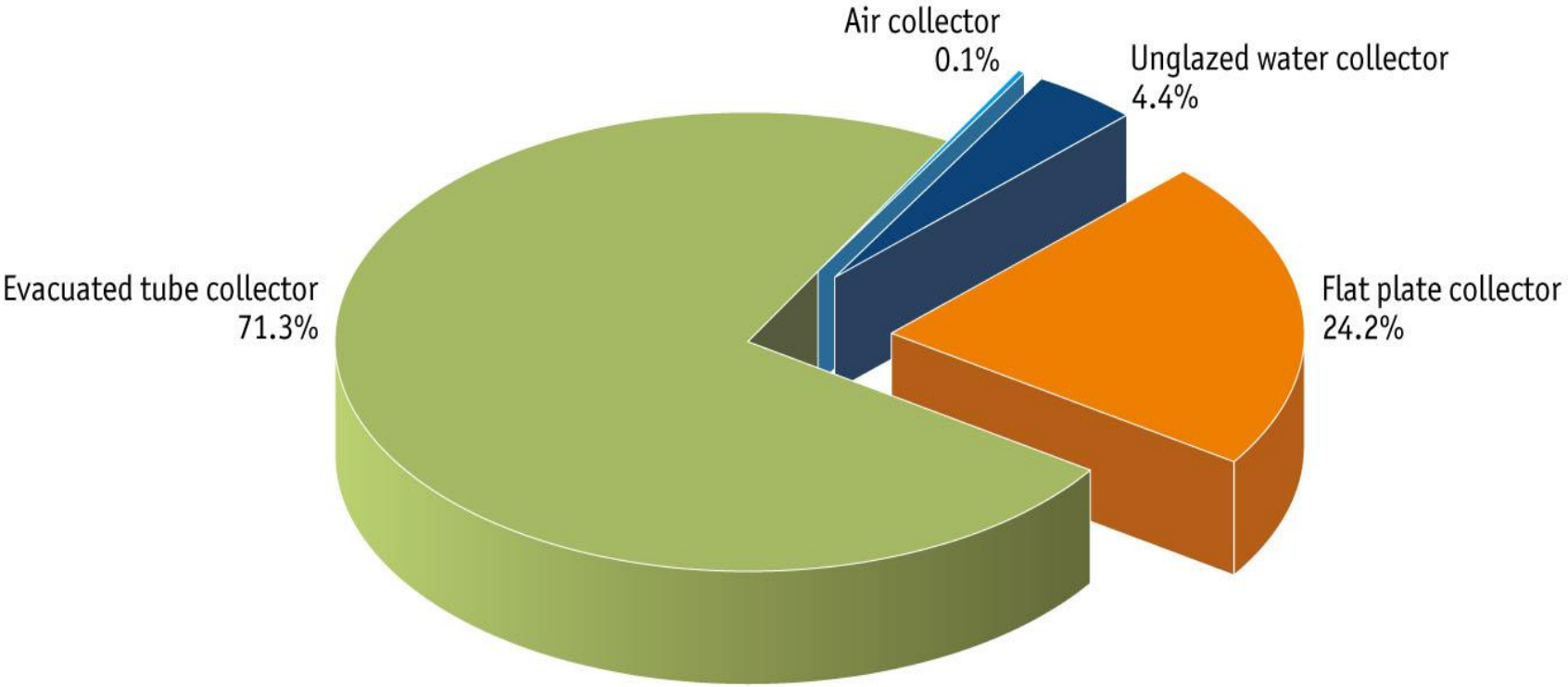
Top 10 countries of cumulated water collector installations in 2018



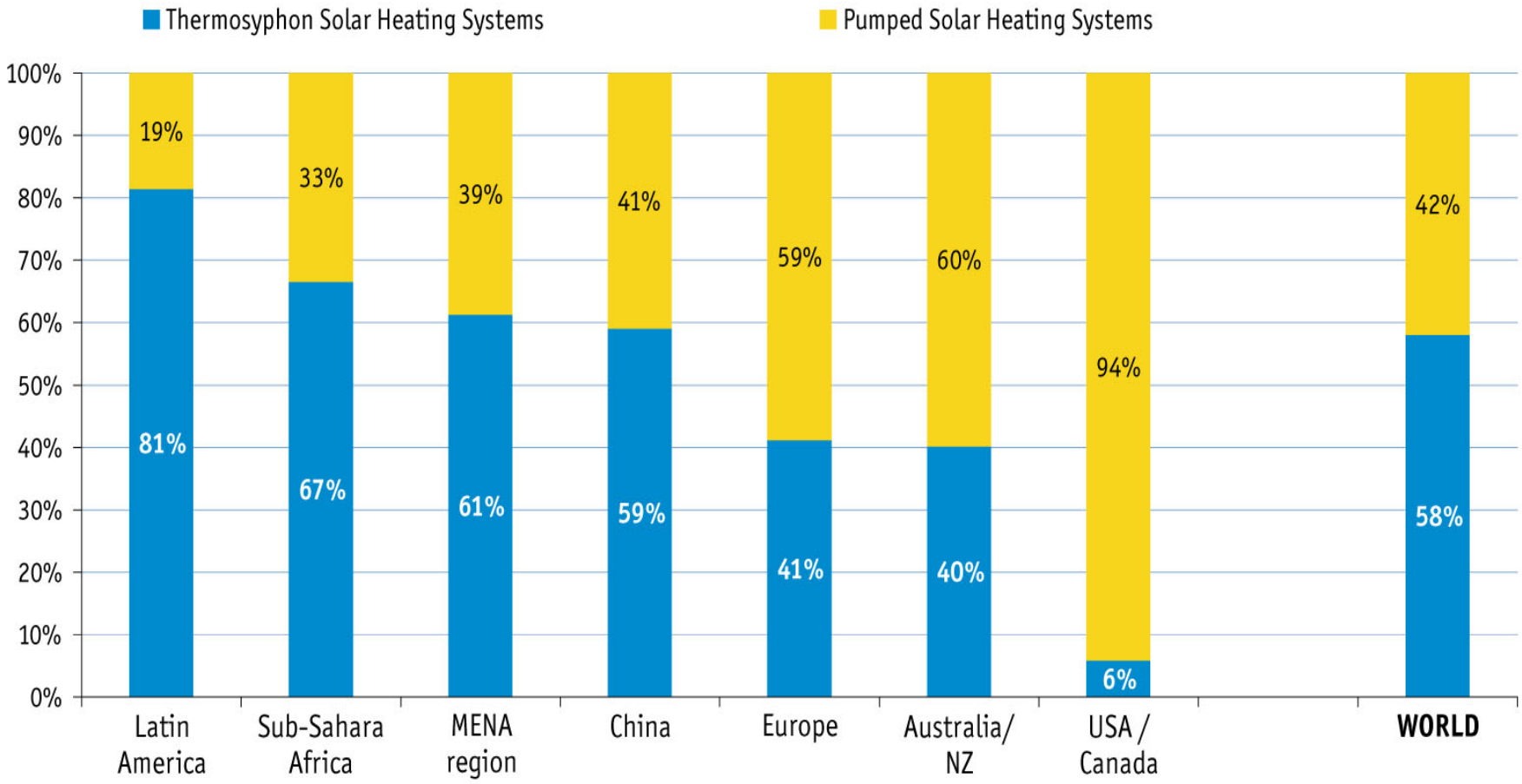
Top 10 countries of cumulated water collector installations per 1,000 inhabitants in 2018



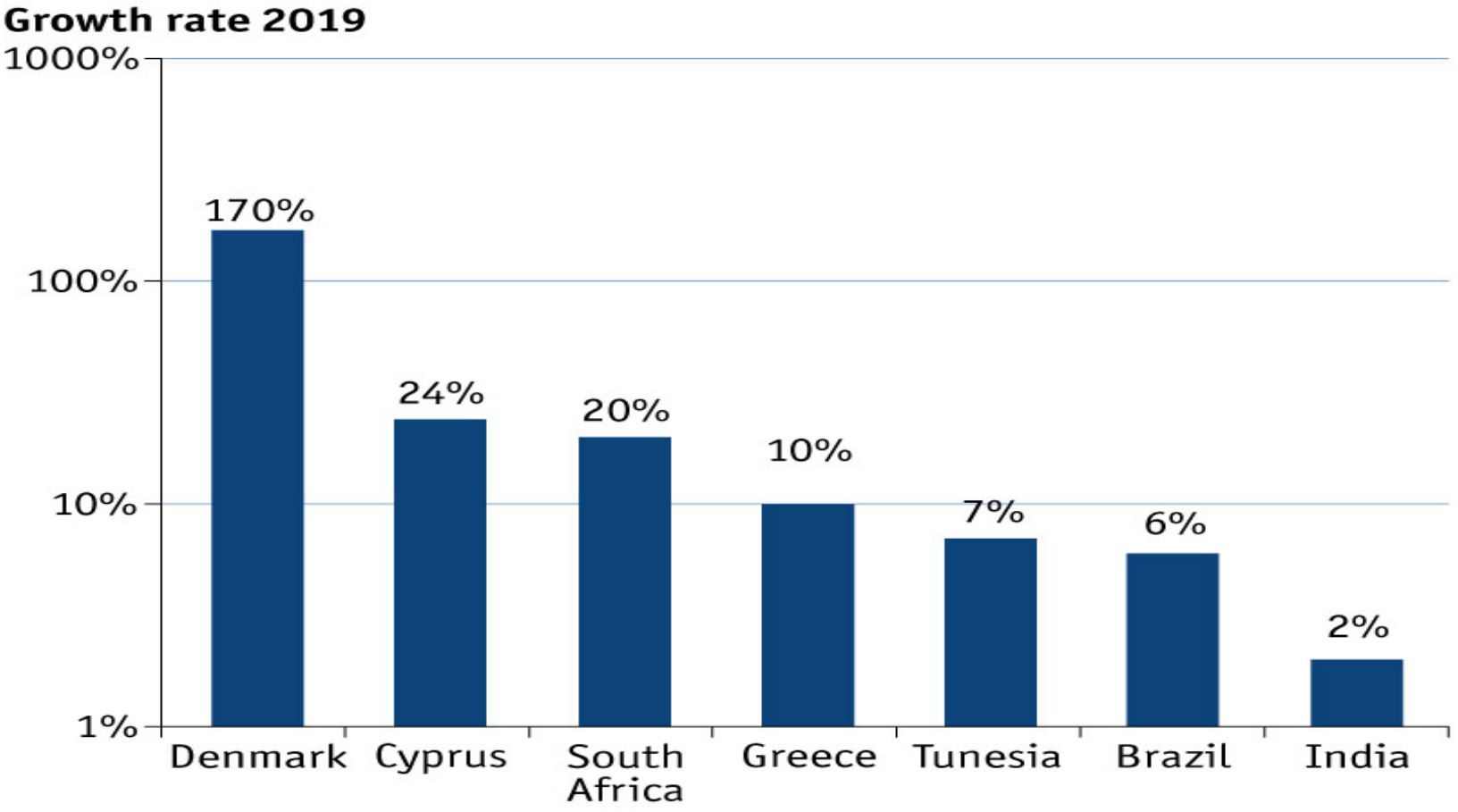
Distribution of the newly installed capacity by collector type in 2018 - WORLD



Distribution by type of system for the total installed glazed water collector capacity in operation by the end of 2018



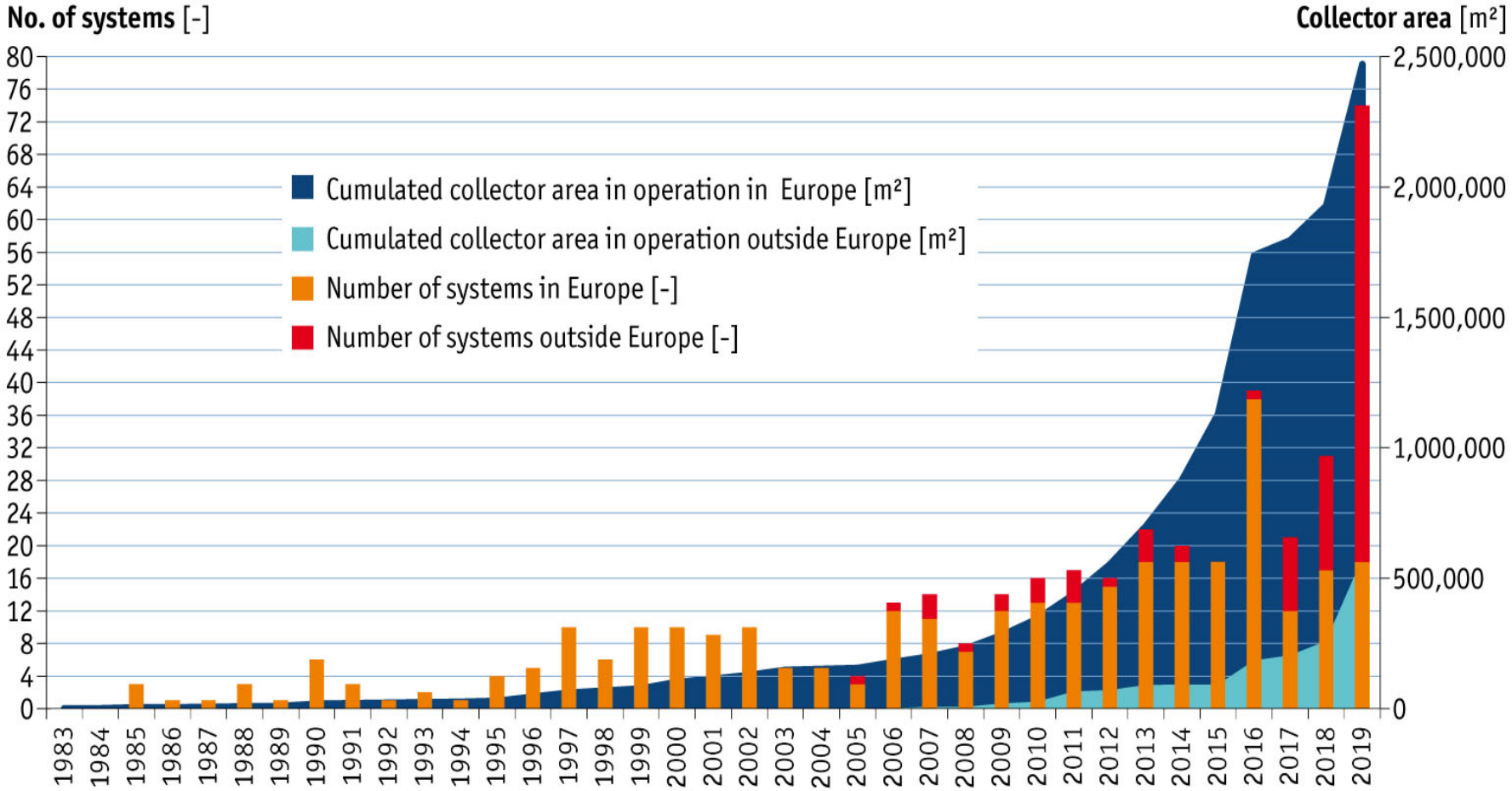
Growth rates of the most successful countries



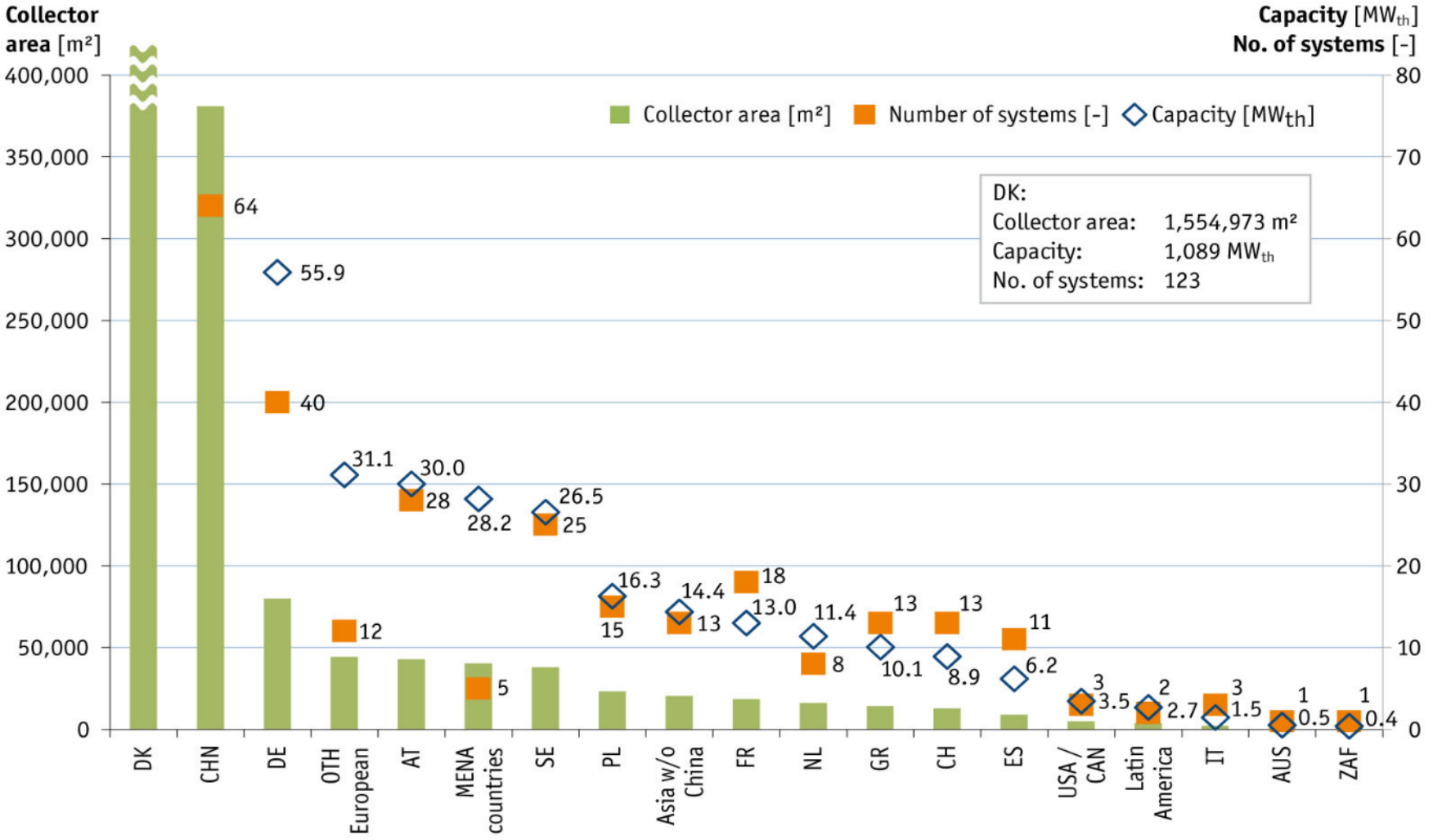
Solar thermal heating systems in Brazil

10,000 apartments in Osona Village, Namibia

Large-scale solar thermal heating systems



Large-scale systems for solar district heating and residential buildings



Zhongba solar district heating system in Tibet, China with 35,000 m² collector area (24 MW_{th}).

Germany's largest solar district heating system in Ludwigsburg with a capacity of 10 MW_{th} was put into operation in early 2020

Photo: Arcon/Sunmark

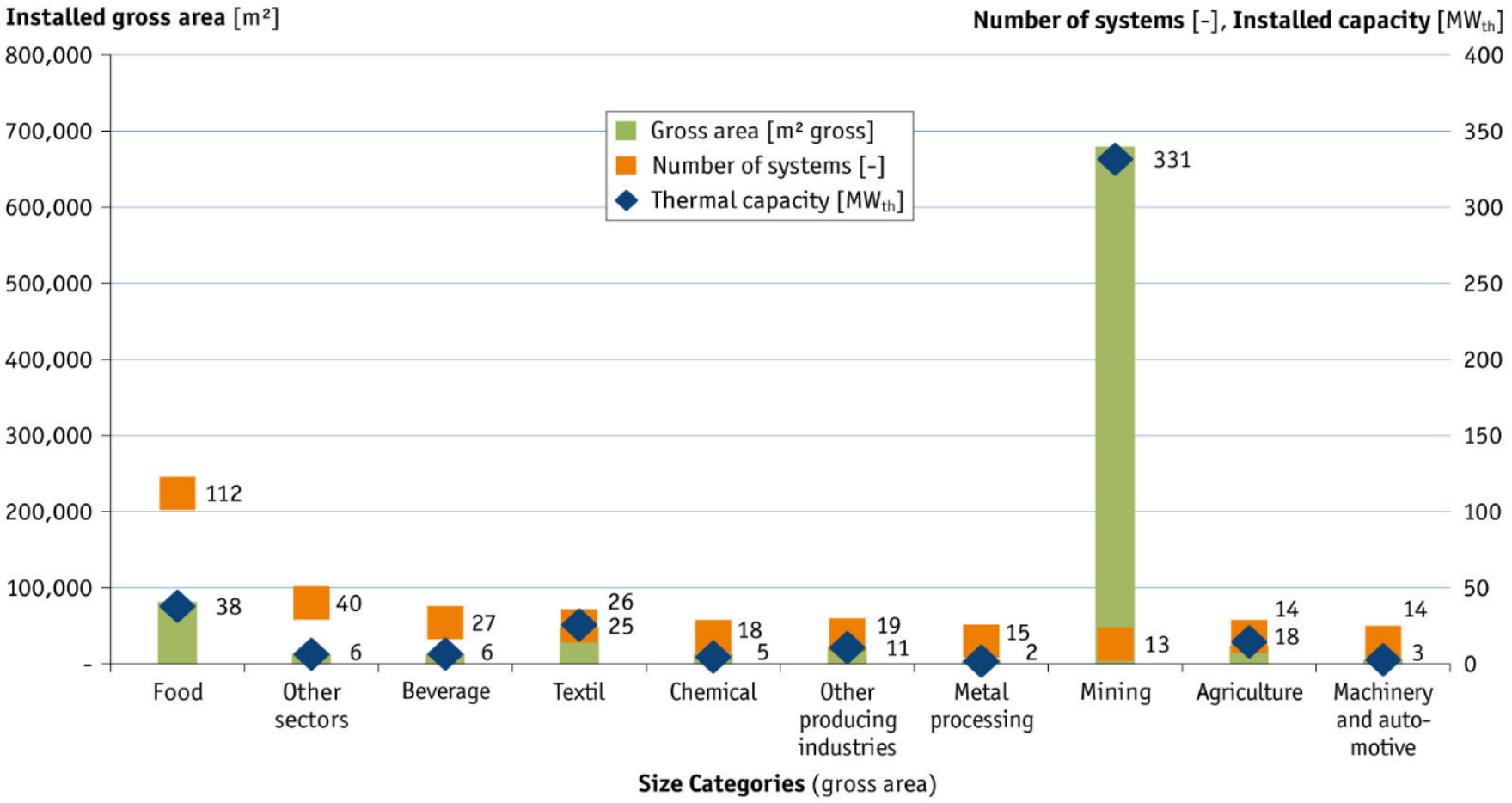
Solar heat for industrial processes

800 SHIP systems with about 1 million m² are in operation, ranging from small systems to the 100 MWth sector

For 300 of these systems detailed information is avilable: See: http://ship-plants.info/

The world's largest solar process heat application Miraah in Oman has currently a thermal capacity of 300 MW_{th}

Solar process heat applications in operation worldwide end of March 2020 by industry sector



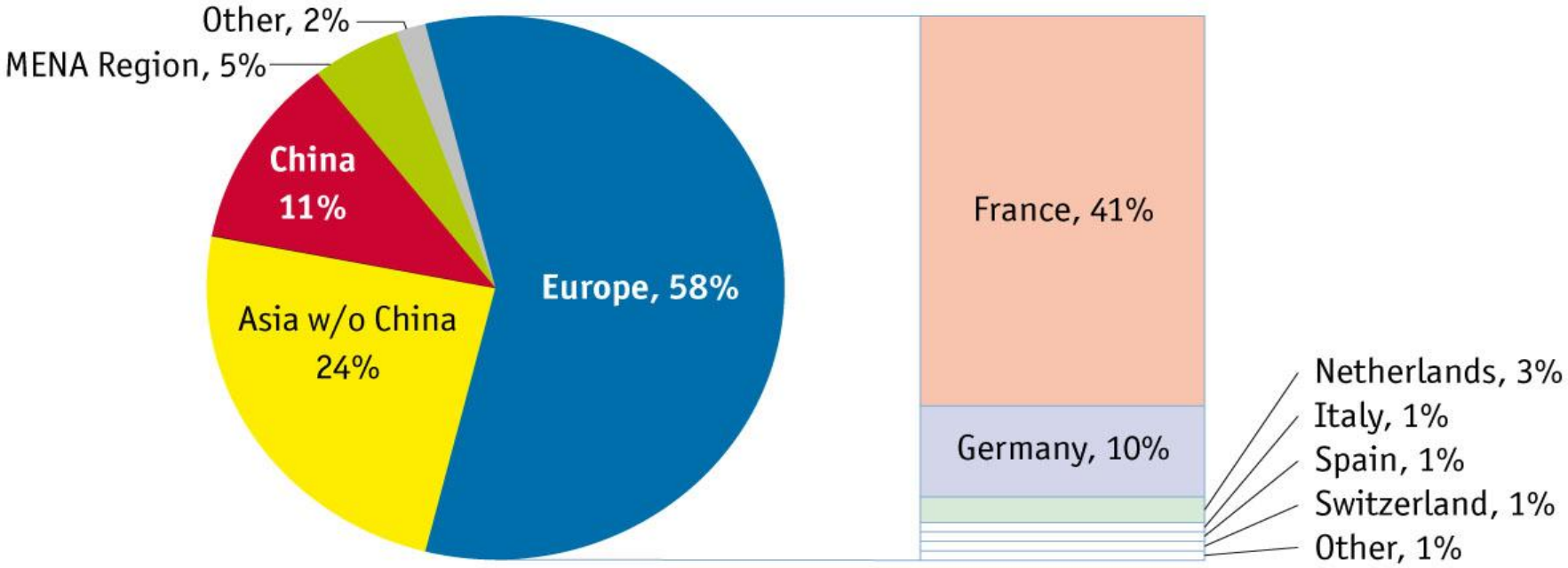
Solar thermal systems for flower and vegetable cultivation

Country	Site	Commis-sioned	Installed capacity [KW_{th}]	Collector size [m^2]	Storage tank [m^3]
Ethiopia	Arerti	2020	2,919	4,170	1,400
Guatemala	Chimaltenango	2020	1,523	2,175	300
Netherlands	Heerhugowaard	2019	6,510	9,300	1300
USA	Oregon	2019	721	1,030	n/a
Austria	Vienna	2018	88	126	20
Uganda	Kampala	2017	3,230	4,614	900
South Africa	Krugersdorp	2015	6,395	9,135	2100
Denmark	Østervang Varpelev	2015	9,878	14,112	4,800
Germany	Bohlingen	2015	672	960	n/a
Ethiopia	Addis Ababa	2014	1,949	2,784	400
Namibia	Okahandja	2014	2,598	3,712	1,900
Kenya	Naivasha	2013	336	480	150
Morocco	Aït Melloul	2013	705	1007	150

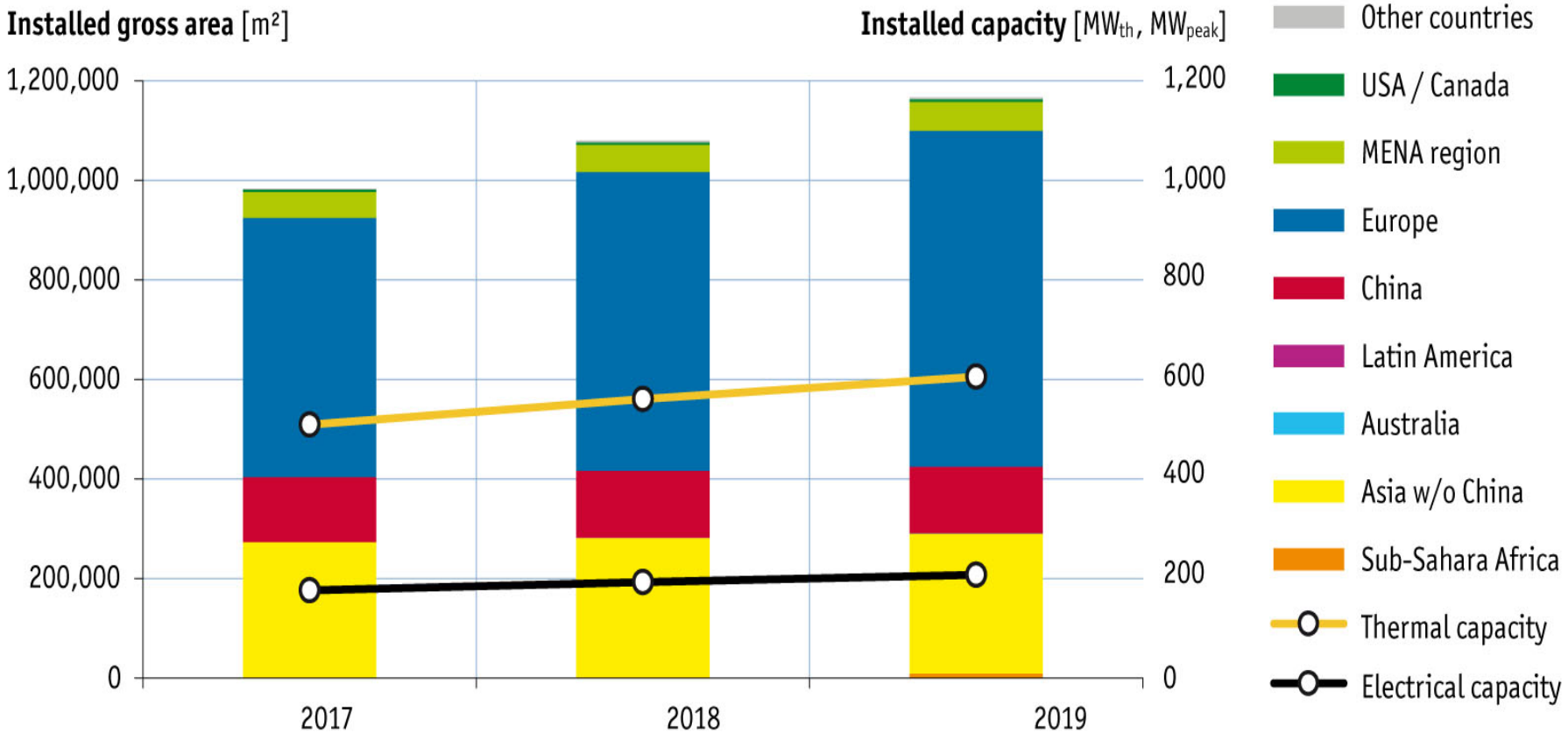
Collector system with 6.5 MW_{th} for heating a greenhouse in Heerhugowaard, Netherlands

PVT - Photovoltaic-Thermal Systems

2019, the total installed PVT collector area was 1,166,888 m² (606 MW_{th}, 208 MW_{peak}). The vast majority of this collector area was installed in Europe (675,427 m²)



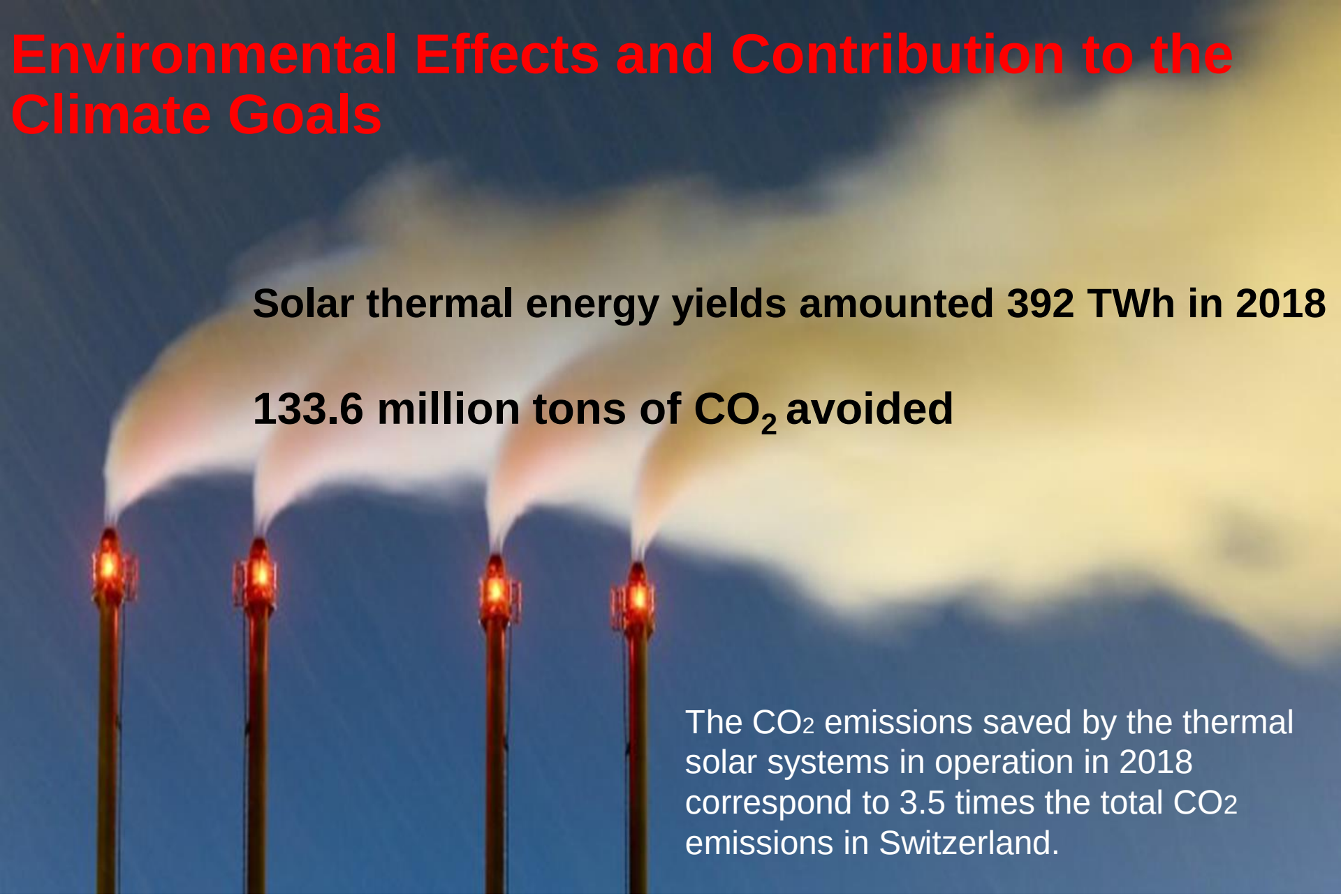
Global market development of PVT collectors



PVT Systems by Application

PVT Applications	Number of installations [#]	Total collector area [m²]
Swimming pool heating	102	9,449
Domestic hot water systems SFH	1,767	60,588
Large domestic hot water systems	214	133,831
Solar combi systems for SFH	1,087	26,903
Large solar combi systems	265	57,024
Solar air systems	22,317	485,510
Solar district heating systems	20	11,082
Solar heat for industrial applications	51	21,624
Not classifiable		360,877
TOTAL		1,166,888

Environmental Effects and Contribution to the Climate Goals

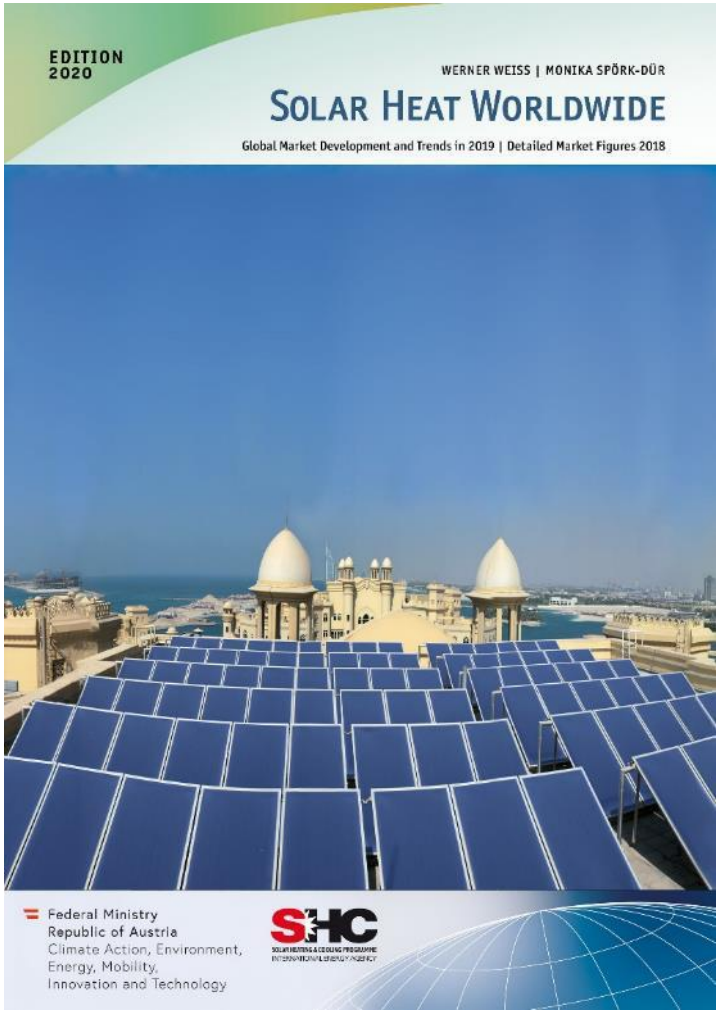


Solar thermal energy yields amounted 392 TWh in 2018

133.6 million tons of CO_2 avoided

The CO_2 emissions saved by the thermal solar systems in operation in 2018 correspond to 3.5 times the total CO_2 emissions in Switzerland.

Details?
Enjoy reading!



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