

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE**GOAL 9****Build resilient infrastructure,
promote inclusive and
sustainable industrialization
and foster innovation****Context**

Goal 9 of the SDGs focuses on the achievement of socially inclusive and environmentally sustainable economic development, through three intertwined pillars, namely infrastructure, industry and innovation. This is consistent with Jamaica's long-term development plan, Vision 2030 Jamaica—National Development Plan, for which the four goals seek to guide the country towards achieving broad-based sustainable development by 2030. Specifically, Goal 3 of Vision 2030 Jamaica, "Jamaica's Economy is Prosperous" affirms a sustained focus on deepening the application of science and technology, a solid business environment and sound economic infrastructure, to benefit all aspects of national development and unleash the full creative potential of the people.

The intense implementation of macroeconomic reforms since 2010 has facilitated a more stable economic environment, evidenced by an improvement in several indicators. These include strong fiscal performance, the lowering of public debt; a fall in interest rates; and lower and stable inflation rates. These conditions, however, have failed to break the cycle of low growth.

To address the challenges, the GOJ's macroeconomic policy remains focused on creating an enabling environment that encompasses well-functioning institutions and systems, within a framework of sound monetary and fiscal policies. Beyond the macroeconomic framework, policies and programmes aimed at engendering broad-based sustainable growth include concentrated effort in the development of MSMEs; the inclusion of innovation in the creation of an enabling business environment; resilient infrastructure; and sustainable industrialization.

The review for the period 2018-2022 summarizes key achievements, issues and challenges concerning industry, innovation and infrastructure.

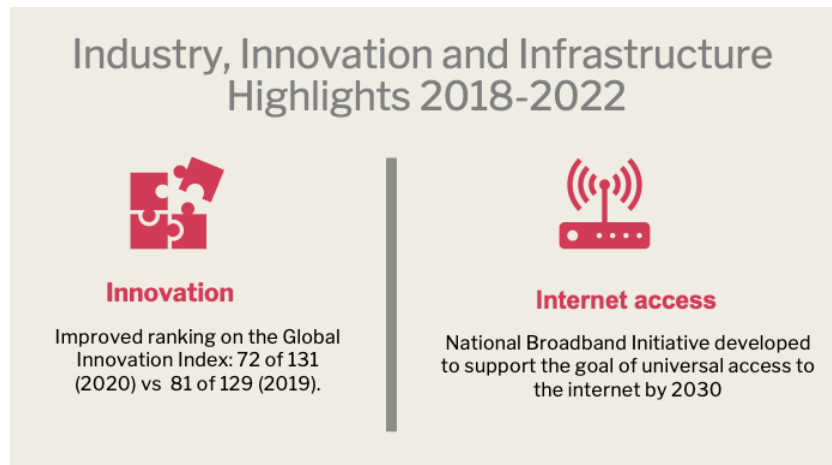


FIGURE 45: HIGHLIGHTS, INDUSTRY, INNOVATION AND INFRASTRUCTURE (2018-2022)

Discussion

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

Investments in road infrastructure are seen as crucial spending for the development of industry and sustaining livelihoods through improved access to services and markets. The development of the road network locally, sees a high density of commercial activity in the GKMA where there is a complex road network that facilitates services delivery for citizens. Outside of this region, however, access to the major roads network to service particularly rural communities diminishes, as the population moves inwards from the coast.

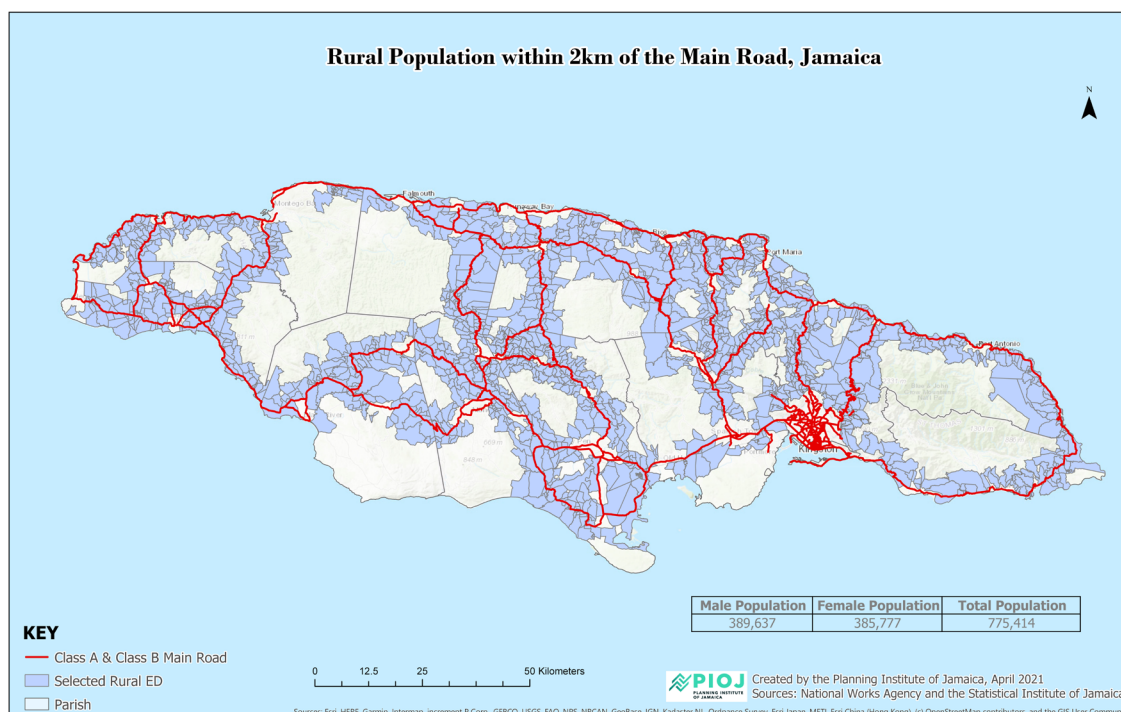


FIGURE 46: RURAL POPULATION WITHIN 2KM OF THE MAIN ROAD

SOURCE: NATIONAL WORKS AGENCY AND STATISTICAL INSTITUTE OF JAMAICA

Through investments in transport infrastructure, Jamaica continues on its push to be a logistics-driven economy. These improvements support economic diversification initiatives which can lead to growth in the transport and storage industries, which currently contribute 4.8 per cent of GDP. Key to the performance of transport logistics is the investment in air and seaports which move cargo and passengers daily. In a move to increase efficiency and productivity, the GOJ has divested operations of the Sangster International Airport (2003), Kingston Container Terminal (2016), and the Norman Manley International Airport (2019). In parallel strategies to boost tourism, the GOJ has set a target of 5 million stopover arrivals by 2021, which was affected by the COVID-19 pandemic. The average annual growth in passenger movement up to 2019 was 4 per cent reaching 6.6 million, before the precipitous fall in 2020.

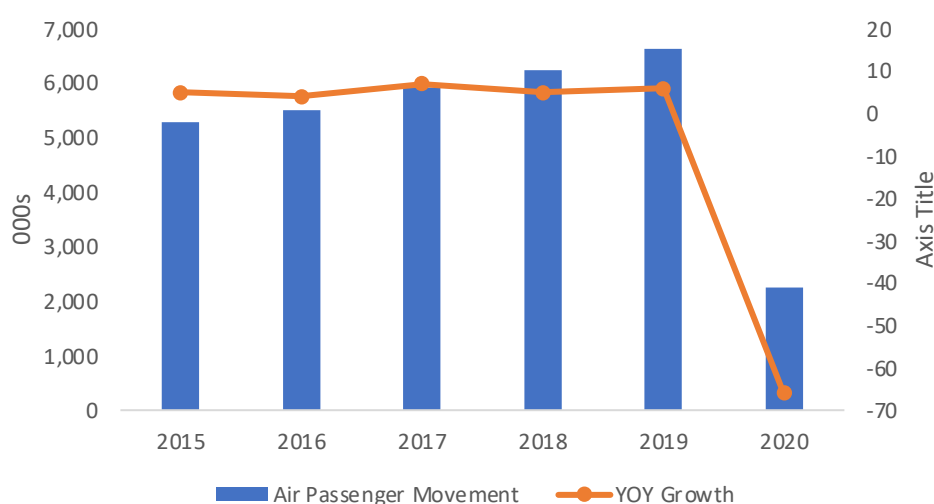


FIGURE 47: DOMESTIC AIR PASSENGER MOVEMENT
SOURCE: STATISTICAL INSTITUTE OF JAMAICA

In contrast to passenger movements, the volume of domestic cargo movements is affected by the country's minerals trade and low exports relative to imports. Since the closure of the Alpart plant in 2009—one of the largest producers of bauxite and alumina—cargo volumes have declined from the average of 20 million tonnes pre-2009 to 15 million tonnes up to 2020. Changes in the commodities market result in fluctuating volumes annually and the concentration of imports to exports, measured by cargo unloaded to cargo loaded.

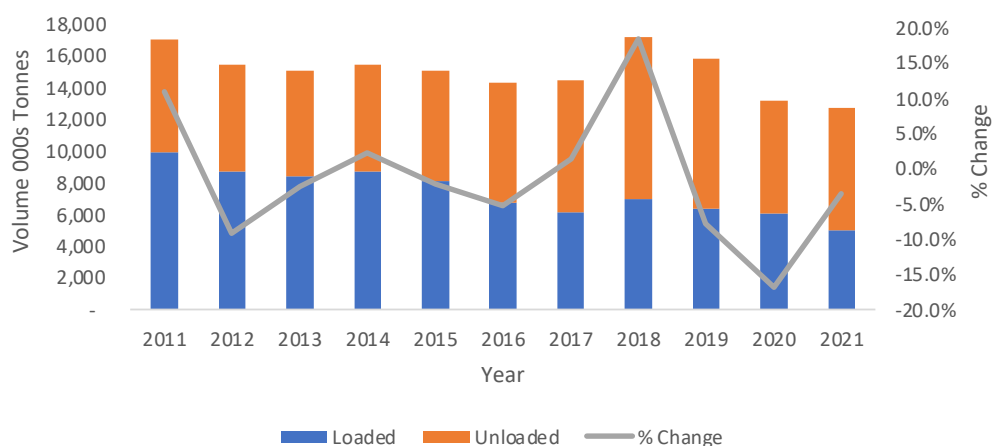


FIGURE 48: VOLUME OF CARGO MOVED AT DOMESTIC PORTS
SOURCE: STATISTICAL INSTITUTE OF JAMAICA

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

The manufacturing industry continues to be the largest contributor to GDP in the goods-producing sector, accounting for an average of 8.6 per cent of real value added annually up to 2020. Year on year growth in the industry has been low, at an average 0.48 per cent for the period 2010-2019. The industry recovered from the 2008 Global Recession, in 2015 and had five consecutive years of growth, before the impact of the COVID-19 pandemic. Contributing to this increase was an expansion in the output of Food, Beverages & Tobacco as the Other Manufacturing sub-category declined.

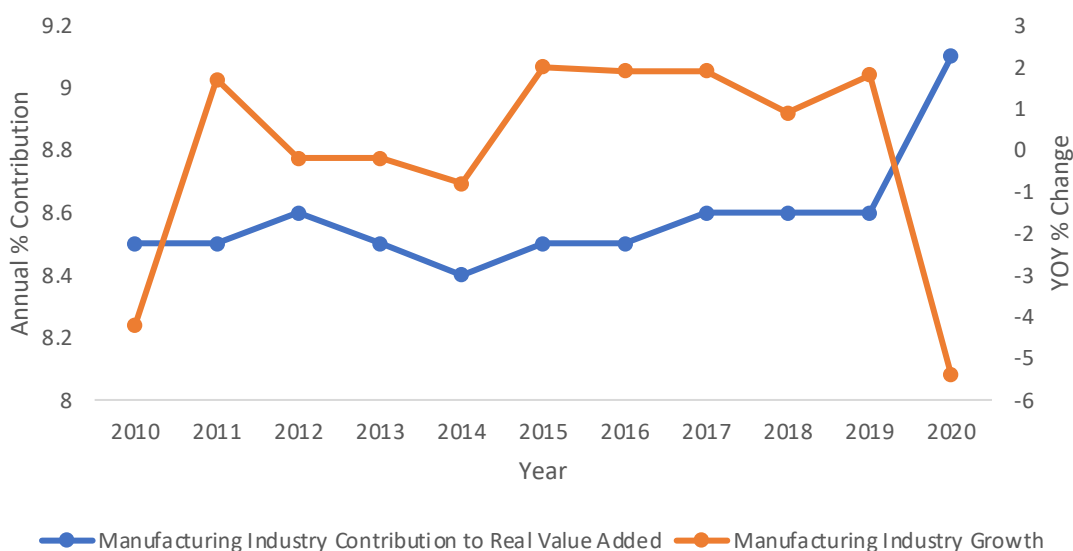


FIGURE 49: MANUFACTURING INDUSTRY REAL VALUE-ADDED CONTRIBUTION TO GDP AND YEAR OVER YEAR GROWTH
SOURCE: STATISTICAL INSTITUTE OF JAMAICA

Despite the impact from the covid-19 related lockdowns in 2020, the industry has been one of the fastest to rebound,

reaching positive quarterly growth by Q1, 2021 at a value higher than the pre-pandemic quarterly average of \$16.5 billion.

The industry continues to be affected by low efficiency and cost competitiveness brought about by low workforce productivity, limited market access, and cost competitiveness among other factors.¹⁰⁴ Manufacturing value added per capita estimated by ECLAC had been rising to 2019, reaching US\$408.7, below the LAC average of \$1 138.6 and US\$1 789.5 for the Caribbean.

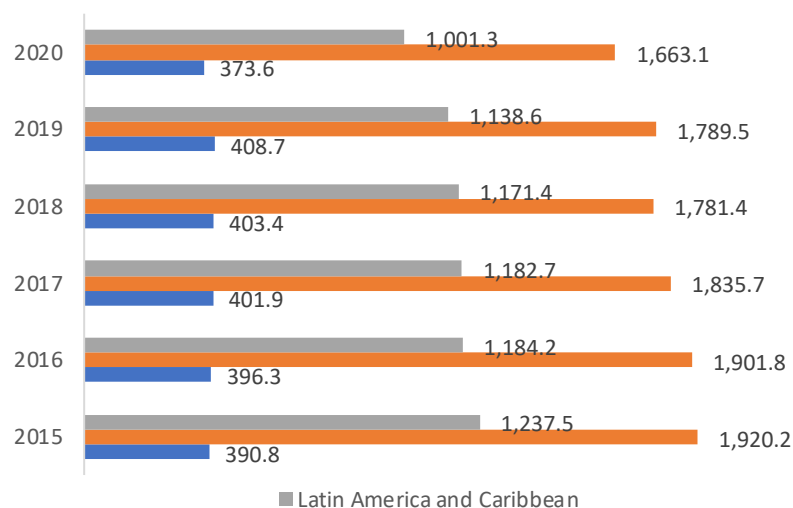


FIGURE 50: **MANUFACTURING INDUSTRY PER CAPITA GDP (US\$)**
SOURCE: ECLAC

As a largely services-driven economy, growth in jobs is increasingly in the hospitality, retail and burgeoning business process outsourcing industry. This shift is reflected in manufacturing employment and its proportion to total employment, declining over the period up to 2021.



FIGURE 51: **MANUFACTURING INDUSTRY EMPLOYMENT SHARE OF TOTAL EMPLOYMENT**
SOURCE: STATISTICAL INSTITUTE OF JAMAICA

DBJ Providing MSME Support

The DBJ, in fulfilling its mandate to facilitate the growth and development of all viable enterprises in the productive sectors, recognises the pivotal role played by MSMEs in achieving economic growth. Accordingly, the Bank has implemented several programmes and projects to support micro firms, in accessing loans, grants, and technical assistance in business development areas. Programmes recently implemented included:

- Launched the Innovation Grant Fund in 2020, to increase revenue streams for medium-sized enterprises through the financing of innovating ventures that promote productivity.
- In partnership with the Ministry of Finance and the Public Service launched the SERVE programme which is intended to be a catalyst for the recovery of economic activity by assisting businesses that were adversely impacted by the pandemic.
- Redesigned the Credit Enhancement Facility which is a partial loan guarantee scheme that helps MSMEs without sufficient collateral to access loans from financial institutions.

BOX 5: DBJ PROVIDING MSME SUPPORT

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

At the firm level, MSMEs are the largest category of businesses in Jamaica, with registered MSMEs accounting for 91.6 per cent of the firms which filed tax returns in 2020. Their earnings of \$4 293.4 million were 18.2 per cent of total retail sales a decline of 16.6 per cent relative to 2019.

MSMEs represent the main source of business start-ups and have the potential to contribute to increased output, employment and innovation. These firms, however, continue to encounter challenges of limited credit access; high levels of informality; limited linkages and market access; relatively low human and institutional capacity, all of which limit their ability to operate efficiently. The GOJ, through the Development Bank of Jamaica and the National Export-Import Bank, provides credit to MSMEs annually, directly and through other financial institutions. Credit to MSMEs from the GOJ and some private lenders peaked at \$59 billion in 2018 and decreased to \$39 billion in 2019 and 2020.

Target 9.5 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

Economic growth is influenced by the integration of science, technology and innovation into production processes. With the declines in factor productivity experienced across industries like manufacturing, investing in science and technology becomes increasingly important for firms, from MSMEs to large industry players. With the absence of data on research and development spending, the GOJ has prioritized this through incentivizing research and development (R&D) in its Special Economic Zones legislation, and amendments to the National Income Accounting calculations to include R&D as a subsector. The budgetary allocations from the GOJ to science and technology programmes have been increasing annually, from \$6.5 billion in 2016 to \$10.9 billion in 2020.

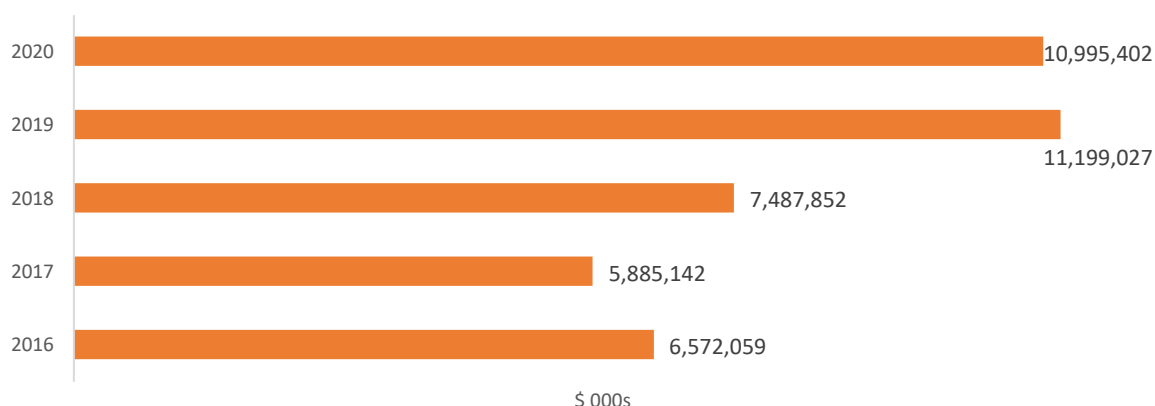


FIGURE 52: BUDGETARY ALLOCATION FOR SELECTED STI PROGRAMMES AND AGENCIES (GOJ)
SOURCE: ECONOMIC AND SOCIAL SURVEY

In 2020, Jamaica improved its ranking in the Global Innovation Index (GII), placing 72 of 131 countries relative to 81 of 129 countries in 2019. With this position, Jamaica was ranked 7th in Latin & the Caribbean and became the only Caribbean country and one of two countries in the region to be listed among the innovation achievers, a group of 25 economies that out-performed their peers.



FIGURE 53: JAMAICA'S RANKING IN GLOBAL INNOVATION INDEX (GII) 2017-2020
SOURCE: WORLD INTELLECTUAL PROPERTY ORGANIZATION (WIPO)

On the Innovation Input Sub-Index, Jamaica fell two places, ranking 86th with a score of 37.19 (10th in the region). However, on the Innovation Output Sub-Index, the country improved seven places to earn the 62nd position with a score of 21.00 (third in the region). Areas of strength were identified for the following categories:

- Institutions – political environment and business environment
- Human Capital and Research – government expenditure on education
- Market Sophistication – ease of getting credit
- Business Sophistication – innovation linkages and knowledge absorption
- Knowledge and Technology Outputs – computer software spending
- Creative Outputs – intangible assets (e.g., trademarks, global brand value).

In addition to the GII Rank, the Vision 2030 Jamaica—National Development Plan, uses resident patent filings per million population as an indicator under national outcome 11, a technology-enabled society. The 10 filings (4 per million persons) remain above the baseline of 2.2 however, below the 2018 and 2021 targets of 18 or greater.

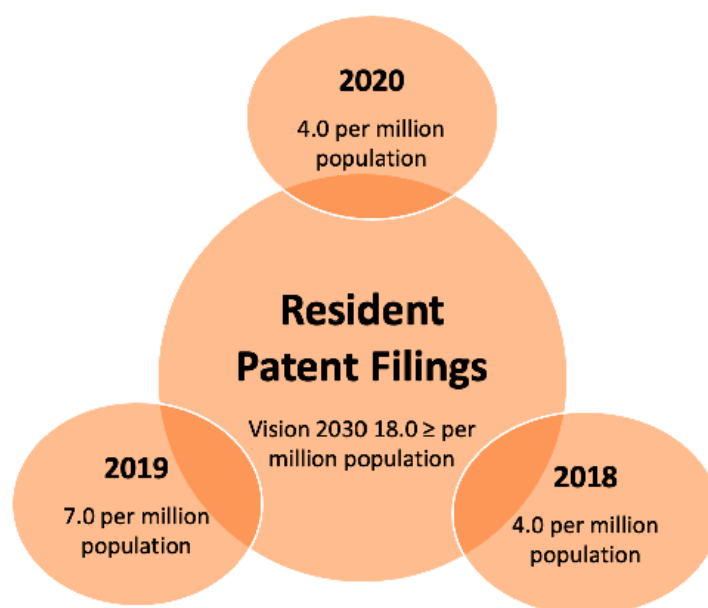


FIGURE 54: INTELLECTUAL PROPERTY RIGHTS APPLICATIONS 2018 – 2020
SOURCE: ECONOMIC AND SOCIAL SURVEY JAMAICA

The use of domestic resources from the national budget to finance infrastructure spending has been increasing since 2016; following a period of fiscal constraint that focussed on debt reduction. The GOJ has targeted infrastructure spending as a catalytic economic activity through residential developments and major roadwork projects. Support for these projects has come from domestic resources and through Official Development Assistance (ODA) in loans and grants.

The trends in ODA by sector are classified into funds directed to social infrastructure (health, education, housing and social safety), economic infrastructure (transport, power, water and sewerage) and the environment and climate change (natural hazards, ecosystem preservation, disaster risk reduction and climate change resilience). New ODA has been on a downward trend through a variety of factors, including the availability of projects for financing and Jamaica's status as an upper-middle-income designation, limiting access to concessional financing.

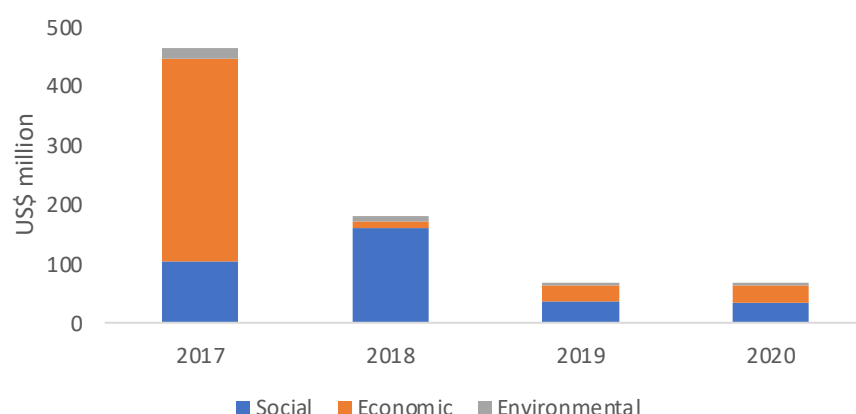


FIGURE 55: NEW ODA BY INFRASTRUCTURE SECTOR
SOURCE: ECONOMIC AND SOCIAL SURVEY JAMAICA

Through a new agreement with the International Financial Corporation (IFC) of the World Bank Group, Jamaica is set to leverage the expertise of the IFC in supporting the country's largest infrastructure project. The potential US\$600 million to US\$800 million project, is an extension of the previous largest, infrastructure project, the North-South Highway. The highway construction was largely financed by the People's Republic of China.

Towards developing strong and resilient economic infrastructure, as articulated in Vision 2030 Jamaica—National Development Plan, the GOJ has undertaken several projects to facilitate the development of resilient infrastructure aimed at enhancing the efficient movement of persons, goods, services and information. Among the projects were the Major Infrastructure Development Programme (MIDP) and Greater Infrastructure Development Project (GIDP) through which repairs to main roads, parochial roads and housing scheme roads, the building of highways, river training, and repairs to bridges were affected.

Concerning upgrading infrastructure to facilitate the provision of universal access to safe, potable water and sewerage services to all Jamaicans, work continues to develop an efficient water delivery system. Currently, approximately 75.0 per cent of the country's population is connected to water distribution systems while, less than half of the population has access to centralized sewerage facilities, with most connected through on-site sewage disposal systems such as septic tanks and absorption pits.

Efforts to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation continued as we seek to achieve the targets contained in the national long-term development plan Vision 2030 Jamaica, continued through the development of several policies, seen below:

- **Promote inclusive and sustainable industrialization:**
 - To restore vitality to the industry, the National Five-Year Manufacturing Growth Strategy was launched in 2020. The strategy underscores five focus areas namely, enhancing workforce productivity; improving cost competitiveness; expanding infrastructure; facilitating market expansion; incorporating innovation strategies; all geared towards transforming the industry and increasing its contribution to GDP.
 - The updated MSME and Entrepreneurship Policy 2018 was approved by both houses of Parliament. It provides a comprehensive, coherent and coordinated framework for addressing the policy issues

facing MSMEs as well as an outline for targeted support to the sector. Concerning financing, the lack of funding or the related high finance costs for the MSME sector has limited entrepreneurship. Spearheaded by the Ministry of Industry, Investment and Commerce several banking institutions such as the National Export-Import (EX-IM) Bank and the Development Bank of Jamaica (DBJ) as well as private banks are actively involved in providing funding support to MSMEs. The formal banking system, however, typically requires collateral and formalized records which have deterred many MSMEs from accessing finance. This issue is compounded by the limited supply of formal non-bank sources of finance, with credit unions providing mostly consumer finance and an underdeveloped microfinance sector. To provide a framework for the development of the microfinance sector the Microcredit Act 2021 was passed. It aims to license and regulate microcredit institutions that provide financing to individuals and MSMEs and foster regulatory supervision by the Central Bank. Additionally, it seeks to strengthen the sector by improving the long-term sustainability of the players and the industry itself.

- **Develop quality, reliable, sustainable and resilient infrastructure:**
 - The National Water Sector Policy and Implementation Plan (NWSP) was tabled and approved in the Houses of Parliament in 2019. The NWSP seeks to address challenges that have affected the reliability of water supply, including high levels of non-revenue water; high energy consumption in water supply; inadequate storage capacity; inadequate infrastructure; poor waste management practices and vulnerability to climate change. Towards achieving the objectives of the NWSP, several water supply projects were initiated and completed in 2020, providing new water systems to several communities across the island. Systems were also extended to broaden the capacity to serve additional households. The hydromet network was improved with the completion of an infrastructure upgrade to several (12) gauging stations and the expansion of the real-time data platform.
- **Significantly increase access to information and communications technology**
 - The ICT Authority Act, 2019, seeks to improve the use of technology services across government entities and increase efficiency and productivity in the public service.

Target 9.C.1 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

Internet usage is of paramount importance to the process of incorporating science and technology into the production process. Exposure to vast amounts of information and communication have influenced all areas of human development, including education, health, finance and commerce. The need for ICT services was compounded by the COVID-19 pandemic, during which there was a move towards online school and work from home, which highlighted the inequalities in access. Whereas mobile penetration, which facilitates internet access, is estimated at 105.0 per cent internet usage lags at approximately 57.0 per cent of the population in 2020.¹⁰⁵

105 Calculated using population and internet usage data from the ESSJ.

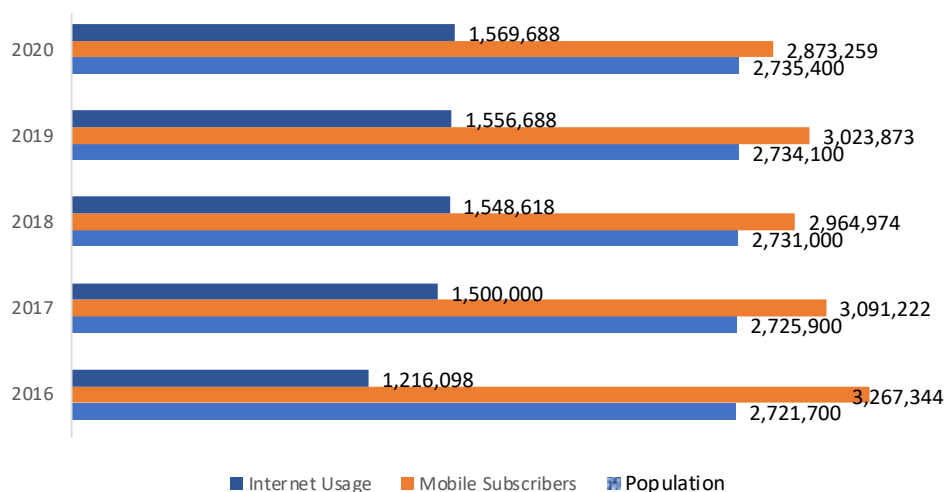


FIGURE 56: MOBILE PENETRATION AND INTERNET USAGE IN JAMAICA, 2016-2020
SOURCE: PLANNING INSTITUTE OF JAMAICA

To address these inequalities, the National Broadband Initiative was developed. It aims to build national broadband infrastructure to achieve the goal of universal access to the internet by 2030. Among the programmes under the Initiative is the expansion of the Government fibre optic cable, microwave infrastructure and public Wi-Fi hotspots. In 2020-2021, the GOJ expanded its fibre optic footprint to provide connectivity to several Municipal Corporations and Parish Courts in five parishes. Microwave connectivity, which provides a backup connection in the event the fibre optic cables are damaged, was also provided to all Parish Courts. In improving the efficiency of doing business through the use of the internet, several online platforms have been created to engender a seamless interface between firms and the government (Figure 57). These included the National Business Portal (<https://www.gov.jm/home>), launched in 2020, to facilitate multiple business-to-government transactions in one online location.

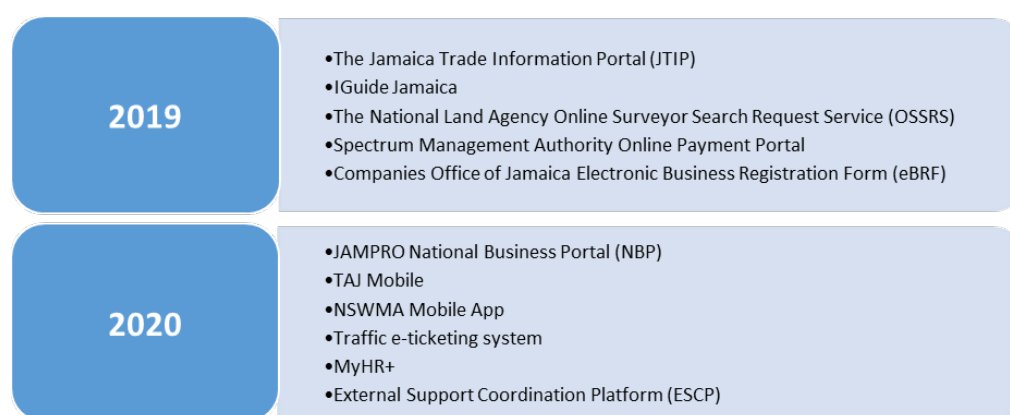


FIGURE 57: RECENT ADVANCES IN E-GOVERNMENT

Lessons Learnt and Best Practice

Industrial development has received increased focus at the policy and strategic level, with initiatives such as the National Manufacturing Strategy, updates to the MSME policy and the numerous e-government initiatives to spur innovation and efficiency. Measures to increase the attractiveness of production in Jamaica have been the focus of the draft National Investment Policy which seeks to present a transparent process for facilitation of local and foreign direct investment.

Other areas of advancements achieved from 2018 to 2020 were:

- Strengthening of the standards environment through increased participation in voluntary international standards as well as local standards, resulting in the adoption of 85 standards - 78 product and 7 service standards in various sectors.
- Establishment of a FESTO Automation, Certification and Training (FACT) Centre for advanced training and certification in areas such as robotics and marine engineering
- Connectivity and access to ICT products and services within the public sector are being boosted with the launch of several portals and platforms. These sought to improve Government-Government (G2G), Government-Citizen (G2C) and Government-Business (G2B) relations in the areas of trade and investment; land resource administration; and service delivery.

Areas identified for further improvement in the category of Infrastructure and included indicators such as the use of ICTs, government online services, e-participation and general infrastructure. Despite there being a rise in internet usage from 2018-to 2020, there remain limitations to internet users across the island because of accessibility problems as only 68.0 per cent of the population use the internet as of 2018). As a result, portions of the population would be exempted from current and future innovations. Efforts should be made to increase internet access. Concentrated efforts should be made to increase accessibility across Jamaica specifically in rural areas.

As a way of securing development financing, blended financing models have become increasingly attractive options for SIDS. The Green Bond Project launched in 2021 in partnership with the Jamaica Stock Exchange and Green Climate Fund presents innovative ways of securing funds for development. Intended to raise funds on the domestic and regional debt capital markets to finance the implementation of climate-related or environmentally sustainable activities locally, this initiative is a step that can catalyse investments in renewable energy, waste management, efficient transport systems, sustainable housing & green/sustainable infrastructure, fisheries & forestry, protection of aquatic & terrestrial ecosystems, clean water, & sustainable water management. Subsequently, partnerships with key entities like the Jamaica Stock exchange add a layer of transparency to investment in these public projects.

Way Forward

Boosting national productivity requires investment by the public and private sector in skills training, science, and technology and infrastructure development. The GOJ has to lead in the development of a skilled labour force in partnership with companies to ensure that this human capital is utilized to its fullest potential. Further support to R&D spending by firms can be incentivized across sectors, and not solely operators in Special Economic Zones. The increase in R&D spending can spur advances in high technology production, in a heavily food-based industry.

Further private sector support is also crucial to the large cadre of MSMEs; though the value of an economic activity is low, finding ways to boost the output and create efficiencies among this large category of firms can aid national development directly. MSMEs are found across the island and employ a large portion of the population, formally and informally. Funding to MSME, credit enhancement fund, Innovation Grant and Serve program have contributed to growth in several industries however, some informal sectors and businesses have been unable to access funds for investments and growth. Efforts should be made to formalize informal industries that could potentially contribute to economic growth.

Physical infrastructure spending by the GOJ can further support the development of transport logistics, and manufacturing for export. As domestic production diversifies across agriculture and manufacturing, the availability of

decent water, electric, and transport infrastructure can spur private sector investment.

The need for greater infrastructure support in the areas of disaster risk reduction and climate change resilience is paramount. Through the SAMOA Pathway, these areas are recognized as a high priority for the development of SIDS and targets for ODA. The recurring support in these areas for Jamaica is consistently less than economic and social programmes, accounting for 4.2 per cent of reported infrastructure sectoral ODA in 2020.

Resource Requirements

In the context of building back better, the capabilities of the labour force and firms to innovate and create resilient products and services are key to development. As a small island development state, Jamaica's vulnerability is heightened and more so through its largely open economy. Developing resilience requires focussed efforts from all stakeholders that encourage the creativity of citizens and entrepreneurship, R&D in firms and physical and digital infrastructure to support service delivery and product improvements. These efforts require not only domestic funding, but also support from international partners to support a variety of actions, including but not limited to:

- Grant funding for research and development in agriculture, manufacturing, energy and logistics, can improve the domestic value chain for inputs and outputs
- Technical support in the development and sourcing of innovative financing mechanisms for national and private projects including venture funds, bonds, and private equity capital
- Disaster risk mitigation projects lessen the impact of adverse weather conditions on vulnerable industries and firms and the infrastructure which supports their trading activities
- Energy diversification projects can reduce the per-kilowatt-hour cost of electricity to high-tech and value-added producers.

The Jamaica Special Economic Zone Authority (JSEZA) Strategy for Investment Attraction and Development

What is Sustain-a-Livity?

Sustain-a-Livity is a uniquely Jamaica concept embraced by the Jamaica Special Economic Zone Authority that combines two words:



Sustainable: Meeting the needs of the present without compromising the ability of future generations to meet their needs.

Livity: Is the Rastafari concept of righteous living. Its essence is the realization that an energy, or life force, conferred by Jah (God), exists within, and flows through, all peoples and all living things. Livity has a strong focus on living a natural lifestyle.

Sustain-A-Livity is the embodiment of an elevated lifestyle whereby people can develop an awareness to expand their workstyle, quality of life and spiritual interests; where eco-industrial parks interact and cooperate with the local community to achieve a harmonious living philosophy emanating from the Jamaican motto "Out of many one people" to protect the environment and achieve economic prosperity.

Sustain-a-Livity Framework

Sustain-a-Livity, developed by the Jamaica Special Economic Zone Authority (JSEZA) embraces the United Nations Industrial Development Organization's Inclusive and Sustainable Industrial Development principles: Advancing Economic Competitiveness (**Economic**); Creating Shared Prosperity (**Social**); Safeguarding the Environment (**Environmental**); and the JSEZA has added Supporting the Rule of Law, Transparency and Accountability (**Governance**).

See appendix C for details