

The Sustainable Development Goals Extended Report 2024

Inputs and information provided as of 30 April 2024

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 2024. 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.

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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

The air passenger traffic showed strong momentum toward recovery in 2022 after the COVID-19 pandemic

The air passenger traffic showed strong momentum toward recovery in 2022 after the COVID-19 pandemic. Assuring the safe, secure, and sustainable recovery of air services will be key to restoring aviation’s ability to act as a catalyst for sustainable development at the local, national and global levels, and will consequently be vital to countries’ recovery from the broader impacts of the COVID-19 pandemic.

In 2024, the air transport industry is expected to support a total of 87.7 million jobs globally, and the direct and indirect global economic impact of air transport is estimated at \$3.5 trillion, which is equivalent to 4.1 per cent of the world gross domestic product (GDP). In 2019, USD 6.5 trillion worth of goods were expected to be transported internationally by air, representing 35 per cent of world trade by value, despite representing less than 1 per cent by volume.

Air transport also plays a pivotal role for many States and represents a lifeline for Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS). It facilitates their access to regions and the world by overcoming infrequent alternative transport services or poor infrastructure of other forms of transportation. During times of natural calamities air transport plays a critical role in the speedy and reliable transportation of essential supplies.

International passenger traffic suffered a dramatic 60 per cent drop over 2020, bringing air travel totals back to 2003 levels. ICAO reports that as seat capacity fell by 50 per cent last year, passenger totals dropped by 60 per cent with just 1.8 billion passengers taking to the air during the first year of the pandemic, compared to 4.5 billion in 2019. Its numbers also point to airline financial losses of 370 billion dollars resulting from the COVID-19 impacts, with airports and air navigation services providers (ANSPs) losing a further 115 billion and 13 billion, respectively.

The number of air passengers carried in 2022 increased by 43% compared to 2021, while revenue passenger kilometres (RPK’s) increased by 62% over the same period, due mainly to the rapid recovery of most international routes. In terms of airlines’ annual passenger revenues, ICAO observed growth of 44% from 2021 to 2022.

In line with earlier ICAO predictions, the strong recovery in air passenger demand has resulted in 2022 passenger numbers reaching 73% of pre-pandemic levels, while passenger revenues have reached around 87% of 2019 levels.

Figure 1: Passenger number, share by region, 2022

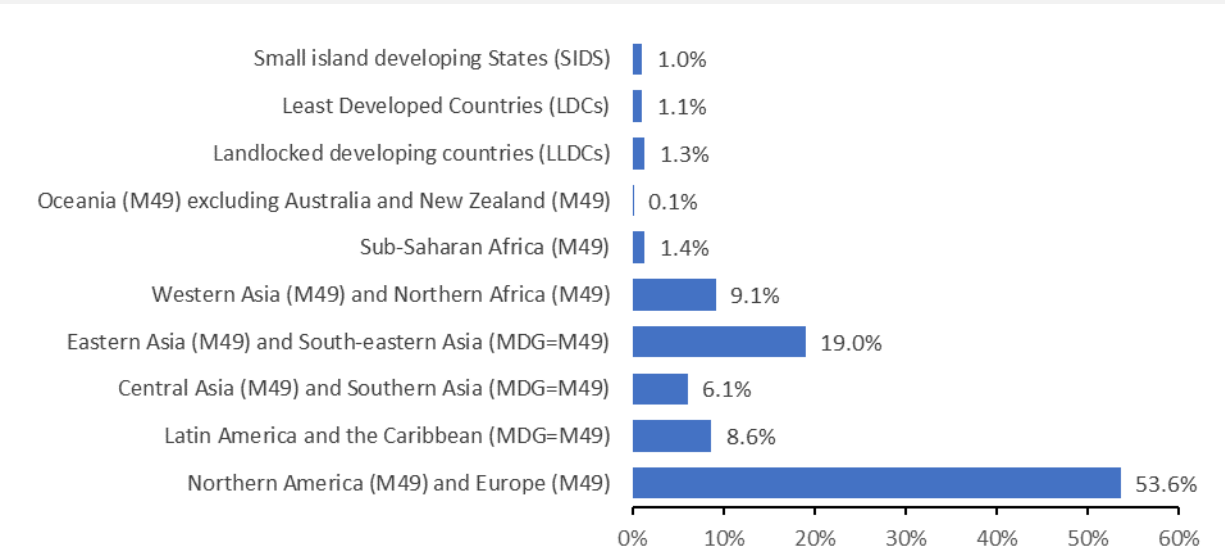
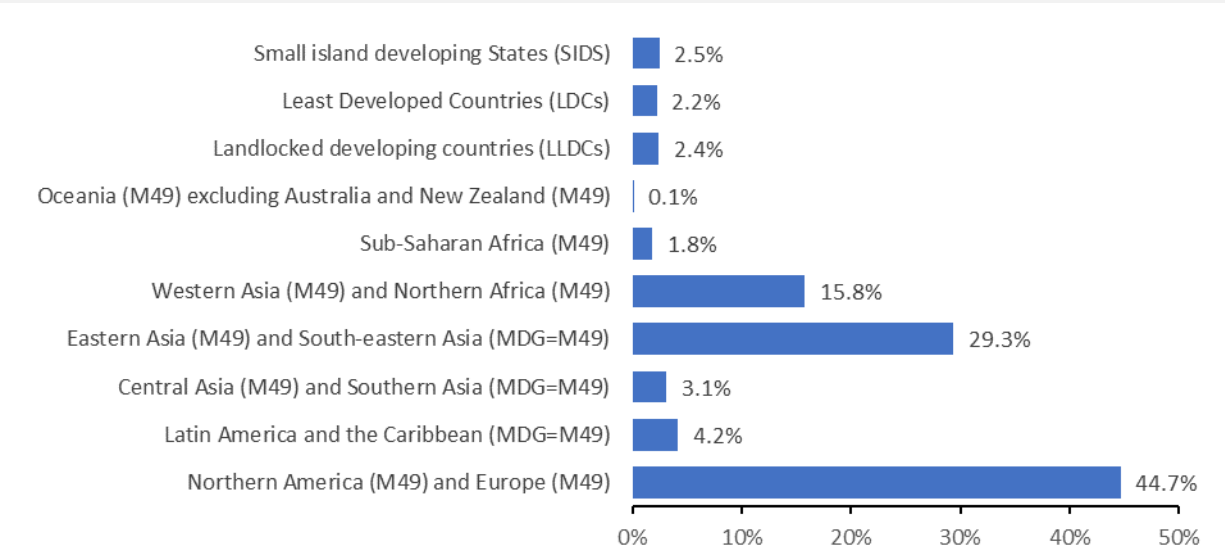


Figure 2: Cargo tonnes, Share by region, 2022



Additional resources, press releases, etc. with links:

- ICAO Economic Impact Analysis of COVID-19 on Civil Aviation: <https://www.icao.int/sustainability/Pages/Economic-Impacts-of-COVID-19.aspx>
- ICAO COVID-19 Air Traffic Dashboard: <https://www.icao.int/sustainability/Pages/COVID-19-Air-Traffic-Dashboard.aspx>
- ICAO Air Transport Monthly Monitor: <https://www.icao.int/sustainability/Pages/Air-Traffic-Monitor.aspx>
- ICAO Guidance on Economic and Financial Measures: <https://www.icao.int/sustainability/Pages/Economic-and-financial-measures.aspx>
- Press release: <https://www.icao.int/Newsroom/Pages/ICAO-forecasts-complete-and-sustainable-recovery-and-growth-of-air-passenger-demand-in-2023.aspx>

Custodian agency(ies): ICAO, ITF-OECD

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

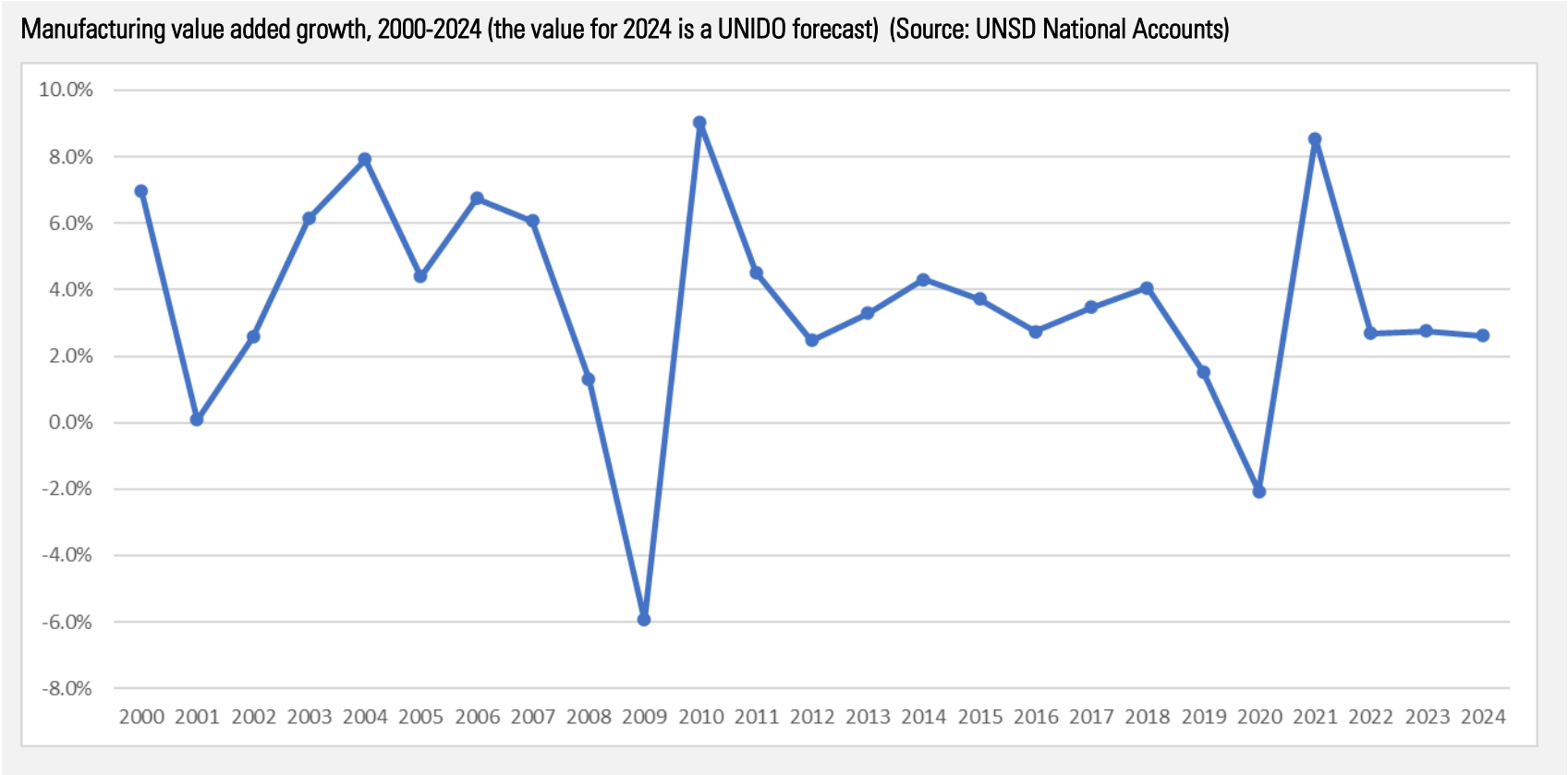
Global Manufacturing remains Stagnant amid Worldwide Economic Instability

In recent years, the global manufacturing sector has maintained steady growth, experiencing interruptions only during the global financial crisis of 2008-2009 and the COVID-19 pandemic in 2020. Since 2015, the global manufacturing value added per capita has risen by 16% from \$1,653 (at constant 2015 prices) to \$1,922 in 2023, with the manufacturing sector's contribution to total economic activity increasing from 16.3% to 16.7%. However, despite these positive trends, the share of manufacturing value added in gross domestic product largely stagnated at 16.7% in 2023. Similarly, the growth of the manufacturing sector has plateaued at around 2.7% and is anticipated to remain stagnant in 2024. This slowdown can be attributed to various factors, including geopolitical uncertainty, inflation, logistical challenges, elevated energy costs, and the broader global economic deceleration.

While there has been a global increase in manufacturing value added per capita since 2015, this trend has not been universal across regions. Sub-Saharan Africa, Latin America and the Caribbean, as well as Australia and New Zealand, have experienced declines in manufacturing value added per capita, with decreases of 6%, 7%, and 10% respectively, from 2015 to 2023. Conversely, the highest increase was observed in Eastern Asia and South-eastern Asia, where manufacturing value added per capita rose from \$2302 (at constant 2015 prices) in 2015 to \$3149 in 2023.

Similarly, the global increase in the share of manufacturing value added in gross domestic product does not apply uniformly to all regions. Sub-Saharan Africa along with Northern America and Europe saw a decrease of 0.4 percentage points, while Latin America and the Caribbean and Australia and New Zealand experienced declines of approximately 0.8 and 1.1 percentage points from 2015 to 2023, respectively.

In the least developed countries, manufacturing value added per capita increased by 35%, although from a low base: from \$125 (at constant 2015 prices) in 2015 to \$169 in 2023. Furthermore, their share of manufacturing value added in the gross domestic product rose by 2.5 percentage points between 2015 and 2023. While these positive developments demonstrate that the least developed countries are on the right track, the pace might not be sufficient to reach their target of doubling their 2015 level by 2030.



Additional resources, press releases, etc. with links:

- <https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2023>
- <https://stat.unido.org/content/publications/statistical-indicators-of-inclusive-and-sustainable-industrialization%253a-biennial-progress-report-2023>

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

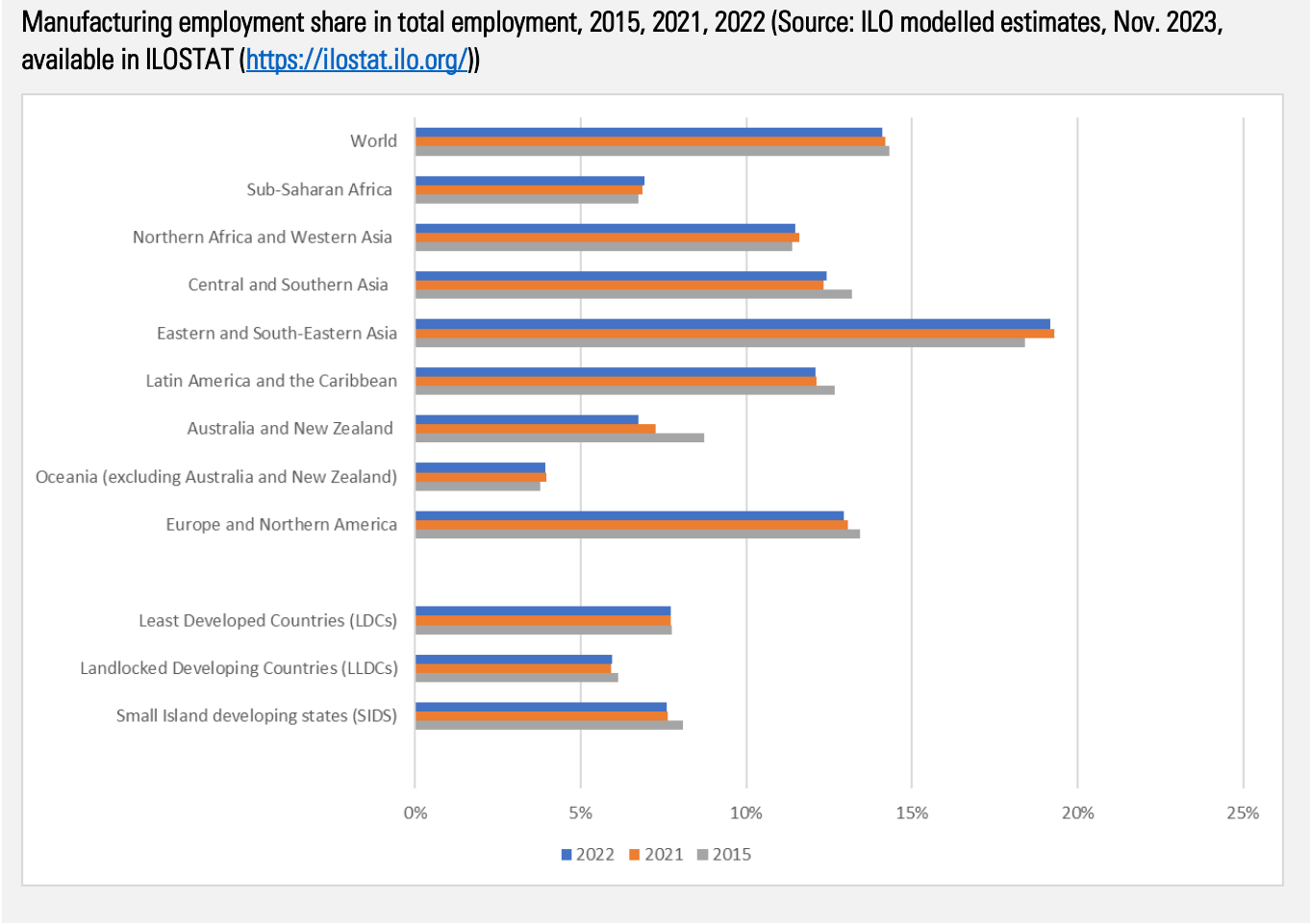
Manufacturing Employment Share Declines Amidst Geopolitical Tensions and Economic Sanctions

Since 2015, the global share of manufacturing employment in total employment has undergone subtle yet significant shifts, influenced by a myriad of factors including the COVID-19 pandemic, the conflict in Ukraine and other crises. In 2015, the global share of manufacturing employment stood at 14.3%, serving as a baseline for subsequent years. Over the following years until 2020, the percentage remained relatively stable, with minor oscillations but no substantial deviations from the 14.3% benchmark.

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. Consequently, the share of manufacturing employment dipped slightly to 14.2%, reflecting the pandemic's immediate impact on the sector’s labor market.

Despite the initial setbacks caused by the pandemic, manufacturing sectors exhibited resilience and adaptability in the subsequent year. In 2021 the share of manufacturing employment remained at 14.2%, indicating a gradual stabilization amidst ongoing uncertainties and challenges posed by the pandemic.

However, in 2022 there was a notable shift in the share of manufacturing employment, decreasing to 14.1%, as the conflict in Ukraine further compounded challenges for global manufacturing industries. Disruptions to supply chains, heightened geopolitical tensions, and economic sanctions disrupted trade flows and investment activities, impacting manufacturing employment in various regions. While the share of manufacturing employment increased by 0.06 and 0.10 percentage points in Sub-Saharan Africa and Central and Southern Asia from 2021 to 2022, respectively, most regions witnessed a decline, with Australia and New Zealand registering the highest fall with 0.52 percentage points. Hence, monitoring and addressing the ongoing impacts of these crises will be essential for fostering sustainable growth and resilience within global manufacturing ecosystems.



Additional resources, press releases, etc. with links:

- <https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2023>
- <https://stat.unido.org/content/publications/statistical-indicators-of-inclusive-and-sustainable-industrialization%253a-biennial-progress-report-2023>

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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

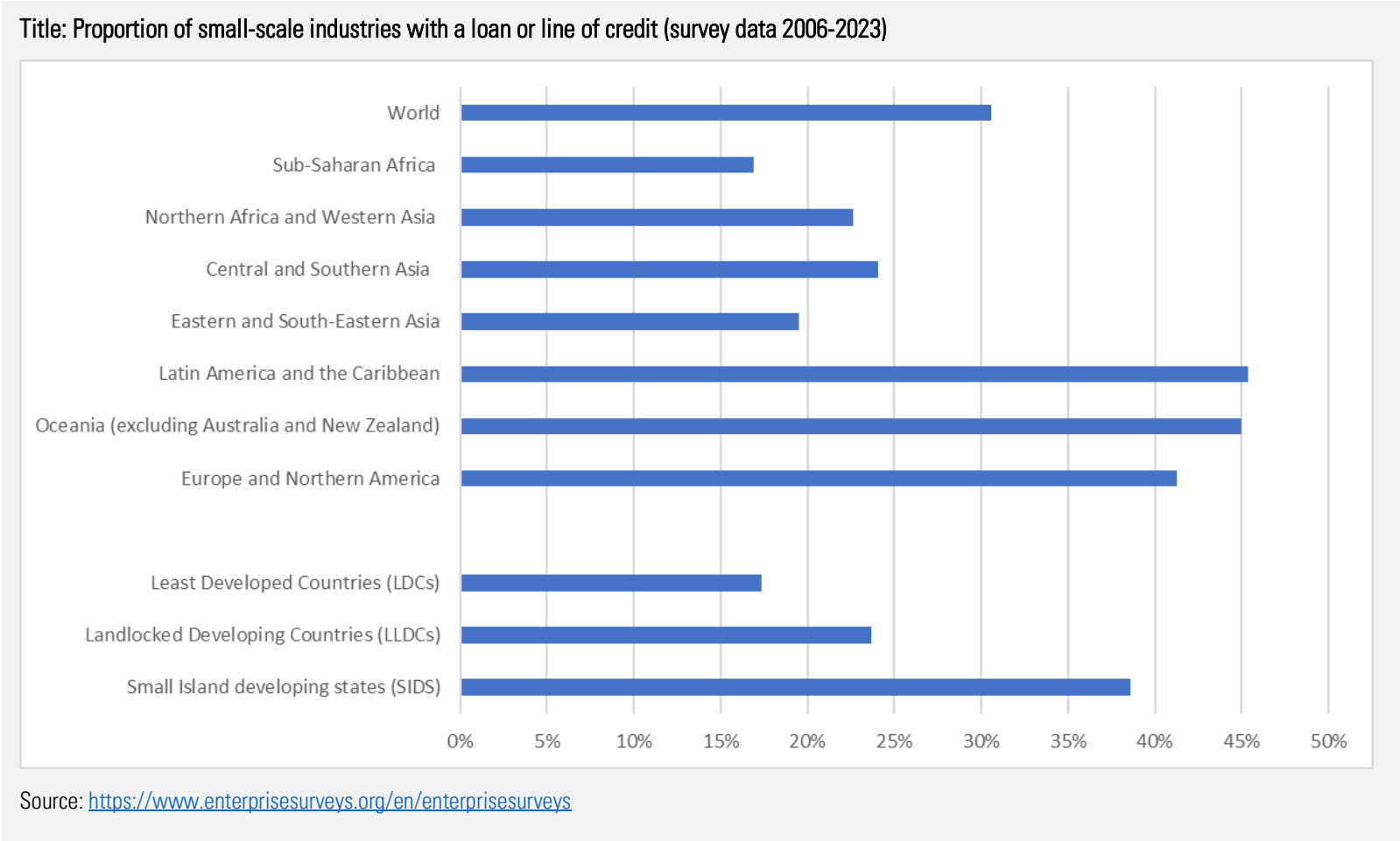
Uncertainty from Multiple Crises continues to impede new Investments and Credit for Small-Scale Industrial Firms

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, a significant number of small enterprises are still facing challenges in their recovery from the pandemic, exacerbated by the energy price shock and economic instability resulting from the conflict in Ukraine and other crises. These developments have contributed to an increasingly uncertain economic environment, impacting all businesses, especially small enterprises in least developed countries, where financial risks are particularly heightened. Entrepreneurs continue to grapple with high interest rates on loans and rising operational expenses due to inflation in energy and transportation. Furthermore, these challenges are compounded by ongoing disruptions in the global supply chain, characterized by rising production and transaction costs, border delays, and increased shipping and logistics expenses.

Access to credit, essential for many small enterprises, varies widely across different regions and countries. Sub-Saharan African countries and least developed countries (LDCs) are particularly impacted by a lack of credit, with only 16.9% and 17.4% respectively, having access to financial services, well below the global average of 31%. In contrast, Latin American and Caribbean, as well as Oceania (excluding New Zealand and Australia), demonstrate the highest proportions of small manufacturing firms with a loan or line of credit with 45.4% and 45.0%, respectively.

The COVID-19 pandemic accelerated the digitalization process, which has the potential to enhance the resilience and competitiveness of small businesses and facilitate their access to international markets. However, access to finance often serves as a prerequisite for innovation and the adoption of new technologies. In order to achieve SDG target 9.3, inclusive industrial policies are crucial for fostering the growth, competitiveness, and resilience of small enterprises.



Additional resources, press releases, etc. with links:

- <https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2023>
- <https://stat.unido.org/content/publications/statistical-indicators-of-inclusive-and-sustainable-industrialization%253a-biennial-progress-report-2023>

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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 CO2 emission per unit of value added

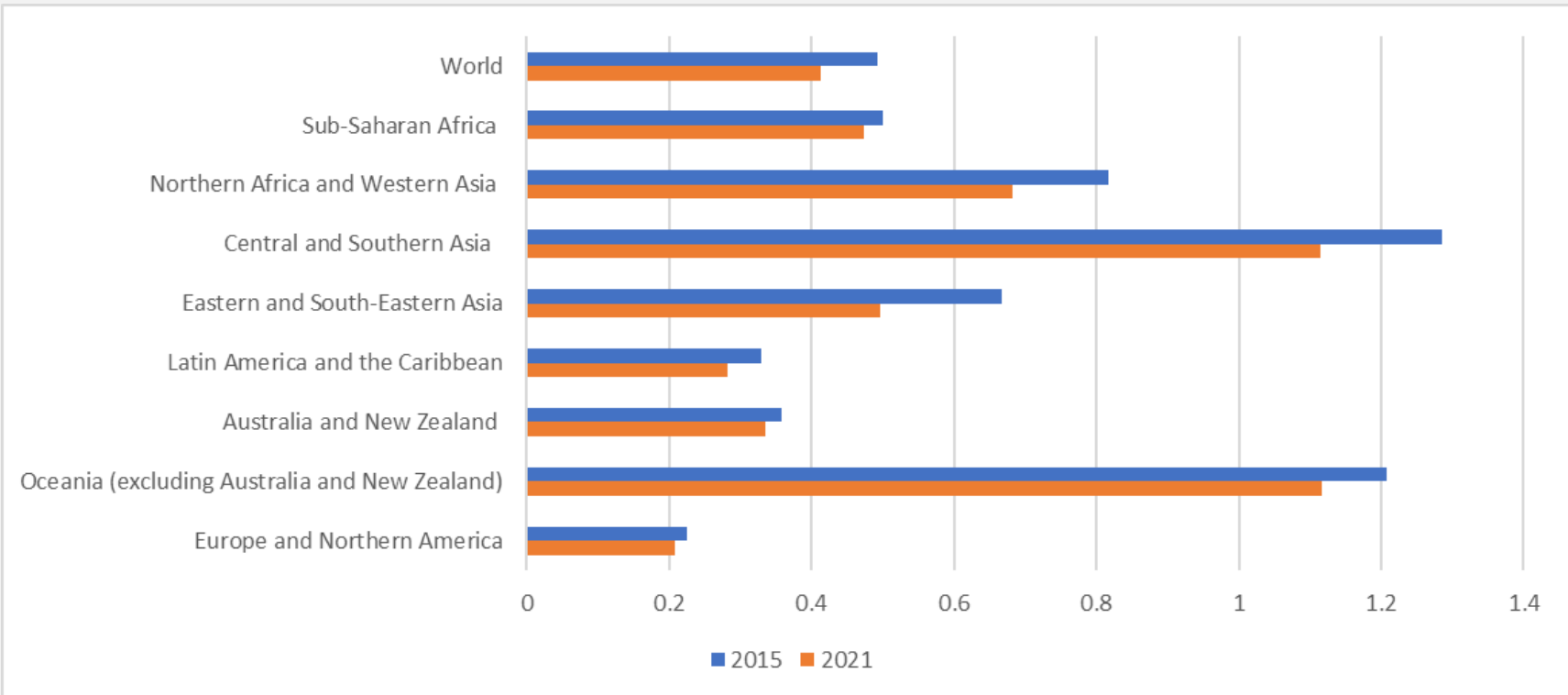
Despite Ongoing Reduction in CO2 Emissions Intensity, Pace Falls Short of Significantly Lowering Record-High Emissions

In 2021, worldwide carbon dioxide (CO2) emissions resulting from fuel combustion surged by 5.8%, reaching an unprecedented 33.6 gigatonnes. This marked a substantial increase of 1.8 gigatonnes compared to the previous year. Despite experiencing a reduction of almost 6% in 2020, due to the decline in energy demand amid the COVID-19 pandemic, emissions have now surpassed levels observed before the pandemic. The manufacturing sector contributed 18% to global CO2 emissions from fuel combustion in 2021. Affected by the COVID-19 crisis, the sector's total CO2 emissions contracted by 0.77% in 2020, reaching 5.9 gigatons before rebounding to 6.1 gigatons in 2021 as part of the sector's post-pandemic recovery.

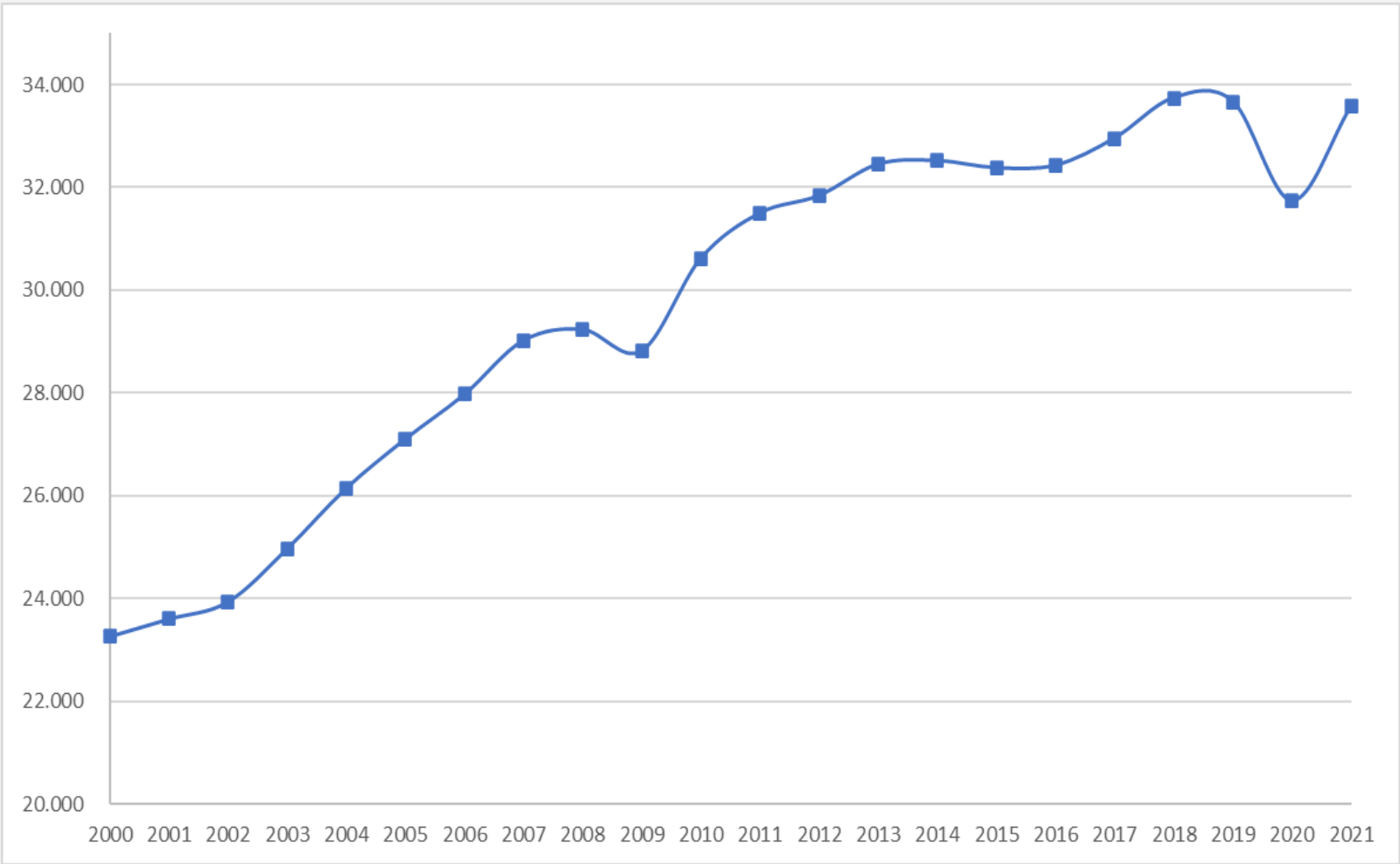
Despite this, the overall CO2 emissions intensity has been on a declining trajectory since 2000, with a notable reduction of 11.5% from 0.29 kg/USD PPP in 2015 to 0.25 kg/USD PPP in 2021. This trend is furthermore mirrored in CO2 emissions intensity from manufacturing, witnessing a significant decrease of 16% from 0.49 kg/USD PPP in 2015 to 0.41 kg/USD PPP in 2021. Despite the decrease in CO2 intensity within the manufacturing sector globally, significant disparities persist among different regions. For instance, the manufacturing CO2 emissions intensity in Central and Southern Asia remains much higher than in Europe and Northern America, 1.12kg/USD and 0.21 kg/USD in 2021 respectively.

While this indicates a decoupling of emissions from economic activities, the current pace of reducing global CO2 emissions intensity is insufficient to bring about a substantial overall decrease in worldwide CO2 emissions. It is crucial to facilitate access to clean technologies encompassing both renewable energy sources and energy efficiency enhancements to mitigate the environmental impact of a growing economy. Developing strategies for low-carbon energy technologies and green manufacturing requires a comprehensive and collaborative approach, aligning climate and energy security priorities with economic opportunities. Tailored strategies are essential, recognizing the distinctive starting points and strengths of each country.

Title: Carbon dioxide emissions per unit of manufacturing value added (kilograms of CO2 per constant 2015 United States dollars) (Source: UNIDO National Accounts Database <https://stat.unido.org>. IEA (2023), Greenhouse gas emissions from energy <https://www.iea.org/data-and-statistics>)



Title: Carbon dioxide emissions from fuel combustion (Gt) (Source: IEA (2023), Greenhouse gas emissions from energy. <https://www.iea.org/data-and-statistics>)



- <https://www.iea.org/data-and-statistics/data-tools/greenhouse-gas-emissions-from-energy-data-explorer>
- <https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2023>
- <https://stat.unido.org/content/publications/statistical-indicators-of-inclusive-and-sustainable-industrialization%253a-biennial-progress-report-2023>

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

Trends in global research and development (R&D) investments seems to be rebounding, but challenges still persist in developing economies

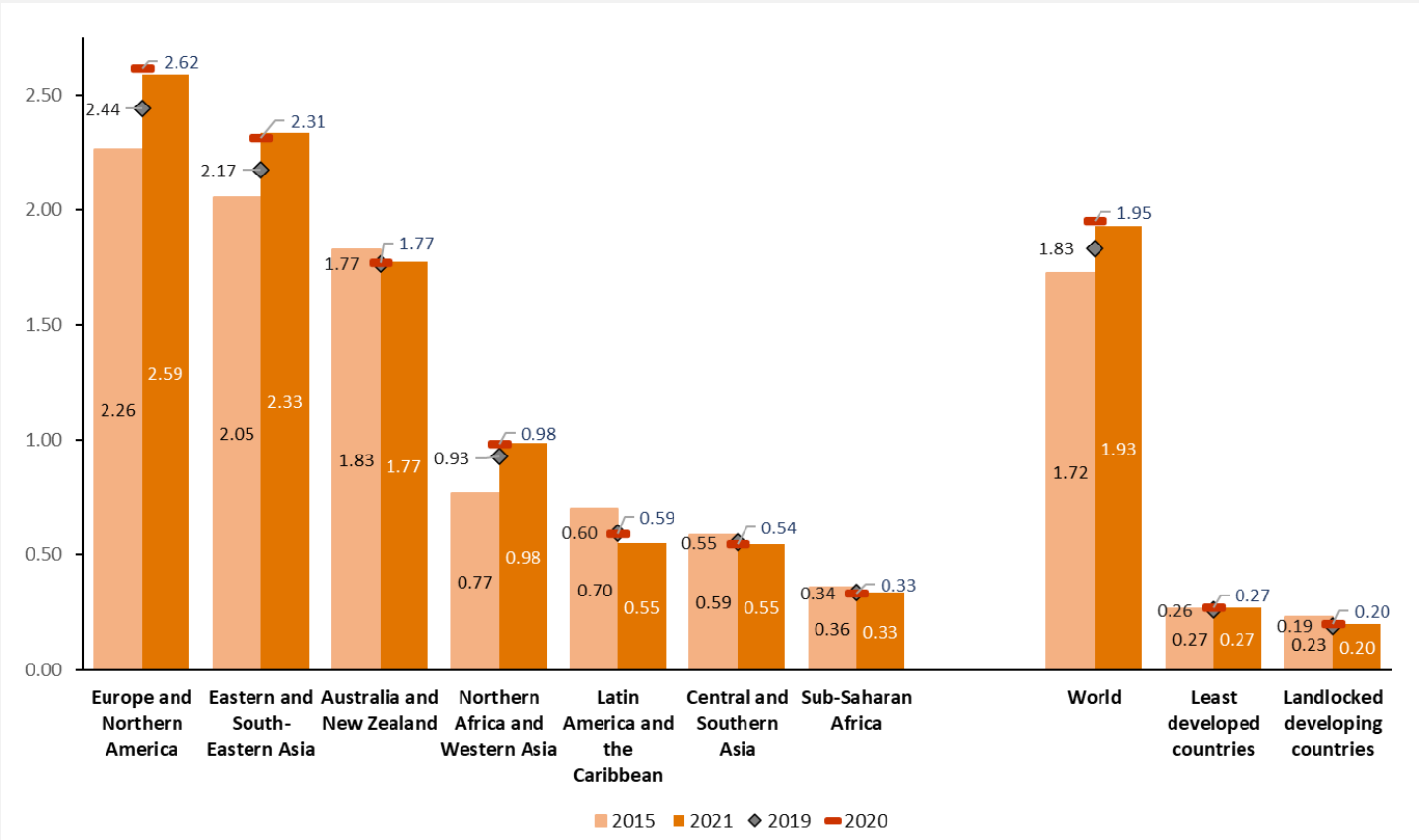
The trend in global expenditure on research and development (R&D) seemed to have returned to its pre-pandemic level in 2021. Since 2015, R&D expenditure worldwide had continued to grow at a sound pace with an average annual growth rate of 5.0% (in real terms) till 2019. With the COVID-19 pandemic, this trend plunged to 3.2% growth in 2020 but returned to previous pre-pandemic levels in 2021 by standing at a 5.9% growth. This is an indication of recovery in R&D expenditure in most of the regions where there were slowdowns in 2020.

In relative terms, during the period from 2015 to 2021, R&D expenditure as a proportion of GDP has increased from 1.72% to 1.93% at the global level. In addition, within this period, the proportion of global GDP invested in R&D saw a significant increase from 1.83% in 2019 to 1.95% in 2020, which was primarily driven by increased R&D investments and substantial declines in GDP. Subsequently, with the economic rebound in 2021, where growth in GDP outpaced the growth in R&D investments, R&D expenditure as proportion of GDP has slightly declined to 1.93% in 2021.

When examining the regional situation, Europe and North America, and Eastern and South-Eastern Asia continue to show the highest levels of GDP spent on R&D across the regions, rising from 2.26% to 2.59%, and from 2.05% to 2.33% respectively between 2015 and 2021. On the other hand, over the same period, R&D expenditure as a proportion of GDP in most of the developing regions are falling behind, also displaying the continuation of extreme disparities among regions exhibited in the past. While Northern Africa and Western Asia show a marked increase from 0.77% to 0.98%, GDP invested in R&D decreased in Latin America and the Caribbean from 0.70% to 0.55%, in Central and Southern Asia from 0.59% to 0.55% and in Sub-Saharan Africa from 0.36% to 0.33% between 2015 and 2021.

The global COVID-19 pandemic has shown what and how long-term investments in R&D can play an integral part in terms of global capacities to deal with such emergencies. Yet, effective and continued actions and policy commitments are still required to further boost investments in R&D, notably in developing economies, to help navigate through multiple future crises and bring them innovative solutions while reinforcing the progress towards sustainable development.

Research and development expenditure as a proportion of GDP, 2015, 2019, 2020 and 2021 (percentage)



Additional resources, press releases, etc. with links:

- <http://data.uis.unesco.org/index.aspx?queryid=3684>
- <https://uis.unesco.org/en/news/spring-data-refresh-2024>

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

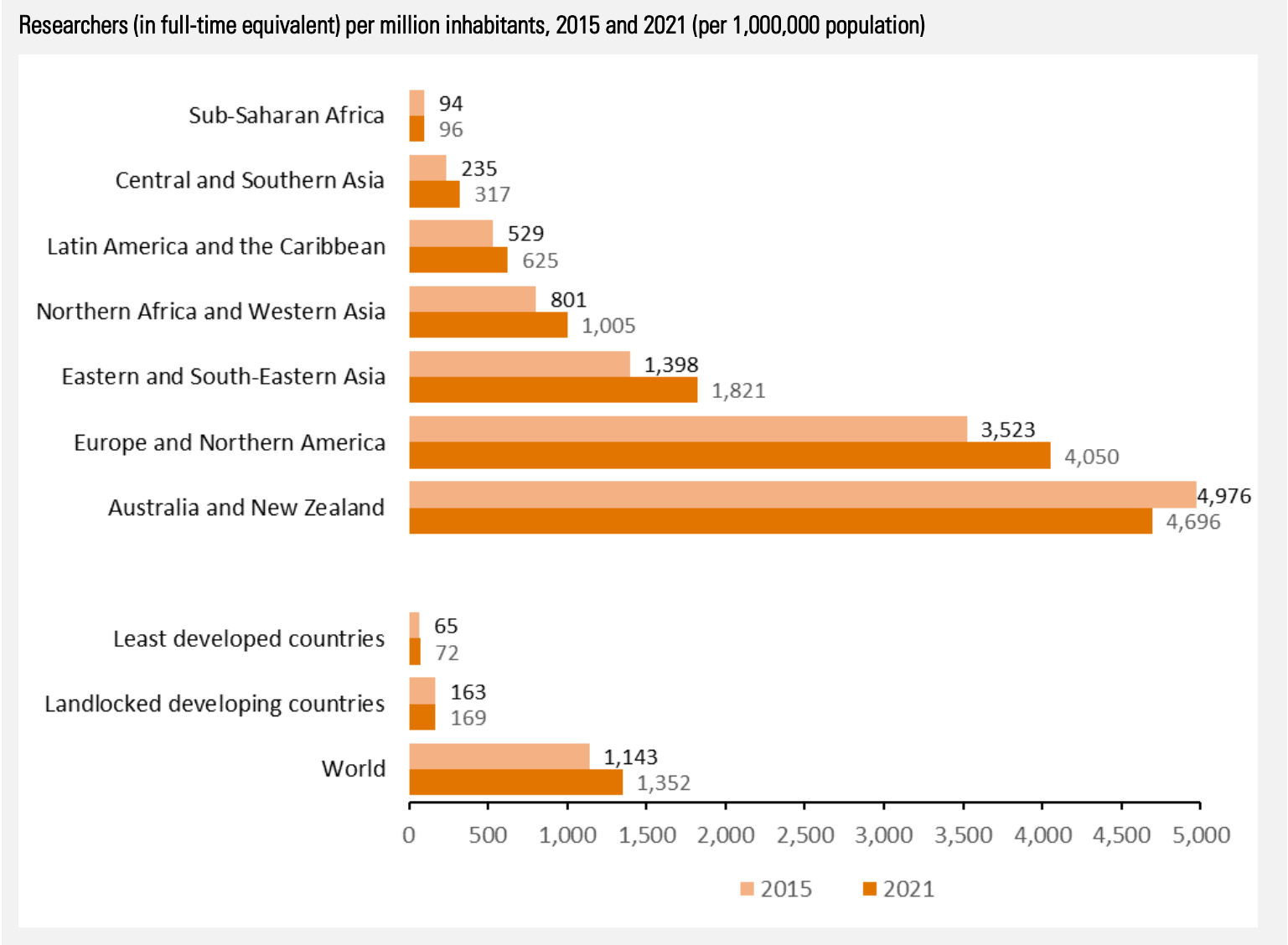
The global research workforce continues to grow, but acceleration is a must in developing economies, while addressing the gender imbalances

The global research workforce has continued to grow, representing an average annual growth rate of 4.0%, during 2015 to 2021, though there were slight slowdowns in 2020 and 2021, where it stood at 3.6% and 2.9% compared to previous years. While the number of researchers has grown in all the regions, growth in Eastern and South-Eastern Asia, Central and Southern Asia, and Northern Africa and Western Asia positioned above the global average growth level, indicating somewhat higher expansions compared to other regions, during this period.

In relative terms, the number of researchers per million inhabitants worldwide climbed from 1,143 in 2015 to 1,352 in 2021. Looking at the regional perspective, Europe and Northern America, and Australia and New Zealand, continuing to lead by employing 4,050 and 4,696 researchers per million inhabitants respectively in 2021, which is around three times of the global level. Among the remaining regions, Eastern and South-Eastern Asia stood at 1,821 researchers per million inhabitants being the only region which surpassed the world average. Northern Africa and Western Asia, Latin America and the Caribbean, and Central and Southern Asia, range around three quarters to one quarter of the global level, representing 1,005, 625, and 317 researchers per million inhabitants respectively. In Sub-Saharan Africa, the figure has been substantially lower, standing at 96 researchers per million inhabitants in 2021, which is even less than one-tenth of the world level. These levels, especially those in developing economies, continue to display the wide disparities that prevail across the regions.

Concerning participation of women in the research workforce, they continue to be under-represented, accounting for only 31.5% of all researchers worldwide in 2021 (based on headcounts measurements). At regional and sub-regional levels, share of women researchers displayed a considerable heterogeneity. Central Asia, and Latin America and the Caribbean were leading, having reached the highest share of women researchers, at 46.5% and 44.4% respectively in 2021. This was closely followed by Northern Africa (43.3%), and South-Eastern Asia (41.2%). Around one in three researchers was a woman in Europe and Northern America (35.3%), and Western Asia (35.1%), exceeding the world average, with Sub-Saharan Africa standing at 31.4%. On the other hand, the share of women researchers was lagging far behind in Southern Asia and Eastern Asia, reporting 25.9% and 22.1% respectively in 2021.

In spite of the research workforce continuing to rise at the global level, firm policy commitments towards substantial increase in the number of research personnel, particularly in developing economies, as well as strengthening the participation of women in research profession are essential for the effective delivery of innovative solutions for the challenges ahead.



Additional resources, press releases, etc. with links:

- <http://data.uis.unesco.org/index.aspx?queryid=3685>
- <https://uis.unesco.org/en/news/spring-data-refresh-2024>

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

Support for infrastructure rebounds in 2022

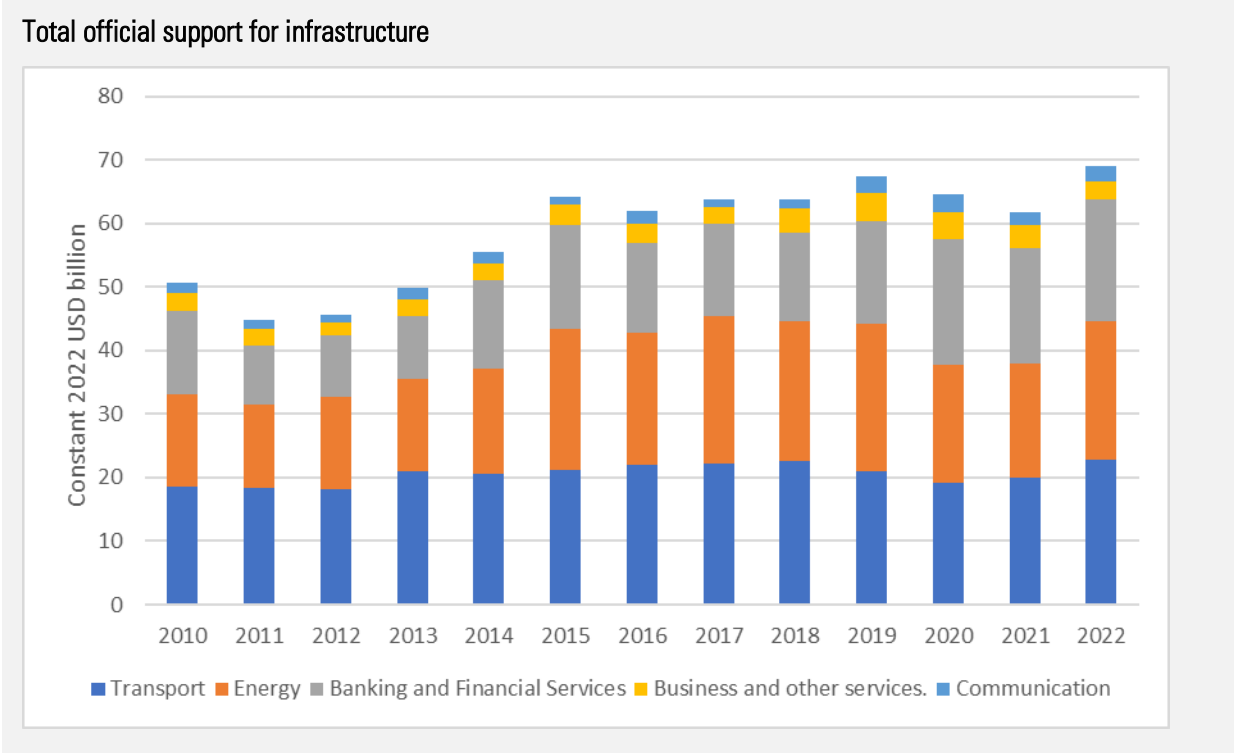
Total official flows from all donors for infrastructure in developing countries reached USD 68.2 billion in 2022 representing a growth of 11% since 2015 mainly due to the increase in flows for banking and financial services. However, as a percentage of total official flows there was a downward trend from 21% in 2015 to 17% in 2022.

In 2022, the main sectors assisted were transport (USD 22.8 billion), the energy sector (USD 21.7 billion) and the banking and financial services sector (USD 19.3 billion). Within the energy sector, renewable sources of energy generation and energy distribution received the largest amounts (USD 7.6 billion and USD 7.2 billion respectively).

In 2022, Asia was the region that received the largest amount , USD 29.9 billion of which 40% went to India (USD 7.9 billion) and Bangladesh (USD 3.9 billion). Official flows to Africa increased by 16% from 2021 and amounted USD 16.3 billion. The largest increase in 2022 was in Europe (40%) where flows for infrastructure in Ukraine nearly doubled from USD 1.2 billion in 2021 to USD 2.3 billion in 2022.

Financing from Regional Development Banks, the World Bank and EU Institutions represented more than half of the total (56%) or USD 20.4 billion, USD 11.6 billion and USD 6.2 billion respectively.

The largest bilateral donors were Japan (USD 9.4 billion), Germany (USD 5.4 billion) and France (USD 3.3 billion).



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

Disparities in the distribution and growth of medium- and high-tech manufacturing continue to persist across regions

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.

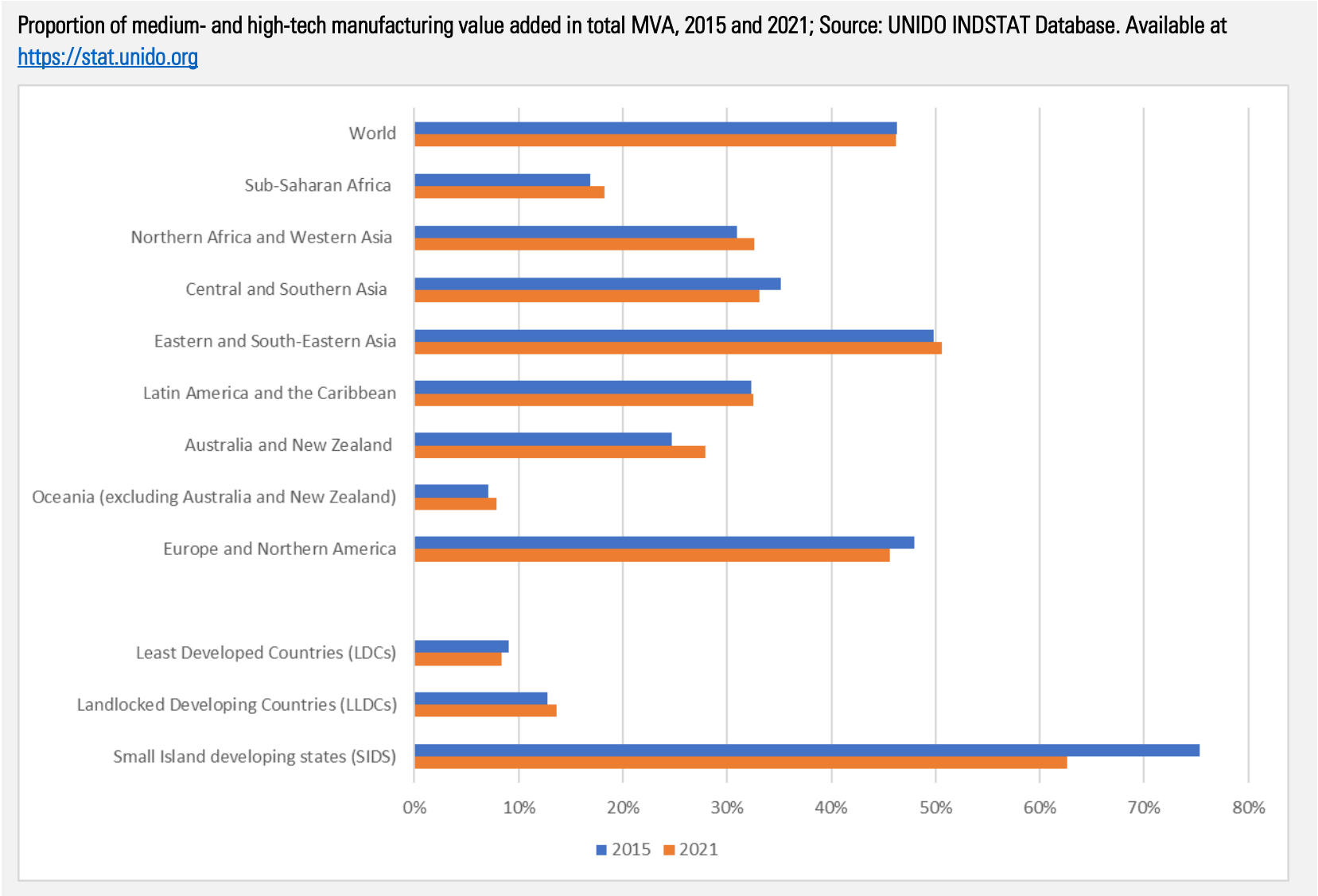
The COVID-19 crisis highlighted the resilience of higher-technology industries, with the indicator experiencing only a marginal decline of 0.67 percentage points in 2021 despite uncertainties and economic challenges.

However, significant regional disparities exist in the distribution and growth of medium- and high-tech manufacturing. Australia and New Zealand has seen the most substantial growth in higher-technology industries, rising from 24.74% in 2015 to 27.88% in 2021. Sub-Saharan Africa and Northern Africa and Western Asia have also witnessed notable increases, climbing from 16.91% in 2015 to 18.27% in 2021, and from 30.93% in 2015 to 32.65% in 2021, respectively.

Eastern and South-Eastern Asia, as well as Oceania (excluding Australia and New Zealand), experienced an increase of 0.8 percentage points, rising from 49.84% in 2015 to 50.62% in 2021 and from 7.06% in 2015 to 7.87% in 2021, respectively. The smallest increase was recorded by Latin America and the Caribbean, rising from 32.27% to 32.53%.

On the other hand, Central Asia and Southern Asia, along with Northern America and Europe, witnessed a decrease, dropping from 35.16% in 2015 to 33.13% in 2021 and from 47.99% in 2015 to 45.66% in 2021, respectively. Despite this decline, Northern America and Europe, along with Eastern and South-Eastern Asia, maintain their status as regions with the highest proportion of medium and high-tech manufacturing value added.

Despite their positive developments, Sub-Saharan Africa and Oceania (excluding Australia and New Zealand) continue to demonstrate the smallest proportion of medium- and high-tech manufacturing value added in total manufacturing value added. Hence, prioritizing investments in education and skills development becomes imperative to expedite growth in medium-high technology sectors within these regions. This ensures that the workforce is equipped with the essential expertise needed to compete effectively in the dynamic global manufacturing landscape.



Additional resources, press releases, etc. with links:

- <https://stat.unido.org/content/publications/international-yearbook-of-industrial-statistics-2023>
- <https://stat.unido.org/content/publications/statistical-indicators-of-inclusive-and-sustainable-industrialization%253a-biennial-progress-report-2023>

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

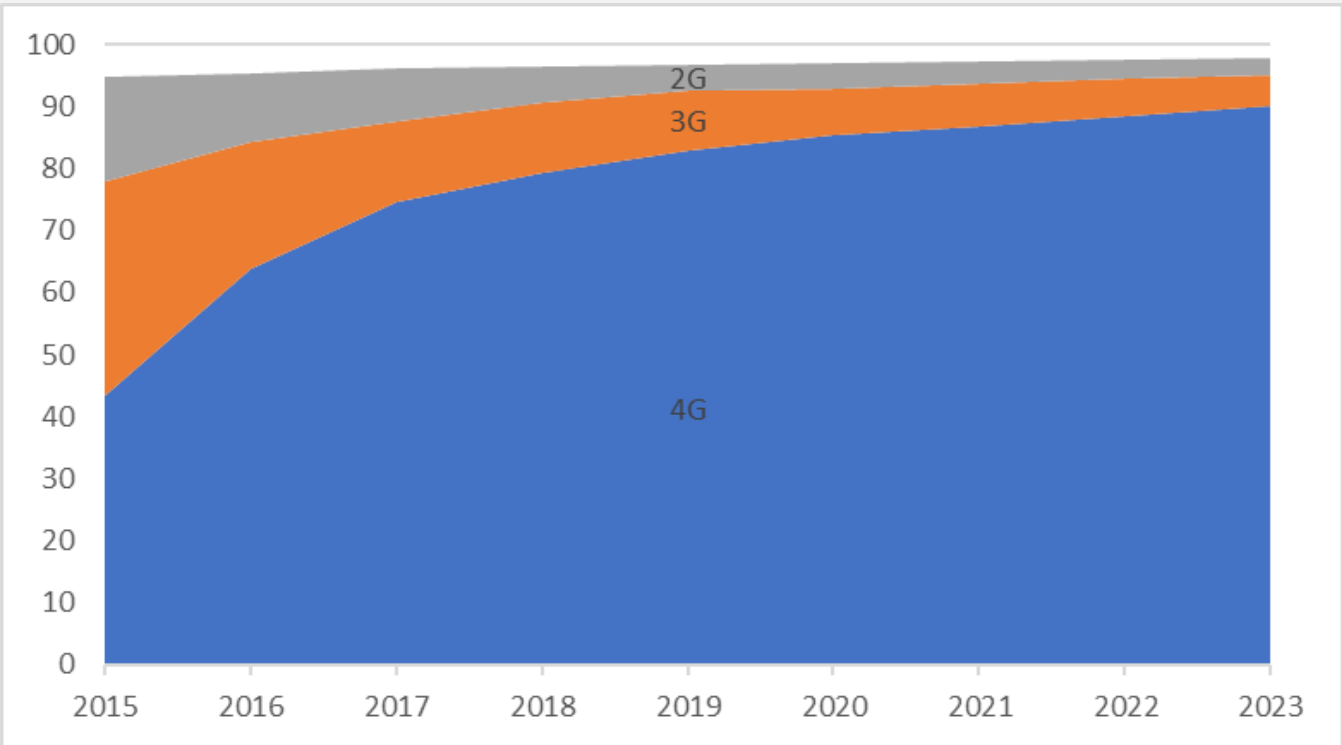
The mobile broadband coverage gap persists at five per cent

In most developing countries, mobile broadband (3G or above) is the main way – and often the only way – to connect to the Internet. This kind of access is available to 95 per cent of the world population. Bridging the “coverage gap”, that is covering the remaining five per cent still out of reach of a mobile-broadband network, is proving difficult: since crossing the 90 per cent threshold in 2018, global 3G coverage has increased by only four percentage points. In Oceania (excluding Australia and New Zealand), the gap stands at no less that 31 per cent. In sub-Saharan Africa, the gap is shrinking but remains relatively high at 17 per cent, predominantly affecting the population of central and western Africa.

Mobile broadband remains out of reach for 18 per cent of the population in LDCs and LLDCs, which 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.”

Since commercial deployment began in 2019, preliminary figures show that 5G coverage has increased to reach 40 per cent of the world population in 2023. Where 5G is not available 4G remains a very good alternative. Ninety per cent of the world population is covered by 4G. However, 55 per cent of people without access to 4G live in low-income countries. Whereas 95 per cent of the population in high-income and middle-income countries is covered by 4G or above, the proportion drops to 39 per cent in low-income countries, where 3G remains the dominant technology, and often the only technology available to connect to the Internet.

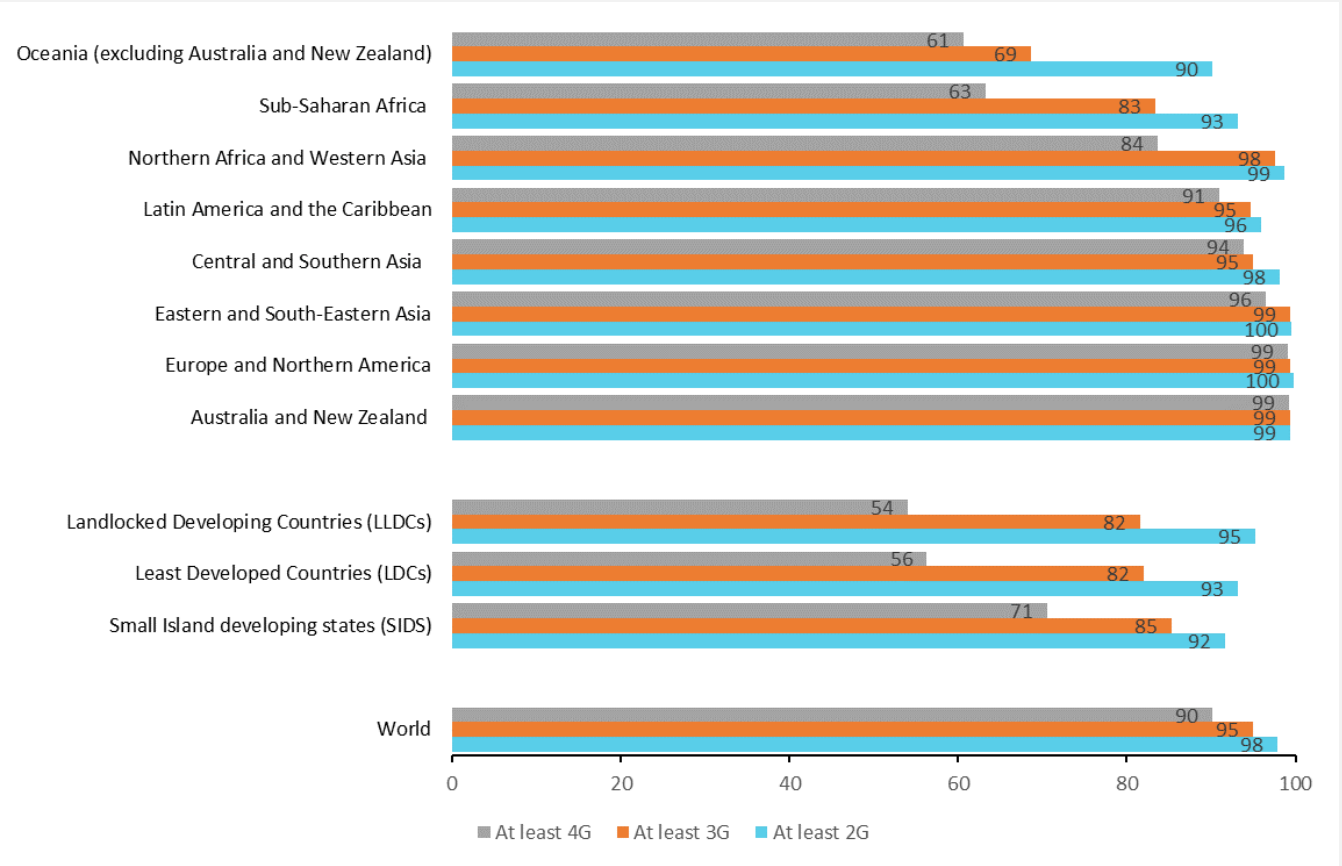
Proportion of population covered by a mobile network, by technology, 2015-2023



Source: ITU

Note: The values for 2G and 3G networks show the incremental percentage of population that is not covered by a more advanced technology network (e.g. 95% - rounded - of the world population is covered by a 3G network, that is 4.9% + 90.1%).

Proportion of population covered by a mobile network, 2023



Additional resources, press releases, etc. with links:

- ITU (2023): Measuring digital development: Facts and Figures 2023, <https://www.itu.int/itu-d/reports/statistics/facts-figures-2023/>

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