

MAY 2021

UNCTAD Research Paper No. 66  
UNCTAD/SER.RP/2021/9, UNCTAD

S. MacFeely,  
A. Peltola,  
N. Barnat,  
O. Hoffmeister  
and  
D. Hopp

Statistics and Information  
Branch, UNCTAD  
steve.macfeely@un.org

# Constructing a criteria-based classification for Small Island Developing States: an investigation

## Abstract

What makes an island a *Small Island Developing State* (SIDS)? What are the unique features or characteristics that single out some islands from the thousands of others? Depending on the criteria (or lack of) being used, there are several SIDS classifications being used by UN or international organizations. While there is no universally agreed definition for SIDS, there is a broad consensus that SIDS are typically characterized as remote, with high vulnerability to economic and environmental shocks, and with an inability to capitalize on economies of scale. This paper investigates what make a SIDS a SIDS and whether a criteria-based classification is possible and what it might look like.

**Key words:** vulnerability, development, islandness



The findings, interpretations, and conclusions expressed herein are those of the author(s) and do not necessarily reflect the views of the United Nations or its official Member States. The designations employed and the presentation of material on any map in this work do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.

This paper represents the personal views of the author(s) only, not the views of the UNCTAD secretariat or member States. The author(s) accept sole responsibility for any errors. Any citation should refer to the author(s) and not the publisher. This paper has not been formally edited.

---

## Contents

<b>Acknowledgements</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>1. SIDS – A Brief History</b> .....	<b>4</b>
<b>2. Typical Characteristics of a SIDS</b> .....	<b>6</b>
<b>3. The Importance of Coherent Classification</b> .....	<b>8</b>
<b>4. Smallness</b> .....	<b>9</b>
<b>5. Islands and Islandness</b> .....	<b>11</b>
<b>6. Development and Vulnerability</b> .....	<b>14</b>
<b>7. States or Economies?</b> .....	<b>19</b>
<b>8. Conclusion</b> .....	<b>20</b>
<b>References</b> .....	<b>22</b>
<b>Appendix 1 – A Comparison of different SIDS classifications</b> .....	<b>28</b>
<b>Appendix 2 – Compiling a Smallness index</b> .....	<b>29</b>
<b>Appendix 3 – Identifying a vulnerability threshold</b> .....	<b>37</b>
<b>Appendix 4 – Compiling a Remoteness (Islandness) index</b> .....	<b>39</b>
<b>Appendix 5 – Alternate measures of development and vulnerability</b> .....	<b>43</b>
<b>Appendix 6 – Island states</b> .....	<b>44</b>

---

## Introduction

There are countless islands dotted all around the world's oceans, lakes, and rivers. They vary enormously in size, climate, and in flora and fauna. Some islands, such as the beautifully wooded Bled Island in Slovenia, or the remote and barren Skellig Michael off the coast of Ireland, now famous as a Star Wars location, are small. Others, such as Greenland or New Guinea, are massive. Some islands, such as Manhattan in New York or the tiny Santa Cruz del Islote off the coast of Colombia are crowded and densely populated. In contrast, the northern islands of Baffin or Victoria barely support human life and are very sparsely populated. Yet others, such as the Pitcairns, best known as the haven to the mutineers of the HMS Bounty, or Easter Island, home to the enigmatic moai are some of the most remote islands in the world. Singapore, on the other hand, lies less than 2 km south of Malaysia and is well connected by bridges and causeways. Some islands, like the Aleutian Islands in Alaska, are frozen all year round, whereas the Seychelles or Fiji are tropical. Spanning the oceans of the world, islands hold a rich variety of linguistic and cultural history. For example, across the Caribbean islands, cultural influences from indigenous groups, Africa, Asia, North America and Europe can all be found.

But what makes an island a SIDS? What are the unique features or characteristics that single out these islands from the thousands of others? Broadly speaking SIDS are typically characterized as remote, with high vulnerability to economic and environmental shocks, and with an inability to capitalize on economies of scale. Yet there is no universally agreed upon definition for SIDS (Herbert, 2019). One might assume the answer lies in their description – they must be *Small – Islands - Developing - States*. But depending on the classification used to define SIDS by different United Nations and international and regional organisations, the number of qualifying states or economies ranges from 58 countries (using the UN-OHRLLS classification) to only 18 (using as reference the number of World Bank International Development Association (IDA) countries that can borrow on small economy terms). See Table 1.1.

**Table 1.1** Eight Alternative SIDS Classifications: Number of States/Economies by Region

Region	UN OHRLLS	M49	UNESCO	AOSIS	OECD (DAC recipients)	SSF (Islands)	UNCTAD	World Bank (IDA)
Africa	6	6	6	6	6	5	5	3
Asia and Oceania	23	22	19	19	16	14	13	10
Europe	-	-	-	-	-	3	-	-
Latin America and the Caribbean	28	25	23	19	13	10	10	5
North America	1	-	-	-	-	-	-	-
<b>Total</b>	<b>58</b>	<b>53</b>	<b>48</b>	<b>44</b>	<b>35</b>	<b>32</b>	<b>28</b>	<b>18</b>

Source: Derived from multiple sources - See Appendix 1 for details

The range in membership can largely be accounted for by the inclusion or exclusion of large islands, developed islands, coastal rather than island countries and non-independent territories. Thus, even within the United Nations itself, there is considerable variety as to what constitutes a SIDS, depending on whether they give priority to the political or analytical dimensions. An analysis of the concordance of the composition between eight SIDS groups is presented in Table 1.2. Using Kendall's tau, a rank correlation coefficient, the weak correlation between the different classifications being employed currently is clearly illustrated<sup>1</sup>.

<sup>1</sup> There are in fact only 17 economies common to all 8 classifications. Even when the most restrictive classification (the World Bank International Development Association) is excluded, there are still only 24 economies common to the remaining 7 classifications.

**Table 1.2** Concordance in the composition of current SIDS classifications (Kendall's tau)

	M49	UNESCO	AOSIS	OECD (DAC Recipients)	SSF	UNCTAD	World Bank (IDA)
UN OHRLLS	0.42	0.43	0.48	0.35	0.00	0.28	0.20
M49		0.60	0.68	0.50	0.12	0.40	0.28
UNESCO			0.62	0.63	0.29	0.51	0.36
AOSIS				0.67	0.40	0.59	0.42
OECD (DAC Recipients)					0.41	0.55	0.57
SSF						0.88	0.56
UNCTAD							0.64

Note: Kendall's tau is the ratio of the difference between the number of concordant and discordant pairs of observations to the number of all possible pairs of observations.

In spite of some common characteristics, there is a large degree of differentiation amongst the SIDS (House, 2013). The challenges facing remote islands in the Pacific Ocean are not necessarily the same as those facing islands in the Indian Ocean or in the Caribbean Sea. Some extremes, and some surprising inclusions, illustrate the point. For example, some SIDS, such as Belize, Guinea-Bissau, Guyana or Suriname are not even islands (see section 5 - Islands and islandness); some, such as Papua New Guinea, Cuba, Dominican Republic or Singapore, are not small (see section 4 – Smallness). SIDS' economic and environmental vulnerability indices range between highly vulnerable (Kiribati) to not very vulnerable (Bahrain) – see section 6 - Development and Vulnerability; their Human Development ranges between very high (Seychelles or Singapore) to low (Comoros or Tonga); and their income, as measured by GNI per capita, ranges from high (Bahamas or Bermuda) to low (Haiti or Guinea-Bissau). The lack of a clear SIDS definition or qualification criteria facilitates, and arguably exacerbates, the heterogeneity of the group (Herbert, 2019). As yet, there has been insufficient 'political support across the UN member States for the creation of a criteria-defined category' (Alonzo et. al., 2014: 18).

In this paper SIDS are examined from a statistical perspective. The decision or the justification for a SIDS group is not examined but taken as read. Instead, the focus is on what the abbreviation SIDS means and what might be appropriate statistical criteria for SIDS qualification.

## 1. SIDS – A Brief History

The SIDS, that set of countries recognized as being particularly vulnerable to economic and environmental shocks, was first formally recognized at the United Nations Conference on Environment and Development (UNCED), also known as the *Earth Summit*, held in Rio de Janeiro, Brazil in 1992. But the international community had recognized that developing island countries were a special category from a developmental perspective long before that. The plight of island nations has been an issue of analyses and concern going back to the 1960's. From a UN perspective, this recognition was first formalized during the 3<sup>rd</sup> UNCTAD quadrennial conference in Santiago, Chile in May, 1972, where the particular geographic and socioeconomic problems facing Island Developing Countries (IDCs), such as insularity and remoteness, were discussed (UNCTAD, 1972). Resolution 65 (III) of that conference asked that a panel be established to study the particular problems of IDCs (UNCTAD, 2017).

Among other things, the resulting report highlighted the challenges of classification, noting the 'classification of these countries is not without its problems in view of their heterogeneity' (UNCTAD, 1974: 3). The challenging issue of size was especially highlighted. The authors concluded that size matters, as small countries tend to be more dependent on foreign trade and are typically price takers, they tend to have a limited range of resources available, they are often reliant on one external company that may monopolize trade and resources, they normally have a narrower range of institutions and may be dependent for certain services on other countries to provide services, they are likely to have a narrow

range of skilled manpower, often suffer from diseconomies of small scale in the provision of infrastructure or administrative services, and will typically have a narrow local market, and will struggle to replace imports. In turn, 'smallness' would impact on countries in relation to problems of specialization and dependence, manpower and migration and could impact on their overall viability.

Between 1972 to 1992, work and discussions on IDCs has been characterized as largely diagnostic (UNCTAD, 2017). In 1976, UNCTAD IV recommended special assistance for all island developing countries and in 1977, the United Nations General Assembly requested that United Nations agencies incorporate these recommendations into their programs (Fry, 2019). The World Bank adopted the 'small island exception' in 1985 for differentiating development finance where middle-income countries would continue to enjoy low-income country treatment as SIDS, an unofficial status that was synonymous with fragility and justified special treatment irrespective of other criteria.

The United Nations formally replaced the notion of IDCs with the more focused denomination 'SIDS' in 1994 (Hein, 2004) at the first *Global Conference on the Sustainable Development of Small Island Developing States* held in Barbados, in 1994. This was a landmark conference, as it was the first time a United Nations conference was entirely devoted to SIDS. The conference declaration (United Nations, 1994) set out what has become known as the *Barbados Programme of Action*, covering 14 themes targeted on sustainable development, half of them ecological<sup>2</sup>.

This programme has been reviewed and renewed on a number of occasions since then. In 1999, at a special session of the United Nations General Assembly (UNDESA, 1999), and in 2005 by the *Mauritius Strategy for Implementation of the Programme of Action for the Sustainable Development of SIDS* (United Nations, 2010). In 2010, an important event was the request from the United Nations General Assembly to 'put forward concrete recommendations' and 'consider what improved and additional measures might be needed to more effectively address the unique and particular vulnerabilities and development needs of small island developing States' (United Nations, 2010: Para 33). The third international conference on SIDS in 2014, the outcome of which was the *SIDS Accelerated Modalities of Action Pathway*, commonly known as the *SAMOA Pathway* (United Nations, 2014a), reaffirmed the international commitments made in the Barbados Programme of Action and the Mauritius Strategy and pledged to take urgent and concrete action to address the vulnerability of SIDS and help them achieve sustainable development. In recognition, 2014 was also designated 'The International Year of Small Island Developing States' with the then United Nations (2014b) Secretary General Ban Ki-moon saying this was an opportunity 'to appreciate the extraordinary resiliency and rich cultural heritage of the people of small island developing States'. In 2015, 10 of the SDG targets of the 2030 Agenda mentioned SIDS explicitly (United Nations, 2015a)<sup>3</sup>.

## 2. Typical Characteristics of a SIDS

A common feature of SIDS is their vulnerability or exposure to physical, environmental and economic events, including natural disasters, and their relatively poor ability to respond to those catastrophic events owing to their physical, demographic, social, economic and environmental characteristics.

As outlined earlier, the special case of SIDS was first formally recognized by the international community at UNCED or the *Rio Earth Summit* in 1992, where their environmental and ecological vulnerabilities were recognized. Agenda 21 or the Rio Declaration stated that 'Small island developing States, and islands supporting small communities are a special case both for environment and development. They are

<sup>2</sup> (1) Climate change and sea level rise; (2) natural and environmental disasters; (3) management of waste; (4) coastal and marine resources; (5) freshwater resources; (6) land resources; (7) energy resources; (8) tourism resources; (9) biodiversity resources; (10) national institutions and administrative capacity; (11) regional institutions and technical cooperation; (12) transport and communication; (13) science and technology; and (14) human resource development.

<sup>3</sup> Targets 3.c, 4.b, 4.c, 7.b, 9.a, 10.b, 13.b, 14.7, 14.a, 17.18

ecologically fragile and vulnerable. Their small size, limited resources, geographic dispersion and isolation from markets, place them at a disadvantage economically and prevent economies of scale' (United Nations, 1992: Para 17.124).

Two years later, the Barbados Programme of Action (United Nations, 1994) broadened their recognition of the issues facing SIDS, identifying several disadvantages that derive from small size, including a narrow range of resources, which forces undue specialization; excessive dependence on international trade and hence vulnerability to global developments; high population density, which increases the pressure on already limited resources; overuse of resources and premature depletion thereof; relatively small watersheds and threatened supplies of fresh water; costly public administration and infrastructure, including transportation and communication; and limited institutional capacities and domestic markets, which are too small to provide significant scale economies, while their limited export volumes, sometimes from remote locations, lead to high freight costs and reduced competitiveness. Small islands also tend to have high degrees of biodiversity, but the relatively small numbers of the various species impose high risks of extinction and create a need for protection.

The characterizing disadvantages of SIDS articulated in the Barbados Programme of Action were generally representative of the reflections and analyses offered by the academic literature. A selection is presented here: Briguglio (1995) argues that most SIDS face special disadvantages owing to their small size, insularity, remoteness and their proneness to natural disasters. These factors make the economies of SIDS vulnerable to forces outside their control, threatening their economic viability – a reality often concealed by their GDP or GNP per capita. He identifies five key disadvantages of SIDS: (1) small size – which results in limitations in natural resource endowments and high import content, import-substitution possibilities, small domestic market and dependence on export markets, dependence on a narrow range of products, a limited ability to influence domestic prices, to exploit economies of scale, to create domestic competition and problems of public administration; (2) insularity and remoteness – which causes high per-unit transport costs, uncertainties of supply and a need to keep large stocks; (3) proneness to natural disasters – cyclones, earthquakes, landslides and volcanic eruptions tend to have a relatively larger impact on SIDS in terms of damage and costs, sometimes threatening the very survival of some small islands; (4) environmental factors – pressures arising from economic development and the environmental characteristics of SIDS which often comprise fragile ecosystems; and (5) other characteristics – dependence on foreign sources of finance and demographic factors.

Kakazu (2007), looking at the characteristics of small Pacific islands, identified their small size as a defining feature. All other issues, such as what he termed the 'tyranny of distance', high transport and communication costs, barriers to market access, fragile environments, dis-economies of scale and scope, limited division of labor (monoculture), segmented market, remoteness or insularity, high-cost economy, over-blown public sector and a high dependency on tourism, stem from this.

House (2013) identified the following critical challenges confronting SIDS: small population and geographic size; isolation; climate change and rising sea-levels; natural and environmental disasters; outward migration or the 'brain drain' of scarce human resources; and dependence on public sector employment, agriculture, fishing and tourism. These challenges are accentuated by a high dependence on aid and donor funding; limited freshwater resources; often rapid population growth which, combined with limited natural resources, often results in environmental degradation and poor waste management; and vulnerable biodiversity resources. He further notes that these constraints limit SIDS' ability to capitalize on trade liberalisation and globalisation. The same year, Bruckner (2013) identified five main vulnerabilities: smallness; isolation and fragmentation; a narrow resource and export base; exposure to environmental and natural shocks, including climate change and natural disasters; and exposure to external economic shocks.

Herbert (2019) summarized the key characteristics of SIDS as: heterogeneity; small country size and remotely located from markets; lower economies of scale and higher costs for provision of state services;

---

---

economic vulnerabilities; economic openness; lack of economic diversification; slow and volatile economic growth; climate vulnerabilities; and perhaps lags in human development.

Thus, in large measure there is a high degree on unanimity across the white and grey literature regarding the main characteristics of SIDS. A notable feature is that their characteristics are largely synonymous with the disadvantages or challenges confronting those island states. This is reflected in the most recent intergovernmental plan, *The Samoa Pathway*, which notes 'the ability of the small island developing States to sustain high levels of economic growth and job creation has been affected by the ongoing adverse impacts of the global economic crisis, declining foreign direct investment, trade imbalances, increased indebtedness, the lack of adequate transportation, energy and information and communications technology infrastructure networks, limited human and institutional capacity and the inability to integrate effectively into the global economy. The growth prospects of the small island developing States have also been hindered by other factors, including climate change, the impact of natural disasters, the high cost of imported energy and the degradation of coastal and marine ecosystems and sea-level rise' (United Nations, 2014b: Para. 23). The pathway identifies the key issues to be addressed: mitigating climate change; shifting to more sustainable energy; build resilience to reduce vulnerability to disaster risk; improve the conservation and sustainable use of the oceans and seas; improve food security and nutrition; reduce the overexploitation of surface, ground and coastal waters, reduce saline intrusion; improve infrastructure for safe drinking water, sanitation, hygiene and waste management systems; develop viable sustainable transportation, consumption and production; better the management of chemicals and waste, including hazardous waste; improve health, and reduce the high prevalence of debilitating communicable and non-communicable diseases; promote gender equality and women's empowerment; foster social development, including culture, sport, education, peaceful societies and safe communities; protect biodiversity against desertification, land degradation, drought and reverse deforestation and forest degradation; and control against invasive alien species. The plan also highlights the importance of sustainable tourism. It is also reflected in the 2015 *Sendai Disaster Risk Reduction Framework* which highlights the disproportionate effects of disasters to SIDS (United Nations, 2015b).

---

---

### 3. The Importance of Coherent Classification

There is no universally agreed upon definition of SIDS. This has arguably exacerbated the heterogeneity of the larger SIDS groups (Turvey, 2007; Alonso et al., 2014; Herbert, 2019) and has been the source of considerable confusion (Fialho and van Bergeijk, 2017). This problem can be traced to the beginning of the concept of IDCs when a list of disadvantaged island nations was never clearly defined (Hein, 2004; Stoutenburg, 2015; Turvey, 2007). As a result, today SIDS is both a technical and political term where membership is largely by self appointment (Herbert, 2019). This has created ‘an inconsistency between the definition of the SIDS and its acronym’ where ‘non-islands economies as Belize, Suriname and Guyana, are awkwardly classified under the SIDS’ (Fialho and van Bergeijk, 2017).

The heterogeneity in the definition of SIDS can to a large extent be explained by the different contexts and the different purposes for which they were set up. The classification into SIDS and non-SIDS may be the basis for differential treatment, e.g. which islands get MFN and which do not (Fialho and Van Bergeijk, 2017) or for the targeting of development aid.

For statistical analysis, however, it is important that classification schemes are unambiguous and allow a clear assignment of objects into distinguishable categories. Exhaustively defined and mutually exclusive and well described categories that reflect the realities of the field are key properties of good classification systems in statistics (OECD, 2013). Shorrocks (2019) argues that a classification should pass the plausibility test of ‘face validity’, meaning it should seem valid or sensible to people who use it. The higher the congruence between the categories defined in the classification system with people’s ideas of those categories, the more will the classification make sense to users and the more easily it will be understood by them (Hoffmeister, 2020).

But classification schemes also shape people’s understanding of categories. This is the reason why high incongruence between SIDS hampers productive discourse and scientific progress (Nielsen, 2011). The ‘match between classifications applied in statistics and concepts formed in people’s minds constitutes an important determinant of the clarity, interpretability and relevance of aggregated or grouped data’ (Hoffmeister, 2020: 1098).

Many of the SIDS classifications listed earlier fail to adhere to the guidelines for what constitutes a good classification. Furthermore, their proliferation also represents a failure of international coordination and governance. ‘Instead of creating predictability, order, rationality and transparency in terms of rules, principles and approaches, this multiple classification results in the uneven treatment of individual countries’ (Alonso et al, 2014: 26). Not surprisingly, this has led to some skepticism and a lack of concrete action regarding SIDS – ‘no programme can be meaningful, operational and monitorable if it is not clear what specific countries are being considered’ (Hein, 2004: 16).

So, how might this situation be improved? While every classification comprises technical, political and ideological considerations (Fialho and van Bergeijk, 2017) it should not be impossible to develop either an improved broad all-purpose SIDS classification or a more targeted issues-based categorisation. Either way, the objective should be to increase homogeneity. Any classification system should be based on a transparent, data-driven methodology rather than on subjective judgment or ad hoc rules (Nielsen, 2011). ‘No category of countries will enjoy credibility, as a platform for advocacy, unless it is systematically defined’ (Hein, 2004: 97).

For the purposes of this exercise, sets of criteria are examined, with the aim of reducing or eliminating the inconsistency between the definition and the description of SIDS. In other words, taking a literal interpretation of SIDS, the meanings of *Small – Island – Developing - States* are investigated to assess whether useful criteria can be determined to provide a functional definition for SIDS.

---



## 4. Smallness

The name suggests that ‘smallness’ is a core characteristic of SIDS, but what does small mean? The issue of size, and how to define ‘small’ was identified in the UNCTAD (1974) report as a central question and remains an unresolved conceptual challenge today. A challenge complicated by the fact that smallness is a relative and not an absolute concept (Kakazu, 2007). Although the subject has been analysed for several years (de Vries, 1973; Kuznets, 1960; Scitovsky, 1960) no consensus has emerged. The end result, as Hein (2004: 16) notes, is a ‘debate bogged down due to persistent differences on how small should be defined’.

Various variables and thresholds for defining size have been proposed. Should size be thought of in geographic terms, demographic terms or economic terms? The most frequently suggested candidates for representative characteristics of ‘smallness’ are physical size (land area), population and GDP, or a combination of all three (Kakazu, 2007; Stoutenburg, 2015). UNCTAD (1974) identified six ‘basic indicators of developing island countries’: Total population; land territory (in square meters); inhabitants per square meter; GNP; GNP per capita; and GNP growth over a ten year period. Davenport (2002) argues in favour of also including share of world merchandise trade<sup>4</sup>. Srinivasan (1986) proposes that any definition of smallness should take into account a variety of factors including population, per capita income and income distribution. However, both Shand (1980) and Stoutenburg (2015) note that any of these indicators are arbitrary and there is no clear variable or cut-off point to designate size. Shand, also argues that GNP was probably the best indicator of smallness in terms of productive capacity, a view roundly rejected by UNCTAD (2016)<sup>5</sup>.

Despite all the choices available, the criterion that has been most widely used in the literature and in practice as a measure of country size is population (WTO, 2002). In fact, Guillaumont (2009) claims this is the most meaningful way to determine the size of a country<sup>6</sup>. The Commonwealth Secretariat proposed a threshold based on a population threshold of 1.5 million persons (Commonwealth Secretariat and World Bank, 2000). Others argue in favour of a five million threshold (Hein, 2004; Streeten, 1993; Collier and Dollar, 1999; Brautigam and Woolcock, 2001). In 2004, in the lead up to the 2005 United Nations Mauritius Conference on SIDS, UNCTAD formally defined ‘smallness’ as having a population less than five million persons’ (UNCTAD, 2004).

As population has been adopted by both UNCTAD and the Commonwealth Secretariat as the relevant criterion, albeit with different thresholds, it is interesting to test how representative that choice is. Using a single variable (population) simplifies matters, and as the data are easily available and updated regularly, the choice certainly qualifies as ‘pragmatic’. But it is clear from the literature that other variables have also been proposed, often in combination. For the purposes of analysis, a simple composite ‘smallness’ index has been constructed (see Table 4.1) to assess whether population is a robust basis for assessing whether a state qualifies as small or not. For the purposes of this analysis, only the 38 United Nations member states found on UN OHRLLS SIDS list have been included.

As noted above, land area, population and GDP are the variables most frequently cited as suitable criteria for defining smallness. Consequently, these are the three variables (area measured in km<sup>2</sup>; GDP in

<sup>4</sup> Given the importance of tourism and financial services to many SIDS, it is not clear why trade, if it were to be included as a defining variable, would only include merchandise trade.

<sup>5</sup> UNCTAD have developed a Productive Capacities Index to ensure that countries do not have to rely on GDP as a proxy for productive capacity.

<sup>6</sup> Although he does concede that smallness of physical area could be relevant to natural shocks, and that income per capita is most relevant for assessing economic consequences. And thus, we see that the concept of smallness is inseparable from vulnerability.

<sup>7</sup> “Smallness” is defined by UNCTAD in terms of population. A population ceiling of 5 million chosen to distinguish SIDS was justified as the median situation between two States with a sizeable population difference, one of which is well below five million people (Jamaica, with a population of 2.7 million people in 2015), while the other exceeds five million people by nearly two thirds (Papua New Guinea, with a population of 8.2 million people in 2015) (UNCTAD, 2017).

constant prices of 2015; and population) used to construct the smallness index presented in Table 4.1. Other suggested criteria, such as GDP per capita and share of global trade were not included, as they are not independent of the three core criteria already selected. The methodology used to compile the aggregate smallness index and to select a reasonable threshold is described in Appendix 2.

**Table 4.1** Composite SIDS Smallness Index (ranked by size)

UN SIDS	Area 2018 (sq. km)	GDP 2018 (Millions)	Population 2018 (Thousands)	TR_Area 2018	TR_GDP 2018	TR_Pop 2018	Smallness Index
Papua New Guinea	462,840	22,475	8,606	1.000	0.066	0.759	61
Singapore	719	337,919	5,758	0.002	1.000	0.508	50
Cuba	109,880	91,246	11,338	0.237	0.270	1.000	50
Dominican Republic	48,670	82,021	10,627	0.105	0.243	0.937	43
Haiti	27,750	8,703	11,123	0.060	0.026	0.981	36
Guyana	214,970	3,472	779	0.464	0.010	0.069	18
Suriname	163,820	4,722	576	0.354	0.014	0.051	14
Jamaica	10,990	14,818	2,935	0.024	0.044	0.259	11
Guinea-Bissau	36,130	1,224	1,874	0.078	0.003	0.165	8
Bahrain	778	34,277	1,569	0.002	0.101	0.138	8
Trinidad and Tobago	5,130	22,885	1,390	0.011	0.068	0.122	7
Mauritius	2,040	13,080	1,267	0.004	0.039	0.112	5
Timor-Leste	14,870	2,909	1,268	0.032	0.008	0.112	5
Fiji	18,270	5,239	883	0.039	0.015	0.078	4
Solomon Islands	28,900	1,177	653	0.062	0.003	0.057	4
Bahamas	13,880	11,998	386	0.030	0.035	0.034	3
Belize	22,970	1,794	383	0.050	0.005	0.034	3
Comoros	1,861	1,097	832	0.004	0.003	0.073	3
Cabo Verde	4,030	1,821	544	0.009	0.005	0.048	2
Maldives	300	4,989	516	0.001	0.015	0.045	2
Vanuatu	12,190	847	293	0.026	0.002	0.026	2
Barbados	430	4,850	287	0.001	0.014	0.025	1
Samoa	2,840	816	196	0.006	0.002	0.017	1
Saint Lucia	620	1,770	182	0.001	0.005	0.016	1
Sao Tome and Principe	960	345	211	0.002	0.001	0.018	1
Seychelles	460	1,620	97	0.001	0.005	0.008	0
Antigua and Barbuda	440	1,562	96	0.001	0.004	0.008	0
Grenada	340	1,125	111	0.001	0.003	0.010	0
Saint Vincent and the Grenadines	390	794	110	0.001	0.002	0.010	0
Kiribati	810	183	116	0.002	0.000	0.010	0
Micronesia (Federated States of)	700	329	113	0.001	0.001	0.010	0
Tonga	750	487	103	0.002	0.001	0.009	0
Dominica	750	526	72	0.002	0.001	0.006	0
Saint Kitts and Nevis	260	958	52	0.001	0.003	0.004	0
Marshall Islands	180	198	58	0.000	0.000	0.005	0
Palau	460	277	18	0.001	0.001	0.001	0
Nauru	20	115	11	0.000	0.000	0.001	0
Tuvalu	30	42	12	0.000	0.000	0.001	0

Source: Authors calculations - See Appendix 2

Based on the composite smallness index and applying a threshold of 35.6 as the cut-off for small (see Appendix 2), then five of the 38 UN-OHRLLS SIDS are excluded – Papua New Guinea, Singapore, Cuba, Dominican Republic and Haiti. This gives a similar result to applying a population threshold of five million persons.

---

## 5. Islands and Islandness

The Cambridge Dictionary defines an island as ‘a piece of land completely surrounded by water’<sup>8</sup>. Application of this definition would seem straightforward and uncontroversial and easy to apply. So much so, that UNCTAD (2017) argued that ‘islandness’ or ‘insularity’ was sufficiently straightforward a criterion, but in the case of SIDS, even the definition of an island is contested. As Kakazu (2007: 1) reminds us, ‘one is always troubled as to the definition and measurement of “island”’ when discussing the development of small island economies.

In fact, many argue that a key characteristic of islands is their vulnerability; environmentally, socially and economically (Jackson, 2008; Adrianto and Matsuda, 2004; Briguglio, 1995). While it is undeniable that islands are vulnerable and typically have less resources available than mainland countries, and are more prone to shortages, these features are not unique to islands and do not really help with their identification. Thus, from a statistical perspective, the simple dictionary definition, that an island is a piece of land completely surrounded by water, seems to be the most clear and useful for the purposes of definition and classification.

In classifying islands, the question is whether a geographic or physical definition of an island is sufficient or whether the more ambiguous concept of islandness should also be taken into consideration. This question becomes important, as do their inherent ambiguities, when several curiosities in the SIDS classification of islands are examined. Three special cases require some discussion: (1) mainland islands; (2) shared islands; and (3) connected islands.

### 5.1 Mainland Islands

The first and most obviously controversial issue is the classification of Guinea-Bissau in West Africa and Belize, Guyana and Suriname in Latin America as islands. From a geographical perspective, these states are quite obviously not islands. They are part of their respective continental landmasses and not surrounded by water. It is not clear why these states are classified as island States, nor is it clear how that categorization is seen as useful as it seems to undermine the logic and integrity of any SIDS classification. The argument is made that Belize, Guinea-Bissau, Guyana and Suriname are considered SIDS as they have low lying coastlines and are highly dependent on a few sources of income (UNDP, 2014). From a vulnerability and developmental perspective, these are serious and important issues. Nevertheless, this does not make them islands, and it is hard to justify, however ambiguous the concept, that islandness is a feature of these countries.

### 5.2 Shared Islands

Timor-Leste, Haiti, the Dominican Republic and Papua New Guinea all share an island. Timor-Leste shares the island of Timor with Indonesia; Haiti and the Dominican Republic share the island of Hispaniola; Papua New Guinea shares the island of New Guinea with Indonesia. Thus, the states in question are not completely surrounded by water. In the case of Timor-Leste, 26 per cent of its land boundary is a shared border with Indonesia; Haiti and Dominican Republic share a 376 km border, accounting for 18 and 23 per cent of their respective land boundaries. Fourteen per cent of Papua New Guinea’s frontier is shared land. Does sharing an island eliminate or even diminish the sensation or characteristics of islandness? The states in question remain dependent on shipping, and the vagaries of weather to trade, so perhaps not.

---

<sup>8</sup> Cambridge Dictionary: <https://dictionary.cambridge.org/dictionary/english/island>

---

### 5.3 Connected Islands

Singapore and Bahrain straddle another fault line of the islandness concept (Barter, 2006). Both states are geographically islands and are classified as such by the Dahl Island Directory<sup>9</sup> but both are connected to their continental mainlands, to Malaysia and Saudi Arabia, via causeways. Arguably these physical connections to their respective continental mainland must diminish, if not eliminate, their islandness. From a pragmatic point of view, the physical connections mean these islands are no longer reliant on maritime transport – this fact alone should surely reduce their islandness. From an economic perspective, it allows both territories to integrate their markets with their continental neighbours in a way that unconnected islands cannot. The causeways reduce the sense of remoteness and isolation. Thus, contrary to the assessment made for shared islands, in the case of connected islands, it is hard to conclude that islandness has not been diminished, if not eliminated altogether.

Using the dictionary definition of an island, a literal geographic assessment can be made (see Table 5.1). In this approach ‘mainland islands’, the first special case, are automatically disqualified as SIDS as they are not surrounded by water and form part of continental landmasses. The second special case, the case of ‘shared islands’, is less clear cut, even from a simple geographic perspective. The countries are located on territories surrounded by water, but they are not themselves entirely surrounded by water. However, from a practical point of view they could be considered islands<sup>10</sup>. ‘Connected islands’, the third special case, while located offshore, have connected to their respective continental mainland and are therefore disqualified. On this basis, Belize, Guinea-Bissau, Guyana and Suriname are disqualified as SIDS. Although Bahrain and Singapore in Asia are physically islands, they are disqualified as SIDS on the grounds that they are ‘connected islands’ and therefore do not experience islandness.

The geographic perspective does not, however, take into account the more nuanced perspective that islandness is a function of remoteness or isolation arising from being on an island. Remoteness or isolation is also an important dimension of vulnerability but is not always necessarily negative (see UNEP isolation indicator<sup>11</sup>). A standard dictionary definition of remoteness is typically comprised of two parts. The first focuses on physical distance (the geographic dimension). The second focuses on a lack of connection.

Consequently, there appear to be three important dimensions required for islandness: (1) the country must be an island - islandness can only be experienced on an island; (2) the island must be physically remote or isolated<sup>12</sup>; and (3) the country must be poorly connected<sup>13</sup>. Thus, it seems reasonable that some measure of remoteness could be used as a proxy for islandness. Given the wide interpretation that could be given to remoteness, the ‘*remoteness and landlockedness*’ sub-index used by the Committee for Development Policy (CDP) secretariat as part of the economic and environmental vulnerability index to assess LDC graduation, seems too narrow in scope<sup>14</sup> when applied in the context of SIDS. Therefore, a broader measure of remoteness has been constructed for the purposes of this analyses. The remoteness index presented in Table 5.1 is comprised of five sub-indices: distance to markets; distance to trading partners; maritime connectivity; air connectivity; and digital connectivity. The methodology used to

<sup>9</sup> <http://islands.unep.ch/isldir.htm>

<sup>10</sup> As there seems to be a general consensus across all classifications that Timor Leste, Haiti and the Dominican Republic are SIDS, a minimum threshold of 70 per cent of their frontier is coastline, could be set to ensure none of these states are disqualified, as their coastline account for between 74 and 82 per cent of the geographic frontier.

<sup>11</sup> <http://islands.unep.ch/indicat.htm#Isolation>

<sup>12</sup> This prompts a range of questions, not least - isolated from what? Nearest neighbour, nearest continent, nearest markets, main or potential trading partners. How far apart must you be to be considered physically remote – must an island be an offshore island before it can be considered remote?

<sup>13</sup> This too prompts questions. Physically connected by air or sea or virtually connected – or all three? Or could it mean connected politically – being a member of political alliances or trading blocks?

<sup>14</sup> The CDP Secretariat *Remoteness and landlockedness (REM)* sub-index is based on data for exports and imports and goods and services from UNSD and distance data from Centre d'Etudes Prospectives et d'Informations Internationales.

compile the remoteness index and select a statistically appropriate threshold are detailed in Appendix 4. The higher the index value, the lower the remoteness of the island.

Unlike for smallness, however, the statistical tests cannot provide a clear break in the distribution that would indicate a definitive threshold. There is a weak break at 62.8, which if used as a threshold of 62.8, would mean that three islands are not considered remote: Bahrain, Bahamas and Singapore. However, as this threshold is not robust, only the physical-geographic criterion of islandness is used. Consequently, only the two connected islands are disqualified on the basis of islandness.

**Table 5.1** Criteria of Islands and Islandness

SIDS	Islands				Islandness			Island and Islandness
	Special Case 1 - Mainland Islands	Special Case 2 - Shared islands	Special Case 3 - Connected islands	Island?	Islands	Remoteness	Islandness?	
Antigua and Barbuda	0	0	0	Y	1	55.0	Y	Y
Bahamas	0	0	0	Y	1	67.4	Y	Y
Barbados	0	0	0	Y	1	48.2	Y	Y
Cabo Verde	0	0	0	Y	1	43.5	Y	Y
Comoros	0	0	0	Y	1	18.7	Y	Y
Cuba	0	0	0	Y	1	34.6	Y	Y
Dominica	0	0	0	Y	1	51.0	Y	Y
Dominican Republic	0	1	0	Y	1	47.6	Y	Y
Fiji	0	0	0	Y	1	21.6	Y	Y
Grenada	0	0	0	Y	1	41.6	Y	Y
Haiti	0	1	0	Y	1	37.0	Y	Y
Jamaica	0	0	0	Y	1	43.0	Y	Y
Kiribati	0	0	0	Y	1	14.7	Y	Y
Maldives	0	0	0	Y	1	42.7	Y	Y
Marshall Islands	0	0	0	Y	1	23.4	Y	Y
Mauritius	0	0	0	Y	1	28.7	Y	Y
Micronesia (Federated States of)	0	0	0	Y	1	35.2	Y	Y
Nauru	0	0	0	Y	1	42.0	Y	Y
Palau	0	0	0	Y	1	45.4	Y	Y
Papua New Guinea	0	1	0	Y	1	29.7	Y	Y
Samoa	0	0	0	Y	1	17.5	Y	Y
Saint Kitts and Nevis	0	0	0	Y	1	57.6	Y	Y
Saint Lucia	0	0	0	Y	1	42.8	Y	Y
Saint Vincent and the Grenadines	0	0	0	Y	1	28.9	Y	Y
Sao Tome and Principe	0	0	0	Y	1	30.6	Y	Y
Seychelles	0	0	0	Y	1	38.3	Y	Y
Solomon Islands	0	0	0	Y	1	21.2	Y	Y
Trinidad and Tobago	0	0	0	Y	1	40.3	Y	Y
Vanuatu	0	0	0	Y	1	22.8	Y	Y
Timor-Leste	0	1	0	Y	1	31.0	Y	Y
Tonga	0	0	0	Y	1	20.0	Y	Y
Tuvalu	0	0	0	Y	1	22.9	Y	Y
Bahrain	0	0	1	N	0	62.8	N	N
Singapore	0	0	1	N	0	68.4	N	N
Belize	1	0	0	N				N
Guinea-Bissau	1	0	0	N				N
Guyana	1	0	0	N				N
Suriname	1	0	0	N				N

Source: Authors Calculations

Based on this analysis, combining measures of island and islandness, Bahrain, Belize, Guinea-Bissau, Guyana, Suriname and Singapore are disqualified as SIDS. No doubt more refined indices of remoteness could be developed, but it is unlikely they would materially alter the conclusion.

## 6. Development and/or Vulnerability

Many of the disagreements on which countries are SIDS centre on whether they are small, whether they are islands and whether they are states. The one area that is little discussed or contested in the literature is whether they are developing – here, there seems to be a high degree of consensus. This is perhaps not surprising however, as the United Nations M49 Standard Country or Area Codes for Statistical categorizes 183 countries or territories of the total 249 as developing<sup>15</sup>. All prospective SIDS are classified as developing according to M49, with the exceptions of Cyprus, Iceland and Malta.

As a criterion for identifying characteristics that are unique to SIDS this makes the M49 classification somewhat ineffective. A further weakness is that the M49 classification itself is not criterion based – there are no universally agreed concepts or definitions to determine if a state is developing or not. Rather, each international organisation classifies countries by development status on a different basis – but often simply by country self-selection. So, although widely used, the myriad classifications of development status suffer from a lack clarity with regard to their underlying rationale (Neilsen, 2011), as well as ambiguities and uncertainties regarding their actual significance and meaning (Hoffmeister, 2020).

But there are other perspectives. For example, the World Bank uses a criteria based classification based on income - GNI per capita (Serajuddin and Hamadeh, 2020)<sup>16</sup> <sup>17</sup>, where the low and middle income countries can be interpreted as developing and the high income countries as developed. On those grounds, the World Bank provides a classification for 55 of the 63 possible SIDS<sup>18</sup>. However, the World Bank themselves stopped using the ‘development’ classification in 2016 to avoid having to make such a distinction (Hoffmeister, 2020). The IMF employs a broader measure of economic development that also includes export diversification and the degree of integration into the global financial system (IMF, 2020)<sup>19</sup>.

Others argue that development means something more than having high income, such as freedom, as reflected in the capabilities that people achieve, as proposed by Sen (1999). The HDI<sup>20</sup>, based on Sen’s ‘capabilities approach’ (Ul Haq, 1995), enables classifying countries by development status taking into account three dimensions of human development: health, education and income. However, only 39 SIDS have a HDI<sup>21</sup>. Others have argued that development is a function of history, diversity, culture and politics (David, 2018; Piketty, 2014). In 1987, the WCED report ‘*Our common future*’, which became known as the Brundtland Report first, introduced the concept of sustainable development (Mazower, 2012).

This eventually led to the introduction of the 2030 Agenda, which arguably redefined the concept of development, introducing a much broader view that encompasses not just ending extreme poverty and eradicating hunger, but also fostering global prosperity in an economically and environmentally sustainable and equitable way (MacFeely, 2020). The Sustainable Development Solutions Network (SDSN)<sup>22</sup> development index could be used as it captures all dimensions of this broad concept of development. Unfortunately, only 21 of the prospective SIDS have sufficient data to allow an index value to be calculated<sup>23</sup>. Thus, for pragmatic reasons, the HDI or SDSN approaches cannot, for the time being, be used. UNCTAD (2017) to date, has defined ‘development’ from a SIDS perspective by combining GNI

<sup>15</sup> <https://unstats.un.org/unsd/methodology/m49/>

<sup>16</sup> The World Bank country classification divides the world into four categories: low income; lower-middle income; upper-middle income; and high income.

<sup>17</sup> Although the World Bank only classify 18 countries as SIDS from an IDA lending perspective.

<sup>18</sup> No income classification is calculated for Anguilla, Bonaire, Sint Eustatius and Saba, the Cook Islands, Martinique, Montserrat, Niue or Tokelau.

<sup>19</sup> The IMF also employs a binary country classification: Advanced economies; and emerging and developing economies.

<sup>20</sup> <http://hdr.undp.org/en/content/human-development-index-hdi>

<sup>21</sup> Non-availability of data is compounded by the fact that many of territories included in several of the SIDS lists are not sovereign states. The HDI provided an index in 2020 for all SIDS that are states, with two exceptions, of Nauru and Tuvalu.

<sup>22</sup> <https://www.unsdnsn.org/sdg-index-and-monitoring>

<sup>23</sup> Of course the non availability of data is compounded by the fact that many of territories included in several of the SIDS lists are not sovereign states, and so their statistics are incorporated into the estimates of their parent states.

per capita (as it is the most widely accepted indicator of living standards, as well as the first criterion for identifying LDCs) with the degree of economic vulnerability as measured by the economic vulnerability index (see below). This allows for the 'island paradox', where an island may be both simultaneously prosperous and highly vulnerable.

An examination of the literature suggests that development is not necessarily the key issue for SIDS, but rather vulnerability; both economic and environmental. As noted above, the Barbados Programme of Action identified SIDS as being particularly vulnerable to the climate crisis, noting they will be among the first and most impacted countries (UN-OHRLLS, 2015; OECD, 2018). Thus, from an analytical, and perhaps also a political perspective, the focus could perhaps be on small island vulnerable states (SIVS) or small island developing and vulnerable states (SIDVS).

Some of the most commonly identified characteristics of SIDS are their high vulnerabilities to external environmental and economic shocks (Herbert, 2019; OECD, 2018). But vulnerability is a complex, amorphous and multidimensional concept with different scientific communities and stakeholder groups defining it differently. In fact, Birkmann (2006) identified twenty-five commonly accepted definitions. But in broad terms, vulnerability refers to any condition or situation where people or communities, or their assets and livelihoods are susceptible to injury, loss, or disruption (Wisner, 2009). This loss or disruption could be the result of biophysical, socio-economic, political and environmental risks and hazards (Cutter, 1996).

In the context of small islands, Turvey (2007) argues there is no universally agreed definition, nor a clear conception of what vulnerability means. Wisner (2009) notes however, that from a SIDS perspective, vulnerability is often associated with climate, where vulnerability is viewed as the threats to 'human ecological systems and large-scale spatial collectivities'. Guillaumont (2009: 3) proposes that economic vulnerability is defined by 'the risk of a (poor) country seeing its development hampered by the natural or external shocks it faces'. He goes on to argue that two types of exogenous shock are relevant to vulnerability: (1) environmental or 'natural' shocks; and (2) external or economic shocks. He also proposes that vulnerability is measured by three components: (1) the size and frequency of the exogenous shock; (2) exposure to the shock; and (3) capacity or resilience to deal with the shock. Despite the lack of a robust theoretical grounding, Turvey (2007) proposes 12 economic, geographic and socio-political casual factors of vulnerability<sup>24</sup> assembled from her trawl of the literature.

From a UN perspective, in the context of LDCs, vulnerability is defined as the risk of being harmed by exogenous shocks. Furthermore, vulnerabilities will depend on the magnitude and frequency of shocks, on the structural characteristics of a country and a country's resilience, i.e. its capacity to deal with shocks (UNDESA, 2018). Today, the CDP compiles an economic and environmental vulnerability index (EVI)<sup>25</sup> as part of the assessment for LDC qualification and graduation, as high vulnerability is seen a major impediment to sustainable development.

According to Briguglio and Galea (2003) the idea for this economic vulnerability index dates back to 1985, originally to help explain the 'Singapore Paradox', where islands enjoying relatively high GDP per capita can be simultaneously economically vulnerable. The index was first constructed in the run-up to the 1994 Barbados Global Conference on the Sustainable Development of SIDS to highlight the repeated concerns expressed by SIDS about their high levels of vulnerability<sup>26</sup>. The subsequent *Barbados Programme of*

---

<sup>24</sup> These included, among others, 'locational' disadvantages and endangered zones. She also noted the importance of interpersonal forces on populations, the economy, on culture and the environment.

<sup>25</sup> Not to be confused with the EVI or environmental vulnerability index, compiled by the SOPAC (2004) et al.

<sup>26</sup> By 1988 their vulnerabilities were recognized and presented by UNCTAD to the expert meeting on Island Developing Countries, held in Malta in May 1988, the deliberations of which led to a UN resolution recognizing that in addition to the general problems faced by developing countries, island developing countries suffer additional handicaps arising smallness, remoteness, geographical dispersion, vulnerability to natural disasters and a highly limited internal market. However, prior to 1990, there was no attempt to compile a composite index of overall vulnerability. In 1992, UNCTAD organized the first-ever expert group meeting

*Action for the Sustainable Development of SIDS* (United Nations, 1994: para. 113), which was subsequently endorsed by the United Nations General Assembly (United Nations, 1995 and 1996), called for the development of a vulnerability index for SIDS that ‘integrate[s] ecological fragility and economic vulnerability’. On foot of this call, the United Nations began preliminary studies on the development of a vulnerability index (UNCTAD, 1997; UNDESA, 1997) with the Secretary-General reporting back in 1998 (United Nations, 1998). Of the conclusions and recommendations made, two were especially important. The report concluded that: the vulnerability referred to is structural vulnerability i.e. where factors are not under the control of national authorities when shocks occur; and the CDP could build specific composite vulnerability indices.

The subsequent ECOSOC resolution 1998/38 stressed the need for the CDP to undertake an assessment of the usefulness of a vulnerability index for SIDS as a ‘criterion for the designation of LDCs’. The following year, the CDP reported that they would take a development-based approach to vulnerability that aimed to reduce the impacts of poverty, population pressure and the economic forces of globalisation and environmental degradation. Vulnerability would be defined as ‘the risk of being negatively affected by unforeseen events’ (CDP, 1999: 13). They also noted some ‘ambiguity’ was attached to this concept.

In line with previous recommendations, the CDP felt that ‘structural’ rather than ‘conjunctural’ vulnerability should be emphasized. In conclusion, the committee recommended that an equal weighted composite EVI be constructed, comprised of five indicators: export concentration; instability of export earnings; instability of agricultural production; share of manufacturing and modern services in GDP; and population size. Thus, we see that although the origins of the EVI were associated with SIDS, its actual construction was designed (i.e. the selected indicators chosen) with the broader specificities of LDCs in mind<sup>27</sup>.

Over the years, the EVI has incorporated a number of refinements and minor amendments. The EVI was originally conceived as measuring the structural vulnerability of countries to economic and environmental shocks. In 2020, the economic vulnerability index was renamed economic and environmental vulnerability index but retained the abbreviation EVI. It is now conceptualized as the composite of an economic vulnerability index and an environmental vulnerability index (see Figure 6.1).

The economic vulnerability sub-index is made up of four indicators:

1. Share of agriculture, forestry and fishing in GDP;
2. Remoteness and landlockedness;
3. Merchandise export concentration; and
4. Instability of exports of goods and services.

The environmental vulnerability sub-index is also made up of four indicators:

1. Share of population in low elevated coastal zones;
2. Share of population living in drylands;
3. Instability of agricultural production; and
4. Victims of disasters.

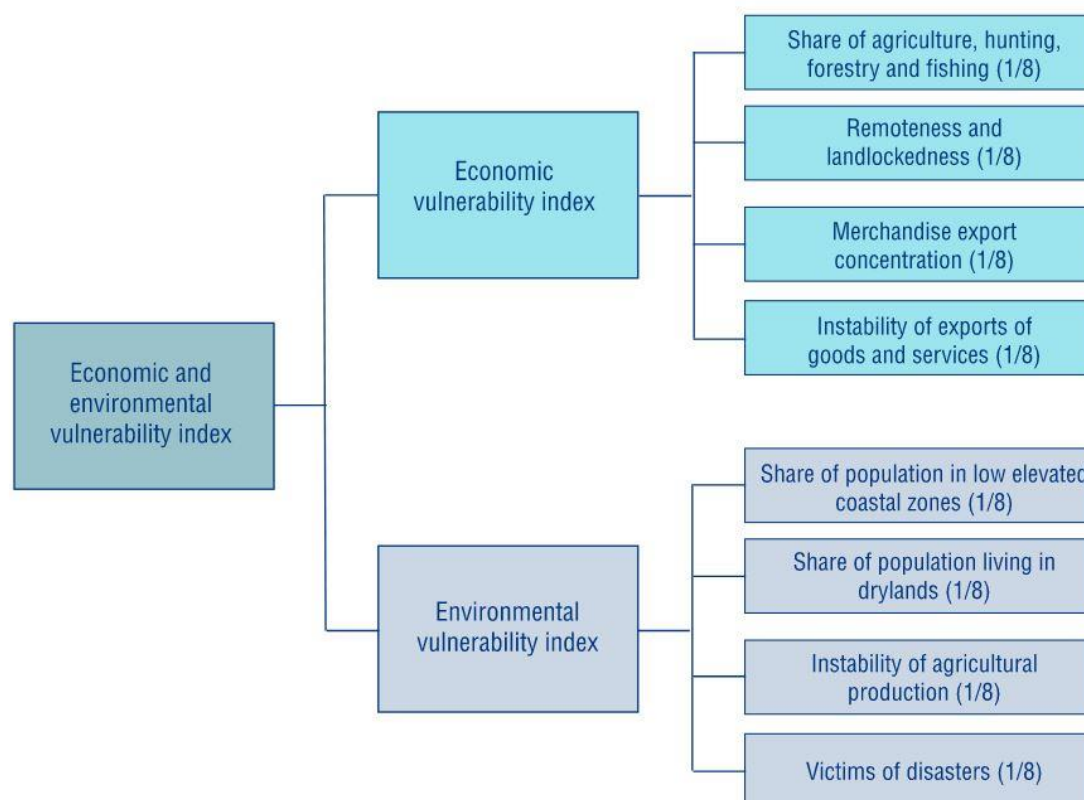
---

on the feasibility of measuring the vulnerabilities of SIDS. A study on this subject was commissioned by UNCTAD to examine the use which the United Nations could make of vulnerability indicators, either to highlight the fragility of SIDS as a category, or to guide national policymakers in their resilience-building action. This work was discussed at the 1994 Barbados Global Conference on the Sustainable Development of Small Island Developing States.

<sup>27</sup> Around the same time, Briguglio (2000) had proposed an EVI, also based on five indicators: Trade openness (export, imports or both as a ratio of GDP); Export concentration; Peripherality (transport and freight costs in relation to foreign trade); Energy dependence (imported energy as a ratio of energy consumed); and Financial dependence (aid or international debt as a ratio of GDP) to the International Conference on Sustainable Development for Island Societies, April 20-22, 2000 in Taiwan.

---

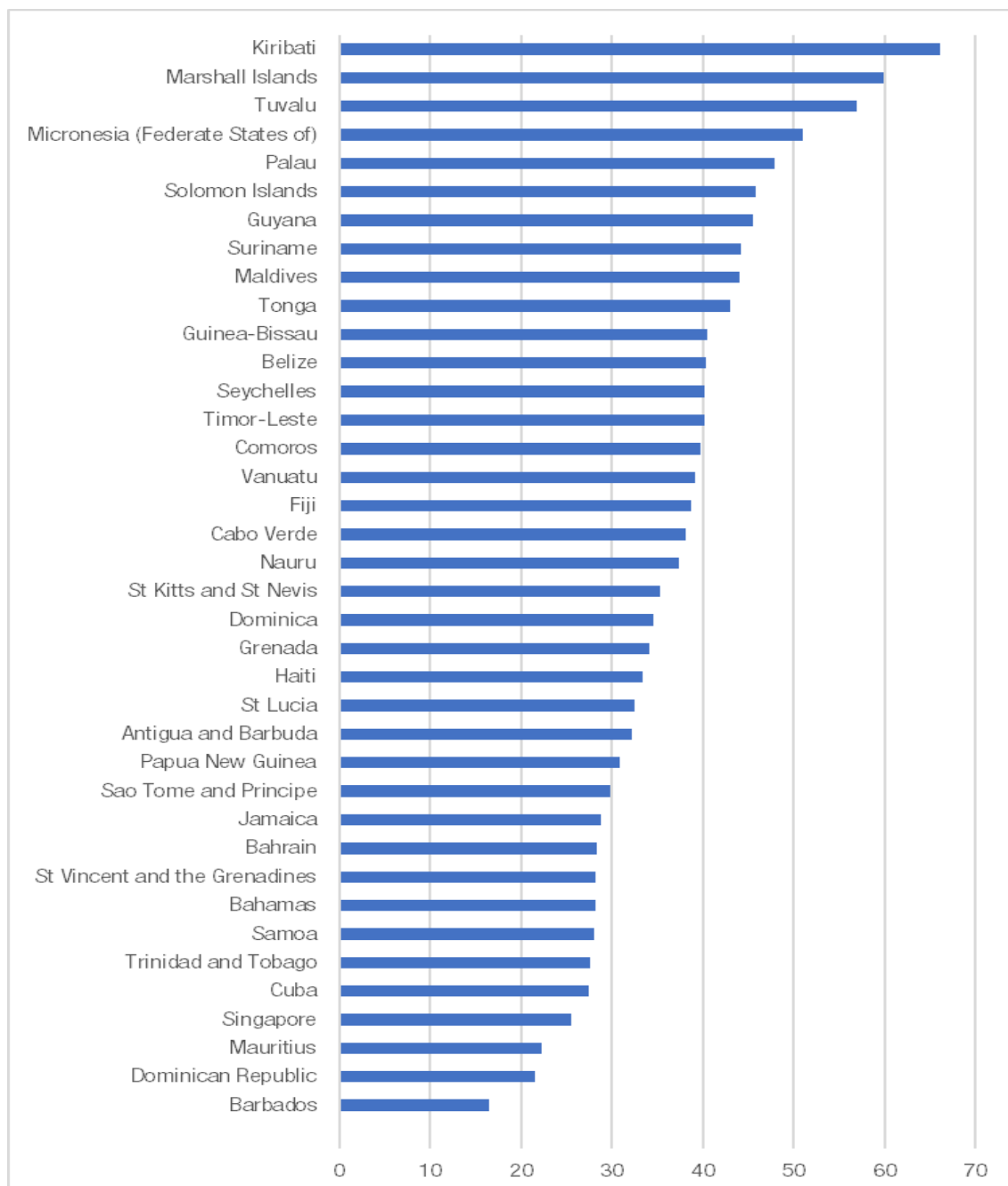


**Figure 6.1.** Updated Composition of the Economic Vulnerability Index

Source: CDP (2020)

A number of other changes were also made to the latest edition of the EVI. The indicator on population size was removed from the EVI, as small size does not directly measure an economic or environmental vulnerability. Specific economic and environmental vulnerabilities associated or compounded by population size are captured in some of the remaining EVI indicators. The economic vulnerability indicator 'remoteness' has been reconfigured 'remoteness and landlockedness' to better reflect the fact that the indicator accounts for specific challenges of LLDCs. The environmental vulnerability indicator 'victims of natural disasters' has been renamed 'victims of disasters' to better align it with common United Nations terminology and to highlight that disasters are not natural. To broaden the coverage of environmental vulnerabilities, the indicator 'share of population living in drylands' has been added to the EVI (CDP, 2020). In this updated of the EVI, all subindices are equally weighted.

Across SIDS, vulnerability as measured by the EVI varied quite considerably, ranging from Kiribati, the most vulnerable (66.1) to the least, Barbados (16.5), see figure 1.2. For LDC graduation in the 2021 triennial review, a threshold of 36 or greater qualifies a country as a LDC whereas a threshold of 32 or less is used as the graduation threshold. But it is not clear that these thresholds are appropriate for SIDS; nor is it clear that the existing EVI is sufficiently tailored to SIDS vulnerabilities, where size and isolation should be included or given more prominence. The risks or vulnerabilities associated with environmental and natural shocks (in particular rising sea levels and climate change) may also deserve more importance. A persistent problem across most of the different measures is poor coverage, which by necessity limits the sophistication and range of indicators included.

**Figure 6.2. EVI in the SIDS, 2020**

The UN M49 classification provides comprehensive coverage but provides limited useful guidance on what islands should be considered SIDS from a development perspective. The World Bank or IMF classifications also give comprehensive coverage, but only a narrow view of development. Richer perspectives of development, such as, the HDI or the SDSN development index do not yet provide sufficient coverage to be used from a SIDS perspective. Another approach is to focus on island vulnerabilities. As with development, there are several alternatives, but the CDP EVI seems to be a promising place to start. It addresses, to some extent at least, many of the vulnerabilities relevant to SIDS. With improved coverage and perhaps some modifications to more explicitly include some particular vulnerabilities relevant to SIDS, the EVI or an EVI+ could be used as the basis of a criterion-based approach to 'development and vulnerability'. Another approach might be to combine aspects of development and vulnerability, by using

---

all of the CDP indices: EVI, HAI and GNI. The new UNCTAD Productive Capacities Index (PCI) could also be factored in<sup>28</sup> for a richer perspective still.

## 7. States or Economies?

At the inception of the SIDS debate, the focus was on countries rather than on States, as independence or self-governance were not seen as important qualifying criteria, with the result that 64 islands were included for analytical considerations (UNCTAD, 1974). However, the report of the Global Conference on the Sustainable Development of SIDS (United Nations, 1994) makes it clear that thinking has evolved and that the importance of independence and sovereignty is now recognized as being centrally important. That realization has not been universally incorporated into all SIDS classifications, analyses and reports, with the result that the conceptualization of SIDS has been hampered by the interchangeable and loose use of terms such as ‘small island developing States’, ‘small and vulnerable economies’, ‘structurally weak, vulnerable, and small economies’ and back to ‘Small Island Developing States’. Not only does this give rise to a great deal of confusion, but this lack of consistency and clarity undermines the argument for a SIDS group (Hein, 2004).

The *Barbados Programme of Action* stressed the importance of statehood, emphasizing the importance of *sovereign* rights for SIDS. UNCTAD (2017) argues that ‘statehood’ is a straightforward notion designating self-governing entities as opposed to dependent or associated territories, i.e. states should be autonomous or self-governing<sup>29</sup>. If statehood is important, then presumably it should form part of the qualification criteria to become a SIDS. Using M49 as the reference frame, this would mean that all non-autonomous islands, such as, American Samoa, French Polynesia, the British and United States Virgin Islands, Puerto Rico and Sint Maarten would all be deemed ineligible and should not be described as SIDS. In most cases, this is indeed a simple and straight forward delineation. However, for the Cook Islands, Niue and Tokelau the situation is less clear-cut. These islands are formally defined as ‘States in free association with the Realm of New Zealand’ meaning they enjoy near-total autonomy: total autonomy in their domestic affairs but delegation of defense matters and foreign affairs to New Zealand. Consequently, although described as States, they are not fully independent (entirely self-governing). For consistency therefore, these islands were not classified as SIDS.

---

<sup>28</sup> <https://unctad.org/topic/least-developed-countries/productive-capacities-index>

<sup>29</sup> Some would argue that the concepts of statehood and sovereignty are anything but straightforward (Taylor, 2014).

---

---

## 8. Conclusion

In 1975, the ECOSOC (1975: 1) noted that ‘any attempt to draw up a list of geographically disadvantaged island countries would meet with major difficulties’, and so no attempt was made to do so. The result is that today there are multiple SIDS classifications in use. This abundance has been facilitated by ambiguous terminology and an unwillingness to define clearly what it means to be a SIDS.

Today, there is still no agreed universally agreed definition for SIDS, and as a result there are multiple SIDS classifications in use. This is problematic as it tolerates uncertainty and confusion and undermines coherent policy programming. It also represents a failure of international coordination and governance. The loose or heterogeneous nature of some SIDS classifications, some of which include territories that do not appear to belong in a group described as SIDS, has greatly reduced their usefulness. Worse, it has undermined the legitimacy and justification for such a SIDS group.

A good classification should be stable so that it can provide a platform to facilitate use. But any criteria should be periodically reviewed to consider changing priorities. The issues facing SIDS in today’s hyper-globalized, climate threatened world are not the same as the issues they faced back in 1972, when the justification for a SIDS group was first raised at the UNCTAD III conference. For example, vulnerability seems to be a more pressing issue now, as the risks are now understood to be more than just economic but include also environmental and climate related risks. So much so that perhaps the group should be reformulated as SIDVS or SIVS.

One of the challenges in defining SIDS and providing a meaningful, universally accepted classification is that SIDS is both a technical and political term. In this chapter, the concept of SIDS was explored from a statistical or analytical perspective. Taking a literal interpretation of SIDS, meaning that the countries included in the classification must be *Small – Island – Developing – States*, this chapter examined whether a criteria-based approach to conceptualizing SIDS is feasible. The analyses suggests that despite the ambiguities of smallness, islandness, development and vulnerability, and states, such a systematic approach is possible. Tentative results are presented in Table 8.1. The benefit of this approach is improved coherence, clarity and transparency.

As noted above, changes in criteria or in some cases, subtle changes in interpretation of criteria could yield different results. For example, one could argue that the Bahamas fails the remoteness criteria. Equally, a fractionally looser interpretation of ‘State’ would see the Cook Islands, Niue and Tokelau being included as SIDS. Therefore, as with any statistic, clear metadata should accompany all of the criteria and rules to ensure consistent and transparent application.

---

**Table 8.1** Eligible and Ineligible Islands

States / Countries / Economies	Small	Island	Developing	States	States / Countries / Economies	Small	Island	Developing	States
Qualified islands					Disqualified countries/territories				
Antigua and Barbuda	Y	Y	Y	Y	American Samoa	Y	Y	Y	N
Bahamas	Y	Y	Y	Y	Anguilla	Y	Y	Y	N
Barbados	Y	Y	Y	Y	Aruba	Y	Y	Y	N
Cabo Verde	Y	Y	Y	Y	Bahrain	Y	N	Y	Y
Comoros	Y	Y	Y	Y	Belize	Y	N	Y	Y
Dominica	Y	Y	Y	Y	Bermuda	Y	Y	Y	N
Fiji	Y	Y	Y	Y	Bonaire, sint Eustatius and Saba	Y	Y	Y	N
Grenada	Y	Y	Y	Y	British Virgin Islands	Y	Y	Y	N
Jamaica	Y	Y	Y	Y	Cayman Islands	Y	Y	Y	N
Kiribati	Y	Y	Y	Y	Commonwealth of Northern Marianas	Y	Y	Y	N
Maldives	Y	Y	Y	Y	Cook Islands	Y	Y	Y	N
Marshall Islands	Y	Y	Y	Y	Cyprus	Y	Y	N	Y
Mauritius	Y	Y	Y	Y	Cuba	N	Y	Y	Y
Micronesia (Federate States of)	Y	Y	Y	Y	Curacao	Y	Y	Y	N
Nauru	Y	Y	Y	Y	Dominican Republic	N	Y	Y	Y
Palau	Y	Y	Y	Y	French Polynesia	Y	Y	Y	N
Samoa	Y	Y	Y	Y	Guadeloupe	Y	Y	Y	N
Sao Tome and Principe	Y	Y	Y	Y	Guam	Y	Y	Y	N
St Kitts and Nevis	Y	Y	Y	Y	Guinea-Bissau	Y	N	Y	Y
St Lucia	Y	Y	Y	Y	Guyana	Y	N	Y	Y
St Vincent and the Grenadines	Y	Y	Y	Y	Haiti	H	Y	Y	Y
Seychelles	Y	Y	Y	Y	Iceland	Y	Y	N	Y
Solomon Islands	Y	Y	Y	Y	Malta	Y	Y	N	Y
Timor-Leste	Y	Y	Y	Y	Martinique	Y	Y	Y	N
Tonga	Y	Y	Y	Y	Montserrat	Y	Y	Y	N
Trinidad and Tobago	Y	Y	Y	Y	New Caledonia	Y	Y	Y	N
Tuvalu	Y	Y	Y	Y	Niue	Y	Y	Y	N
Vanuatu	Y	Y	Y	Y	Papua New Guinea	N	Y	Y	Y
					Puerto Rico	Y	Y	Y	N
					Singapore	N	N	Y	Y
					Sint Maarten	Y	Y	Y	N
					Suriname	Y	N	Y	Y
					Tokelau	Y	Y	Y	N
					Turks and Caicos Islands	Y	Y	Y	N
					US Virgin Islands	Y	Y	Y	N

---

## 9. References

Adrianto, L. and Matsuda, Y. (2004). Study on Assessing Economic Vulnerability of Small Island Regions. *Environment, Development and Sustainability*, Vol. 6, pp. 317 – 336.

Alonso, J. A., Cortez, A. L. and Klasen, S. (2014). LDC and other country groupings: How useful are current approaches to classify countries in a more heterogeneous developing world? CDP Background Paper No. 21 ST/ESA/2014/CDP/21. UN Department of Economic & Social Affairs. Available at: [https://www.un.org/en/development/desa/policy/cdp/cdp\\_background\\_papers/bp2014\\_21.pdf](https://www.un.org/en/development/desa/policy/cdp/cdp_background_papers/bp2014_21.pdf) (Last accessed 04.12.2020).

Barter, P.A. (2006). 'Central' Singapore Island, 'Peripheral' Mainland Johor: making the link. In Baldacchino, G. (ed.) *Bridging Islands: The Impact of Fixed Links* (Charlottetown: Acorn Press).

Birkmann J. (ed.) (2006) *Measuring Vulnerability to Natural Hazards – Towards Disaster Resilient Societies*. United Nations University Press, Tokyo.

Brautigam, D. and Woolcock, M. (2001). *Small States in a Global Economy: The Role of Institutions in Managing Vulnerability and Opportunity in Small Developing Countries*. United Nations University - World Institute for Development Economics Research, Discussion Paper 2001/37. July 2001. Available at: [https://www.researchgate.net/publication/23984844\\_Small\\_States\\_in\\_a\\_Global\\_Economy\\_The\\_Role\\_of\\_Institutions\\_in\\_Managing\\_Vulnerability\\_and\\_Opportunity\\_in\\_Small\\_Developing\\_Countries](https://www.researchgate.net/publication/23984844_Small_States_in_a_Global_Economy_The_Role_of_Institutions_in_Managing_Vulnerability_and_Opportunity_in_Small_Developing_Countries) (last accessed: 27.11.2020).

Briguglio, L. (1995). Small Island Developing States and Their Economic Vulnerabilities. *World Development*, Vol. 23, No. 9, pp. 1615 – 1632.

Briguglio, L. (2000). The Economic Vulnerability of Small Island Developing States. Presented to the International Conference on Sustainable Development for Island Societies, April 20-22, 2000 Taiwan. Available at: [https://www.um.edu.mt/library/oar/bitstream/123456789/63080/1/The\\_economic\\_vulnerability\\_of\\_small\\_island\\_developing\\_states.pdf](https://www.um.edu.mt/library/oar/bitstream/123456789/63080/1/The_economic_vulnerability_of_small_island_developing_states.pdf) (last accessed: 01.02.2021).

Briguglio, L. and Galea, W. (2003). Updating and Augmenting the Economic Vulnerability Index. Occasional Paper by the Islands and Small States Institute of the University of Malta. Available at: [https://www.researchgate.net/publication/239532719\\_Updating\\_the\\_economic\\_vulnerability\\_index](https://www.researchgate.net/publication/239532719_Updating_the_economic_vulnerability_index) (Last accessed: 17.12.2020).

Bruckner, M. (2013). Effectively addressing the vulnerabilities and development needs of small island developing States. UN DESA: CDP Background Paper No. 17 ST/ESA/2013/CDP/17. Available at: <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/CDP-bp-2013-17.pdf> (last accessed: 01.02.2021).

CDP (1999). Report on the first session (26-30 April 1999). Economic and Social Council Official Records, 1999, Supplement No.13 (E/1999/33). Available at: <https://www.un.org/esa/documents/ecosoc/docs/1999/e1999-33.htm> (Last accessed: 18.12.2020).

CDP (2020). Outcome of the comprehensive review of the LDC criteria. United Nations Committee for Development Policy, 31 March, 2020. Available at: <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-2020-Criteria-review-outcome.pdf> (Last accessed: 17.12.2020).

Collier, P. and Dollar, D. (1999). *Aid, Risk and Special Concerns of Small States*. World bank Development Research Group, The World Bank, February, 1999. Available at:

---

---

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.572.6802&rep=rep1&type=pdf> (Last accessed: 27.11.2020).

Commonwealth Secretariat and World Bank (2000). *Small States: Meeting Challenges in the Global Economy*. Report of the Commonwealth Secretariat-World Bank Joint Task Force on Small States. Commonwealth Secretariat, London: London. The World Bank, Washington D.C. Available at: <http://www.cpahq.org/cpahq/cpadocs/meetingchallengeinglobaleconomy1.pdf> (Last accessed: 27.11.2020).

Cutter, S. L. (1996). Societal Vulnerability to Environmental Hazards. *Progress in Human Geography*. Vol. 20, No. 4, pp. 529 – 539.

Davenport, M. (2001), A Study of Alternative Special and Differential Arrangements for Small Economies. Interim Report - A Study prepared for the Economic Affairs Division of the Commonwealth Secretariat. August 2001. Available at: <https://pdfs.semanticscholar.org/3543/db2c41656a228f0022787336ba793cc516f4.pdf> (Last accessed: 27.11.2020).

David, D. (2018). *The Almighty Dollar*. Elliot and Thompson Ltd, London.

De Vries, B.A. (1973). The Plight of Small Countries. *Finance and Development*, Vol. 10, No. 3, pp. 6-8.

Fialho, D. and Van Bergeijk, P. A. G. (2017). The Proliferation of Developing Country Classifications. *The Journal of Development Studies*. Vol. 53, No. 1, pp. 99–115.

Fry, G. (2019). *Framing the Islands: Power and Diplomatic Agency in Pacific Regionalism*. Australian National University Press – Pacific Series. Acton, Australia.

Guillaumont, P. (2008). An Economic Vulnerability Index: Its Design and Use for International Development Policy. Research Paper No. 2008/99. United Nations University – World Institute for Development Economics Research. Available at: <https://www.wider.unu.edu/sites/default/files/rp2008-99.pdf> (Last accessed: 17.12.2020).

Hartigan, J.A. (1975). *Clustering Algorithms*. John Wiley & Sons and Hoboken.

Hein, P. (2004). Small island developing States: origin of the category and definition issues. In UNCTAD (2004). *Is a special treatment of small island developing States possible?* UNCTAD/ALDC/2004/1. Available at: [https://unctad.org/system/files/official-document/ldc20041\\_en.pdf](https://unctad.org/system/files/official-document/ldc20041_en.pdf) (Last accessed: 27.11.2020).

Herbert, S. (2019). Development characteristics of Small Island Developing States. Knowledge, Evidence and Learning for Development. KD4 Helpdesk Report commissioned by the UK Department for International Development. Available at: [https://assets.publishing.service.gov.uk/media/5d554c0a40f0b6706d0d2faf/623\\_Development\\_Characteristics\\_of\\_Small\\_Island\\_Developing\\_States\\_Final.pdf](https://assets.publishing.service.gov.uk/media/5d554c0a40f0b6706d0d2faf/623_Development_Characteristics_of_Small_Island_Developing_States_Final.pdf) (Last accessed 15.12.2020).

Hoffmeister, O. (2020). Development Status as a Measure of Development. *Statistical Journal of the International Association of Official Statistics*, Vol.36, No.4, pp.1095-1128.

House, W. J. (2013). Population and Sustainable Development of Small Island Developing States: Challenges, Progress made and Outstanding Issues. United Nations Department of Economic and Social Affairs Population Division Technical Paper No. 2013/4. Available from: <https://www.un.org/en/development/desa/population/publications/pdf/technical/TP2013-4.pdf> (Last accessed: 18.12.2020).

---

---

IMF (2020). World Economic Outlook 2020: A long and difficult ascent. October 2020. Available at: <https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020> (Last accessed: 14.12.2020).

Jackson, R. E. (2008). Islands on the Edge: Exploring Islandness and Development in Four Australian Case Studies. Degree of Doctor of Philosophy - University of Tasmania, 2008. Available at: [https://eprints.utas.edu.au/7566/2/RJackson\\_Islands\\_on\\_the\\_Edge\\_2008\\_02whole.pdf](https://eprints.utas.edu.au/7566/2/RJackson_Islands_on_the_Edge_2008_02whole.pdf) (Last accessed: 03.12.2020).

Kakazu, H. (2007). Islands' Characteristics and Sustainability. SPF Seminar on Self-supporting Economy in Micronesia. 31 July 2007. Available at: <https://www.spf.org/yashinomi/pdf/pacific/economic/kakazu01.pdf> (Last accessed: 26.11.2020).

Kuznets, S. (1960). Economic Growth of Small Nations. In Robinson, E. A. G. (Ed.) The Economic Consequences of the Size of Nations: Proceedings of a Conference Held by the International Economic Association, Toronto: MacMillan. Available at: <https://journals.sagepub.com/doi/abs/10.1177/000271626133300131> (Last accessed: 27.11.2020).

MacFeely, S. (2020). Measuring the Sustainable Development Goal Indicators - An Unprecedented Statistical Challenge, *Journal of Official Statistics*, Vol 36, No.2, pp. 361-378.

MacQueen, J. B. (1967). Some Methods for classification and Analysis of Multivariate Observations, In Le Cam, L. E. and Neyman, J. (Eds). Proceedings of 5-th Berkeley Symposium on Mathematical Statistics and Probability, Vol. 5, pp. 281-297. *Berkeley, University of California Press*.

Mazower, M. (2012). *Governing the World - the History of an idea*. Allen Lane, Great Britain.

Nielsen, L. (2011). Classification of Countries Based on their Level of Development: How it is Done and How it Could be Done. IMF Working Paper WP/11/31. Available at: <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Classifications-of-Countries-Basedon-their-Level-of-Development-How-it-is-Done-and-How-it-24628> (Last accessed: 11.12.2020).

OECD (2018). *Making Development Co-operation Work for Small Island Developing States*. OECD, Paris.

OECD (2013). Classification. Glossary of Statistical Terms. Available at: <https://stats.oecd.org/glossary/detail.asp?ID=350> (Last accessed: 19.01.2021).

Piketty, T (2013). *Capital in the Twenty-First Century*. The Belknap Press of Harvard University Press, Cambridge MA.

Scitovsky, T. (1960). International Trade and Economic Integration as a Means of Overcoming the Disadvantage of a Small Nation. In Robinson, E. A. G. (Ed.) The Economic Consequences of the Size of Nations: Proceedings of a Conference Held by the International Economic Association, Toronto: MacMillan. Available at: <https://journals.sagepub.com/doi/abs/10.1177/000271626133300131> (Last accessed: 27.11.2020).

Sen, A. (1999). *Development as Freedom*. Anchor Books, New York.

Serajuddin, U. and Hamadeh, N. (2020). New World Bank country classifications by income level: 2020-2021. *World Bank Data Blog*, July 1, 2020. Available at: <https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2020-2021> (Last accessed: 14.12.2020).

Shand, R. T. (1980). Island Smallness: Some Definitions and Implications. In Shand R. T. (Ed.). *The island states of the Pacific and Indian Oceans: anatomy of development*. Development Studies Centre Monograph

---



---

No. 23. The Australian National University, Canberra 1980. Available at: [https://openresearch-repository.anu.edu.au/bitstream/1885/131347/1/DSC\\_monograph\\_23.pdf](https://openresearch-repository.anu.edu.au/bitstream/1885/131347/1/DSC_monograph_23.pdf) (Last accessed: 26.11.2020).

Shorrock S. Twelve Properties of Effective Classification Schemes. *Humanist Syst* 2018. Available at: <https://humanisticsystems.com/2018/08/31/twelve-properties-of-effective-classification-schemes> (last accessed: 19.01.2021).

South Pacific Applied Geoscience Commission (2004). The Environmental Vulnerability Index (EVI) 2004. SOPAC Technical Report 384. December 2004. Available at: <http://www.vulnerabilityindex.net/wp-content/uploads/2015/05/EVI%202004%20Technical%20Report.pdf> (Last accessed: 17.12.2020)

Srinivasan, T. N. (1986). The Costs and Benefits of Being a Small, Remote, Island Landlocked, or Ministate Economy. *World Bank Research Observer*, World Bank Group, Vol. 1, Issue 2, pp.205 – 218.

Streeten, P. (1993). The Special Problems of Small Countries. *World Development*, Vol. 21, No. 2, pp.197 - 202.

Stoutenburg, J. G. (2015). *Disappearing Island States in International Law*. Brill Nijhoff, Leiden and Boston.

Taylor, C. R. (2014). A modest proposal: Statehood and Sovereignty in a global age. *Penn law: Legal Scholarship Repository*. Available at: <https://scholarship.law.upenn.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1431&context=jil> (Last accessed: 19.01.2021).

Turvey, S. (2007). Vulnerability Assessment of Developing Countries: The Case of Small-Island Developing States. *Development Policy Review*, Vol. 25, No. 2, pp. 243-264.

UI Haq, M. (1995). *Reflections on Human Development*. Oxford University Press Inc. New York.

United Nations (1992). *Agenda 21 - Report of the United Nations Conference on Environment and Development*. Rio de Janeiro, Brazil, 3 to 14 June 1992. Volume I Resolutions Adopted by the Conference. A/CONF.151/26/Rev.I (Vol. I). New York. Available at: [https://undocs.org/en/A/CONF.151/26/Rev.1\(vol.I\)](https://undocs.org/en/A/CONF.151/26/Rev.1(vol.I)) (Last accessed: 15.01.2021).

United Nations (1994). *Report of the Global Conference on the Sustainable Development of Small Island Developing States*. Bridgetown, Barbados, 26 April-6 May 1994. A/CONF.167/9. Available at: <https://undocs.org/en/A/CONF.167/9> (Last accessed: 12.01.2021).

United Nations (1995). *Global Conference on the Sustainable Development of Small Island Developing States*. Resolution 49/122 adopted by the United Nations General Assembly. A/RES/49/122 - 27 February 1995. Available at: <https://undocs.org/en/A/RES/49/122> (Last accessed: 18.12.2020).

United Nations (1996). *Implementation of the outcome of the Global Conference on the Sustainable Development of Small Island Developing States*. Resolution 50/116 adopted by the United Nations General Assembly. A/RES/50/116 - 16 February 1996. Available at: <https://undocs.org/en/A/RES/50/116> (Last accessed: 18.12.2020).

United Nations (1998). *Development of a vulnerability index for small island developing States*. Report of the Secretary-General to the 53<sup>rd</sup> session of the General Assembly Economic and Social Council. A/53/65 – E/1998/5 - 6 February 1998. Available at: <https://digitallibrary.un.org/record/251034?ln=en#record-files-collapse-header> (Last accessed: 18.12.2020).

United Nations (2010). *Outcome document of the High-level Review Meeting on the Implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable*

---

---

Development of Small Island Developing States. Resolution 65/2 adopted by the General Assembly on 25 September 2010. A/RES/65/2. Available at:

[https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/65/2&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/65/2&Lang=E) (Last accessed: 12.01.2021).

United Nations (2014a). SIDS Accelerated Modalities of Action (SAMOA) Pathway. Resolution 69/15 adopted by the General Assembly on 14 November 2014. A/RES/69/15. Available at:

[https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/69/15&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/69/15&Lang=E) (Last accessed: 13.01.2021).

United Nations (2014b). International Year of Small Island Developing States. Available at: <https://www.un.org/en/events/islands2014/#&panel1-1> (Last accessed: 30.04.2021).

United Nations (2015a). Transforming our world: the 2030 Agenda for Sustainable Development. Resolution 70/1 adopted by the General Assembly on 25 September 2015. A/RES/70/1. Available at:

[https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E) (Last accessed: 14.01.2021).

United Nations (2015b). Sendai Framework for Disaster Risk Reduction 2015 – 2030. Available at: [https://www.preventionweb.net/files/43291\\_sendaiframeworkfordrren.pdf](https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf) (Last accessed: 01.02.2021).

United Nations (2018). UN Statistics Quality Assurance Framework - including a Generic Statistical Quality Assurance Framework for a UN Agency. Available at: <https://unstats.un.org/unsd/unsystem/documents/UNSQAF-2018.pdf> (Last accessed: 19.01.2021).

United Nations Conference on Trade and Development (1972). Report of the 6<sup>th</sup> Committee. In Proceedings of the 3<sup>rd</sup> session of the United Nations Conference on Trade and Development, Santiago de Chile, 13 April – 21 May 1972. TD/180, Vol. 1.

United Nations Conference on Trade and Development (1974). Developing Island Countries: Report of the Panel of Experts. United Nations, New York. Available at:

<https://digitallibrary.un.org/record/525741?ln=en> (Last accessed: 25.11.2020).

United Nations Conference on Trade and Development (1997). The Vulnerability of Small Island Developing States in the context of Globalisation: Common Issues and Remedies. Report prepared for the Expert Group on Vulnerability Index. UN(DESA), 17-19 December 1997.

United Nations Conference on Trade and Development (2004). Is a special treatment of SIDS possible? UNCTAD/LDC/2004/1. New York and Geneva. Available at: [https://unctad.org/system/files/official-document/ldc20041\\_en.pdf](https://unctad.org/system/files/official-document/ldc20041_en.pdf) (Last accessed: 30.11.2020).

United Nations Conference on Trade and Development (2016). Benchmarking Productive Capacities in Least Developed Countries. United Nations, Geneva. Available at: [https://unctad.org/system/files/official-document/webaldc2015d9\\_en.pdf](https://unctad.org/system/files/official-document/webaldc2015d9_en.pdf) (Last accessed: 01.11.2020).

United Nations Conference on Trade and Development (2017). UNCTAD activities in support of small island developing States. Note by the UNCTAD secretariat to the 64<sup>th</sup> session of the Trade and Development Board – TD/B/64/9. Available at: [https://unctad.org/system/files/official-document/tdb64d9\\_en.pdf](https://unctad.org/system/files/official-document/tdb64d9_en.pdf) (Last accessed: 25.11.2020).

United Nations Department of Economic and Social Affairs (1997). Vulnerability Index: Revised Background Paper. United Nations Department of Economic and Social Affairs, June 1997.

---

---

United Nations Department of Economic and Social Affairs (1999). Special Session of the United Nations General Assembly on Small Island Developing States. New York, 27-28 September 1999. Available at: <https://www.un.org/esa/sustdev/sids/sidsspec.htm> (Last accessed: 13.01.2021).

United Nations Economic and Social Council, Special Economic Problems and Development (1975). Needs of Geographically More Disadvantaged Developing Island Countries, E/5647, New York: ECOSOC, 27 March 1975.

UN ECOSOC (1998). Status of the Least Developed Countries. Resolution 1998/39. Resolutions and Decisions of the Economic and Social Council – Supplement No. 1. E/1998/39. Available at: <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/ECOSOC-1998-39-E.pdf> (Last accessed: 18.12.2020).

UN-OHRLLS (2015). Small Island Developing States in Numbers - Climate Change Edition 2015. UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States. Available at: [https://sustainabledevelopment.un.org/content/documents/2189SIDS-IN-NUMBERS-CLIMATE-CHANGE-EDITION\\_2015.pdf](https://sustainabledevelopment.un.org/content/documents/2189SIDS-IN-NUMBERS-CLIMATE-CHANGE-EDITION_2015.pdf) (Last accessed: 22.12.2020).

UNDESA (2018). Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures - Third Edition. Committee for Development Policy and United Nations Department of Economic and Social Affairs. United Nations, New York. Available at: <https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/2018CDPhandbook.pdf> (last accessed: 17.12.2020).

UNDP (2014). Report on SIDS discussion from Civil Society Organizations – Input for the third UN SIDS Conference in Samoa – 6 August 2014.

World Trade Organization (2002). Small Economies: A Literature Review. Note by the Secretariat to the Committee on Trade and Development. WT/COMTD/SE/W/4. 23 July 2002. Available at: [https://docs.wto.org/dol2fe/Pages/FE\\_Search/FE\\_S\\_S009-DP.aspx?language=E&CatalogueIdList=33315,110166,28740&CurrentCatalogueIdIndex=1&FullTextHas h=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=33315,110166,28740&CurrentCatalogueIdIndex=1&FullTextHas h=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True) (Last accessed: 27.11.2020).

Wisner, B. (2009). Vulnerability. In Kitchen, B. and Thrift, N. (Eds.). International Encyclopedia of Human Geography. Elsevier. pp. 176-182.

---

## Appendix 1 – A comparison of different SIDS classifications

States / Countries / Economies	UN OHRLLS	M49	UNESCO	AOSIS	OECD (DAC recipients)	SSF (Islands)	UNCTAD	World Bank (IDA)
American Samoa	1	1	-	1	-	-	-	-
Anguilla	1	1	1	-	-	-	-	-
Antigua and Barbuda	1	1	1	1	1	1	1	-
Aruba	1	1	1	-	-	-	-	-
Bahamas	1	1	1	1	-	1	1	-
Bahrain	1	-	-	-	-	1	-	-
Barbados	1	1	1	1	-	1	1	-
Belize	1	1	1	1	1	-	-	-
Bermuda	1	-	-	-	-	-	-	-
Bonaire, sint Eustatius and Saba	-	1	-	-	-	-	-	-
British Virgin Islands	1	1	1	1	-	-	-	-
Cabo Verde	1	1	1	1	1	1	1	1
Cayman Islands	1	-	1	-	-	-	-	-
Comoros	1	1	1	1	1	1	1	1
Commonwealth of Northern Marianas	1	1	-	-	-	-	-	-
Cook Islands	1	1	1	1	1	-	-	-
Cuba	1	1	1	1	1	-	-	-
Curacao	1	1	1	1	-	-	-	-
Cyprus	-	-	-	-	-	1	-	-
Dominica	1	1	1	1	1	1	1	1
Dominican Republic	1	1	1	1	1	-	-	-
Fiji	1	1	1	1	1	1	1	1
French Polynesia	1	1	-	-	-	-	-	-
Grenada	1	1	1	1	1	1	1	1
Guadeloupe	1	-	-	-	-	-	-	-
Guam	1	1	-	1	-	-	-	-
Guinea-Bissau	1	1	1	1	1	-	-	-
Guyana	1	1	1	1	1	-	-	1
Haiti	1	1	1	1	1	-	-	-
Iceland	-	-	-	-	-	1	-	-
Jamaica	1	1	1	1	1	1	1	-
Kiribati	1	1	1	1	1	1	1	1
Maldives	1	1	1	1	1	1	1	-
Malta	-	-	-	-	-	1	-	-
Marshall Islands	1	1	1	1	1	1	1	1
Martinique	1	-	-	-	-	-	-	-
Mauritius	1	1	1	1	1	1	1	-
Micronesia (Federated States of)	1	1	1	1	1	1	1	1
Montserrat	1	1	1	-	1	-	-	-
Nauru	1	1	1	1	1	1	1	-
New Caledonia	1	1	1	-	-	-	-	-
Niue	1	1	1	1	1	-	-	-
Palau	1	1	1	1	1	1	1	-
Papua New Guinea	1	1	1	1	1	-	-	-
Puerto Rico	1	1	-	1	-	-	-	-
St Kitts and St Nevis	1	1	1	1	-	1	1	-
St Lucia	1	1	1	1	1	1	1	1
St Vincent and the Grenadines	1	1	1	1	1	1	1	1
Samoa	1	1	1	1	1	1	1	1
Sao Tome and Principe	1	1	1	1	1	1	1	1
Seychelles	1	1	1	1	1	1	1	-
Singapore	1	1	1	1	-	-	-	-
Sint Maarten	1	1	1	-	-	-	-	-
Solomon Islands	1	1	1	1	1	1	1	1
Suriname	1	1	1	1	1	-	-	-
Timor-Leste	1	1	1	1	1	1	1	1
Tonga	1	1	1	1	1	1	1	1
Tokelau	-	-	1	-	-	-	-	-
Trinidad and Tobago	1	1	1	1	-	1	1	-
Turks and Caicos Islands	1	-	-	-	-	-	-	-
Tuvalu	1	1	1	1	1	1	1	1
US Virgin Islands	1	1	-	-	-	-	-	-
Vanuatu	1	1	1	1	1	1	1	1
<b>Total</b>	<b>58</b>	<b>53</b>	<b>48</b>	<b>44</b>	<b>35</b>	<b>32</b>	<b>28</b>	<b>18</b>

Small States Forum - <http://pubdocs.worldbank.org/en/340031539197519098/World-Bank-Support-to-Small-States-booklet.pdf>

M49 - <https://unstats.un.org/unsd/methodology/m49/>

IDA - Borrowing on small economy terms - <https://ida.worldbank.org/about/borrowing-countries>

UN OHRLLS <http://unohrlls.org/about-sids/country-profiles/>

UNESCO <https://en.unesco.org/sids/about#list>

AOSIS <https://www.aosis.org/member-states/pacific-ocean/>

## Appendix 2 – Compiling a Smallness index

This technical note describes the data and steps taken to compile the smallness index (SI). Definitions for each indicator included are listed, together with the calculation method, the unit of measurement, the transformation, and the source. Technical proposals to identify the ‘statistical’ threshold for the smallness index are also discussed as well.

### A2.1 Smallness Index - Compilation

To construct the SI, three indicators were selected, namely *Area measured in (sq. km)*, *GDP measured in (Millions Constant prices 2015)* and *population measured in (Thousands)*. As outlined in the main text, these three indicators are the considered to be the most relevant for determining smallness. 2018 data were the latest available for the 3 variables, for all 47 countries for which the index was compiled, except for ‘Area’ where the latest data available for Curaçao and Sint Martin were 2017. In general, it is unlikely that area will change significantly over the course of a year, this should not be problematic.

For comparison and consistency purposes, the index was also compiled for the 38 UN member states of the UNOHRLLS classification, which is the more relevant list as it includes only states. No imputation has been carried out.

**Table A2.1** Smallness Index Variables (2018)

Indicator	Min	Max
GDP (USD <i>Millions, Constant Prices 2015</i> )	42.0	337.9
Area ( <i>sq. Km</i> )	20.0	462.8
Population ( <i>Thousands</i> )	11.0	11.3

Source: Data for GDP and population are derived from UNCTADStat; Area from World Bank.

Table A2.1 presents the extreme admissible values of the three selected variables. Tuvalu recorded the minimal GDP value. However, Nauru had the minimal value for both area and population variables. Maximal value for GDP, area and population are observed respectively for Singapore, Papua New Guinea and Cuba. A point to be noted here is that although the range of the extreme values is large, there were no outliers detected for GDP and area variables. Only population values for Cuba, Dominican Republic and Haiti have been detected as outliers, by the z-score technique.

To ensure the variables used to compile the SI were harmonized and comparable, a normalization procedure was undertaken (OECD, 2008). It also helped having indicators that are mathematically operational in aggregation. The three variables were standardized using both Z-score and min-max procedures. Both procedures provided almost identical results. For this appendix the min-max technique is outlined. Minimum and maximum values were set in order to transform the variables expressed in different units into indices between 0 and 1 (see equation 1).

$$I_{norm} = \frac{x_{ij} - \min_j(x_i)}{\max_j(x_i) - \min_j(x_i)} \times 100 \quad (\text{equation 1})$$

Where:

$x_{ij}$  is the raw data of indicator  $i$  and country  $j$ .

$I_{norm}$  refers to the transformed indicator.

The smallness index was compiled as the arithmetic average of the transformed indicators (see equation 2). This aggregation procedure was selected for its simplicity. It is worth noting that the index was slightly distorted owing to Papua New Guinea, Singapore and Cuba for which values were identified as outliers. However, the index was stable (see stability section).

$$SI = \text{Average}(GDP_{norm}, Area_{norm}, Population_{norm}) \quad (\text{equation 2})$$

## A2.2 Smallness Index - Threshold

To avoid setting arbitrary threshold values, data distribution analyses were performed to determine where the most appropriate 'statistical' threshold should be set. To present the *shape* of the data distribution, which indicates how the values are typically spread, different methods based on quantiles and Lorenz curve (and an additional variant of Lorenz curve) were performed (Hartigan et al., 1975; MacQueen, 1967).

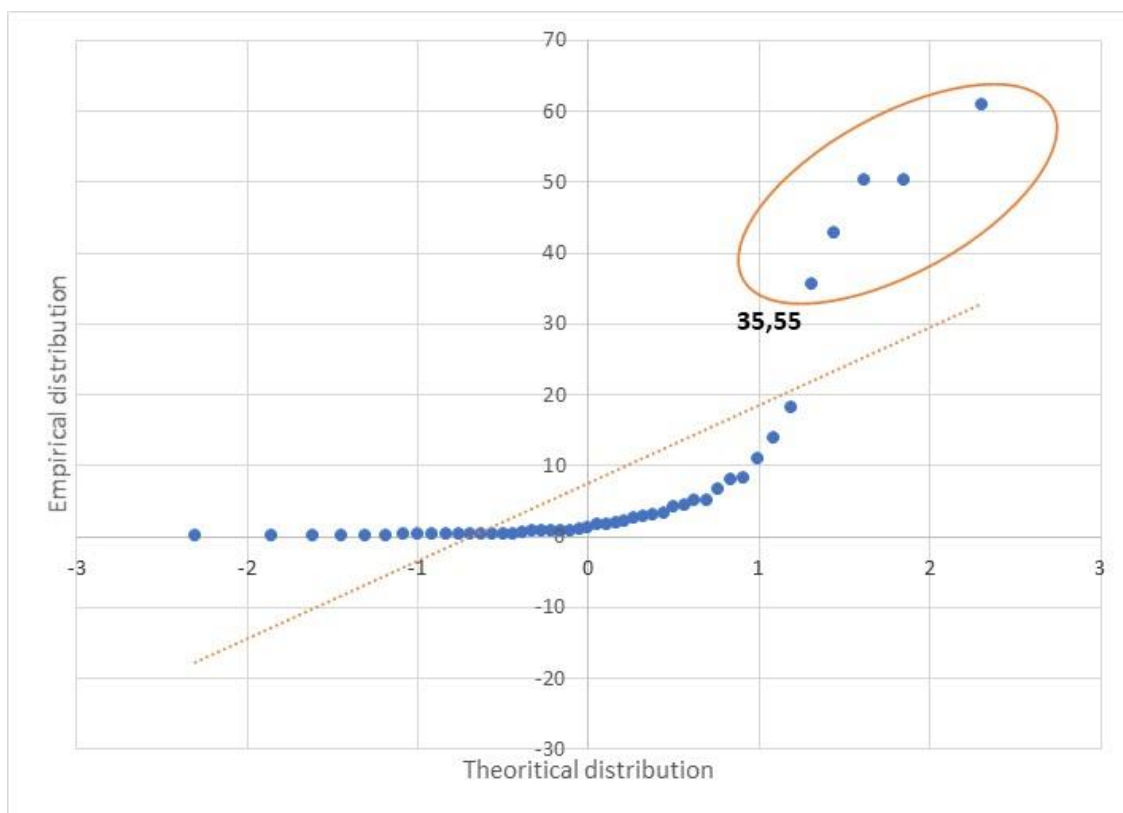
## A2.3 Quantile-Quantile Probability Plot

To identify a break point in the distribution, a quantile-quantile plot (Q-Q plot) can be employed to compare ordered values of the variable with quantiles of a specified theoretical distribution, such as, the normal distribution. Where the data distribution match the theoretical distribution, the points on the plot form a linear pattern. The plot compares the ordered values of distance with quantiles of the normal distribution. First, the  $n$  non-missing values of the variable are ordered from smallest to largest such as:

$$x_1 < x_2 < \dots < x_n$$

Then the  $i^{th}$  ordered value  $x_i$  is represented on the plot by a point whose y-coordinate is  $x_i$  and whose x-coordinate represents the Z-values of standard normal distribution.

The results of the Q-Q plot are presented in Figure A2.1.

**Figure A2.1.** Quantile-Quantile Plot of Smallness Index Distribution

Each point on the blue plot indicates observed values which lie in a particular quantile. The straight orange line represents the plot between the theoretical values and the theoretical quantiles. Theoretical values are calculated by multiplying theoretical quantiles (z-score) with the standard deviation and then adding the value at 50th percentile, which is the mean:

$$x = \mu + (z * \sigma) \quad (\text{equation 3})$$

Where:

$\mu$  is the mean of the distribution and  $\sigma$  is the standard deviation of the distribution.

Table A2.2 presents the Q-Q plot data, namely the percentiles, theoretical quantile and ordered observed SI.

**Table A2.2** Quantile-Quantile Data

Country / Territory	Rank	Percentile	Theoretical Quantile	Observed SI
Tuvalu	1	0.01	-2.30	0.03
Nauru	2	0.03	-1.85	0.03
Palau	3	0.05	-1.61	0.10
Sint Maarten (Dutch part)	4	0.07	-1.44	0.18
Marshall Islands	5	0.10	-1.31	0.19
British Virgin Islands	6	0.12	-1.19	0.22
Saint Kitts and Nevis	7	0.14	-1.09	0.26
Turks and Caicos Islands	8	0.16	-1.00	0.27
Dominica	9	0.18	-0.91	0.31
Tonga	10	0.20	-0.83	0.40
Micronesia (Federated States of)	11	0.22	-0.76	0.40
Kiribati	12	0.24	-0.69	0.41
Saint Vincent and the Grenadines	13	0.27	-0.63	0.42
Grenada	14	0.29	-0.56	0.45
Antigua and Barbuda	15	0.31	-0.50	0.46
Seychelles	16	0.33	-0.44	0.47
Aruba	17	0.35	-0.38	0.62
Sao Tome and Principe	18	0.37	-0.33	0.71
Cayman Islands	19	0.39	-0.27	0.71
Saint Lucia	20	0.41	-0.21	0.74
Curaçao	21	0.44	-0.16	0.80
Samoa	22	0.46	-0.11	0.85
Bermuda	23	0.48	-0.05	1.08
Barbados	24	0.50	0.00	1.34
French Polynesia	25	0.52	0.05	1.65
Vanuatu	26	0.54	0.11	1.81
Maldives	27	0.56	0.16	2.02
Cabo Verde	28	0.59	0.21	2.06
Comoros	29	0.61	0.27	2.68
Belize	30	0.63	0.33	2.95
New Caledonia	31	0.65	0.38	3.06
Bahamas	32	0.67	0.44	3.31
Solomon Islands	33	0.69	0.50	4.11
Fiji	34	0.71	0.56	4.42
Timor-Leste	35	0.73	0.63	5.08
Mauritius	36	0.76	0.69	5.15
Trinidad and Tobago	37	0.78	0.76	6.70
Bahrain	38	0.80	0.83	8.04
Guinea-Bissau	39	0.82	0.91	8.22
Jamaica	40	0.84	1.00	10.87
Suriname	41	0.86	1.09	13.95
Guyana	42	0.88	1.19	18.11
Haiti	43	0.90	1.31	35.55
Dominican Republic	44	0.93	1.44	42.83
Cuba	45	0.95	1.61	50.24
Singapore	46	0.97	1.85	50.31
Papua New Guinea	47	0.99	2.30	60.85



## A2.4 Lorenz Curve Probability Plot

The Lorenz curve is a probability plot (P-P plot) which compares the distribution of a variable against a hypothetical uniform distribution of that variable. The Lorenz curve plots cumulative population shares, on the x-axis, against the cumulative shares of the SI which they account, on the y-axis. For the construction of the Lorenz curve, the countries are ordered with reference to their SI, so that

$$\frac{x_i}{p_i} \geq \frac{x_{i-1}}{p_{i-1}} \text{ for all } i \in \{2, 3, \dots, n\}$$

Where:

$x_i$  is the smallness index and  $p_i$  the population of the country at the  $i^{\text{th}}$  position in this ranking, counted from below.

The cumulative population shares, measured on the x-axis, are calculated as:

$$P_i = \sum \frac{p_i}{p}$$

where  $P = p_1 + p_2 + \dots + p_n$

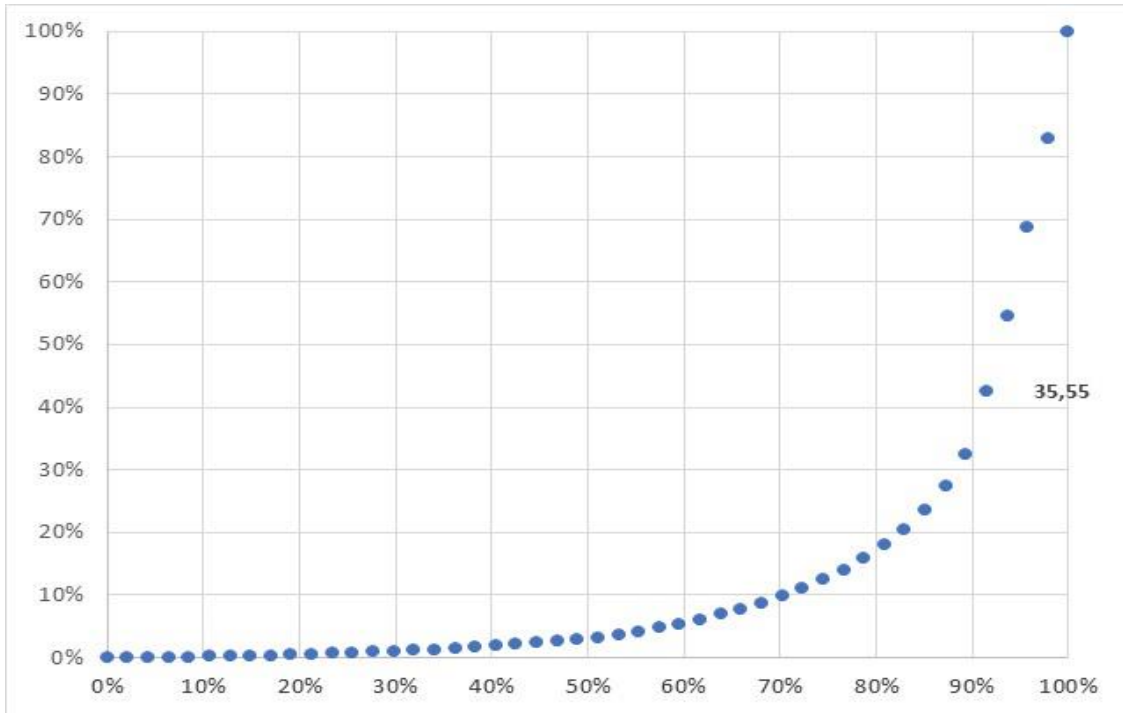
The cumulative shares of smallness index, measured on the y-axis, are calculated as follows:

$$X_i = \sum \frac{x_i}{x}$$

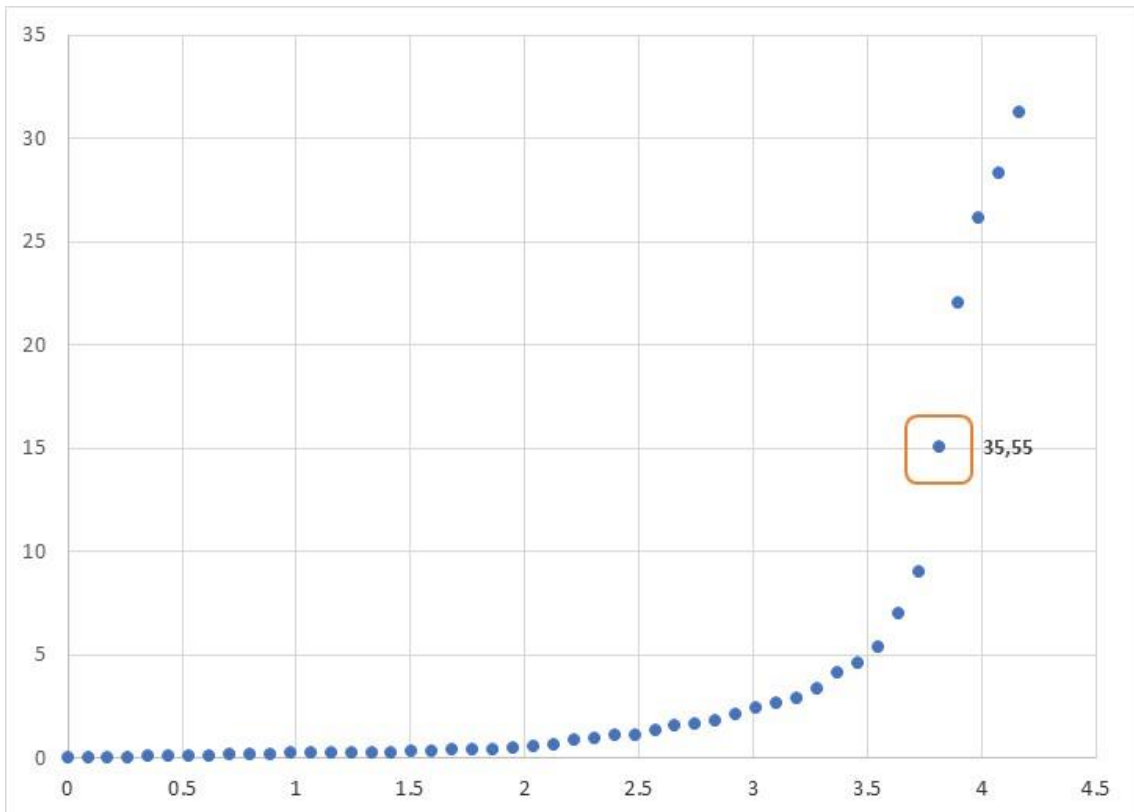
Where  $X = x_1 + x_2 + \dots + x_n$

Figure A2.2 and A2.3 show the results of the Lorenz curve plot.

**Figure A2.2.** Lorenz Curve of Smallness Index Distribution (Lorenz cum std%)



**Figure A2.3.** Lorenz Curve of Smallness Index Distribution (Lorenz cum)



All three techniques identify the same statistical break point, there is a clear threshold of  $SI=35.55$  (See Figures 1, 2 and 3). These methods offer robust and clear statistical breaks in the distribution, thus identifying a smallness index threshold. The calculations were applied to both, the full UN OHRLLS list of the countries (47) and the reduce list of UN member states only (38). The results were consistent.

### **A2.5 Smallness Index – Stability Test**

The SI was compiled for different years (see Table 2). The results remained largely unchanged. A country classified as 'small' in 2000 was still identified as 'small' in 2018 (using the threshold of 35.55). It is worth noting that when taking into account different threshold levels, Singapore was affected as the land area changed from 680 (sq. km) in 2000 to 719 (sq. km) in 2018. (See Table A2.3).

---

**Table A2.3** Smallness Index (Different years)

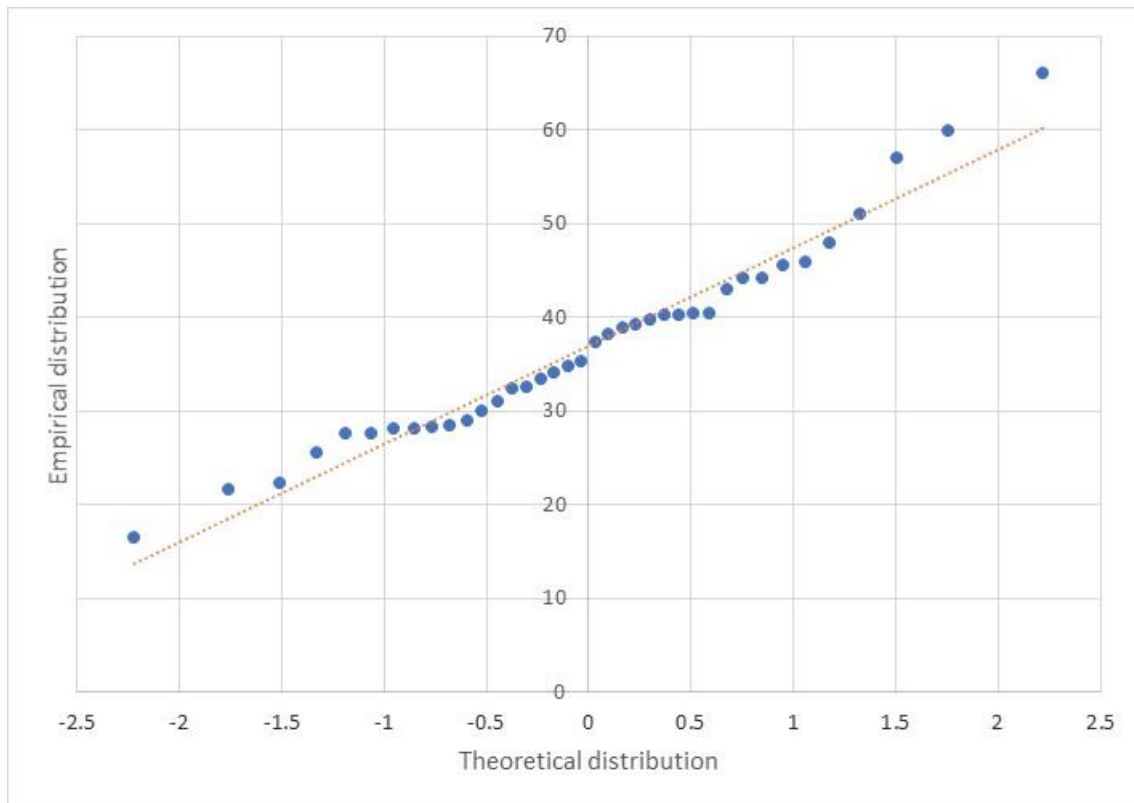
Country / Territory	Smallness Index	Smallness Index	Smallness Index	Smallness Index	Smallness Index
	2000	2005	2010	2015	2018
Papua New Guinea	53.6	55.0	57.4	59.7	60.8
Singapore	45.4	46.0	48.6	49.8	50.3
Cuba	52.1	52.2	51.5	50.7	50.2
Dominican Republic	36.8	37.9	39.6	41.3	42.8
Haiti	29.0	30.5	32.5	34.4	35.6
Guyana	18.2	18.1	18.0	18.1	18.1
Suriname	13.9	13.9	14.0	14.0	13.9
Jamaica	11.8	11.5	11.0	10.8	10.9
Guinea-Bissau	6.4	6.7	7.2	7.8	8.2
Bahrain	5.7	6.4	7.3	7.5	8.0
Trinidad and Tobago	7.4	7.9	7.6	7.1	6.7
Mauritius	5.2	5.2	5.2	5.1	5.2
Timor-Leste	1.1	4.4	4.8	4.9	5.1
Fiji	4.5	4.4	4.4	4.4	4.4
Solomon Islands	3.4	3.6	3.8	4.0	4.1
Bahamas	4.4	4.1	3.6	3.4	3.3
New Caledonia	3.3	3.2	3.2	3.1	3.1
Belize	2.6	2.7	2.8	2.9	2.9
Comoros	1.9	2.1	2.3	2.5	2.7
Cabo Verde	1.8	1.9	1.9	2.0	2.1
Maldives	1.3	1.4	1.5	1.8	2.0
Vanuatu	1.5	1.6	1.7	1.7	1.8
French Polynesia	2.2	2.1	1.8	1.7	1.7
Barbados	1.9	1.7	1.5	1.4	1.3
Bermuda	1.6	1.4	1.1	1.1	1.1
Samoa	0.8	0.9	0.8	0.8	0.9
Curaçao	0.0	0.0	0.0	0.8	0.8
Saint Lucia	0.8	0.8	0.8	0.7	0.7
Cayman Islands	1.1	1.0	0.8	0.7	0.7
Sao Tome and Principe	0.5	0.6	0.6	0.7	0.7
Aruba	0.9	0.9	0.7	0.6	0.6
Seychelles	0.5	0.4	0.4	0.5	0.5
Antigua and Barbuda	0.5	0.5	0.4	0.4	0.5
Grenada	0.5	0.5	0.4	0.4	0.5
Saint Vincent and the Grenadines	0.5	0.5	0.4	0.4	0.4
Kiribati	0.3	0.3	0.4	0.4	0.4
Micronesia (Federated States of)	0.4	0.4	0.4	0.4	0.4
Tonga	0.4	0.4	0.4	0.4	0.4
Dominica	0.4	0.3	0.3	0.3	0.3
Turks and Caicos Islands	0.2	0.3	0.3	0.3	0.3
Saint Kitts and Nevis	0.3	0.3	0.3	0.3	0.3
British Virgin Islands	0.3	0.3	0.2	0.2	0.2
Marshall Islands	0.2	0.2	0.2	0.2	0.2
Sint Maarten (Dutch part)	0.0	0.0	0.0	0.2	0.2
Palau	0.1	0.1	0.1	0.1	0.1
Nauru	0.0	0.0	0.0	0.0	0.0
Tuvalu	0.0	0.0	0.0	0.0	0.0
Guam	-	-	-	-	-
Northern Mariana Islands	-	-	-	-	-
Cook Islands	-	-	-	-	-
Anguilla	-	-	-	-	-
American Samoa	-	-	-	-	-
Montserrat	-	-	-	-	-
Niue	-	-	-	-	-
Puerto Rico	-	-	-	-	-
Guadeloupe	-	-	-	-	-
Martinique	-	-	-	-	-
U.S. Virgin Islands	-	-	-	-	-

Note – the lower the index, the smaller the island

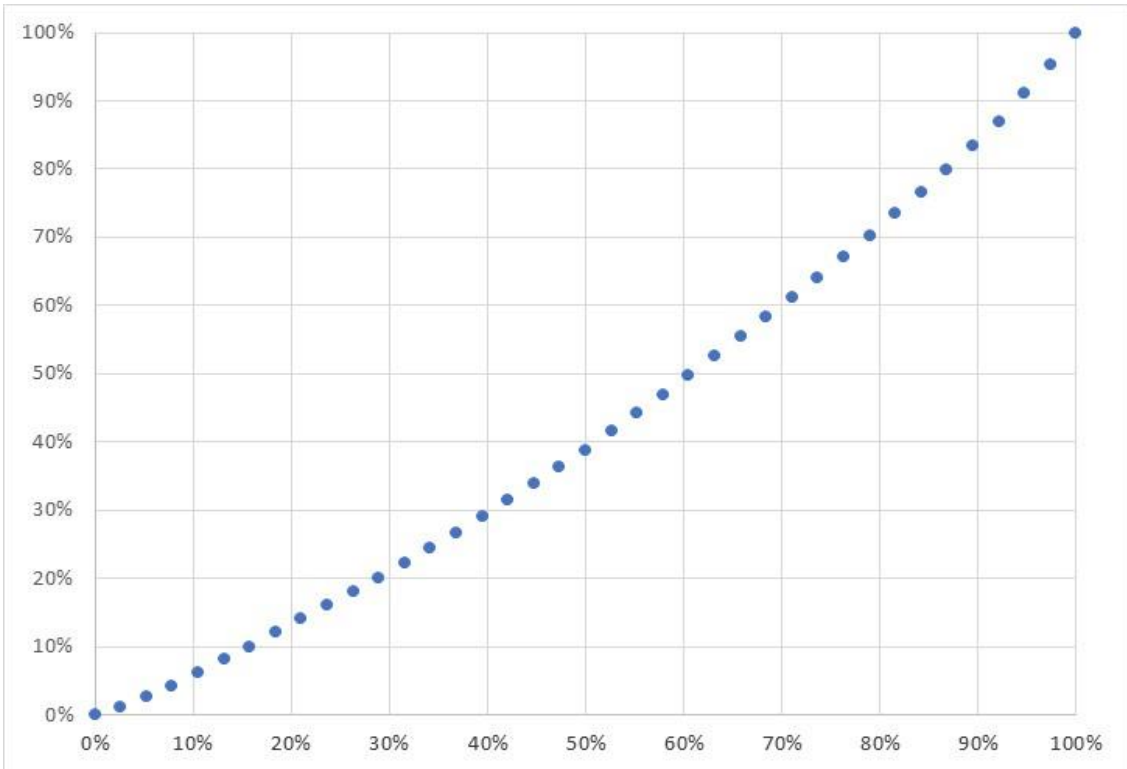
## Appendix 3 – Identifying a vulnerability threshold

To identify an appropriate threshold for the vulnerability index, the same techniques described in Appendix 2 were applied. The results show that there is no clear statistical break in the distribution (see Figures A3.1, A3.2 and A3.3).

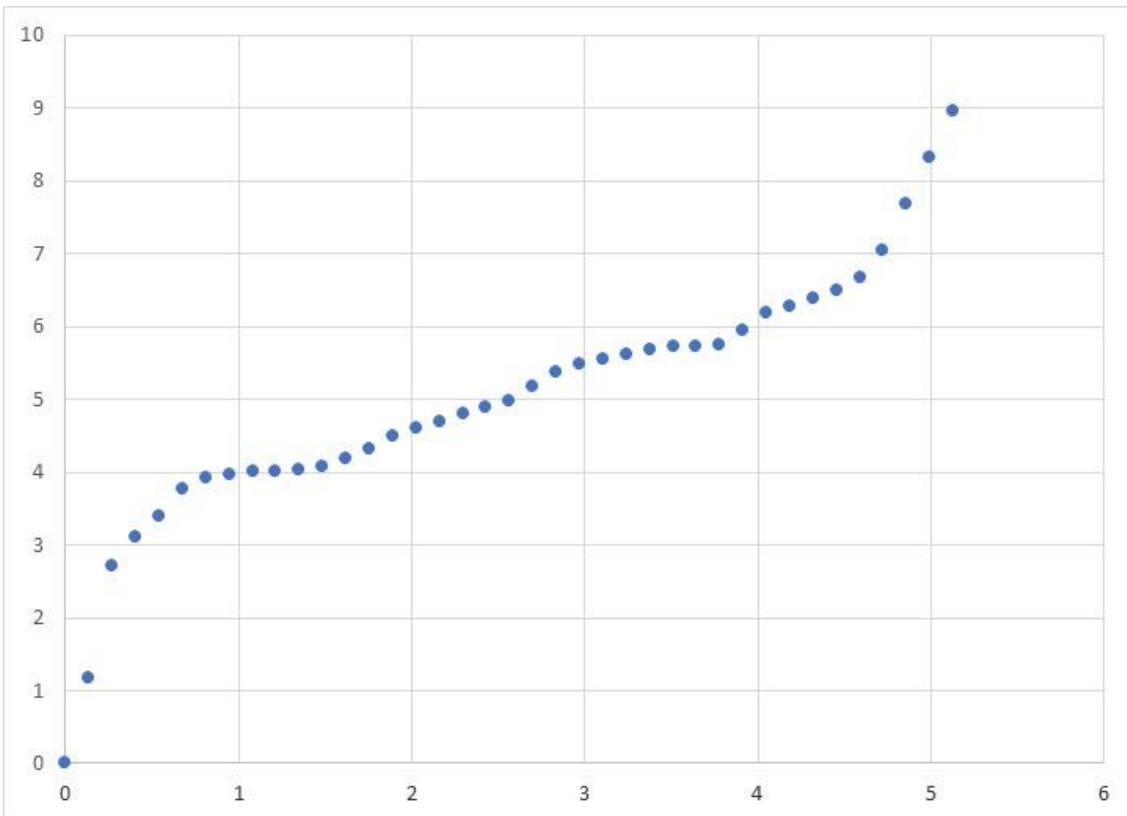
**Figure A3.1** Quantile-Quantile Plot of Vulnerability Index Distribution



**Figure A3.2** Lorenz Curve of Vulnerability Index Distribution (Lorenz cum std%)



**Figure A3.3** Lorenz Curve of Vulnerability Index Distribution (Lorenz cum)



---

## Appendix 4 – Compiling a Remoteness (Islandness) index

To construct the remoteness index, five indicators were selected, namely: *distance to market measured (km and weighted to GDP)*; *distance to trading partners measured in (km and weighted to trade)*; *maritime connectivity index (LSCI 2006=100)*; *Air connectivity measured in (yearly departure by 1000 population)*; and *digital connectivity measured in (percentage share of individuals with internet access)*. The variables are normalized and reverted whenever relevant. A variant of the index was also compiled that excluded digital connectivity (See Table A4.1).

The same compilation technique used for the smallness index, described in Appendix 2 was applied to compile a remoteness index, which was used as a proxy for Islandness. The variables were standardized and aggregated using simple an arithmetic mean. The results are shown in Table A4.1. Note the index was compiled with and without digital connectivity.

---

**Table A4.1** Remoteness (proxy for Islandness) Index

Country	Islandness	Islandness without digital	REM index from EVI (inverted scale)	REM index from EVI (original)
Kiribati	14.7	15.6	10.7	81.9
Samoa	17.5	14.1	4.6	87.9
Comoros	18.7	22.2	25.0	67.6
Tonga	20.0	15.3	0.0	92.6
Solomon Islands	21.2	24.4	9.4	83.2
Fiji	21.6	15.0	1.9	90.6
Guinea-Bissau	22.6	28.2	45.3	47.3
Vanuatu	22.8	22.8	3.7	88.9
Tuvalu	22.9	16.8	5.5	87.1
Marshall Islands	23.4	20.1	13.7	78.9
Suriname	23.4	17.4	33.4	59.2
Mauritius	28.7	20.2	17.9	74.6
St Vincent & Grenad	28.9	31.8	38.0	54.6
Papua New Guinea	29.7	35.2	14.9	77.7
Sao Tome and Princi	30.6	31.5	38.9	53.7
Guyana	30.7	29.6	33.4	59.2
Timor-Leste	31.0	32.6	25.8	66.8
Cuba	34.6	28.2	37.2	55.4
Micronesia, FS	35.2	35.8	18.2	74.3
Belize	36.2	34.0	29.0	63.5
Haiti	37.0	38.8	38.5	54.1
Seychelles	38.3	33.5	29.2	63.4
Trinidad and Tobago	40.3	31.3	35.8	56.8
Grenada	41.6	37.6	36.9	55.7
Nauru	42.0	37.3	11.3	81.3
Maldives	42.7	37.9	39.1	53.4
Saint Lucia	42.8	41.3	38.8	53.8
Jamaica	43.0	40.4	35.9	56.7
Cabo Verde	43.5	40.5	46.7	45.8
Palau	45.4	44.1	33.0	59.6
Dominican Republic	47.6	41.0	39.6	53.0
Barbados	48.2	39.9	38.4	54.2
Dominica	51.0	46.6	39.8	52.8
Antigua and Barbuda	55.0	50.7	41.2	51.3
Saint Kitts and Nev	57.6	51.9	41.0	51.6
Bahrain	62.8	53.5	60.5	32.1
Bahamas	67.4	63.1	41.6	50.9
Singapore	68.4	63.3	41.7	50.9

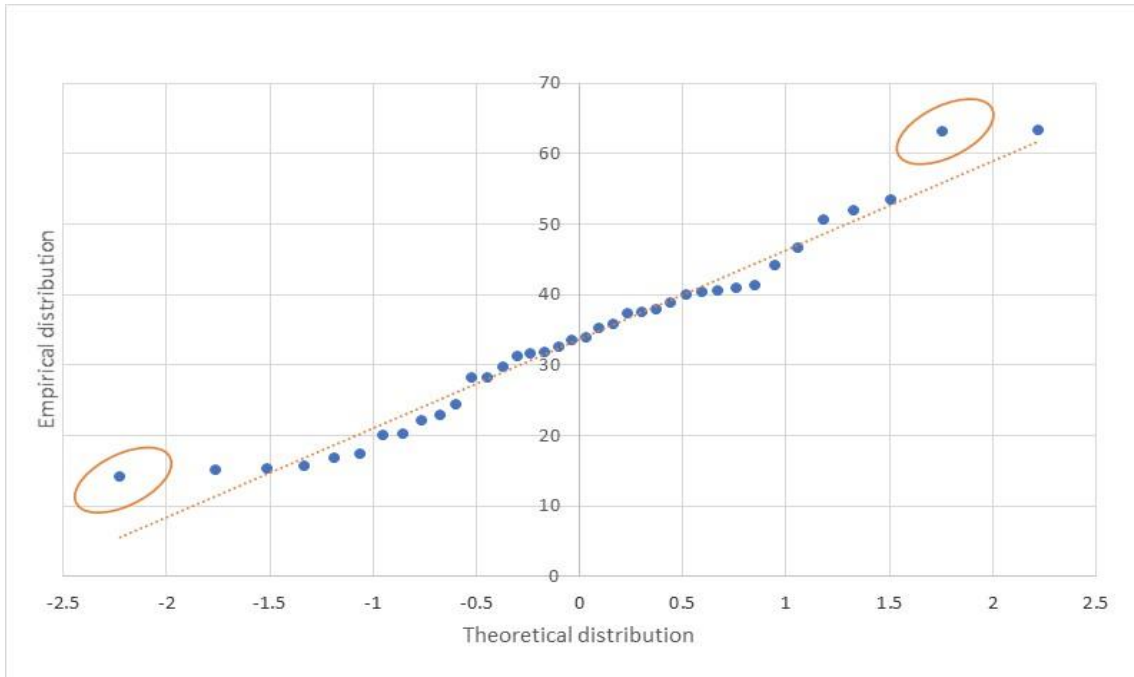
Note – the higher the index, the less remote the island



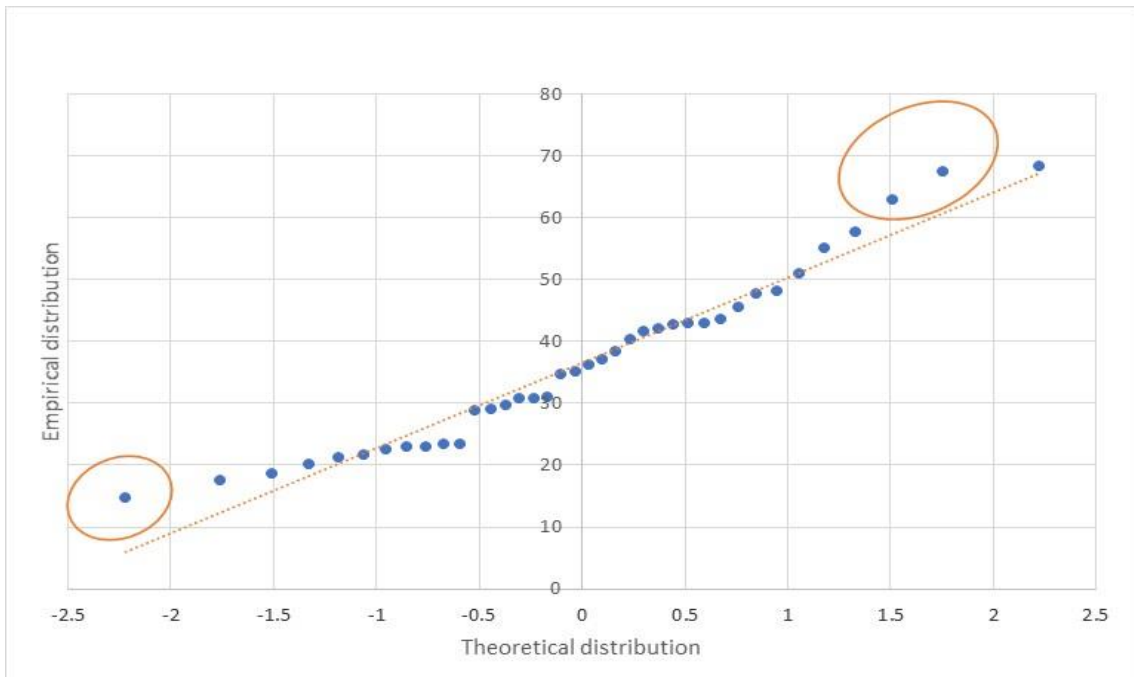
### A4.1 Remoteness (Islandness) Index - Threshold

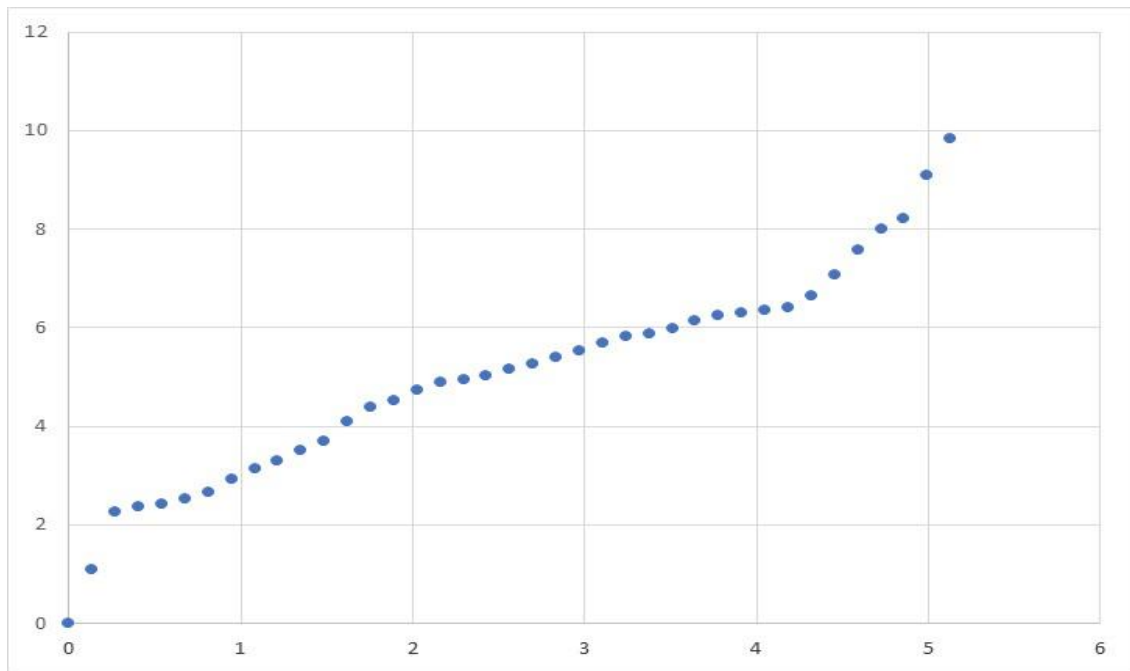
Based on same technique described in Appendix 2, Figures A4.1 and A4.2 present the QQ plots with and without digital connectivity. Figure A4.3 gives a PP plot. All results show that there is no clear statistical break in the distribution.

**Figure A4.1** Quantile-Quantile Plot of Remoteness excluding Digital Connectivity (islandness) Index



**Figure A4.2** Quantile-Quantile Plot of Remoteness including Digital Connectivity (islandness) Index



**Figure A4.1** Lorenz Curve of Remoteness (Islandness) Distribution (Lorenz cum)

## Appendix 5 – Alternate measures of development and vulnerability

States / Countries / Economies	M49	GNI per capita June 2020	HDI 2020	HDI 2020	SDSN 2020	EVI 2020	HAI 2020	PCI 2018
American Samoa	Developing	Upper middle income	-	-	-	-	-	-
Anguilla	Developing	-	-	-	-	-	-	-
Antigua and Barbuda	Developing	High income	High	0.778	-	32.3	96.5	-
Aruba	Developing	High income	-	-	-	-	-	35.4
Bahamas	Developing	High income	Very high	0.814	-	28.1	91.7	36.3
Bahrain	Developing	High Income	Very high	0.852	68.8	28.4	95.4	39.0
Barbados	Developing	High income	Very high	0.814	68.3	16.5	97.6	38.4
Belize	Developing	Upper middle income	High	0.716	65.1	40.4	85.8	34.3
Bermuda	Developing	High income	-	-	-	-	-	43.7
Bonaire, sint Eustatius and Saba	Developing	-	-	-	-	-	-	-
British Virgin Islands	Developing	High income	-	-	-	-	-	-
Cabo Verde	Developing	Lower middle income	Medium	0.665	67.2	38.2	67.5	31.1
Cayman Islands	Developing	High income	-	-	-	-	-	33.4
Comoros	Developing	Lower middle income	Low	0.554	53.1	39.7	63.5	24.6
Commonwealth of Northern Marianas	Developing	High income	-	-	-	-	-	-
Cook Islands	Developing	-	-	-	-	-	-	-
Cuba	Developing	Upper middle income	High	0.783	72.6	27.5	98.0	30.6
Curacao	Developing	High income	-	-	-	-	-	32.1
Cyprus	Developed	High income	Very high	0.887	75.2	-	-	39.8
Dominica	Developing	Upper middle income	High	0.742	-	34.7	90.7	34.2
Dominican Republic	Developing	Upper middle income	High	0.756	70.2	21.5	90.2	32.4
Fiji	Developing	Upper middle income	High	0.743	70.0	38.8	94.3	31.7
French Polynesia	Developing	High income	-	-	-	-	-	-
Grenada	Developing	Upper middle income	High	0.779	-	34.1	96.6	34.6
Guadeloupe	Developing	-	-	-	-	-	-	-
Guam	Developing	High income	-	-	-	-	-	38.3
Guinea-Bissau	Developing	Low income	Low	0.480	-	40.5	38.1	18.4
Guyana	Developing	Upper middle income	Medium	0.682	59.7	45.6	89.1	30.9
Haiti	Developing	Low income	Low	0.510	51.7	33.4	57.6	22.5
Iceland	Developed	High income	Very high	0.949	77.5	-	-	48.0
Jamaica	Developing	Upper middle income	High	0.734	68.7	28.8	91.4	32.6
Kiribati	Developing	Lower middle income	Medium	0.630	-	66.1	83.3	27.9
Maldives	Developing	Upper middle income	High	0.740	67.6	44.1	87.4	34.1
Malta	Developed	High income	Very high	0.895	76.0	-	-	41.6
Marshall Islands	Developing	Upper middle income	Medium	0.704	-	59.9	78.9	30.7
Martinique	Developing	-	-	-	-	-	-	-
Mauritius	Developing	High income	High	0.804	63.8	22.3	92.1	37.4
Micronesia (Federate States of)	Developing	Lower middle income	Medium	0.620	-	51.0	87.7	-
Montserrat	Developing	-	-	-	-	-	-	-
Nauru	Developing	High income	-	-	-	37.4	86.5	-
New Caledonia	Developing	High income	-	-	-	-	-	-
Niue	Developing	-	-	-	-	-	-	-
Palau	Developing	High income	Very high	0.826	-	47.9	91.3	33.4
Papua New Guinea	Developing	Lower middle income	Low	0.555	51.7	30.9	52.8	25.0
Puerto Rico	Developing	High income	-	-	-	-	-	-
Samoa	Developing	Upper middle income	High	0.715	-	28.1	96.6	31.5
Sao Tome and Principe	Developing	Lower middle income	Medium	0.625	62.6	29.9	87.6	26.7
Singapore	Developing	High income	Very high	0.938	67.0	25.5	98.4	44.5
Sint Maarten	Developing	High income	-	-	-	-	-	-
St Kitts and Nevis	Developing	High income	High	0.779	-	35.3	96.7	-
St Lucia	Developing	Upper middle income	High	0.759	-	32.4	94.6	33.8
St Vincent and the Grenadines	Developing	Upper middle income	High	0.738	-	28.2	95.0	34.1
Seychelles	Developing	High income	Very high	0.796	-	40.2	92.7	35.7
Solomon Islands	Developing	Lower middle income	Medium	0.567	-	45.8	71.7	26.2
Suriname	Developing	Upper middle income	High	0.738	68.4	44.2	90.9	31.5
Timor-Leste	Developing	Lower middle income	Medium	0.606	-	40.1	68.0	29.3
Tokelau	Developing	-	-	-	-	-	-	-
Tonga	Developing	Upper middle income	Low	0.725	-	43.0	96.8	33.0
Trinidad and Tobago	Developing	High income	High	0.796	65.8	27.6	93.1	36.7
Turks and Caicos Islands	Developing	High income	-	-	-	-	-	-
Tuvalu	Developing	Upper middle income	-	-	-	57.0	87.4	33.5
US Virgin Islands	Developing	High income	-	-	-	-	-	-
Vanuatu	Developing	Lower middle income	Medium	0.609	60.9	39.1	77.3	29.4

## Appendix 6 – Island States

States / Countries / Economies	Formal Name	Independent Sovereign State	Overseas Territory of:	Member of the UN
American Samoa	American Samoa	N	USA	N
Anguilla	Anguilla	N	UK	N
Antigua and Barbuda	Antigua and Barbuda	Y		Y
Aruba	Aruba	N	NL	N
Bahamas	the Commonwealth of the Bahamas	Y		Y
Bahrain	the Kingdom of Bahrain	Y		Y
Barbados	Barbados	Y		Y
Belize	Belize	Y		Y
Bermuda	Bermuda	N	UK	N
Bonaire, sint Eustatius and Saba	Bonaire, sint Eustatius and Saba	N	NL	N
British Virgin Islands	British Virgin Islands	N	UK	N
Cabo Verde	the Republic of Cabo Verde	Y		Y
Cayman Islands	Cayman Islands	N	UK	N
Comoros	the Union of the Comoros	Y		Y
Commonwealth of Northern Marianas	Commonwealth of Northern Marianas	N	USA	N
Cook Islands	Cook Islands	N	NZ	N
Cuba	the Republic of Cuba	Y		Y
Curacao	Curacao	N	NL	N
Cyprus	the Republic of Cyprus	Y		Y
Dominica	the Commonwealth of Dominica	Y		Y
Dominican Republic	the Dominican Republic	Y		Y
Fiji	the Republic of Fiji	Y		Y
French Polynesia	French Polynesia	N	FR	N
Grenada	Grenada	Y		Y
Guadeloupe	Guadeloupe	N	FR	N
Guam	Guam	N	USA	N
Guinea-Bissau	the Republic of Guinea-Bissau	Y		Y
Guyana	the Co-operative Republic of Guyana	Y		Y
Haiti	the Republic of Haiti	Y		Y
Iceland	the Republic of Iceland	Y		Y
Jamaica	Jamaica	Y		Y
Kiribati	the Republic of Kiribati	Y		Y
Maldives	the Republic of Maldives	Y		Y
Malta	the Republic of Malta	Y		Y
Marshall Islands	the Republic of the Marshall Islands	Y		Y
Martinique	Martinique	Y	FR	N
Mauritius	the Republic of Mauritius	Y		Y
Micronesia (Federate States of)	the Federated States of Micronesia	Y		Y
Montserrat	Montserrat	N	UK	N
Nauru	the Republic of Nauru	Y		Y
New Caledonia	New Caledonia	N	FR	N
Niue	Niue	N	NZ	N
Palau	the Republic of Palau	Y		Y
Papua New Guinea	the Independent State of Papua New Guinea	Y		Y
Puerto Rico	Puerto Rico	N	US	N
Samoa	the Independent State of Samoa	Y		Y
Sao Tome and Principe	the Democratic Republic of Sao Tome and Principe	Y		Y
Singapore	the Republic of Singapore	Y		Y
Sint Maarten	Sint Maarten	N	NL	N
St Kitts and Nevis	Saint Kitts and Nevis	Y		Y
St Lucia	St Lucia	Y		Y
St Vincent and the Grenadines	Saint Vincent and the Grenadines	Y		Y
Seychelles	the Republic of Seychelles	Y		Y
Solomon Islands	Solomon Islands	Y		Y
Suriname	the Republic of Suriname	Y		Y
Timor-Leste	the Democratic Republic of Timor-Leste	Y		Y
Tokelau	Tokelau	N	NZ	N
Tonga	the Kingdom of Tonga	Y		Y
Trinidad and Tobago	the Republic of Trinidad and Tobago	Y		Y
Turks and Caicos Islands	Turks and Caicos Islands	N	UK	N
Tuvalu	Tuvalu	Y		Y
US Virgin Islands	US Virgin Islands	N	USA	N
Vanuatu	the Republic of Vanuatu	Y		Y

