The Sustainable Development Goals Extended Report 2025

Inputs and information provided as of 30 April 2025

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Note: This unedited 'Extended Report' includes all indicator storyline contents as provided by the SDG indicator custodian agencies as of 30 April 2025. For instances where the custodian agency has not submitted a storyline for an indicator, please see the custodian agency focal point information for further information. The 'Extended Report' aims to provide the public with additional information regarding the SDG indicators and is compiled by the Statistics Division (UNSD) of the United Nations Department of Economic and Social Affairs. Storylines presented in this document may slightly differ from figures cited in the SDG Report 2025 text due to the timing of the submission and the subsequent updates received upon finalizing the Report.

Contents

Target 9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

Indicator 9.1.1 Proportion of the rural population who live within 2 km of an all-season road

Custodian agency(ies): World Bank

Indicator 9.1.2 Passenger and freight volumes, by mode of transport

Despite disruptions and uncertainty, maritime freight volumes show resilience with developing countries leading the way

Over the past two decades, global maritime freight volumes evolved amid rapid globalization, business cycles, technological advancements, geopolitical factors, and global disruptive events (e.g., the financial crisis, the COVID-19 pandemic, the war in Ukraine, challenges to ship transits in the Red Sea, Suez Canal and Panama Canal) and growing role of developing countries. Maritime freight totaled 11.6 billion tons in 2023, up from 6.2 billion tons in 2000 and 10.3 billion tons in 2015. Volumes have shown resilience across booms, busts and uncertainty and continue to evolve with sustainability, digitalization, and shifting shipping and trading patterns.

Historically, developing countries have been the main maritime cargo loading centers. They did not figure very prominently as key importers until the 2000s. Before that, they exported raw materials and imported—as marginal players—mainly consumer goods. Since 2000, the situation has evolved with many developing countries arising as exporters and importers of finished and semi-finished products (Figure 1). They accounted for 38% of the world maritime freight in 2000, 49% in 2015 and 54% in 2023. Starting in 2017, they overtook the developed economies and accounted for 51% of the total. Asia, led by China, spearheaded growth since mid-2000s. The share of Europe declined while the Americas' share progressed at a relatively moderate rate. Oceania increased its share, reflecting Australia's importance as a world exporter of coal and iron ore (Figure 2). LDCs and SIDS contribute limited shares, reflecting their trade structure, economic size, transport infrastructure, and marginalization from global manufacturing networks and supply chains.

The top 10 maritime importers in 2000, were Japan, the United States (US), Germany, the Republic of Korea (RoK), China, France, Italy, the United Kingdom (UK), the Netherlands and Spain. In 2015, Italy and Spain left the list and were replaced by India and Taiwan, Province of China. In 2023, China ranked first followed by India.

The top 10 maritime exporters in 2000 included Australia, the Russian Federation, the US, Saudi Arabia, Brazil, Germany, China, Norway, the UK, the Netherlands, and Spain. In 2023, Malaysia and the United Arab Emirates made the top 10 ranking while Canada and the Netherlands left the list. This underscores the growing role of developing countries.

Since the early 2000s, China emerged as a global manufacturing hub and maritime freight soared. Between 2015 and 2019, maritime freight saw relatively stable growth, but at a slower pace compared to the early 2000s. This period saw a shift in trade patterns, increased intra-Asia trade, a rise in e-commerce and growth in shipments of gas. The decline of over 2% in 2020 was short-lived and followed by a post-COVID-19 pandemic recovery. Since then, maritime freight stabilized, though challenges remain amid growing disruptions and decarbonization momentum.

Figure 1: Maritime freight volume in tons, shares by economy group, 2000–2023

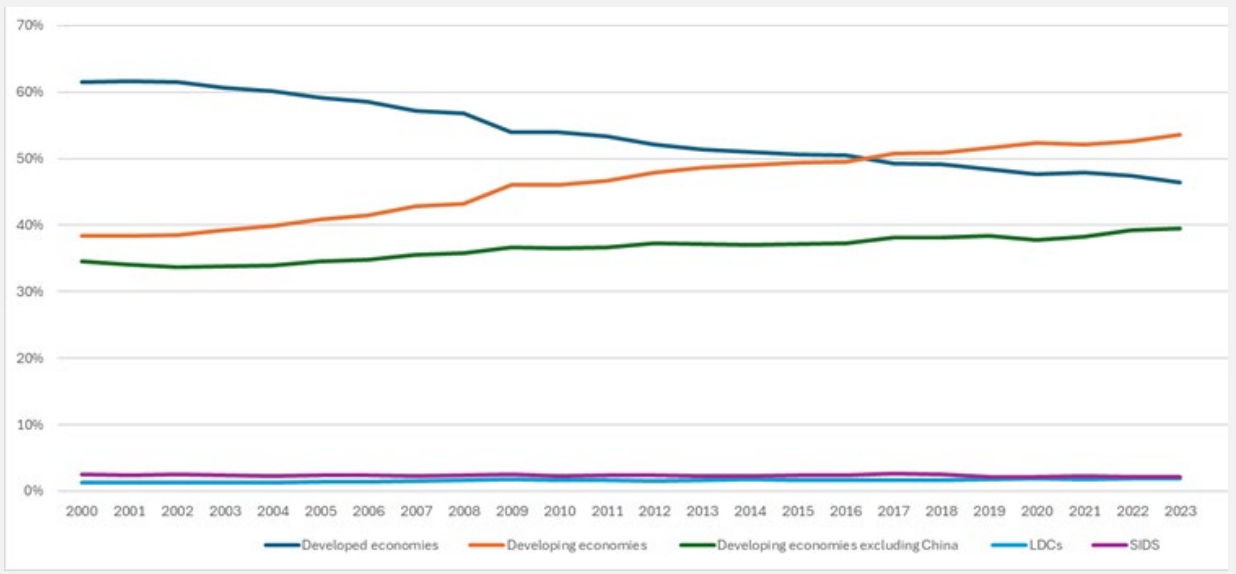


Figure 2: Maritime freight volume in tons, shares by region, 2000–2023

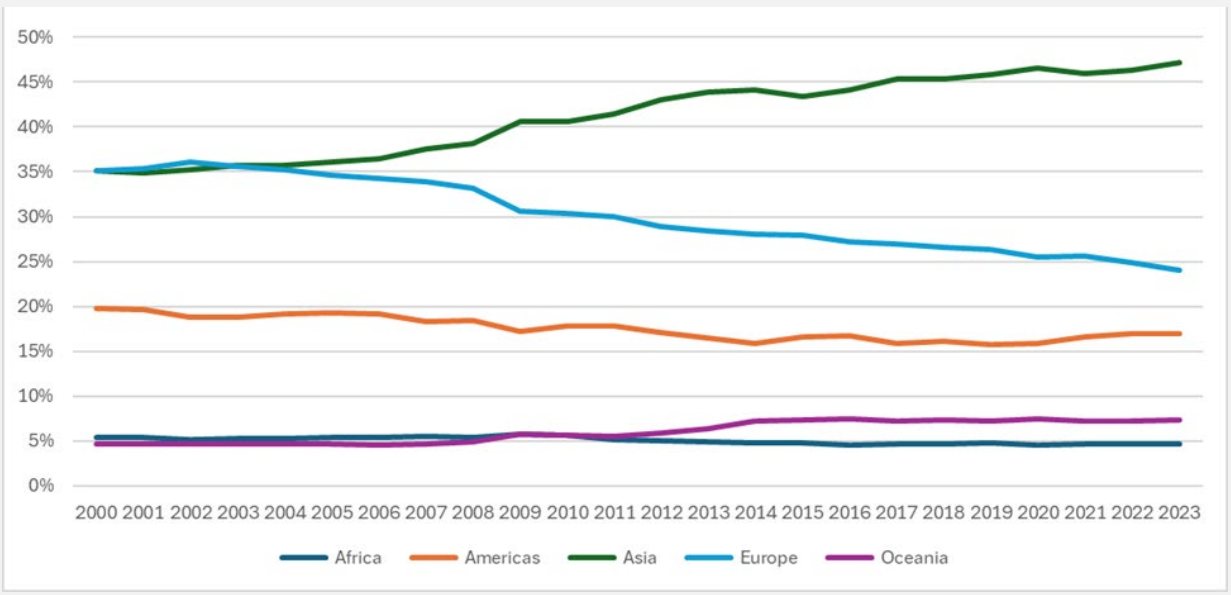
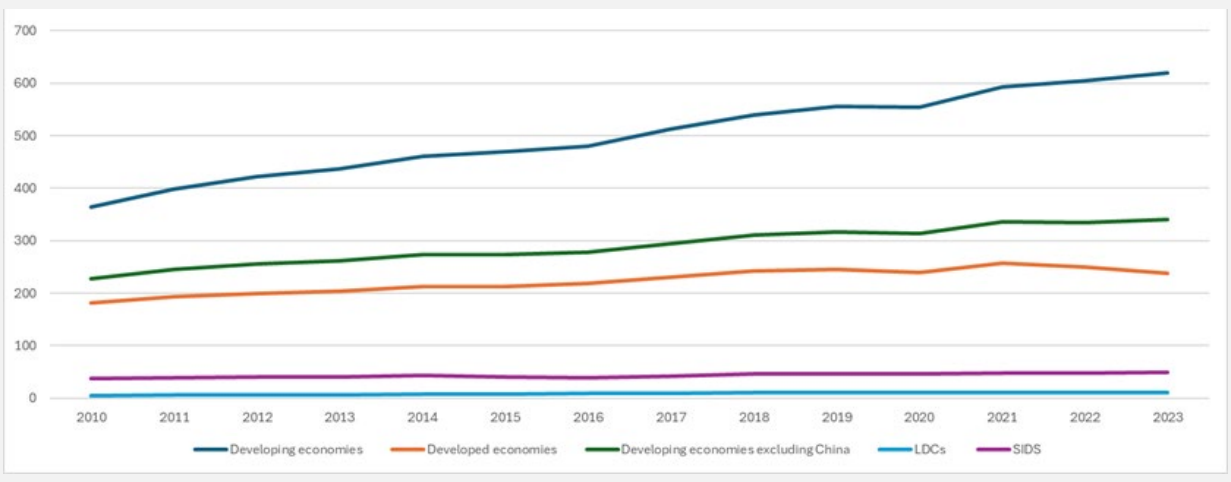


Figure 3: Container port throughput, million twenty-food equivalent unit, 2010-2023



Maritime freight volumes are intricately linked to advancements in port infrastructure, size of ships and container port throughput measured in twenty-foot equivalent unit (TEU). Since 2000, throughput has increased, reaching 885.2 million TEUs in 2023, up from 682 and 545.4 million TEUs in 2000, respectively. Developing countries, particularly in Asia, drove this increase while SIDS and LDCs account for marginal shares (Figure 3). Mega container ships spurred port expansion, particularly in developing countries, solidifying their role in maritime freight. While still key players, developed economies experienced slower growth.

Developing countries' growing participation in global maritime freight transport is both a contributing factor and a consequence of the ongoing shift towards a more sustainable and inclusive development path.

Additional resources, press releases, etc. with links:

- UNCTADstat Data Centre: https://unctadstat.unctad.org/datacentre/
- UNCTAD annual Review of Maritime Transport: https://unctad.org/topic/transport-and-trade-logistics/review-of-maritime-transport

Custodian agency(ies): ICAO, ITF-OECD, UNCTAD

Target 9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

Indicator 9.2.1 Manufacturing value added as a proportion of GDP and per capita

Global manufacturing on a steady path of recovery

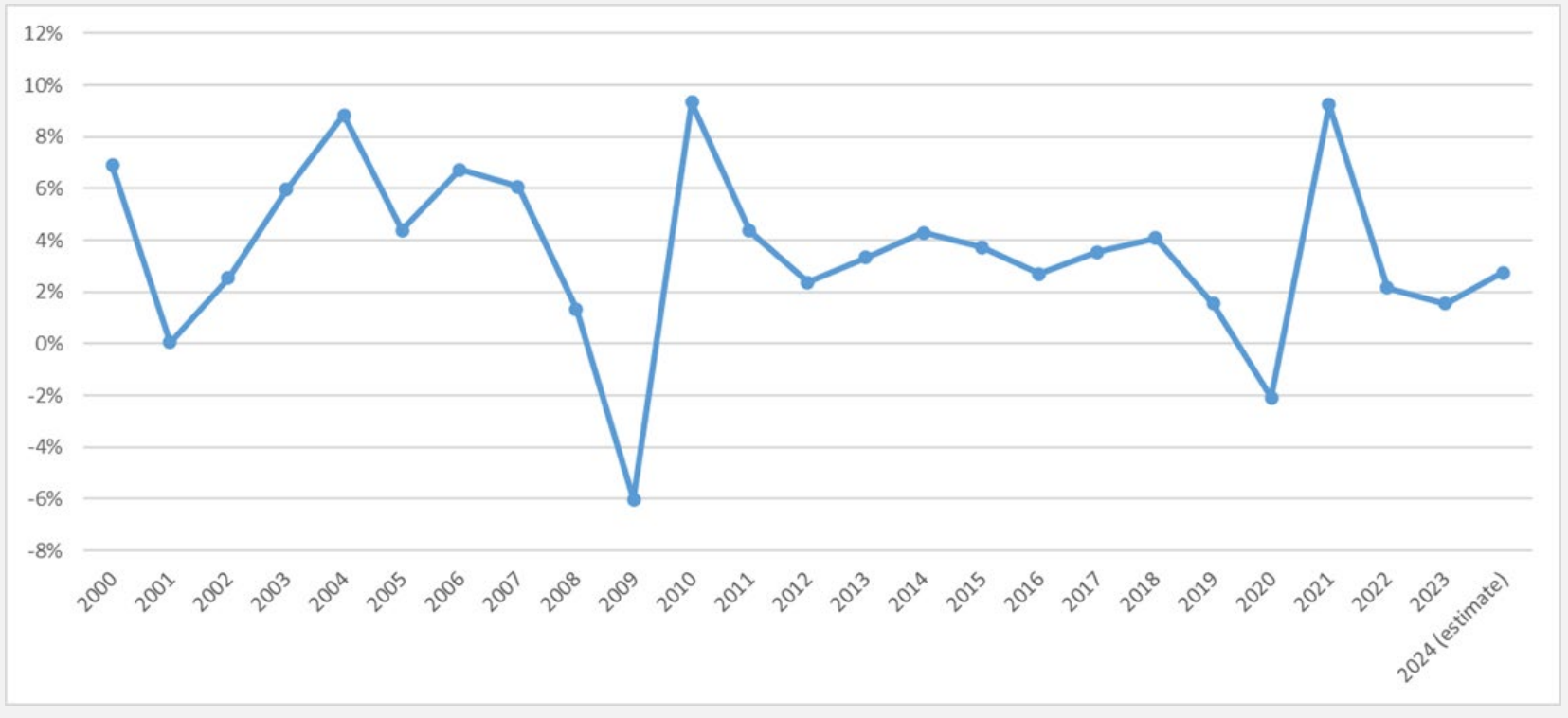
The global manufacturing sector has experienced steady growth over the past decades, with the exceptions of the 2009 global financial crisis and the COVID-19 pandemic, during which it saw a significant decline. Since 2015, manufacturing value added (MVA) per capita has increased by 17.3% from $1,649 to $1,934 in 2024 (at constant 2015 prices). Moreover, the manufacturing sector rebounded in 2024, growing by 2.7%, after a modest growth rate of 1.6% recorded in 2023. Despite this progress, the share of MVA in gross domestic product (GDP) has remained stagnant, holding steady at 16.5% in both 2023 and 2024, which can be attributed to various factors such as geopolitical uncertainty, inflation, logistical issues, rising energy costs and the broader global economic slowdown.

While global MVA per capita has increased since 2015, this trend has not been consistent across all regions. Sub-Saharan Africa, Latin America and the Caribbean, and Australia and New Zealand have all seen declines in MVA per capita from 2015 to 2024, with decreases of 5.9%, 8.0%, and 10.5%, respectively. In contrast, Central and Southern Asia experienced the largest growth, with MVA per capita rising by 42.1%, from $276 (at constant 2015 prices) in 2015 to $392 in 2024.

Similarly, the share of MVA in GDP remains uneven across regions. Sub-Saharan Africa along with Europe and Northern America saw a decrease of 0.55 and 0.63 percentage points from 2015 to 2024, respectively. The highest declines were observed in Latin America and the Caribbean, as well as Australia and New Zealand, each recording a drop of 1.20 percentage points from 2015 to 2024.

Despite a 40.6% rise in MVA per capita in least developed countries (LDCs), from $125 in 2015 to $176 in 2024 (at constant 2015 prices), and a 2.83 percentage point increase in their share of MVA in GDP, they may still fall short of their goal to double their 2015 level of share of MVA in GDP by 2030.

Manufacturing value added growth, 2000-2024, UNIDO National Accounts Database



Additional resources, press releases, etc. with links:

- https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2024

Storyline authors(s)/contributor(s): Manveer Kaur Mangat, UNIDO; Fernando Cantu-Bazaldua, UNIDO

Custodian agency(ies): UNIDO

Indicator 9.2.2 Manufacturing employment as a proportion of total employment

Manufacturing employment stagnates amidst a volatile geopolitical and economic landscape

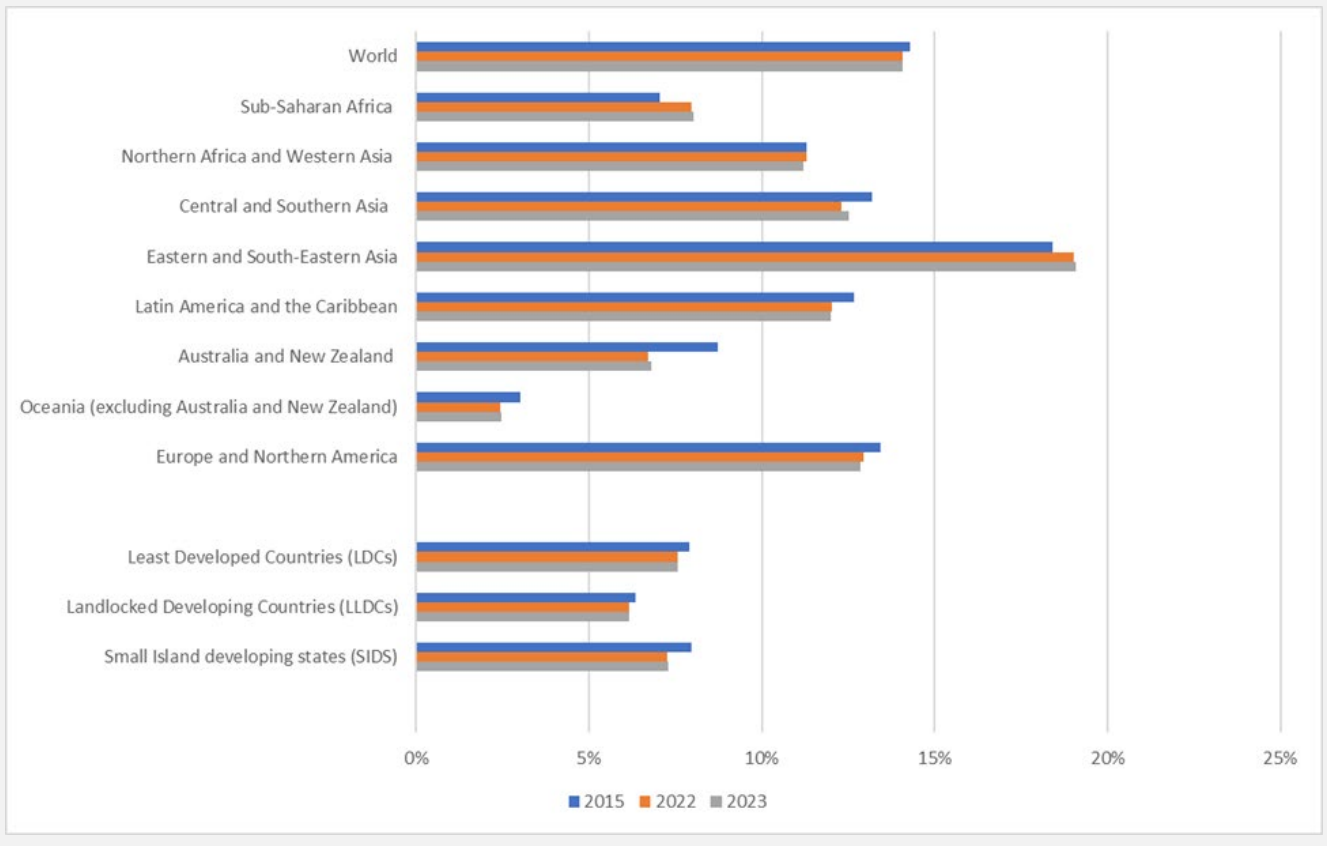
The share of manufacturing employment in total employment is a key measure of industrialization and economic progress, highlighting the sector's ability to create stable, higher-productivity jobs that foster innovation and sustain long-term growth.

Since 2015, the global share of manufacturing employment in total employment has undergone significant changes, influenced by various factors including the COVID-19 pandemic, the conflict in Ukraine and other crises. In 2015, the global share of manufacturing employment was 14.3%, remaining stable until 2020, with only minor fluctuations.

The onset of the COVID-19 pandemic in 2020 disrupted global economies and profoundly affected manufacturing sectors worldwide. Lockdown measures, supply chain disruptions, and decreased consumer demand led to a decline in manufacturing activity. As a result, the share of manufacturing employment dropped to 14.2% in 2020, where it has stagnated since.

Disruptions to supply chains, escalating geopolitical tensions, and economic sanctions disrupted trade flows and investment, affecting manufacturing employment across various regions. While global manufacturing employment remained steady from 2022 to 2023, Northern Africa and Western Asia, as well as Europe and Northern America, saw declines, each dropping by approximately 0.1 percentage points from 2022 to 2023. In contrast, Central and Southern Asia experienced the highest increase, rising by 0.2 percentage points, while other regions largely stagnated during this period. All regions except Sub-Saharan Africa and Eastern and South-Eastern Asia experienced declines between 2015 and 2023, with Australia and New Zealand seeing the steepest drop of 1.9 percentage points. A decline in manufacturing employment indicates reduced industrial capacity which may also weaken long-term economic resilience and limit progress toward sustainable development.

Manufacturing employment share in total employment, 2015, 2022 and 2023 (Source: ILO modelled estimates, Nov. 2024, available in ILOSTAT (https://ilostat.ilo.org/)



Additional resources, press releases, etc. with links:

- https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2024

Storyline authors(s)/contributor(s): Manveer Kaur Mangat, UNIDO; Fernando Cantu-Bazaldua, UNIDO; Steven Kapsos, ILO; Marie-Claire Sodergren, ILO; Vipasana Karkee, ILO

Custodian agency(ies): UNIDO

Target 9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets

Indicator 9.3.1 Proportion of small-scale industries in total industry value added

Custodian agency(ies): UNIDO

Indicator 9.3.2 Proportion of small-scale industries with a loan or line of credit

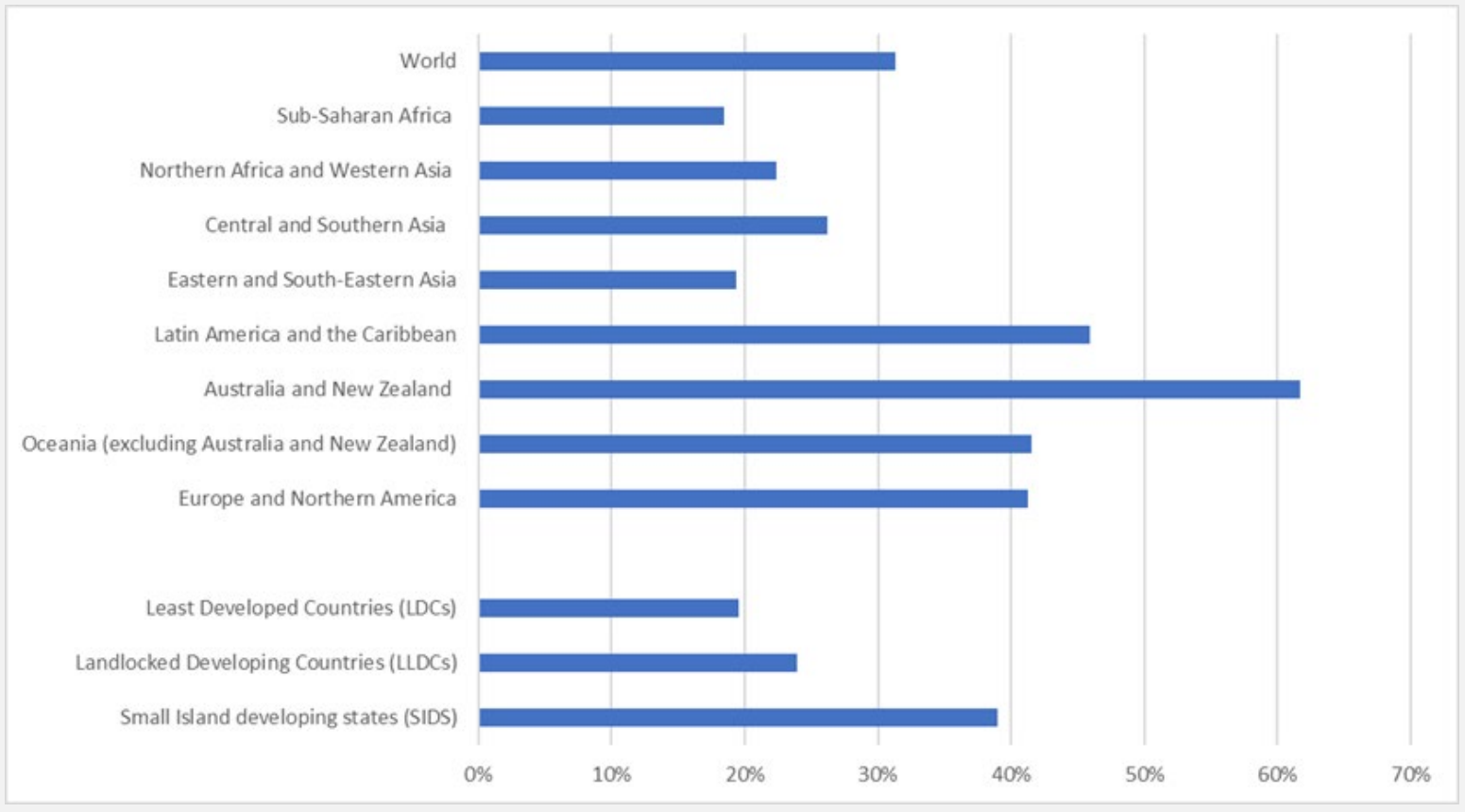
Regional disparities in new investments and access to credit for small-scale industrial firms persist

Small enterprises remain the backbone of economies worldwide, providing a diverse array of job opportunities and supporting livelihoods across communities. These enterprises serve as crucial drivers of employment, offering avenues for entrepreneurship and economic participation, particularly among women, youth, and marginalized groups. They play a vital role in closing economic and social gaps by promoting inclusivity and, therefore, contribute to the overall prosperity of society.

Globally, many small enterprises are encountering substantial challenges as a result of the strained geopolitical climate. While the uncertain economic environment affects all businesses, small enterprises in least-developed countries are particularly vulnerable due to heightened financial risks in these regions. Persistent disruptions in the global supply chain, including rising production and transaction costs, border delays, and higher shipping and logistics expenses, present additional challenges. Limited infrastructure and regulatory constraints further compound these difficulties, making it harder for small enterprises to expand and compete in global markets.

Access to credit, which is crucial for many small enterprises, varies significantly across regions and countries. Sub-Saharan Africa and Eastern and South-Eastern Asia are particularly affected by limited access to credit, with only 18% and 19% of small businesses, respectively, having access to financial services, well below the global average of 31%. In contrast, Australia and New Zealand, as well as Latin America and the Caribbean, show the highest proportions of small manufacturing firms with a loan or line of credit at 62% and 46%, respectively. Improving financial inclusion and providing targeted policy support can help bridge this gap, ensuring that small enterprises can thrive despite economic uncertainties.

Proportion of small-scale industries with a loan or line of credit (survey data 2006-2024; https://www.enterprisesurveys.org/en/enterprisesurveys)



Additional resources, press releases, etc. with links:

- https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2024

Storyline authors(s)/contributor(s): Manveer Kaur Mangat, UNIDO; Fernando Cantu-Bazaldua, UNIDO; Arvind Jain, World Bank; Andrea Suzette Blake-Fough, World Bank

Custodian agency(ies): UNIDO, World Bank

Target 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

Indicator 9.4.1 CO_2 emission per unit of value added

Global CO_2 emissions hit record high in 2024 despite growth in clean energy

Global CO2 emissions from fuel combustion and industrial processes, reached a new record high in 2024, rising by 0.8% to 37.6 gigatonnes (Gt). While emissions from industrial processes declined, those from fuel combustion rose by approximately 1%, largely driven by higher consumption of natural gas and coal.

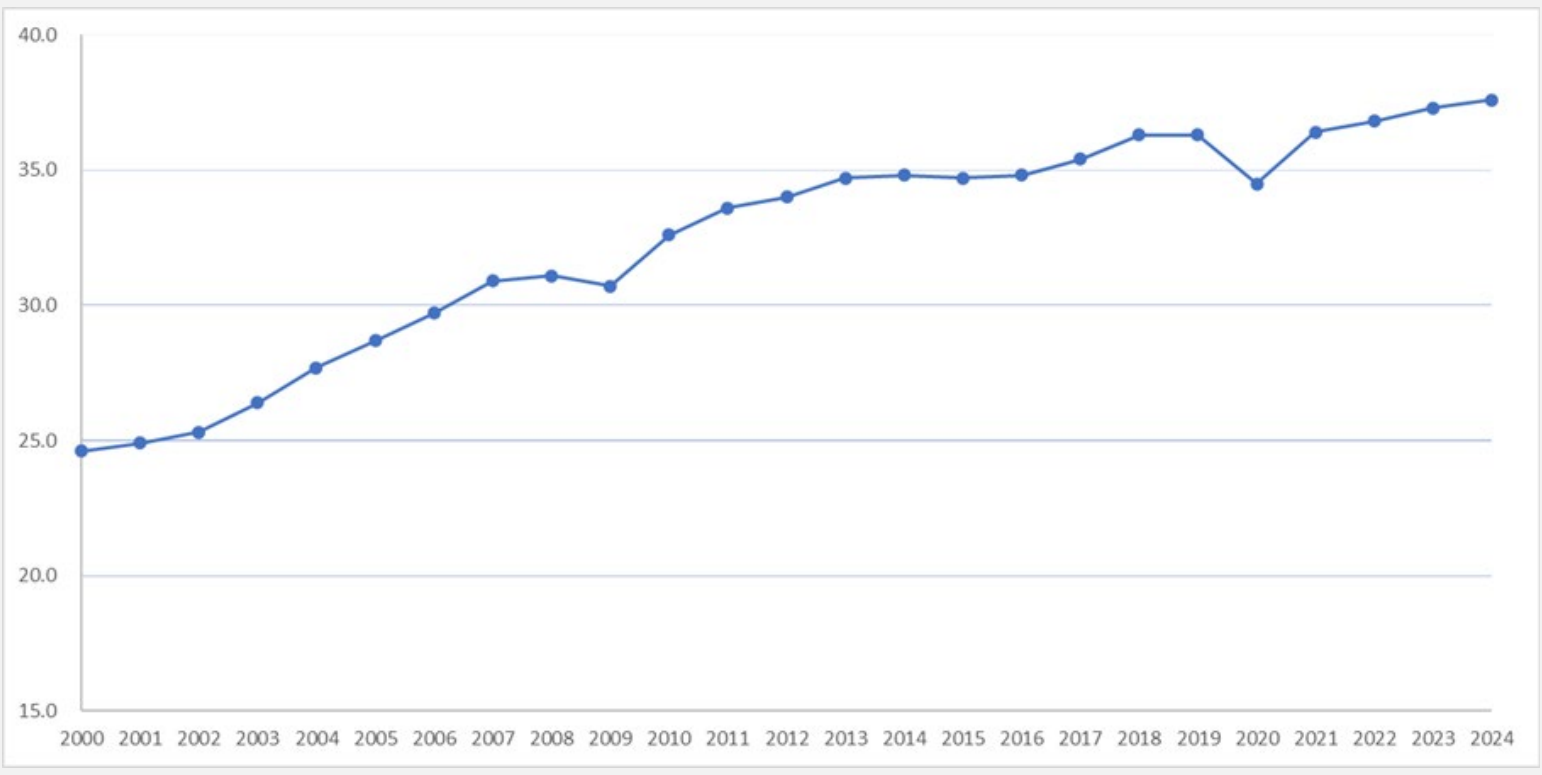
Natural gas emissions saw the largest increase among fossil fuels, rising by 2.5% (180 Mt CO2), primarily due to higher demand in China, the United States, the Middle East, and India. Coal emissions also grew by 0.9% (135 megatonnes (Mt) CO2), mainly fuelled by increased consumption in China, India, and Southeast Asia. Meanwhile, oil-related emissions increased by just 0.3%, even though global oil consumption rose by 0.8%. This limited rise was due to the fact that petrochemical feedstocks accounted for a large portion of the oil demand increase, while aviation emissions surged by approximately 5.5% due to record global air passenger demand.

The emissions trends varied significantly by region. In emerging markets and developing economies, energy-related CO2 emissions increased by 1.5% (375 Mt CO2) due to growing energy demand linked to economic and population growth. Coal emissions in these regions rose by 2%, natural gas emissions by 3.7%, and oil emissions by 0.3%. In contrast, advanced economies saw a decline in emissions, decreasing by 1.1% (120 Mt CO2). This reduction was driven by a 5.7% decline in coal emissions and a 0.5% drop in oil emissions, while natural gas emissions increased slightly by 0.9%.

A key driver of emissions growth in 2024 was record-high global temperatures, with every month from January to June setting new records. This led to a 6% increase in cooling degree days, driving higher electricity consumption and contributing an estimated 230 Mt CO2 to emissions.

Despite rising emissions, clean energy technologies have played a critical role in limiting the growth. Between 2019 and 2024, the deployment of solar PV, wind power, nuclear power, electric cars, and heat pumps avoided more than 2.6 Gt of annual CO2 emissions. Without these technologies, the increase in global emissions since 2019 would have been three times larger. Solar PV alone prevented 1.4 Gt of emissions, while wind power avoided 900 Mt CO2, showcasing the vital role of renewables in mitigating climate change.

Global CO2 emissions from energy combustion and industrial processes, 2000-2024 (Gt =Gigatonnes)



Additional resources, press releases, etc. with links:

- https://www.iea.org/reports/global-energy-review-2025/co2-emissions
- https://iea.blob.core.windows.net/assets/909b7120-1cbd-439a-a9da-e971a4419977/GlobalEnergyReview2025.pdf
- https://www.iea.org/data-and-statistics/data-tools/greenhouse-gas-emissions-from-energy-data-explorer

Storyline authors(s)/contributor(s): Manveer Kaur Mangat, UNIDO; Pouya Taghavi, IEA; Fernando Cantu-Bazaldua, UNIDO

Custodian agency(ies): UNIDO, IEA

Target 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

Indicator 9.5.1 Research and development expenditure as a proportion of GDP

Global GDP invested in R&D seems to be stabilizing during post-pandemic, but disparities persist in developing economies

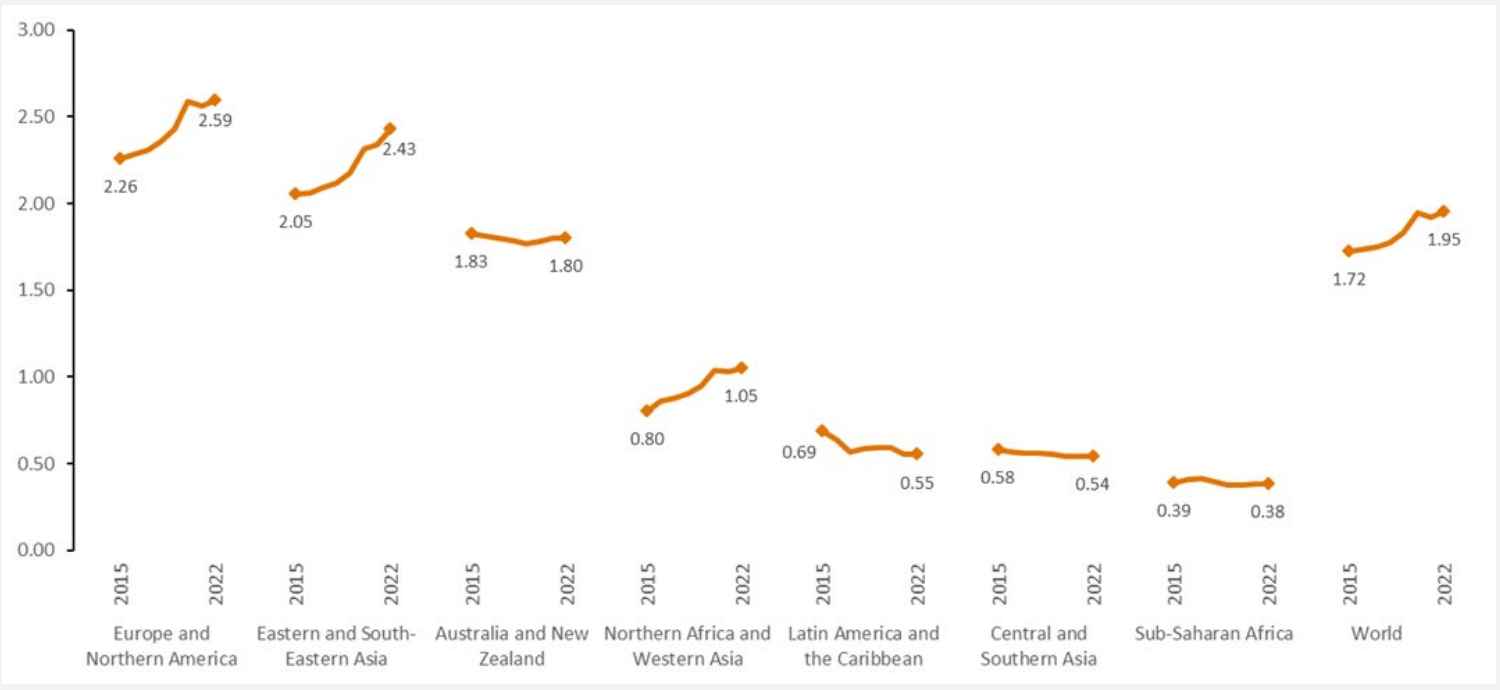
Global expenditure on research and development (R&D) grew at an average annual growth rate of 5.1% from 2015 to 2022, despite a plunge to 3.3% in 2020 during the COVID-19 crisis. It rebounded strongly in 2021 with a 6.6% growth. While growth slightly slowed to 5.2% in 2022, it remained above the pre-pandemic annual average of 5.1% (2015-2019), highlighting the continued importance of global R&D investments.

In relative terms, between 2015 and 2022, the proportion of global GDP invested in R&D rose from 1.72% to 1.95%. However, it saw notable fluctuations during the COVID-19 pandemic, with the proportion reaching 1.83% in 2019, increasing to 1.94% in 2020, before slightly dropping to 1.92% in 2021. These variations were driven by significant shifts in growths of global R&D spending and GDP, which progressed at different paces. In 2022, global R&D expenditure as a proportion of GDP seemed to have stabilized, with a slight increase to 1.95%.

An analysis of regional trends shows that Europe and Northern America, and Eastern and South-Eastern Asia continue to spend the highest percentages of GDP toward R&D. Between 2015 and 2022, R&D expenditure as a share of GDP significantly increases in these regions, rising from 2.26% to 2.59%, and from 2.05% to 2.43%, respectively. This was followed by Australia and New Zealand, where the proportion of GDP spent on R&D has consistently hovered around 1.80%. Northern Africa and Western Asia also experienced a notable rise, from 0.80% to 1.05%, just surpassing the 1% of GDP spent on R&D. In contrast, other developing economies have seen a decline in R&D investment relative to their GDP, reflecting persistent and growing disparities. Latin America and the Caribbean, as well as Central and Southern Asia, saw decreases from 0.69% to 0.55%, and from 0.58% to 0.54%, respectively, while Sub-Saharan Africa remained stagnant at around 0.38% during the same period.

Growth in R&D investments highlights its critical role in driving sustainable growth, innovation, and competitiveness. However, continued strong policy commitments are essential, especially in developing economies, to increase R&D financing and advance inclusive, science- and evidence-based solutions to global challenges.

Research and development expenditure as a proportion of GDP, 2015 - 2022 (percentage)



Additional resources, press releases, etc. with links:

- https://databrowser.uis.unesco.org/browser/SCIENCE_TECHNOLOGY_INNOVATION/UIS-SDG9Monitoring

Storyline authors(s)/contributor(s): UNESCO Institute for Statistics (UIS)

Custodian agency(ies): UNESCO-UIS

Indicator 9.5.2 Researchers (in full-time equivalent) per million inhabitants

Global research workforce growth accelerates but developing economies and gender imbalances require vital attention

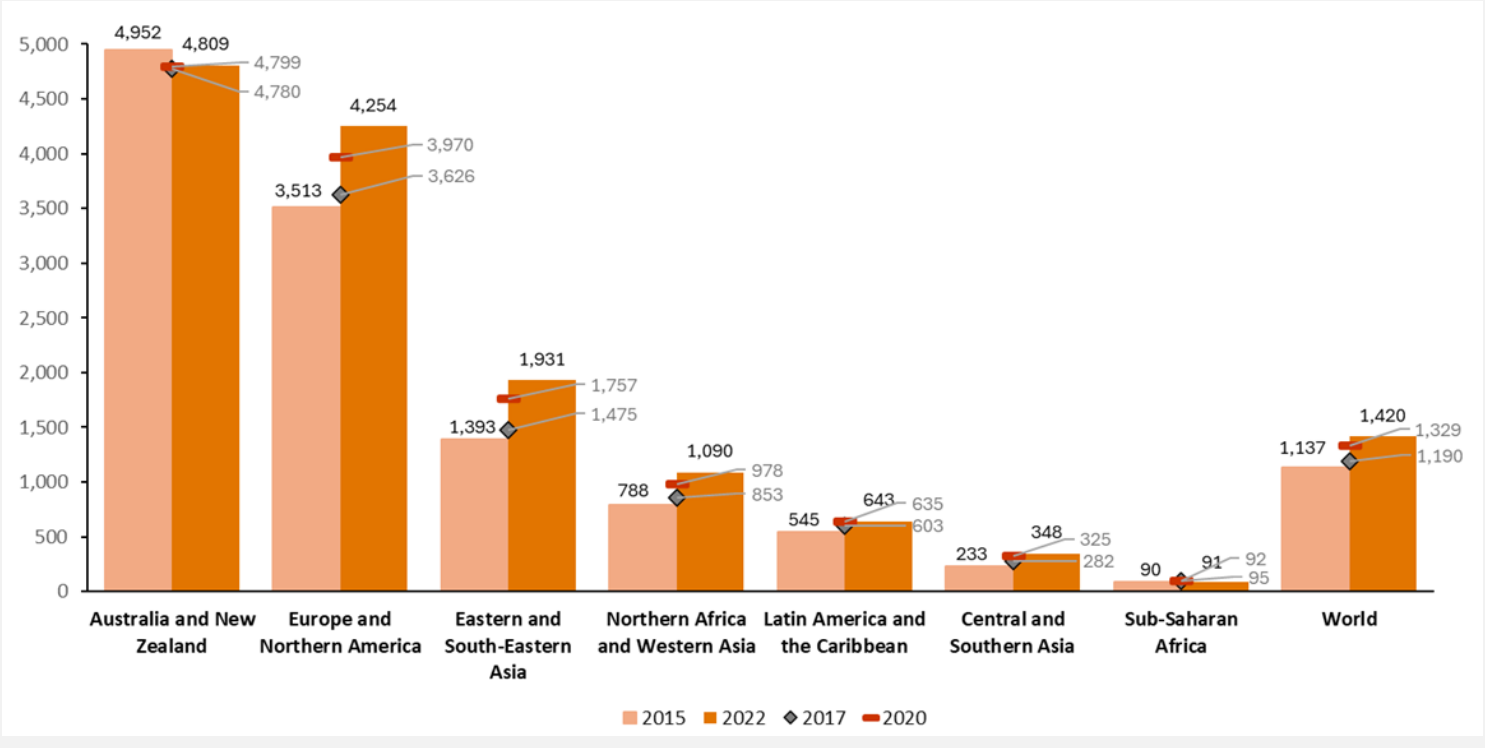
The number of researchers worldwide has steadily increased at an average annual growth rate of 4.3% from 2015 to 2022. While all regions experienced growth in research personnel during this period, Eastern and South-Eastern Asia maintained a higher average annual rate of 5.3%, driving much of the global increase.

Between 2015 to 2022, in relative terms, the global number of researchers per million inhabitants increased from 1,137 to 1,420. Regionally, Europe and Northern America, along with Australia and New Zealand, continued to lead. Europe and North America displayed a solid rise, increasing from 3,513 to 4,254 researchers per million inhabitants, while Australia and New Zealand experienced a slight decline, from 4,952 to 4,809. Meanwhile, Eastern and South-Eastern Asia, as well as Northern Africa and Western Asia, saw significant increases in their researchers per million inhabitants, rising from 1,393 to 1,931, and from 788 to 1,090, respectively. In Latin America and the Caribbean, as well as Central and Southern Asia, researcher densities increased modestly, from 545 to 643, and from 233 to 348 respectively. In contrast, Sub-Saharan Africa has been hovering around at around 91 researchers per million inhabitants. These disparities, particularly in developing economies, highlight the wide regional gaps in research capacity.

Regarding women's participation, they remain underrepresented in the global research workforce, comprising only 31.1% of all researchers worldwide in 2022 (based on headcount measurements). Regionally, the share of women researchers also varies significantly. Central Asia, and Latin America and the Caribbean lead with the highest proportions, at 46.5% and 45.3%, respectively. They were closely followed by Northern Africa (43.2%) and South-Eastern Asia (41.3%). In Western Asia (35.8%), Europe and North America (35.2%), and Sub-Saharan Africa (33.4%) around one in three researchers was a woman, surpassing the global average. In contrast, Southern Asia, and Eastern Asia lag significantly, with just 26.9% and 23.5% of researchers being women in 2022.

Although the global research workforce continues to grow, strong policy commitments are essential to significantly increase the number of research personnel, particularly in developing economies, and to strengthen women's participation in the research profession. These efforts are crucial for advancing sustainable, inclusive, science- and evidence-based solutions to global challenges, ensuring no one is left behind.

Researchers (in full-time equivalent) per million inhabitants, 2015, 2017, 2020 and 2022 (per 1,000,000 population)



Additional resources, press releases, etc. with links:

- https://databrowser.uis.unesco.org/browser/SCIENCE_TECHNOLOGY_INNOVATION/UIS-SDG9Monitoring

Storyline authors(s)/contributor(s): UNESCO Institute for Statistics (UIS)

Custodian agency(ies): UNESCO-UIS

Target 9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States

Indicator 9.a.1 Total official international support (official development assistance plus other official flows) to infrastructure

OFFICIAL FLOWS FOR INFRASTRUCTURE PROJECTS PEAK IN 2023

Total official flows from all donors for infrastructure in developing countries continued to increased by 5.1% in 2023 compared to 2022 and reached a peak at the level of USD 75.2 billion in 2023. The increase was mainly due to the banking and financial services (USD 3.4 billion increase), transport (USD 2.2 billion increase), and energy sectors (USD 2.1 billion increase).

The 2023 official flows volume for infrastructure represents a 13% increase since 2015 which was due to flows for banking and financial services but also to transport and energy. However, as a percentage of total official flows there was a downward trend from 24% in 2015 to 19% in 2023.

From the bilateral donor perspective, the US, Germany and Japan were the countries at the origin of larger flows towards developing countries (USD 228.7 billion, USD 55.5 billion and USD 54.2 billion respectively).

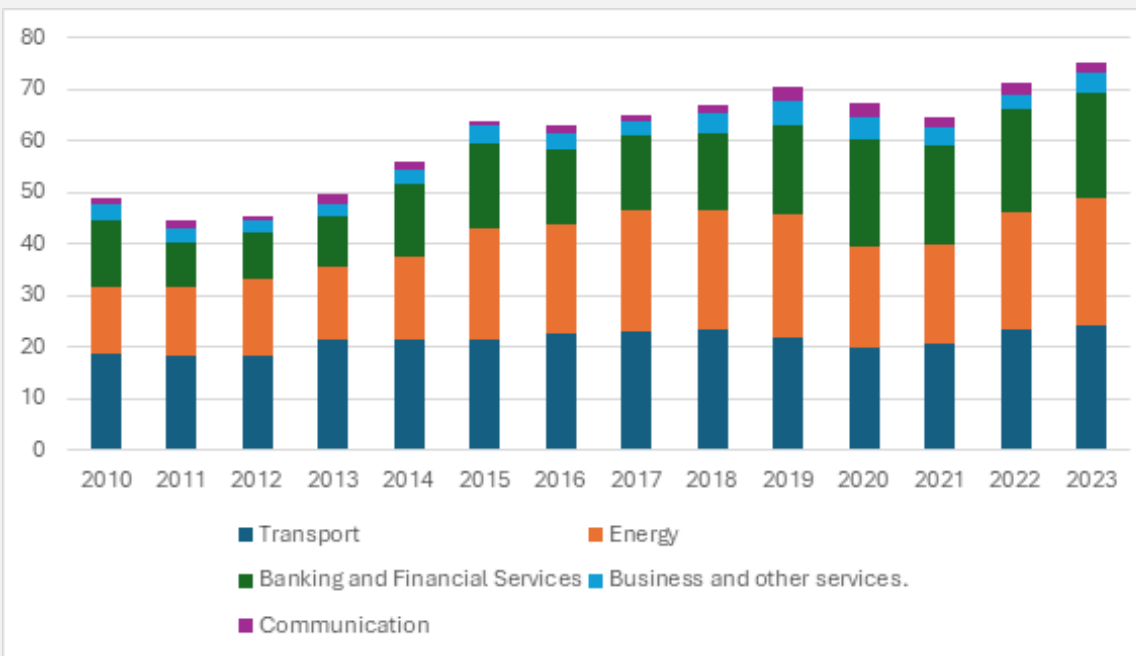
The energy sector remained the largest sector funded (USD 25.0 billion), followed by support for transport (USD 24.3 billion) and the banking and financial services sector (USD 20.7 billion). Within the energy sector, renewable sources of energy generation, energy distribution and energy policy received the largest amounts (USD 9.4 billion, USD 6.8 billion each for the two latter respectively).

In 2023, Asia was the region that received the largest amount, USD 35.7 billion of which 60% went to India (USD 10.5 billion), Bangladesh (USD 3.8 billion), Indonesia (USD 3.6 billion) and Philippines (USD 3.4 billion). Official flows to Africa decreased in volume by 4.2% from 2022 and amounted USD 16.6 billion. Support to Europe continued to grow by 13.5% driven by USD 2.9 billion flows for infrastructure to Ukraine which increased by 19% in 2023 after have doubled in volume in 2022.

Financing from Regional Development Banks, the World Bank and EU Institutions represented more than 60% of the total or USD 24.3 billion, USD 15.2 billion and USD 6.4 billion respectively.

The largest bilateral donors were Japan (USD 9.9 billion), Germany (USD 5.6 billion) and France (USD 3.3 billion).

Total Official International Support to Infraestructure. Constant 2023 USD million



Storyline authors(s)/contributor(s): OECD

Custodian agency(ies): OECD

Target 9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

Indicator 9.b.1 Proportion of medium and high-tech industry value added in total value added

Medium and High-Tech Manufacturing industries show modest growth post COVID-19

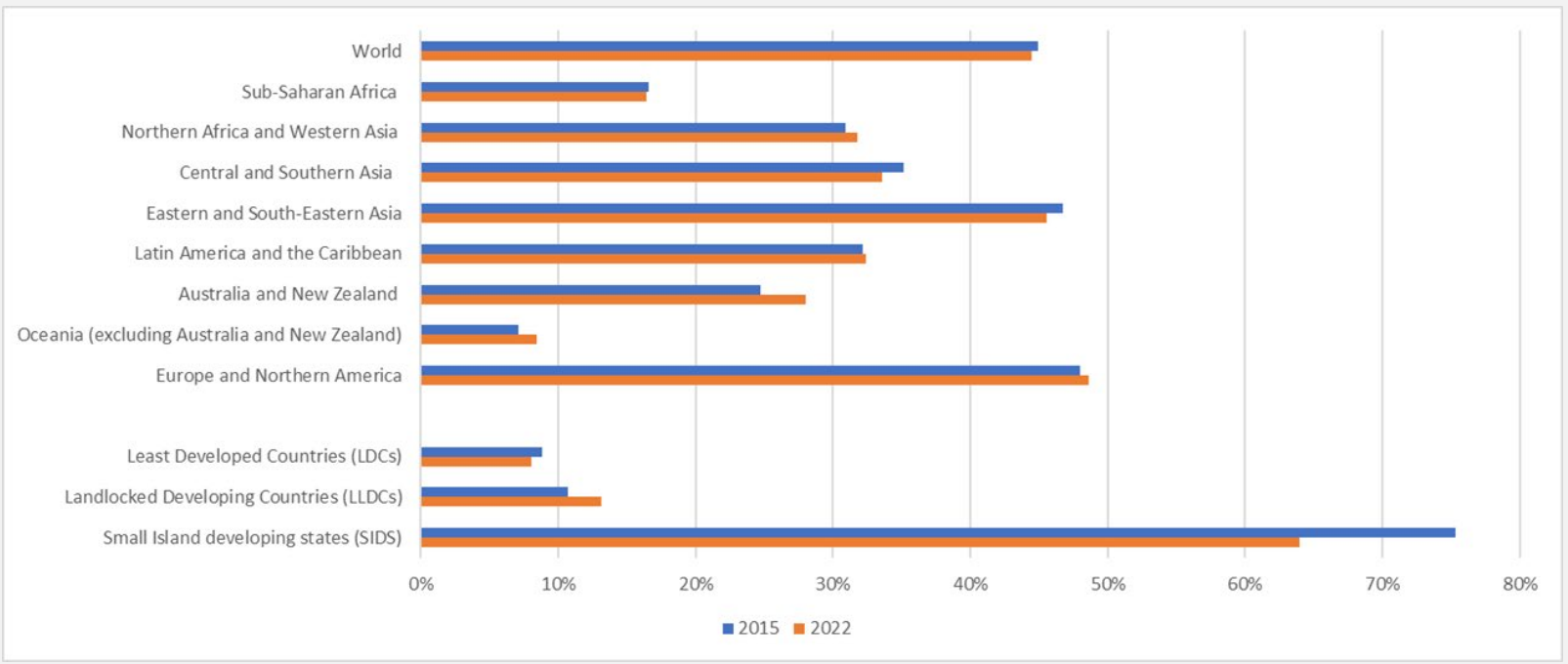
Structural transformation, a key strategy for achieving sustainable economic growth and enhancing living standards, involves a stable shift of economic activity from the primary sector to manufacturing and higher value-added services, and from lower- to higher-productivity activities. Besides fostering diversification and structural change, transitioning to higher-technology and innovation-focused industries is crucial to support green growth, as these activities typically have lower energy and emission intensities.

Since 2015, the proportion of medium- and high-tech manufacturing value added in total value added has followed a steady upward trend, from an initial share of 44.96%. However, the COVID-19 pandemic caused a slight downturn, reducing the share to 44.60% in 2020. The decline continued in 2021, falling by 0.79 percentage points to 43.81%. By 2022, the share rebounded to 44.47%. The marginal decline in 2020 and 2021, followed by a strong recovery underscores the resilience of higher-technology industries.

Significant regional disparities persist in the distribution and growth of medium- and high-tech manufacturing. Australia and New Zealand experienced the most substantial growth in higher-technology industries, increasing from 24.74% in 2015 to 28.01% in 2022, followed by Oceania (excluding Australia and New Zealand), which rose from 7.06% to 8.41% over the same period. However, both regions remain well below the global average. The smallest increase was recorded by Latin America and the Caribbean, rising from 32.16% to 32.38%.

In contrast, Central Asia and Southern Asia, along with Eastern and South-Eastern Asia, experienced the largest declines, decreasing by 1.60 and 1.22 percentage points, respectively, from 2015 to 2022. Sub-Saharan Africa also saw a decrease of 0.19 percentage points over the same period. Despite these declines, Eastern and South-Eastern Asia, along with Northern America and Europe, continue to lead in the share of medium- and high-tech manufacturing value added. In contrast, Sub-Saharan Africa and Oceania (excluding Australia and New Zealand) remain the regions with the lowest shares of medium- and high-tech manufacturing in total manufacturing value added.

Proportion of medium- and high-tech manufacturing value added in total MVA; Source: UNIDO INDSTAT Database. Available at https://stat.unido.org



Storyline authors(s)/contributor(s): Manveer Kaur Mangat, UNIDO; Fernando Cantu-Bazaldua, UNIDO

Custodian agency(ies): UNIDO

Target 9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

Indicator 9.c.1 Proportion of population covered by a mobile network, by technology

More than half of the world's population now covered by 5G

Since commercial deployment began in 2019, 5G coverage has increased to reach 51 per cent of the world population in 2024. However, the distribution is very uneven: 84 per cent of people in high-income countries are covered, but only 4 per cent in low-income countries.

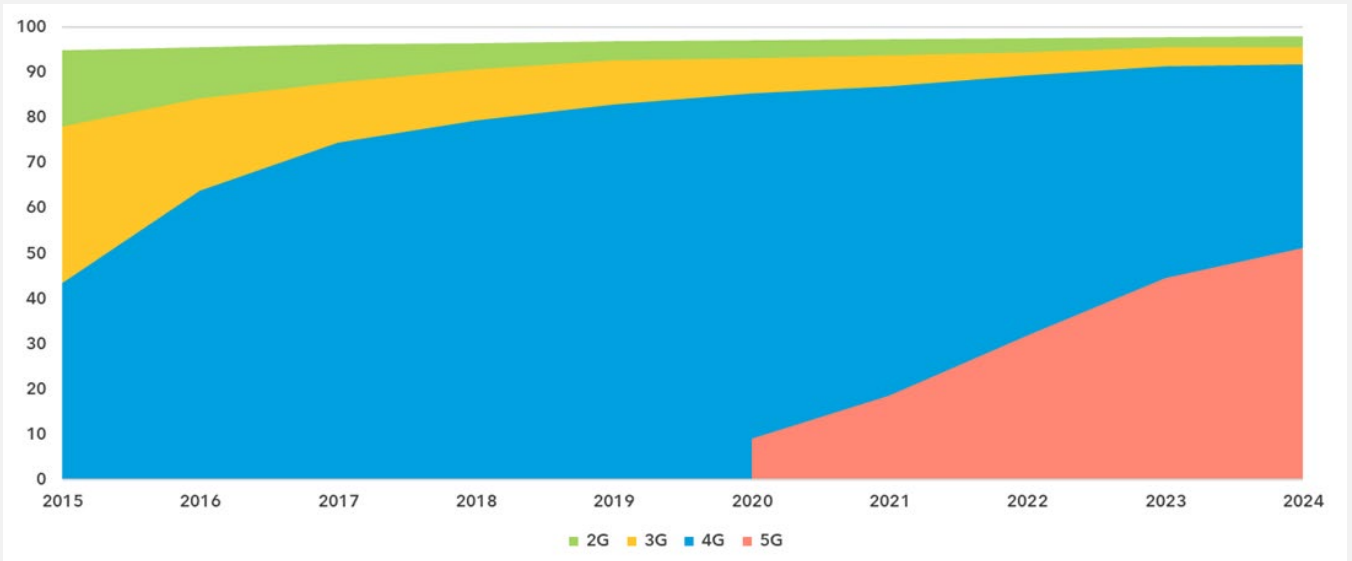
At the regional level, Australia and New Zealand boast the highest 5G coverage, at 92 per cent of the population, followed by Eastern and South-Eastern Asia; and Europe and Northern America (both regions at 77 per cent). Coverage is very low in Oceania excluding Australia and New Zealand (1 per cent), Sub-Saharan Africa (11 per cent) and Northern Africa and Western Asia (13 per cent).

Where 5G is not available yet, 4G remains a very good alternative, available to 92 per cent of the world population. In low-income countries, however, 4G only reaches about half the population (52 per cent), and 3G remains an important technology for connecting to the Internet.

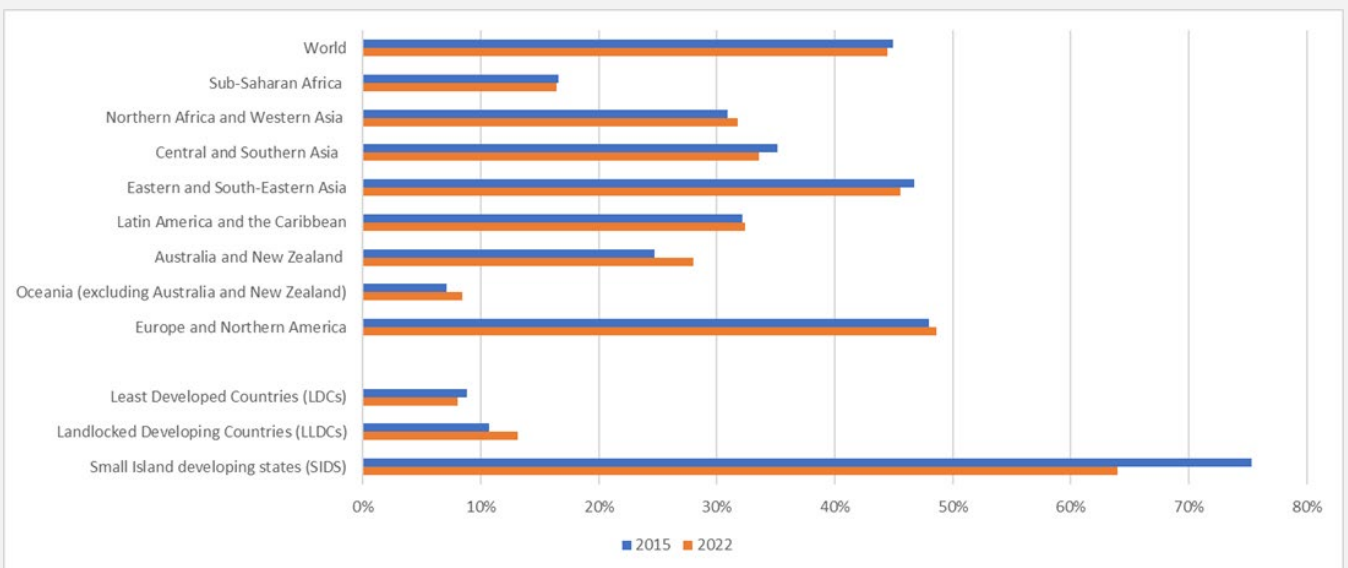
3G or better is now available to 96 per cent of the world population. Bridging the "coverage gap", that is, covering the remaining four per cent that lie beyond the reach of a mobile broadband signal, is proving difficult: since crossing the 90 per cent threshold in 2018, global 3G coverage has increased by only five percentage points. The largest coverage gap is in Oceania excluding Australia and New Zealand, where 24 per cent of the population still does not have access to a mobile broadband network and therefore cannot access the Internet.

LDCs and LLDCs, having 15 and 14 per cent of their population, respectively, beyond the reach of mobile broadband, are falling short of target 9.c of Sustainable Development Goal 9: to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020."

Proportion of population covered by a mobile network, by technology, 2015-2024



Proportion of population covered by a mobile network, 2024



Additional resources, press releases, etc. with links:

- ITU (2024): Measuring digital development: Facts and Figures 2024, https://www.itu.int/itu-d/reports/statistics/facts-figures-2024/

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