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**Small Island Developing States in the**  
**Post-Pandemic Competitive Landscape**  
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## **Revisiting development strategies for small island developing States in the post-pandemic competitive landscape**

**Note by the UNCTAD secretariat**

### *Summary*

Small island developing States face severe structural challenges to their sustainable development. The United Nations recognizes 38 small island developing States, which include some of the poorest and most isolated countries in the world, with relatively small populations and narrow endowments of land and natural resources.

The need to reduce vulnerability and build resilience to external shocks has guided collective efforts by small island developing States and the international community and is embodied in the 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway. The Samoa Pathway recognizes the importance of appropriate economic development strategies to generate the level of economic growth and job creation necessary to underpin its proposed programme of action.

This background note seeks to foster discussion on alternative economic development strategies for small island developing States, in the context of global value chains and the “fourth industrial revolution”. In the note, alternative strategies are outlined for different types of small island developing States, including examples of new sectors, activities and technologies for development. Policy recommendations are provided to support these strategies and for small island developing States to build their competitiveness in new industries.



## I. Introduction

1. Small island developing States face severe structural challenges to their sustainable development. The United Nations recognizes 38 small island developing States, which include some of the poorest and most isolated countries in the world, with relatively small populations and narrow endowments of land and natural resources.

2. Common physical characteristics of small size and geographic isolation contribute to the unifying trait of small island developing States: extreme vulnerability to environmental and economic shocks. For example, small island developing States were hit hard by the 2008/09 global financial crisis, from which they had not fully recovered by the time the coronavirus disease (COVID-19) pandemic plunged the global economy into recession. Compounding these economic shocks, small island developing States are on the front lines of climate change, suffering mounting consequences from an environmental crisis for which they bear little responsibility.

3. The need to reduce vulnerability and build resilience to external shocks has guided collective efforts by small island developing States and the international community. As part of the 2030 Agenda for Sustainable Development, the United Nations devoted an intergovernmental process to assisting small island developing States, from which the most recent outcome document is the wide-ranging 2014 SIDS Accelerated Modalities of Action (SAMOA) Pathway, intended to guide international action towards sustainable development in small island developing States.

4. This background note seeks to provide detailed analysis of alternative economic development strategies for small island developing States, in the context of global value chains and the “fourth industrial revolution”. Alternative strategies for different types of small island developing States are outlined in the note, including examples of new sectors, activities and technologies for development. Policy recommendations are provided to support these strategies and for small island developing States to build their competitiveness in new industries.

5. This note is a summary of a full study conducted by UNCTAD.<sup>1</sup> In chapter II, the need for alternative development strategies for small island developing States is framed in the context of their unique circumstances, deep vulnerability to external shocks and need to build economic resilience. Chapter III begins with an outline of the current situation in small island developing States, in terms of their (a) endowments, (b) existing economic structure and (c) “drivers for future opportunities”, defined in terms of indicators for innovation, change and adaptation, as elements of a country’s positioning to capitalize on new opportunities in the context of global value chains and the fourth industrial revolution. The chapter concludes with an analysis of viable alternative development strategies for small island developing States, both in response to their current situation and future opportunities. A conclusion and policy recommendations follow in chapter IV.

## II. Vulnerability of small island developing States and the need to build resilience

6. Above all, vulnerability defines small island developing States. In this chapter, some of the main forms of environmental and economic vulnerabilities that constrain their sustainable development are reviewed. These shared vulnerabilities echo the call for collective action, contained in the Samoa Pathway, to build the resilience of small island developing States to external shocks.

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<sup>1</sup> UNCTAD, 2021, *Alternative Development Strategies for SIDS: Building Competitiveness in New Industries*, UNCTAD/ALDC/INF/2021/2, Geneva.

## A. Climate change

7. Anthropogenic climate change represents a growing and persistent threat to small island developing States. Mainly composed of islands and low-lying coasts, small island developing States already suffer disproportionately from changes to oceans and coastal ecosystems.

8. In many small island developing States, extreme weather events represent a major, persistent threat to human security and economic development. Indeed, the *World Risk Report 2020* ranked 8 small island developing States among the top 10 countries at risk of natural disasters, mainly extreme weather events.<sup>2</sup>

9. In addition to a high rate of occurrence, the scale of damage from natural disasters can be economically crippling in small island developing States. Hurricane Maria, for example, caused physical damage in Dominica, in 2017, estimated at 225 per cent of its gross domestic product (GDP), along with the deplorable loss of life, displacements and everyday privations it inflicted. Meanwhile, in Vanuatu, there was a relatively short period between category-five Tropical Cyclones Pam (2015) and Harold (2020), each of which caused damages equivalent to 70 per cent of the country's GDP (Government of Vanuatu, 2015; Government of Vanuatu, 2020).<sup>3</sup>

10. Looking forward, the Intergovernmental Panel on Climate Change predicts that the climate changes will lead to more frequent and severe extreme weather events in ocean regions. For example, predicted increases in sea surface temperatures will mean the threshold level for the formation of hurricanes or cyclones – around 26°C – will be reached more often and, when temperatures rise beyond this level, the intensity of the storm typically increases.<sup>4</sup>

11. Sea level rise is another major climate change threat to small island developing States. For example, 80 per cent of the land area in Maldives lies just 1 metre or less above sea level, meaning that, even under the best-case projection of the Intergovernmental Panel on Climate Change – of an average sea level rise of 0.43 metres by 2100 – 77 per cent of the land area of Maldives is at risk of being submerged by the end of the century. Other small island developing States whose land area is under major threat from sea level rise include Kiribati (average 1.8 metres above sea level), the Marshall Islands and Tuvalu (both 2 metres).

12. Through these observed and predicted effects, climate change threatens small island developing States with the degradation of coastal ecosystems and the loss of habitat and biodiversity. Threats to human life include the loss of ecosystem services, such as fisheries and the supply of fresh water, shocks to food production and employment, as well as damage to housing stock and coastal infrastructure.

## B. COVID-19

13. Beginning in early 2020, the COVID-19 pandemic arose as a global health and economic shock, hitting small island developing States particularly hard. In addition to the

<sup>2</sup> Behlert B, Diekjost R, Felgentreff C, Manandhar T, Mucke P, Pries L, Radtke K, Weller D, 2020, *World Risk Report 2020*, Berlin, Bündnis Entwicklung Hilft.

<sup>3</sup> Vanuatu, 2015, *Post-Disaster Needs Assessment: Tropical Cyclone Pam, March 2015*, Port Vila; Vanuatu, Department of Strategic Policy, Planning and Aid Coordination, 2020, *Post-Disaster Needs Assessment: TC Harold and COVID-19*, Port Vila.

<sup>4</sup> Intergovernmental Panel on Climate Change, 2019, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*, Pörtner H-O, Roberts DC, Masson-Delmotte V, Zhai P, Tignor M, Poloczanska E, Mintenbeck K, Alegría A, Nicolai M, Okem A, Petzold J, Rama B, Weyer NM, eds., Cambridge University Press, Cambridge, United Kingdom of Great Britain and Northern Ireland; Oppenheimer M, Glovovic BC, Hinkel J, van de Wal R, Magnan AK, Abd-Elgawad A, Cai R, Cifuentes-Jara M, DeConto RM, Ghosh T, Hay J, Isla F, Marzeion B, Meyssignac B, Sebesvari Z, chapter 4, Sea level rise and implications for low-lying islands, coasts and communities. In Intergovernmental Panel on Climate Change, 2019, *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*.

loss of life and the burden on health systems caused by COVID-19, the crisis demonstrated the severe vulnerability of small island developing States to economic shocks. The World Tourism Organization of the United Nations estimated that COVID-19 travel restrictions caused year-on-year international tourist arrivals to fall worldwide by 73 per cent in 2020, with a corresponding contraction in tourism expenditures of US\$1.3 trillion – eight times the losses the tourism sector incurred during the 2008/09 global economic crisis – and putting well over 100 million jobs at risk. International tourist arrivals in small island developing States grew modestly in 2021, but, by the end of the year, were still down 63 per cent from pre-pandemic levels.<sup>5</sup>

14. In parallel, UNCTAD estimated that year-on-year global merchandise trade volume contracted by 16 per cent by the second quarter of 2020, before recovering strongly to 2019 levels by the end of 2020. The rebound in global merchandise trade remained strong up to the end of 2021. The trend in services trade was more severe, with an estimated year-on-year decline of 21 per cent by the second quarter of 2020. Recovery followed, but at a slower rate than for merchandise trade, meaning that, by the end of 2021, global services trade was still 8 per cent below 2019 levels.<sup>6</sup> The decline in services trade was exacerbated by restrictions on travel, with a catastrophic effect on international tourism. Small island developing States keenly felt these COVID-19-related contractions, which impacted tourism and trade, undermining their main sources of foreign exchange, staples and employment and pitching large numbers of people into precarity and food insecurity.<sup>7</sup>

15. As a result of the COVID-19 shock, small island developing States suffered an average contraction in gross domestic product (GDP) of -7.8 per cent in 2020, more severe than the global average (-4.4 per cent) and that of the least developed countries (-2.3 per cent).<sup>8</sup> Many businesses in the industrial and tourism sectors closed, with tens of thousands of workers returning to their villages to subsist on agriculture and informal employment.

### C. Debt

16. Spending requirements for responses to the acute COVID-19 crisis, piled on top of the chronic needs for climate change adaptation in small island developing States, have exacerbated a “debt hangover” in many countries, threatening an outright debt disaster. Prior to the pandemic, many small island developing States already had high debt service costs, leaving them with little fiscal space to respond and plunging some countries into liquidity crises by mid-2020.

17. Without short-term injections of liquidity and debt relief beyond 2022, many Governments of small island developing States feared their liquidity problems could escalate into insolvency.<sup>9</sup> Over the medium to long term, small island developing States require debt restructuring and a new arrangement to access concessionary finance and aid, for which conditions are largely income-based and ignore vulnerability and debt distress criteria. Without a new arrangement on debt, small island developing States face an impossible choice of how to allocate insufficient resources to COVID-19 response, disaster recovery, climate change adaptation and sustainable development objectives under the 2030 Agenda for Sustainable Development.<sup>10</sup>

<sup>5</sup> World Tourism Organization, International tourism and COVID-19 database.

<sup>6</sup> UNCTADstat database.

<sup>7</sup> Food and Agriculture Organization of the United Nations, 2020, Small island developing States response to COVID-19: Highlighting food security, nutrition and sustainable food systems, Policy brief, 7 May.

<sup>8</sup> UNCTADstat database; 2015 constant United States dollars.

<sup>9</sup> United Nations, Department of Economic and Social Affairs, 2020, The COVID-19 pandemic puts small island developing economies in dire straits, Policy Brief No. 64.

<sup>10</sup> Slany A, 2020, Multiple shocks and debt sustainability in small island developing States, Research Paper No. 55, UNCTAD.

## D. Economic vulnerability

18. A key factor in the economic vulnerability of small island developing States is their dependence on capital inflows and trade. For example, in most small island developing States, foreign aid and remittances represent a larger share of GDP than the average in other developing countries and the least developed countries. Reliance on foreign direct investment flows is more heterogeneous, with small island developing States in the Pacific attracting little foreign direct investment, relative to those in Africa and the Caribbean.<sup>11</sup>

19. Similarly, small island developing States are among the most trade-dependent economies in the world. Among the 37 small island developing States profiled in this paper, the average trade-to-GDP ratio in 2018 was of 97 per cent, while 12 small island developing States had ratios above 100 per cent.<sup>12</sup> Over the last 15 years, the combination of high trade-to-GDP ratios and commodity export dependence meant all but 5 of the 37 small island developing States incurred persistent trade deficits.<sup>13</sup>

20. Efforts by small island developing States to integrate global value chains, as well as increase and upgrade domestic value addition have often fallen short due to a lack of competitiveness, based on high transaction costs, low productivity and low-quality goods and services.<sup>14</sup>

21. As a result, among the 143 countries included in the 2021 economic vulnerability index of the United Nations – calculated as one of the three criteria for the identification of the least developed countries – 14 of the 40 most vulnerable countries were small island developing States, including 3 of the 10 most vulnerable. Relatively wealthy small island developing States, such as Bahrain (94th most vulnerable) and Singapore (124th) trailed the most resilient countries in the economic vulnerability index: Türkiye (142nd) and the Republic of Korea (143rd).<sup>15</sup>

## E. Building resilience

22. Consensus exists among small island developing States and the international community that achieving sustainable development in these chronically vulnerable countries will require building their resilience to environmental and economic shocks. Small island developing States continue to echo the urgency of these needs, in the face of the mounting frequency and severity of shocks in recent years.

23. A robust intergovernmental process in the United Nations system has generated consensus and calls to action on building resilience and fostering sustainable development in small island developing States. The resulting programme of action is contained in the SIDS Accelerated Modalities of Action (SAMOA) Pathway of 2014. The Samoa Pathway is appropriately ambitious, acknowledging the vulnerabilities of small island developing States and proposing a wide-ranging programme of action on their economic, environmental and social priorities. This includes appropriate economic development strategies – “taking into account... individual country circumstances and legislation”<sup>16</sup> – to achieve the level of economic growth and job creation necessary to underpin the proposed programme.

24. This note seeks to identify alternative economic development strategies for small island developing States as part of the resilience-building effort envisioned in the Samoa Pathway. Economic development strategies provide a blueprint for Governments and incentives for the private sector to invest in new industries and infrastructure, ideally

<sup>11</sup> McGillivray M, Naudé W and Santos-Paulino AU, 2010, Vulnerability, trade, financial flows and State failure in small island developing States, *The Journal of Development Studies*, 46(5):815–827.

<sup>12</sup> World Bank and Organisation for Economic Co-operation and Development, national accounts data.

<sup>13</sup> International Monetary Fund, Balance of Payments Statistics Yearbook.

<sup>14</sup> Lanz R and Werner H-P, 2016, Participation of small economies in global value chains: Evidence and policy issues, *Commonwealth Trade Hot Topics*, Issue No. 125, Commonwealth Secretariat.

<sup>15</sup> Secretariat of the Committee on Development Policy, data on the least developed countries.

<sup>16</sup> A/RES/69/15, annex.

spurring a self-reinforcing cycle of economic growth, increased productivity and wages, followed by upgrading and diversification into new industries. This cycle yields structural transformation and a resilient economy, a pillar of sustainable long-term development.

### III. Identifying alternative development strategies for small island developing States

25. This chapter begins with an outline of the current situation in small island developing States, in relation to their: (a) endowments, (b) existing economic structure and (c) “drivers for future opportunities”, defined in terms of indicators for innovation, change and adaptation, as elements of a country’s positioning to capitalize on new opportunities in the context of global value chains and the fourth industrial revolution. The data presented were the most recent as of early 2022. The chapter concludes with an analysis of viable alternative development strategies for small island developing States, both in response to their current situation and future opportunities.

26. The analysis was applied to a sample of 37 small island developing States, essentially the 38 United Nations Member States classified as small island developing States by the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, minus Singapore. The sample was determined after conducting a sensitivity analysis, concluding that Singapore was an outlier and that excluding the country from the sample corrected skewness in the results, while preserving the regional representativeness of the group.

#### A. Current situation

##### 1. Endowments

27. Across the sample, no small island developing States had large endowments of factors of production, measured in terms of stocks of arable land, labour and capital. These results underline that the smallness of small island developing States precludes them adopting large-scale economic development strategies based on abundant factors of production.

28. Reliance on natural resources was more heterogeneous among small island developing States. For example, in 2018, the share of natural resource rents in GDP<sup>17</sup> was very high in five small island developing States – Timor-Leste, Suriname, Papua New Guinea, Solomon Islands and Guyana – ranging from approximately 20 to 34 per cent of their GDP. For a further three small island developing States – Trinidad and Tobago (11 per cent), Guinea-Bissau (9 per cent) and Bahrain (4 per cent) – reliance was also moderate to high.

29. Using 2018 values for GDP per capita<sup>18</sup> as an indicator of domestic market size, results suggest that a cross-section of small island developing States of different sizes and economic structures have a minimum purchasing power to support local consumption. For example, eight small island developing States had GDP per capita values above US\$14,300. A further 14 small island developing States had GDP per capita values above US\$4,500.

30. As an indicator for access to basic infrastructure, 24 small island developing States in the sample had a proportion of their population with access to electricity<sup>19</sup> in 2018 above 96 per cent, with 20 small island developing States reporting 100 per cent access. Further study can establish whether residents of these countries have comparable access to other forms of basic infrastructure, for example, internal transport and trade infrastructure. For the purposes of this note, this indicator suggests that access to basic infrastructure is a comparative advantage for many small island developing States, relative to other developing countries.

<sup>17</sup> World Bank, World Development Indicators database.

<sup>18</sup> UNCTADstat database.

<sup>19</sup> Sustainable Energy for All database (see <https://www.seforall.org/>).

## 2. Existing economic structure

31. The evaluation of existing economic structure in small island developing States began by comparing the allocation of inputs and outputs among the primary, secondary and tertiary sectors in small island developing States. Employment was used as the indicator for inputs and value added for outputs.

32. Looking at the 26 small island developing States with values for employment by sector,<sup>20</sup> these countries generally had a lower proportion of jobs in the primary and secondary sectors than other developing countries, along with more employment in the tertiary sector. The secondary sector accounted for more than 23 per cent of total employment in only three small island developing States: Bahrain, Mauritius and Tonga.

33. This mirrors the situation in the 37 small island developing States with values for value added by sector,<sup>21</sup> with 30 small island developing States generating less value added in the primary sector than other developing countries. Only four small island developing States – Dominican Republic, Haiti, Saint Kitts and Nevis and Suriname – generated more than 23 per cent of total value added in the secondary sector. For most small island developing States, employment and value added were therefore concentrated in the tertiary sector.

34. A high dependence on trade is another defining characteristic of many small island developing States economies. The average trade-to-GDP ratio<sup>22</sup> in 2018 in small island developing States (97.3) was below the averages among selected exporters of services (165.9) and manufactured goods (122), but above the average among exporters of agricultural and mineral commodities. This order remained intact for both the export and import channels.

35. Five small island developing States (Bahrain, Maldives, Marshall Islands, Palau and Seychelles) had a total trade-to-GDP ratio above 120, with Seychelles (182.4) among the most trade-dependent countries in the world.

36. By trade channel, 11 small island developing States reported a higher imports-to-GDP ratio than the average among selected exporters of manufactured goods, while only three (Bahrain, Maldives and Seychelles) did so on the export side.

## 3. Drivers for future opportunities

37. The 37 small island developing States were evaluated according to eight indicators that could position them for future opportunities, including six flows that yield future benefits – such as investments, patent applications and government expenditures in key areas – and two indicators for information and communications technology (ICT) utilization and institutional quality.

38. In terms of investment capital, the 37 small island developing States had an average, annual gross savings rates<sup>23</sup> equivalent to 23 per cent of GDP over the 2014–2018 period, roughly equivalent to the average among developing countries. Four small island developing States had gross savings rates greater than 30 per cent of GDP over the period: Cabo Verde (30.4 per cent), Vanuatu (31.8 per cent), Timor-Leste (45.9 per cent) and Kiribati (63.5 per cent).

39. During the same 2014–18 period, the 37 small island developing States attracted average, annual net foreign direct investment inflows<sup>24</sup> equivalent to 4.9 per cent of GDP, which trailed developing country averages. Six small island developing States – Barbados, Grenada, Guyana, Palau, Saint Kitts and Nevis and Saint Vincent and the Grenadines – outperformed the average, attracting annual net foreign direct investment inflows equivalent to more than 10 per cent of GDP.

<sup>20</sup> International Labour Organization, ILOstat database.

<sup>21</sup> United Nations, Statistics Division, national accounts estimates of main aggregates.

<sup>22</sup> World Bank and Organisation for Economic Co-operation and Development, national accounts data.

<sup>23</sup> World Bank, World Development Indicators database.

<sup>24</sup> International Monetary Fund database.

40. Looking at ICT utilization, the 37 small island developing States had an average proportion of population using the Internet<sup>25</sup> in 2017 of 47.2 per cent, comparable with the average among developing countries. There was considerable variation in the sample, ranging from two small island developing States (Comoros, Guinea-Bissau) with rates below 10 per cent of the population, to four (Bahamas, Bahrain, Barbados, Saint Kitts and Nevis) with rates above 80 per cent.

41. Research and development is an important driver of future opportunities. In terms of average government research and development expenditures,<sup>26</sup> expressed as a percentage of GDP, from 2014 to 2018, none of the small island developing States in the sample spent more than 0.4 per cent of GDP on research and development during the period, considerably less than the averages among other country groupings, such as middle-income countries (0.41 per cent) and selected exporters of services (0.81 per cent) and of manufactured goods (1.1 per cent).

42. Two indicators were included for the important driver of human capital: government expenditures on education and tertiary enrolment rates. Among the 22 small island developing States with recorded values, average government expenditures on education<sup>27</sup> from 2014–2018 was the equivalent of 4.6 per cent of GDP, higher than development country average. Indeed, half of the small island developing States in the sample (11) reported average spending of within the band of 4.5 to 7 per cent of GDP, led by the Federated States of Micronesia, with an average of 12.5 per cent.

43. Turning to tertiary enrolment rates,<sup>28</sup> as a percentage of gross enrolment, for the 2014–18 period, only three small island developing States – Dominican Republic, Grenada and Saint Kitts and Nevis – had tertiary enrolment rates above 50 per cent. Among the 15 small island developing States with recorded values, nine had rates below the sample average of 35.7 per cent.

44. On innovation, the global average for annual total patent applications per 100,000 inhabitants<sup>29</sup> from 2014 to 2018, was approximately 31 patent applications. Among the 15 small island developing States with recorded values, the average was 7.5 patent applications per 100,000 inhabitants per year, with only Samoa (with 27) approaching the global average. This highlights that the entire group of small island developing States has a considerable gap to close in this important indicator for innovation.

45. As an indicator for institutional quality, the Worldwide Governance Indicators regulatory quality subindex<sup>30</sup> scores countries along a scale from -2.5 for weak governance, to +2.5 for strong governance. With a few exceptions, small island developing States generally scored below zero on the subindex, with only five small island developing States – Antigua and Barbuda, Barbados, Bahrain, Mauritius and Saint Kitts and Nevis – ranked higher on regulatory quality than developing country averages.

46. In summary, for seven of the eight indicators evaluated, the group of small island developing States only outperformed developing country averages for government expenditures on education. If small island developing States want to be competitive in attracting opportunities in the context of the fourth industrial revolution, these results offer some benchmarks for improvement.

<sup>25</sup> International Telecommunication Union, ICT indicators database.

<sup>26</sup> Data from the United Nations Educational, Scientific and Cultural Organization, Institute for Statistics.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Data on patent applications from the World Intellectual Property Organization; data on population from the World Bank.

<sup>30</sup> World Bank, Worldwide Governance Indicators, 2019 update.



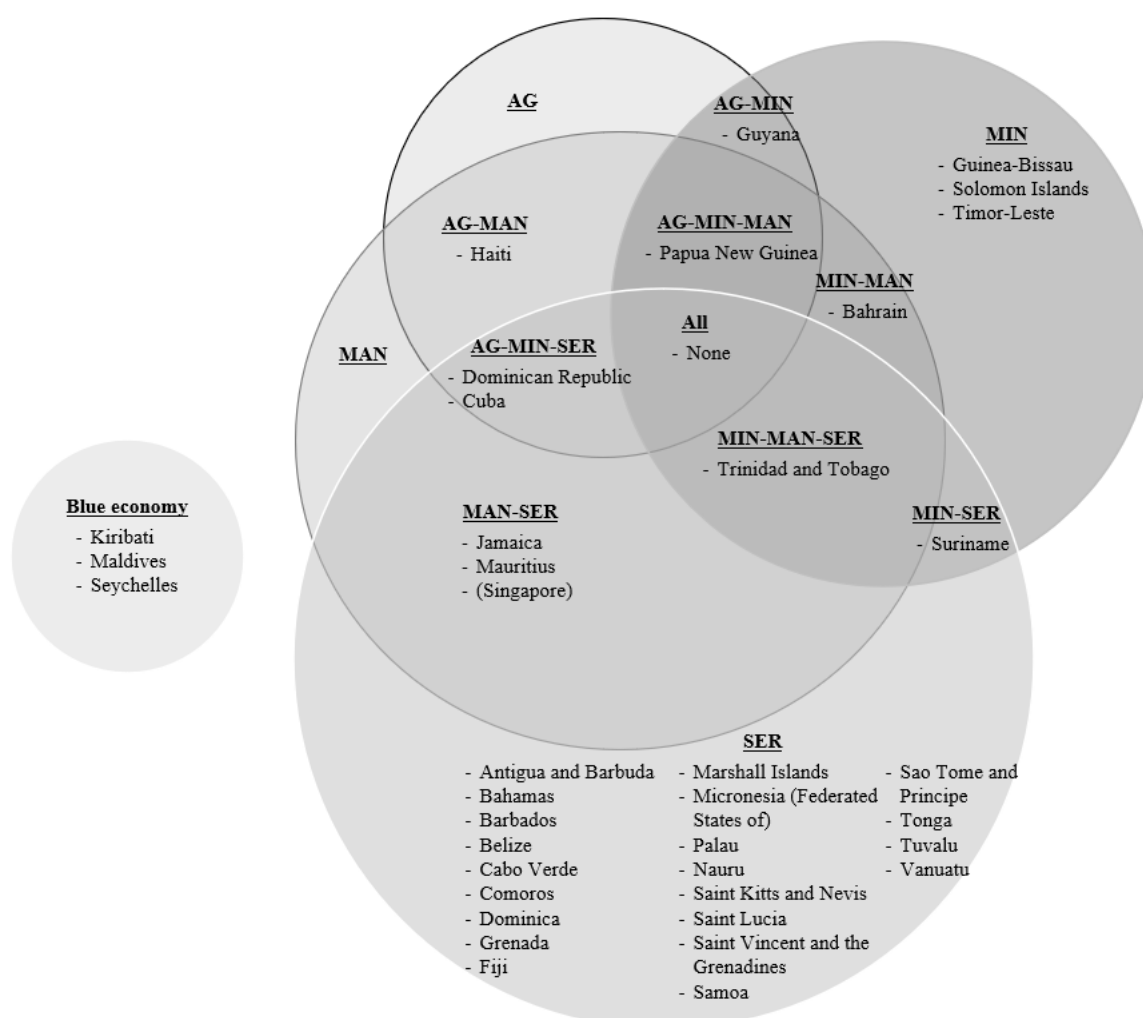
## B. Analysis

### 1. Mixed strategies

47. As seen in earlier sections, the economic structure in most small island developing States follows their endowment structure. Nevertheless, there were nuances. For example, seven small island developing States had above average shares of inputs or outputs in the secondary sector. While this does not suggest a comparative advantage in large-scale manufacturing, it does indicate that these countries are suited to mixed strategies, with small-scale, targeted manufacturing industries complementing their comparative advantage in, for example, extractives or services.

48. The figure in this note depicts a Venn diagram of the viable strategies for the individual small island developing States in the sample, among the four economic development strategies profiled: manufacturing-led, service-led and the agriculture and extractive variants of natural resource-led strategy. The Venn diagram illustrates both the countries with a single, most viable strategy, for example, services, as well as the handful of countries that could pursue a mix of two or three strategies. Although Singapore was omitted from the sample for the evaluation framework, it is depicted in the diagram for illustration.

#### Venn diagram of viable strategies for small island developing States



*Abbreviations:* AG, natural resource-led strategy, agriculture variant; MAN, manufacturing-led industrialization; MIN, natural resource-led strategy, minerals variant; SER, service-led development.

49. A fifth bubble for blue economy strategies is included, mostly for illustration purposes. The indicator for blue economy strategies, capture fisheries production, proved less effective than others. More importantly, the study did not elaborate a holistic concept of the blue economy, to situate it in relation to the other profiled strategies. The blue economy bubble is therefore depicted apart from the others and is populated with countries with higher capture fisheries production – countries that would otherwise appear in the services bubble.

50. As illustrated in the figure, the evaluation framework identified natural resource-led strategies, based on the extractive (mineral) variant, as the most viable strategy for three small island developing States: Guinea-Bissau, Solomon Islands and Timor-Leste. Meanwhile, the evaluation did not identify large-scale manufacturing- or agriculture-led strategies as viable for any of the 37 small island developing States in the sample.

51. Furthermore, 21 small island developing States were suited to pure service-led development strategies. This is largely a “default” finding for these countries, as the evaluation showed: (a) that they lacked the prerequisites for the other strategies used in the framework and (b) that the tertiary sector was already predominant in their economic structure. For these countries, this finding may reinforce some of their existing service-led strategies and policies.

52. Nevertheless, this finding falls short of providing ideas for new strategies or industries through which these 21 small island developing States could diversify their economies or build productive capacity, towards greater economic resilience. More analytical work is therefore required to look more closely at how service-led small island developing States economies can identify new opportunities or variants on their existing strategies.

53. For the remaining 13 small island developing States in the sample, there were viable “mixed” strategies. These typically involve: (a) a dominant sector, in which they may enjoy a comparative advantage, plus (b) one or two other strategies in which they were competitive, even if their endowments and current structures did not indicate an outright comparative advantage.

54. Among these 13 small island developing States, Cuba and the Dominican Republic emerge as the economies with the greatest prospects for diversification, with opportunities to pursue mixed strategies based on agriculture, manufacturing and services. Somewhat less diversified currently, Papua New Guinea (agriculture-extractives-manufacturing) and Trinidad and Tobago (extractives-manufacturing-services) also seem to have the prerequisites to pursue a mix of three strategies.

55. Singapore and Mauritius appear in the figure under mixed manufacturing-services strategies and, indeed, both countries are already strong examples. Based on its endowments and structure, Jamaica also appears on this list, with the potential to follow a similar mixed strategy.

## 2. Future opportunities

56. For seven of the study’s eight indicators for “drivers of future opportunities”, small island developing States did not differentiate themselves from developing country averages, only outperforming on government expenditures on education, expressed as a share of GDP. Nevertheless, many individual small island developing States are better placed than many other developing countries. For example, a subset of small island developing States have above-average gross savings, foreign direct investment inflow and Internet penetration rates. From this perspective, small island developing States can leverage these advantages to “build out” the remaining forward-looking drivers that require improvement, such as research and development, human capital development, innovation and governance.

57. In practice, for example, a human capital development strategy could leverage existing education programmes and infrastructure, coupled with wide Internet penetration, to train a critical mass of, first, instructors and researchers to mount targeted technical training programmes and, second, engineers and other graduates to populate targeted new

industries in remote services, such as financial technology, outsourced business functions and design.

58. Developing these drivers of production takes time. As a result, small island developing States should adopt a long-term approach to capitalizing on new opportunities. In parallel to building the human capital and infrastructure necessary to compete for these opportunities, small island developing States can pursue complementary incremental steps by implementing innovative new technologies in their traditional sectors, or as part of the mixed strategies identified in the previous subsection.

59. Indeed, upgrading and diversification strategies inevitably involve a degree of path dependence, both at the sectoral and firm levels, especially in countries with relatively low levels of investments in, for example, research and development and capital equipment. In these cases, new, more productive industries evolve from the capabilities developed by the industries that went before.<sup>31</sup>

60. For example, small island developing States with important agricultural sectors could invest in entry-level precision agriculture technologies, with the accompanying extension and information services for farmers. Implementing these technologies on a targeted, small-scale basis can contribute to immediate policy priorities – for example, increasing agricultural productivity, improving overall food security and nutrition and reducing food import dependency – as well as building knowledge of new technologies among local entrepreneurs, engineers and technicians, as part of a long-term strategy for capitalizing on future opportunities.

61. Similarly, Governments of small island developing States can work with large-scale commercial energy consumers, such as tourism resorts, mines or factories, to implement renewable energy technologies that supply a portion of their energy consumption. This serves immediate energy transition priorities in many small island developing States, as well as aligning with industry energy-transition initiatives, for example in mining. These partnerships also provide opportunities to build skills with forward-looking technologies for local firms and engineers.

62. Small island developing States with established financial services sectors can pursue niche opportunities in financial technology, meaning the platforms, software and services that automate banking and financial services. Given the small scale of small island developing States, they are unlikely to compete with leading overseas brands of, for example, mobile payment services. Yet many small island developing States already specialize in providing niche services to the traditional offshore financial sector, a model that could apply to, for example: mobile and online only payment platforms; and backend, intermediary and data processing services for mobile and online platforms. Looking forward, small island developing States can assess how their traditional offshore financial services could be augmented to compete in the cryptocurrency and blockchain sectors.

63. Pursuing future opportunities in small island developing States requires a long-term plan to build the required drivers, which are often different from those required by traditional primary, manufacturing and service industries. According to the preliminary analysis in this note, small island developing States have an advantage relative to other developing countries in drivers, such as education spending, gross savings and Internet penetration rates, but need a concerted effort to extend these advantages into better research and development, human capital development, innovation and governance.

<sup>31</sup> Thrane S, Blaabjerg S and Moller RH, 2010, Innovative path dependence: Making sense of product and service innovation in path dependent innovation processes, *Research Policy*, 39(7), 932–944; Isaksen A, 2015, Industrial development in thin regions: trapped in path extension? *Journal of Economic Geography*, 15(3):585–600; Delgado M, Porter ME and Stern S, 2014, Clusters, convergence and economic performance, *Research Policy*, 43(10):1785–1799; Martin R and Sunley P, 2006, Path dependence and regional economic evolution, *Journal of Economic Geography*, 6(4):395–437.

## IV. Conclusion

64. Achieving sustainable development in small island developing States requires building their resilience to the environmental and economic vulnerabilities that define them. As part of this effort, small island developing States require economic development strategies that deliver economic growth, diversification and structural transformation.

65. In this note, findings are summarized from a study on alternative economic development strategies for small island developing States. The evaluation framework began by looking at what exists, in terms of the endowments and economic structures of small island developing States. This analysis underlined, for example, that: (a) economic structures of small island developing States largely follow their endowment base; (b) endowments of small island developing States do not support large-scale manufacturing strategies, and only a handful of small island developing States are endowed for natural resource-based strategies; and (c) as a result, most small island developing States rely on services, mainly tourism.

66. Thus far, these findings repeat what small island developing States already know about their dependence on the tertiary sector. But for 15 of the small island developing States in the sample, the analysis also identified the potential for mixed strategies in one or two other sectors, for example, developing targeted, small-scale manufacturing activities that complement the country's predominant sector, typically services or extractives.

67. The study went on to analyse the positioning of small island developing States to capitalize on future opportunities, in the context of global value chains and the fourth industrial revolution. Although traditional factors of production are still required to compete for these opportunities, particularly skilled workers, success depends more on dynamic drivers that allow firms and workers to innovate and adapt to the rapid pace of technological change and shifting global value chains.

68. On this basis, small island developing States can leverage their comparative advantage in education spending, as well as their above-average performance in, for example, income per capita, gross savings and Internet penetration rates, to boost their performance in the lagging drivers, such as research and development, human capital development, innovation and governance. This effort can form the basis of a long-term strategy to compete for future opportunities in, for example, financial technology, outsourced business functions and design.

69. Intermediate steps to this long-term strategy could include investing in new technologies in the established sectors of small island developing States, including in the mixed strategies identified. These can include, for example, precision agriculture or public-private partnerships with the main energy consumers to build renewable energy generation capacity.

### A. Policy recommendations

70. For small island developing States wishing to pursue future opportunities in global value chains or the fourth industrial revolution, as part of their overall economic development strategy, the recommended policies are outlined below.

71. **Extractive sector:**

- Prioritize revenues over other strategic objectives, such as value addition. This requires an efficient taxation regime, with a balance of production, export and income taxes, and using modelling to maximize revenues over a project's anticipated life cycle.

- Earmark a portion of extractive revenues and rents to provide a predictable stream of investments and spending in (a) other productive sectors with long-term potential for diversification and structural transformation of the economy; and (b) drivers supporting these new opportunities, including research and development, human capital development, innovation and governance.
- Employ sound macroeconomic management to prevent export earnings from the extractive sector inflating the local currency, which can erode the net benefit from exploiting natural resources, undermine other export sectors and complicate efforts to diversify into new industries.

72. **Agricultural sector:**

- For the few small island developing States with important agricultural sectors and/or competitive advantages in agriculture, create incentives to invest in smart agriculture technologies, including precision and vertical agriculture, on a targeted and small-scale basis, to reinforce food security and nutrition, as well as providing opportunities for technology transfer and human capital development.
- Identify and pursue niche opportunities for value addition, including for by-products, to build productive capacity.

73. **Future opportunities:**

- Identify and prioritize high-value activities that do not rely on economies of scale or a geographic proximity to markets, such as niche opportunities in financial technology, outsourced business functions or design.
- Support priority opportunities with public investments and spending in infrastructure, research and development, human capital development and innovation.
- Expand and ensure access to relevant enabling infrastructure, such as the Internet, energy and transport.
- Engage the private sector in developing research and development programmes in priority industries.
- Maintain an ongoing dialogue among government, employers and trade unions to inform human capital development programmes, manage employment expectations and preserve social cohesion through periods of structural economic transformation.
- Create incentives to mobilize domestic savings and foreign direct investment inflows into investments in productive capital, including both new technologies to upgrade existing sectors, as well as drivers and activities in pursuit of future opportunities.
- Expand service offerings in the tourism and financial sectors, with an emphasis on those involving new technologies.
- Where possible, engage in public-private partnerships with large energy consumers, such as tourism resorts, mines and factories, to construct renewable energy sources, with an emphasis on technology transfer and human capital development for local firms and workers.
- Continue to expand Internet penetration through public investments in infrastructure and the adoption of ICTs in public education.
- Leverage relatively high education spending into other drivers for future opportunities. Examples could include training a critical mass of researchers and instructors and mounting tertiary and vocational training programmes oriented towards priority industries.
- Reinforce science, technology, engineering and mathematics in the public education curriculum and support apprenticeships for graduates to acquire practical experience.

- Include specific language in all policies and programmes that ensures equal access to new opportunities for women, minorities and youth.
  - Improve governance through policy, regulatory and institutional reforms that strengthen, for example, property rights, the rule of law and competition, with a view to fostering innovation, entrepreneurship and investment.
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