

Sustainable Development Goal (SDG)

**Build resilient infrastructure,  
promote inclusive and sustainable  
industrialization and foster innovation**

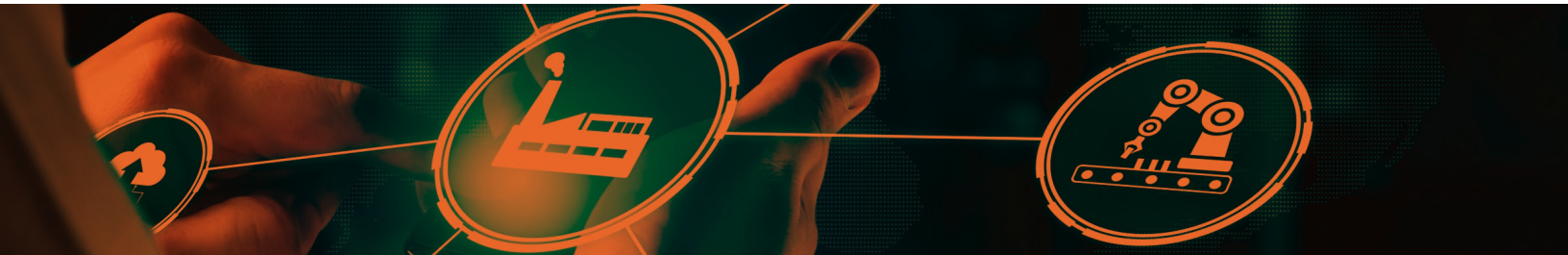
**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



## Regional overview

Investments in resilient infrastructure —for transport, irrigation, energy and information and communications technology— are crucial to achieving sustainable development and empowering communities in many countries. Promotion of inclusive and sustainable industrialization through technical innovation and diversification is also very important. Recent crises, such as the coronavirus disease (COVID-19) pandemic and the conflict in Ukraine, have shown that the production structure is relevant not only in long-term growth, but also in responses to short-term crisis situations. Countries and regions that have successfully diversified their production structures into more technology-intensive sectors, with more opportunities for innovation and learning, have greater potential for socioeconomic resilience. In addition, the manufacturing sector contributes to resilience by providing essential products for life and national security, that contribute to management of emergencies and to national economies' recovery and growth.

In Latin America and the Caribbean, there have been key challenges but also some progress on these issues. Significant data gaps limit measurement of target 9.1 on the development of quality, reliable, sustainable, resilient and inclusive infrastructure. Inclusive and sustainable industrialization, which would create more jobs and drive economic growth, is lacking in the region (target 9.2). While there have been some marginal improvements over the last two decades in carbon dioxide (CO<sub>2</sub>) efficiency of its industrial processes, the industrial sector's energy efficiency is largely unchanged (target 9.4). Some limited efforts have been made to modernize and retrofit the region's industries and align them with the technological vanguard. Research and development spending as a proportion of GDP (indicator 9.5.1) in Latin America and the Caribbean has improved, albeit only very modestly. All in all, with only seven years left to fulfil the 2030 Agenda, the region has a long way to go to meet the targets of Goal 9.



## > Key messages from the region

- Internationalization of production processes and worldwide growth in the technological intensity of the industrial sector have widened the gap between the countries of the region and the world. Between 2000 and 2021 the share of manufacturing in the economy fell in all subregions of Latin America and the Caribbean; the largest percentage decline was in South America (-23.8%), followed by Central America and Mexico (-16.9%) and the Caribbean (-15.7%).
- An analysis of manufacturing value added by level of technology reveals that unlike other developing economies, the countries of the region have not managed to foster development of more sophisticated manufacturing sectors. In the region, on average and excluding Mexico, less than 40% of the total value added came from medium- and high-tech industry between 2000 and 2018.
- Per capita manufacturing value added, a synthetic index of level of industrialization, has remained stuck at around 1,100 dollars over the last two decades. In addition, the relative importance of manufacturing in the region's economy has decreased: in 2021, manufacturing accounted for 13.2% of GDP, a two-decade low. Manufacturing employment also fell, from 14.5% of total employment in 2000 to 11.8% in 2019.
- The trends in manufacturing's share of the economy have been mirrored by a drop in its capacity to absorb employment. In this regard, the Caribbean countries recorded the most sustained decline. In South America, in keeping with the sector's shrinking share of the economy, its contribution to employment has declined since the global financial crisis, from 13.6% in 2008 to 10.7% in 2020. The trend in Central America and Mexico was downward until the financial crisis, followed by an uptrend from 2009 until the start of the COVID-19 pandemic.
- In terms of efficiency of industrial processes, the CO<sub>2</sub> intensity of manufacturing in Latin America and the Caribbean —measured by CO<sub>2</sub> emissions per unit of manufacturing value added— has remained steady, with only a slight downward trend between 2000 and 2019.
- In the region as a whole and in each of its subregions, passenger and cargo volumes fell sharply in 2020 during the COVID-19 pandemic, discouraging some investments in transport infrastructure. At the regional level, after growth of 21% from 4.122 billion in 2018 to 4.984 billion in 2019, in 2020, passenger-kilometres fell 29% to 3.562 billion. The largest drop was in air transport (-63%), followed by rail (-54%) and road (-23%), as a stark reflection of the impact of the COVID-19 pandemic.
- Research and development expenditure as a proportion of GDP, an indicator of the technological and innovation capacity of industrial sectors, has not progressed in the region at the pace needed to reach the Goal without additional high-impact policy measures. Indeed, between 2000 and 2015, spending on research and development as a proportion of GDP in the region grew from 0.54% to 0.72%, before falling to 0.63% in 2020.
- The number of researchers (in full-time equivalent) in the region per million inhabitants, another indicator related to the technological and innovation capacity of industrial sectors, more than doubled from 234 in 2000 to 614 in 2020. Argentina is the country with the highest number of researchers per million inhabitants at 1,230.
- The indicator for official international support, which could facilitate sustainable and resilient infrastructure development (9.a.1), has followed an upward trend in the twenty-first century, but the resources have not been enough to close the large infrastructure gap in the region, which was exacerbated by the health crisis. The average growth in investment between 2000 and 2020 was 185%, but the trend differed among the subregions: South America benefited the most, with 322.1% growth, while the Caribbean and Central America and Mexico saw rises of 179.1% and 91.4%, respectively.

## > Good practices from the region

- Many countries, especially advanced economies, have begun to revitalize production policies linked to complex, comprehensive, and capable national innovation systems, making it possible to mobilize productive, technical, and knowledge capacities to address major development challenges. The success of this approach depends on >>>



>>> the interlinkage and governance of actions, as well as new institutional arrangements to coordinate and build capacities for policymaking and policy management.

- It is estimated that in 2021 around 92% and 86% of the regional population was covered by 3G and 4G networks, respectively. At the subregional level, there are significant gaps, especially in terms of 4G coverage in the Caribbean. In 2021, on average, 62% of households in the region had a fixed broadband connection, while in Europe and North America the rate was 90%–100%.
- The ECLAC Digital Agenda for Latin America and the Caribbean (eLAC2024) promotes the use of digital technologies as instruments for sustainable development. Its aim is to encourage development of the digital ecosystem in Latin America and the Caribbean through a process of integration and regional cooperation, strengthening digital policies that drive knowledge, inclusion and equality, innovation and environmental sustainability.

## > Recommendations from ECLAC

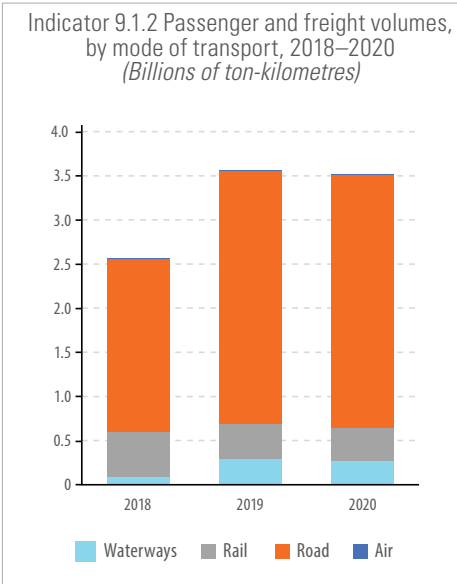
- Seek a better understanding of the production challenges that the region faces and rethink policies to strengthen response capacity and lay the foundations for a more dynamic and inclusive development model.
- Align energy and transport infrastructure to reduce CO<sub>2</sub> emissions.
- Continue to develop technical alternatives for storage and transport of green hydrogen in ports, as a sustainable alternative that, unlike other sources of clean energy, can be exported to other countries.
- Increase scientific research and improve technological capacity and innovation in the productive sectors, redesigning science and technology policies and fostering participation by various stakeholders, including the State, academia and the private sector.
- Adopt production policies for transformation and diversification, maintaining them over time, and building the capacities of the State to design and implement effective policies.
- Forge partnerships that involve stakeholders from all sectors of society (governments, academia, the private sector and civil society) and from different levels (local, national, and international) to pursue the investments required to achieve a modern and sustainable industry.



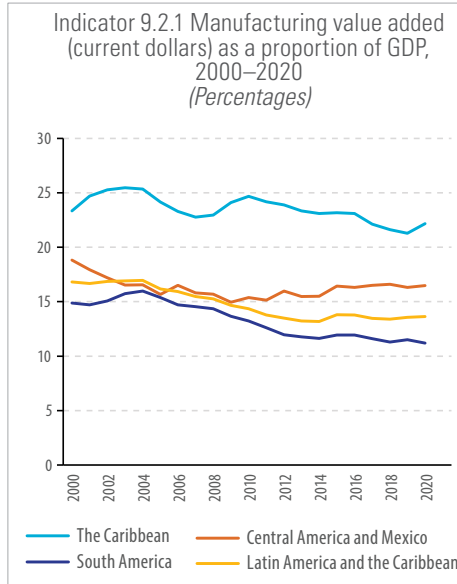
# Key regional statistics



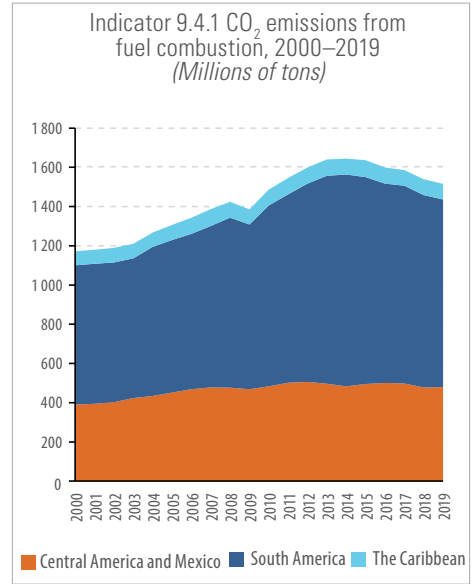
**Target 9.1 Infrastructure development**



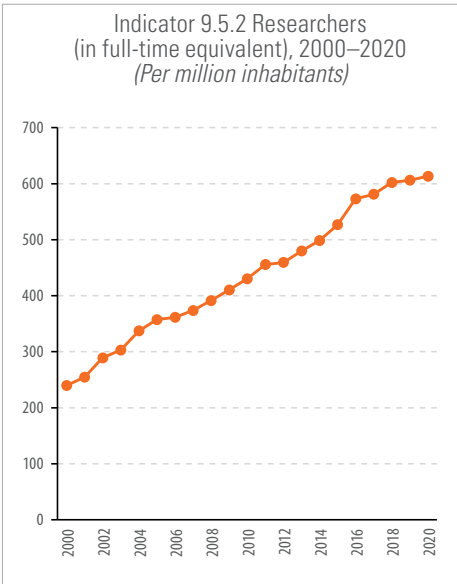

**Target 9.2 Promote inclusive and sustainable industrialization**



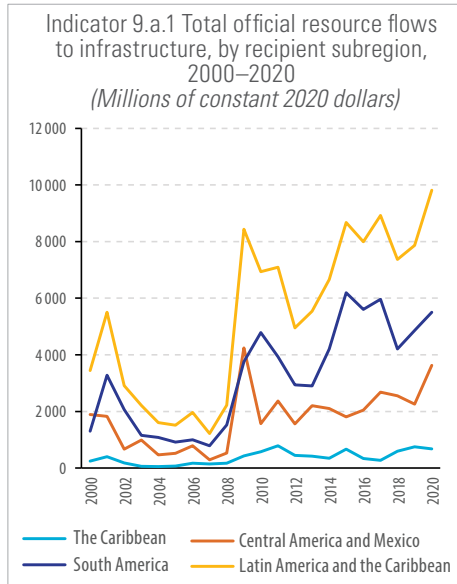

**Target 9.4 Modernize industries to make them sustainable and clean**



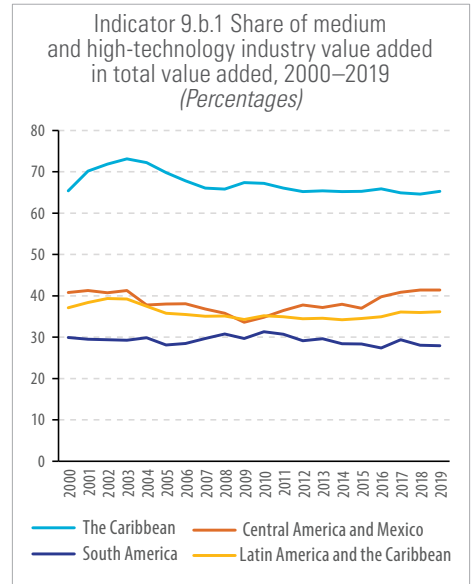

**Target 9.5 Increase research and development**




**Target 9.a Facilitate resilient infrastructure development**




**Target 9.b Support domestic technology development**



SDG 9



9.2

9.1

9.5

9.4

9.a

9.b

9.c

■ The trend is moving away from the target

■ The trend is in the right direction, but progress is too slow for the target to be met

■ Target already reached or likely to be reached on the current trend

**Source:** Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of United Nations, Regional Knowledge Management Platform for the Sustainable Development Goals in Latin America and the Caribbean, "SDGs in Latin America and the Caribbean: Statistical knowledge management hub" [online] <https://agenda2030lac.org/estadisticas/index.html>.

**Note:** Each indicator is comprised of one or more statistical series, which partially or fully cover the corresponding indicator. In the figures presented here, one or more statistical series were used for the respective indicator.