Chapter 10

MDG 7: Sustainable Environment

The continued degradation of the natural environment in small and island states is unsustainable and damages efforts to maintain the economic value of their productive natural assets. The wider provision of safe water, sanitation and decent housing for urban dwellers is essential for economic and social progress.

This MDG covers many of the critical aspects of environmental protection relevant to sustainable development. It includes forest cover as a major habitat for indigenous flora and fauna, air pollution from human activity, and the provision of safe water and sanitation relevant to human health, economic and social welfare.

This report presents some limited evidence of the capacity of more developed states to rein back the levels of pollution and environmental degradation while sustaining economic and social development.

Goal 7. Ensure environmental sustainability

Target 7A: *Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources*

Target 7B: *Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss*

Indicators:

7.1 Proportion of land area covered by forest

7.2 CO_2 emissions, total, per capita and per $1 GDP (PPP)

7.3 Consumption of ozone-depleting substances

7.4 Proportion of fish stocks within safe biological limits

7.5 Proportion of total water resources used

7.6 Proportion of terrestrial and marine areas protected

7.7 Proportion of species threatened with extinction

Target 7C: *Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation*

Indicators:

7.8 Proportion of population using an improved drinking water source

7.9 Proportion of population using an improved sanitation facility

Target 7D: *By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers*

Indicators:

7.10 Proportion of urban population living in slums

MDG 7 has four targets and ten indicators. Three of the four targets have specific, but different, dates for achievement: target 7B by 2010; target 7C by 2015; and target 7D by 2020. No date is specified for target 7A. Two indicators have specific numerical targets of change relative to the baseline, while the other eight merely ask for improvement.

Figure 10.1 shows a summary of the performance of the 46 small states and 10 benchmark states in making progress with this MDG across the four defined MDG targets and ten indicators.

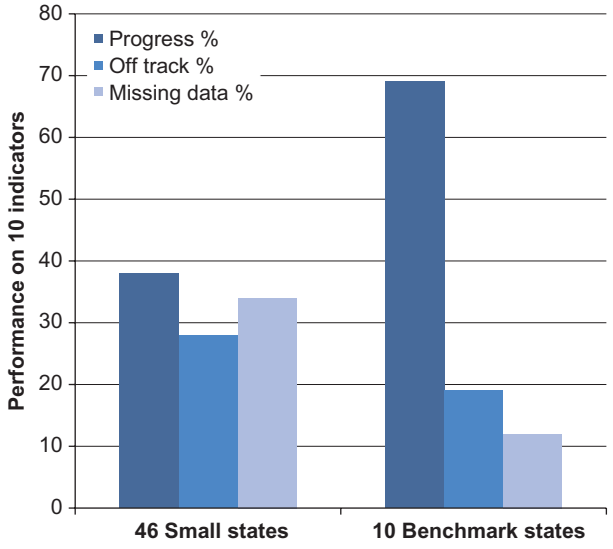
10.1 Overall performance

Of 460 indicators overall that could have been met (10 indicators for each of the 46 states), in total 153 (33%) were achieved. A further 21 (5%) were on-track, with missing data preventing assessment in 157 (34%) of cases.

The 46 small states made progress in 174 cases (38%); in 129 cases (28%) they were off-track. Excluding missing data, the 46 small states made 57 per cent progress.

In the pursuit of environmental sustainability, the evidence suggests that the 10 benchmark states outperformed the 46 small states. In 63 per cent of cases the benchmark states reported achieving these indicators by 2007, compared with 33 per cent achievement by the 46 states. Data were missing

Figure 10.1 Performance on MDG 7: Environmental sustainability



Source: UN MDG database 2010

in 12 per cent of cases for the benchmark states, compared with 34 per cent of cases for the 46 small states.

Including missing data, the 10 benchmark states made 69 per cent progress towards achieving this MDG, exceeding the 38 per cent progress made by the 46 small states. Excluding missing data, the performance of the benchmark states exceeded the small states with 79 per cent progress and 19 per cent off-track, compared with 57 per cent progress by the small states and 28 per cent off-track.

A detailed examination of the data from the benchmark states shows that, including missing data, the two island benchmark states (Iceland and New Zealand) made 62 per cent progress; the three large benchmark states (France, UK and USA) made 70 per cent progress; the four BRIC states (Brazil, Russia, India and China) reported 68 per cent progress; and South Africa recorded 90 per cent progress. This compares with 38 per cent progress by the 46 small states.

Excluding missing data, the two island benchmark states made 81 per cent progress; the three large benchmark states made 88 per cent progress; the four BRIC states made 69 per cent progress; and South Africa made 90 per cent progress. This compares with 57 per cent progress by the 46 small states.

The performance of the 46 selected small states on each of the ten indicators in MDG 7 is examined in detail below.

10.2 Target 7A: Sustainable development and environmental loss

Target 7A is a general target within MDG 7 for which there are no specific indicators; progress under this target is subsumed under target 7B for which there are seven indicators, of which one (7.2) is made up of three sub-indicators (7.2: 1–3), making nine indicators in all. In total under targets 7A and 7B there were thus 414 indicators to assess.[1] The 46 small states made 31 per cent progress with this combined target, with 26 per cent of cases off-track; 43 per cent of the overall indicators had missing data.

If missing data are included in the denominator for assessing progress, there was 31 per cent progress; if missing data are excluded from the denominator, there was 54 per cent progress. This provides a measure of the uncertainty in the assessment of performance in the face of 43 per cent missing data. The extent of missing data was greatly affected by the two indicators 7.4 on fish stocks and 7.6 on threatened species, for which the UN data files provided no data at all.

10.2.1 Indicator 7.1: Proportion of land area covered by forest

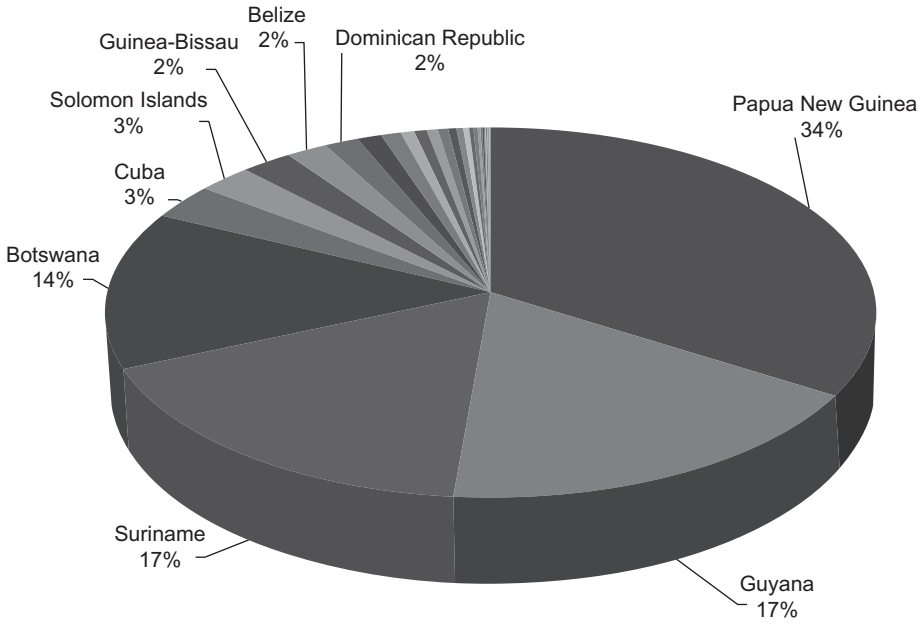
Since 1990 some 48,000 square kilometres (5%) of forest cover has been lost across the 46 small states. By 2005, 870,000 square kilometres of cover remained; however, 82 per cent of this is in just four states (Papua New Guinea, Guyana, Suriname and Botswana – see Figure 10.2). Around 80 per cent of remaining forest cover is to be found in four (9%) of the small states for which data are available (this analysis excludes Nauru and Marshall Islands, for which no data are available).

Nine[2] states have less than 5 per cent of cover left. Thirty-two countries (70%) maintained or increased forest cover, when missing data are included. Twelve states (26%) were off-track. In two states (4%) missing data inhibited assessment of progress.

The largest gain was in Samoa, which raised the level of cover from 46 to 60 per cent. Five states maintained forest cover above 70 per cent: Seychelles (89%), Palau (88%), Solomon Islands (78% despite loss), Guyana (77%) and Belize (73%).

Four of the states retained less than 5 per cent forest cover: Haiti (4%), Kiribati (3%), Maldives (3%), Comoros (3%), Singapore (3%), Malta (1%) and Lesotho and Bahrain (less than 1%). Other countries with over 50 per cent cover included Guinea-Bissau, Federated States of Micronesia, Suriname and Timor-Leste.

Figure 10.2 Total forest cover square kilometres



Note: Data from 2005.
Source: UN MDG database 2010

Across the 12 states (26%) that were off-track in 2007, substantial forest cover losses occurred in Comoros, where 55 per cent of forest cover has been lost since 1990, as well as Guinea-Bissau and Timor-Leste (6% and 17% respectively). Haiti, which had only 4.2 per cent forest cover in 1990, lost a further 10 per cent, leaving 3.8 per cent cover.

10.2.2 Indicator 7.2: CO_2 emissions

Progress on reducing CO_2 emissions is measured across three sub-indicators: 7.2.1 measures the reduction in terms of total emissions; 7.2.2 relates to emissions per capita; and 7.2.3 measures emissions per US$1 GDP at purchasing power parity.[3]

Across the three sub-indicators, the small states made progress in 34 cases (25%) and were off-track in 83 (60%). Missing data inhibited assessment of progress in 21 (15%) of cases. Excluding missing data, the small states made progress in 29 per cent of cases; in 14 (30%) of cases the 46 small states were off-track on each of the sub-indicators.

On the first sub-indicator, 7.2.1, the highest total emissions of CO_2 were in Singapore at 54 million metric tonnes per year and Trinidad and Tobago at 34 million metric tonnes a year. The lowest were in Kiribati at 29,000 metric tonnes per year.

By 2006, 80 per cent of total CO_2 across the 46 small states was attributable to only seven (16%) of the countries (this analysis excludes Lesotho and Tuvalu, for which no data were available).

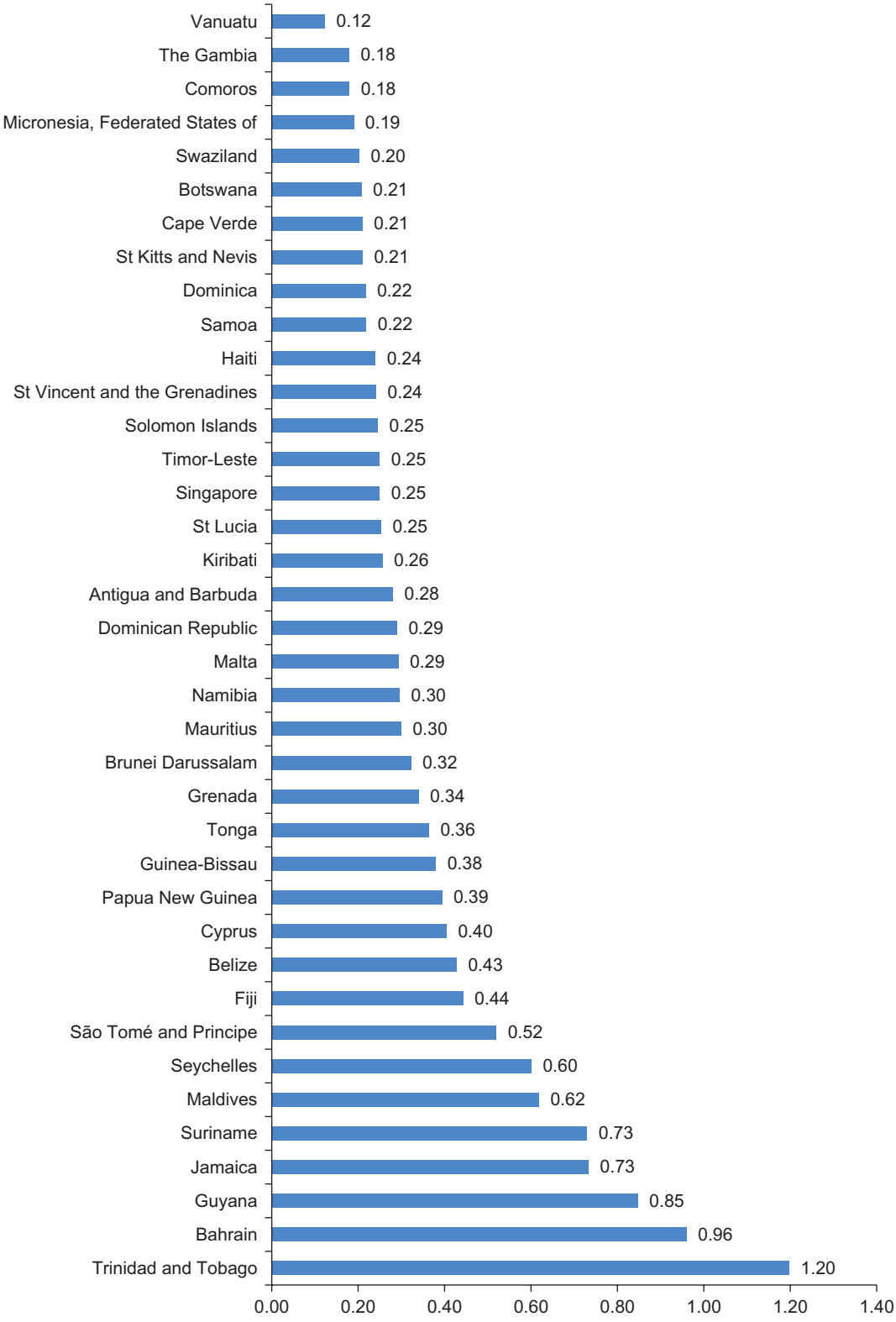
On the second sub-indicator, 7.2.2, the highest levels of per capita emissions of CO_2 were in Bahrain with 30 metric tonnes per person per year and in Trinidad and Tobago with 25 metric tonnes per person per year. The lowest were Comoros, Guinea-Bissau, Haiti and Timor Leste, all with 0.2 metric tonnes per capita.

On the third sub-indicator, 7.2.3 (Figure 10.3), the highest emissions came from Trinidad and Tobago with 1.2 kilogrammes per US$1 GDP (PPP). Bahrain came second highest with 0.96 kilogrammes per US$. The lowest was in Vanuatu with 0.12 kilogrammes per US$1 GDP (PPP) and Comoros with 0.18 metric tonnes per US$1 GDP (PPP).

Trinidad and Tobago had the highest level of CO_2 emissions per US$1 GDP (PPP) and came second of the 46 small states on the other two sub-indicators. It was off-track on total emissions and emissions per capita, with increased levels in each case. On the third sub-indicator, however, it achieved reduced CO_2 emissions per US$GDP against its 1990 baseline value, while remaining the highest in terms of emissions per US$ value of PPP GDP.

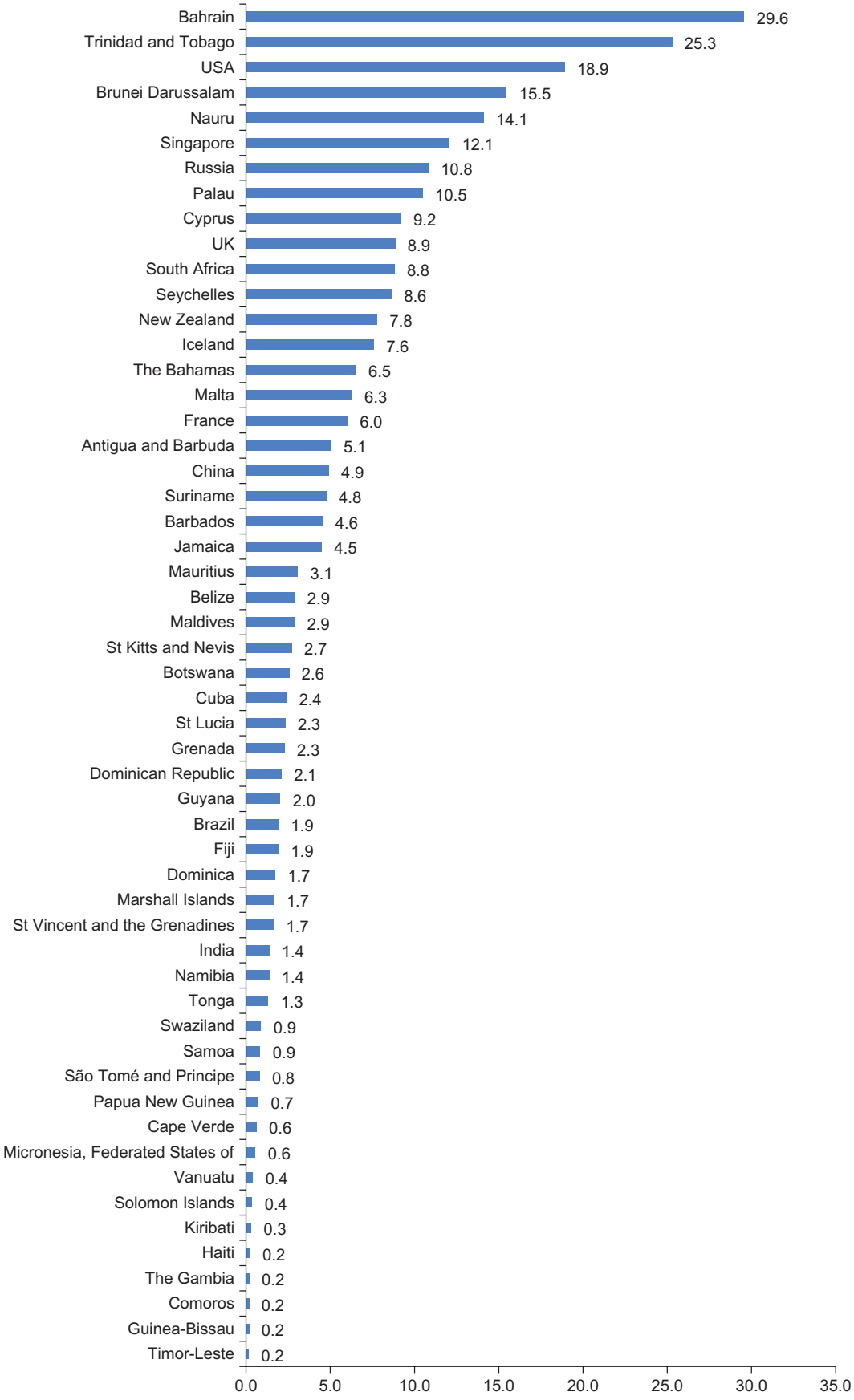
Singapore's total emissions increased by 15 per cent from 47 million metric tonnes in 1990 to 54 million in 2007. But Singapore achieved reductions on the two other indicators, reducing per capita emissions on indicator 7.2.2 by 16 per cent and the weight of

Figure 10.3 CO_2 emissions per US$1 GDP (PPP)



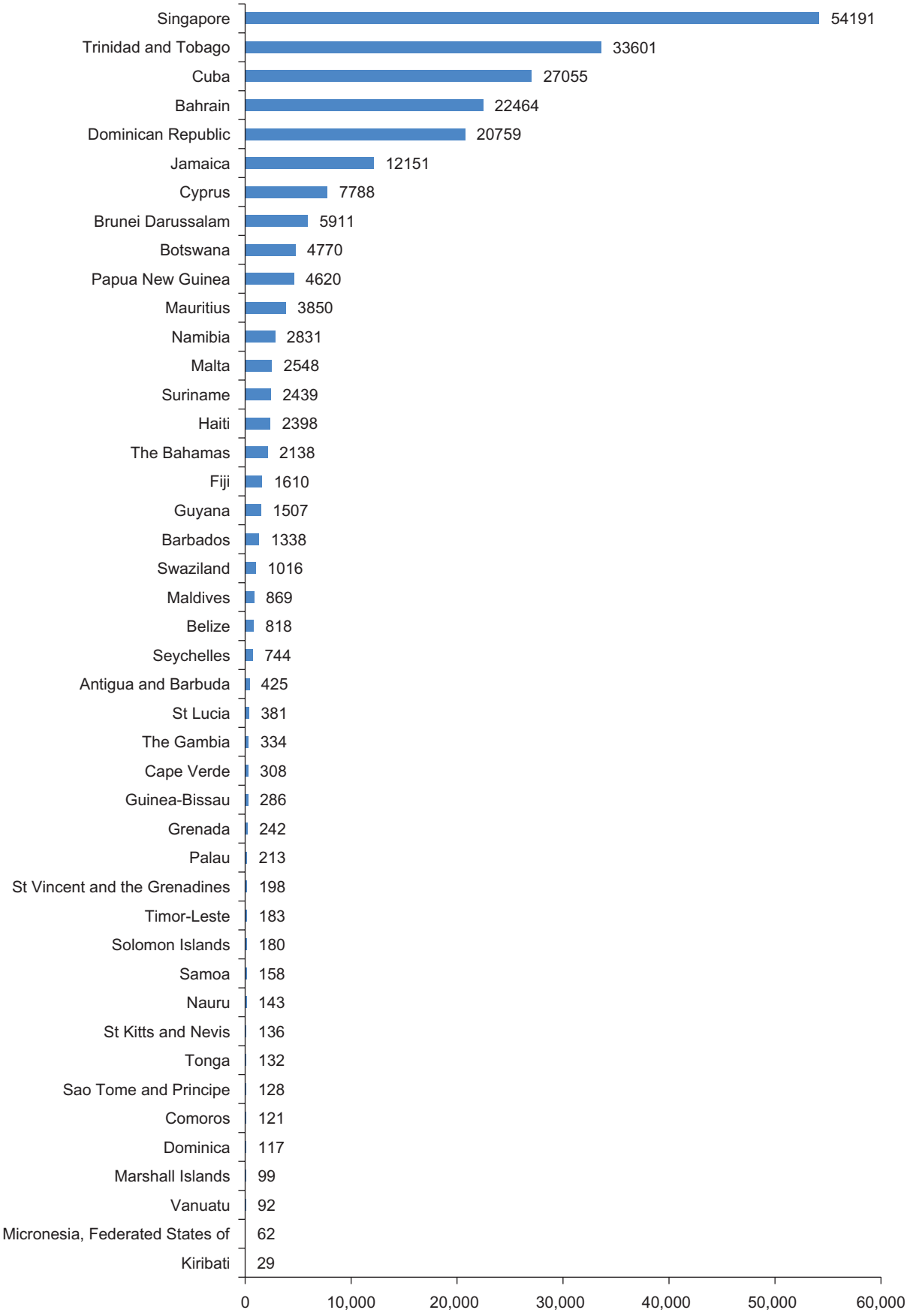
Note: Data from 2006.
Source: UN MDG database 2010

Figure 10.4 CO_2 emissions, metric tonnes per capita[4]



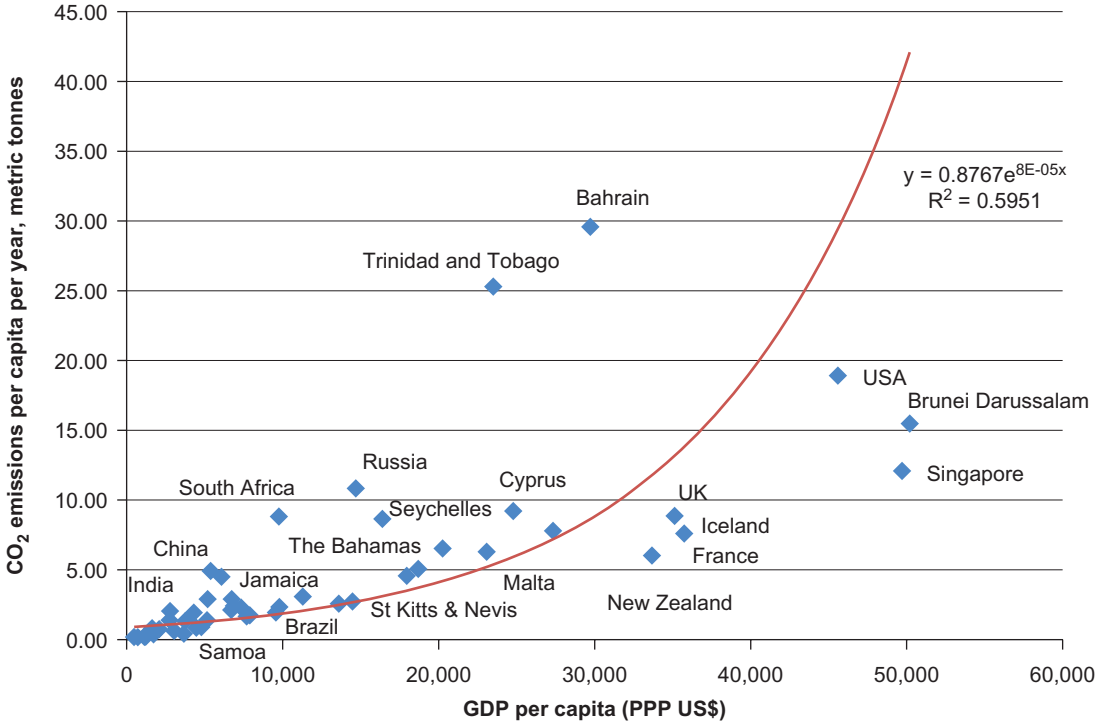
Note: Latest data were for 2007; where these were not available, data for 2006 were used.
Source: UN MDG database 2010

Figure 10.5 CO_2 emissions in 1,000 metric tonnes



Source: UN MDG database 2010

Figure 10.6 GDP per capita and CO_2 emissions per capita



Sources: UN MDG database and UN Statistics Division 2010

emissions per US$ GDP on indicator 7.2.3 by 62 per cent between 1990 and 2007.

De-coupling the link between economic growth and pollution

Figure 10.6 shows the CO_2 emissions per capita plotted against PPP GDP per capita for all the 56 states in the study. This indicates that overall there is a trend of CO_2 emissions mounting with rising GDP.

There are examples of countries bucking this trend, however, with some of the higher-income states enjoying much lower CO_2 emissions than would be expected from their GDP level. In this category are USA, UK, Iceland and France, among the 10 benchmark states, and Singapore and Brunei Darussalam among the 46 small states.

Conversely, among the benchmark states, China, South Africa, and Russia have higher levels of CO_2 emissions per capita than might be expected from their GDP per capita. This is also the case for Trinidad and Tobago, Cyprus, Bahrain and Seychelles.

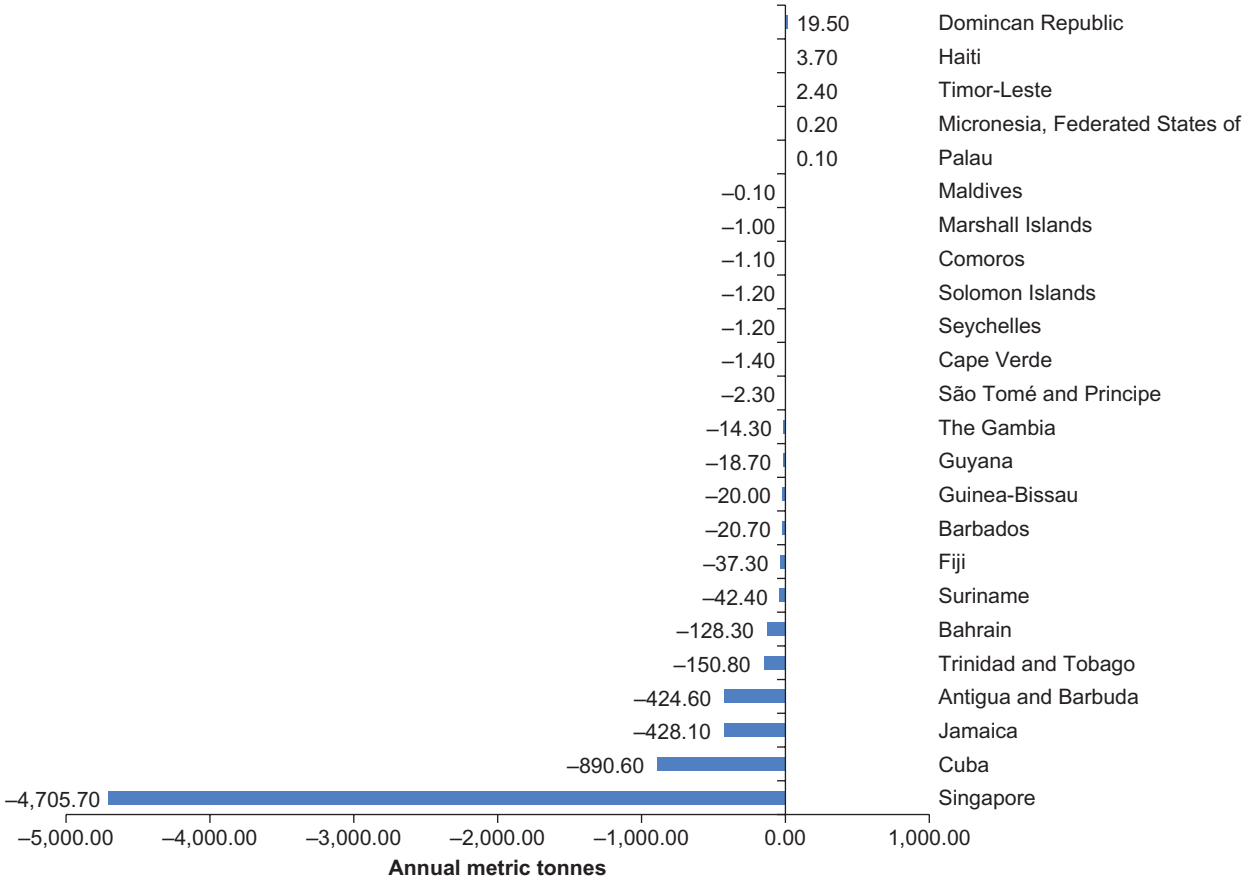
This analysis gives some support to the theoretical potential of decoupling air pollution from economic growth, in line with the Kuznets hypothesis.[5] It also highlights those countries above the trend line, where support may be needed to implement improvements in pollution control.

10.2.3 Indicator 7.3: Ozone-depleting substances

Nineteen (41%) of the 46 small states reduced consumption of ozone-depleting substances. Five (11%) were off-track. For 22 states (48%) missing data inhibited assessment of performance. Thirty-five of the small states (76%) were consuming below 10 metric tonnes of ozone-depleting substances per annum. Five (11%) were consuming between 10 and 49 metric tonnes, and only six states reported consumption of 50 or more metric tonnes.

The major reductions were in Singapore (from 4,855 metric tonnes in 1990 to 150 metric tonnes in 2008), Cuba (from 978 metric tonnes in 1990 to 88 metric tonnes in 2008) and Jamaica (431 metric tonnes in 1990 to 2.9 metric tonnes in 2008). These three states alone accounted for a total annual reduction of 6,024 metric tonnes of ozone-depleting substances from 1990. In contrast, the five states[6] where the emission of ozone-depleting substances increased reported a combined annual total increase of 26 metric tonnes.

Figure 10.7 Change in consumption of ozone-depleting substances, 1990–2008



Source: UN MDG database 2010

10.2.4 Indicator 7.4: Fish stocks within safe limits

No data were available for the 46 small states on this indicator in the UN database.

10.2.5 Indicator 7.5: Total water resources used

Missing data inhibited assessment of performance on this indicator. In one case, the Dominican Republic reduced its percentage usage of water; in four other cases the percentage used increased.

10.3 Target 7B: Reduction in loss of biodiversity

10.3.1 Indicator 7.6: Terrestrial and marine protected areas

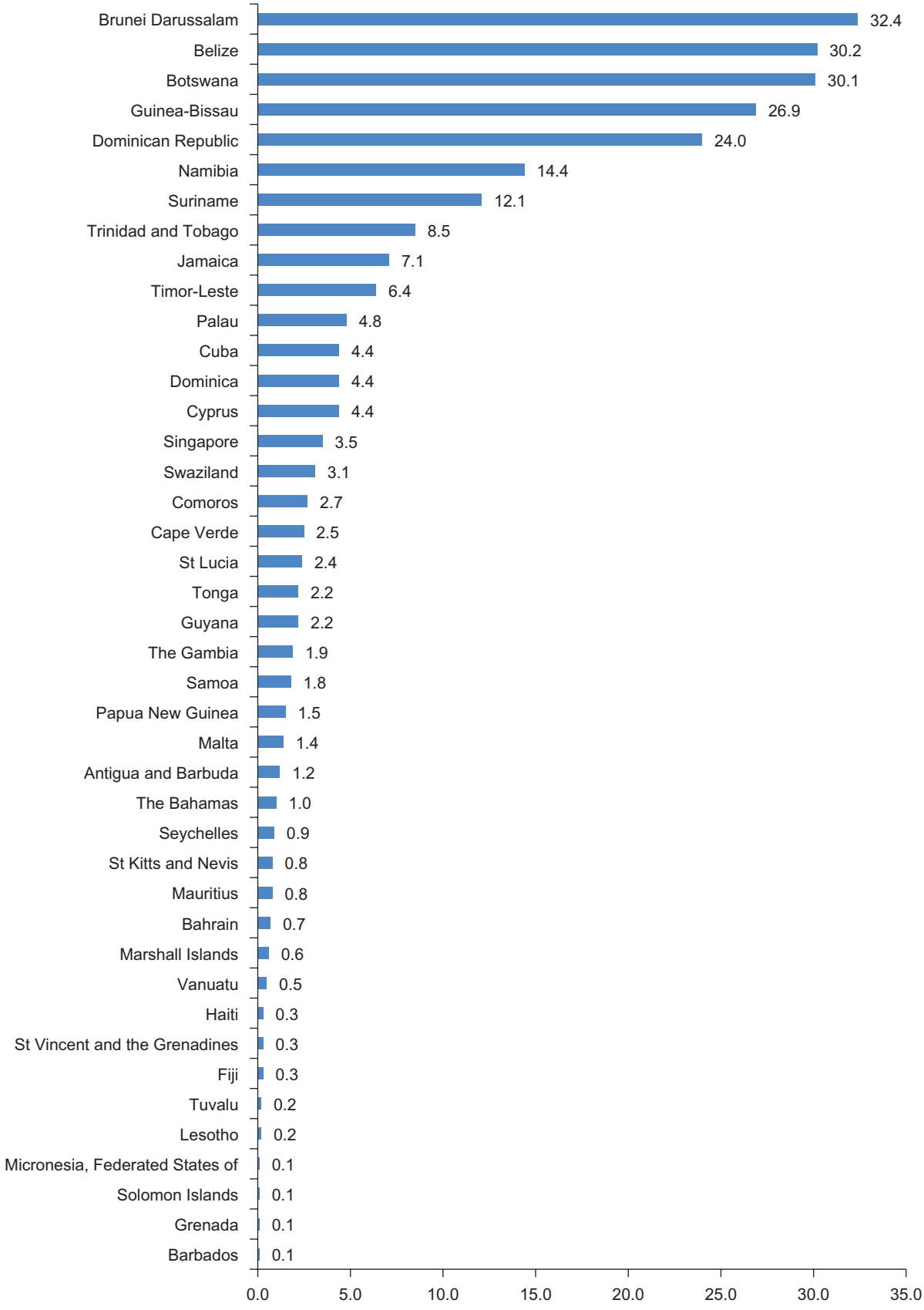
Forty (87%) of the 46 small states maintained or increased the percentage of their territory protected from development under law, for instance as national parklands. No states were rated off-track, although in six countries (13%) missing data prevented assessment of performance. Excluding missing data, progress in the small states was 100 per cent.

In most cases, this was the result of safeguarding or marginally increasing the spread of areas that were already protected. In Belize the proportion of protected territory increased from 14.8 per cent to nearly a third of the country (30.2%). In Guinea-Bissau protected areas grew from 6 per cent to over a quarter of the country (27 per cent). Suriname increased its protected territory from 5 per cent to 12 per cent. Timor-Leste, which had no protected territory in 1990, reported a 6 per cent rise by 2009 (Figure 10.8).

Extent of protected areas

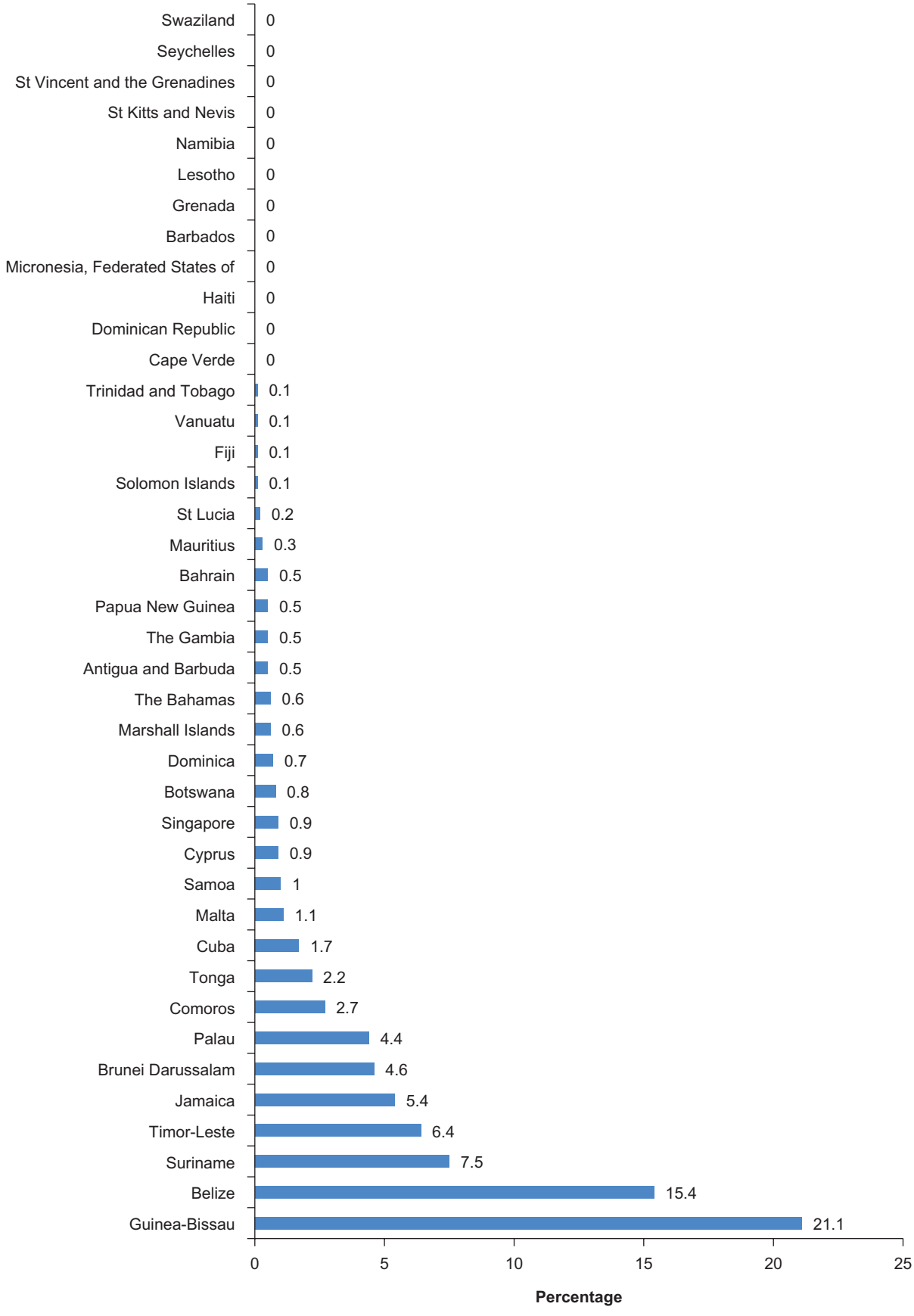
Of concern is the fact that in 33 of the 46 small states (72%) less than 5 per cent of their territory was protected, while in four countries (9%) just 5–9 per cent of territory was safeguarded under law. In six states (13%), 10 per cent or more of their territory was protected. Brunei Darussalam was the best performing country, with 32 per cent of its territory protected, followed by Belize and Botswana, both with 30 per cent. Dominican Republic protected 24 per cent of its territory, Guinea-Bissau 27 per cent and Namibia 14 per cent.

Figure 10.8 Terrestrial and marine areas protected as percentage of total area



Note: Latest data were for 2009; where these were not available, data for 2008 were used.
Source: UN MDG database 2010

Figure 10.9 Change in terrestrial and marine areas protected in relation to total area



Note: Data compared from 1990 and 2009.
Source: UN MDG database 2010

10.3.2 Indicator 7.7: Species threatened with extinction

No data on this indicator were reported for the 46 selected small and island states in the UN MDG database.

10.4 Target 7C: People without access to safe water and sanitation

Safe water is a critical factor for sustainable development. It directly affects health and provides a lever for economic and social development. The fact that water has to be carried long distances, usually by women, is a major burden holding back development in many countries. But this indicator illuminates only part of the issue. The targets set in this MDG are not universal, but are linked to the 1990 level of the indicator in each country.

10.4.1 Indicator 7.8: People using improved drinking water sources

In total 25 (54%) of the 46 small states made progress on halving the proportion of the population without access to improved drinking water sources, while just 5 states (11%) were officially off-track. However, in 16 countries (35%), missing data prevented assessment of performance. Excluding missing data, the overall progress made by 25 states translates into 83 per cent progress by the small states for which data are complete. The Dominican Republic, Fiji, Maldives, Marshall Islands and Samoa were off-track.

Coverage of safe water services

It should be noted that this indicator relates to access to safe water within 1 square kilometre of the place of residence and does not specify continuous water supply. Achieving the indicator does not mean safe water for all, nor indeed safe uninterrupted supply of safe water in each household. It is therefore a measure that must be interpreted with care.

Water scarcity, a common feature in small and island developing states, inhibits development and is set to become a more severe problem through the combined impact of global warming and continued population growth. This indicator takes into account the latter, so that in countries with high birth rates and no improvement in the distribution of access to water provision, it will show a decline in water provision per capita.

Overall, in 10 (22%) of the 46 small states 95 per cent or more of the population have access to safe water, while in seven (15%) under 75 per cent of the population have such access; these states were Timor-Leste (69%), Kiribati (65%), Haiti (63%), Guinea-Bissau (61%), Swaziland (60%), Fiji (47%) and Papua New Guinea (40%).

Coverage of safe water policy

About 16 million people across the small 46 small states were without safe water in 1990, according to the available statistics. By 2006 the number had fallen below 12 million. But even if the MDG target is reached by 2015, 7.8 million people in the 46 small states will still be without access to safe water.

Figure 10.12 shows that over 80 per cent of the people without access to safe water if the 2015 target is reached live in just five of the 46 small states: Haiti (34%), Papua New Guinea (26%), Cuba (13%), Dominican Republic (8%) and Namibia (6%). Efforts to improve safe water distribution should focus extra resources in these countries.

10.4.2 Indicator 7.9: Access to safe sanitation

Safe sanitation is essential for health, particularly child health. It is also important for the protection of safe water and the control of pollution. By 2008, 9 (20%) of the 46 small states had reduced by half the percentage of people without access to safe sanitation. Overall, 16 (35%) of the countries made progress, while ten states (22%) were off-track. However, in 19 states (41%) missing data prevented assessment of performance.

Coverage of safe sanitation

By 2008, 11 (24%) of the 46 small states had provided safe sanitation to 95 per cent or more of their populations. Twelve (26%) had reached 75 to 94 per cent of the population and seven (15%) had reached 50 to 74 per cent of the population. However there were ten small states (22%) providing safe sanitation to less than 50 per cent of the population. Overall six (13%) small states had missing data for 1990, which inhibited assessment of coverage.

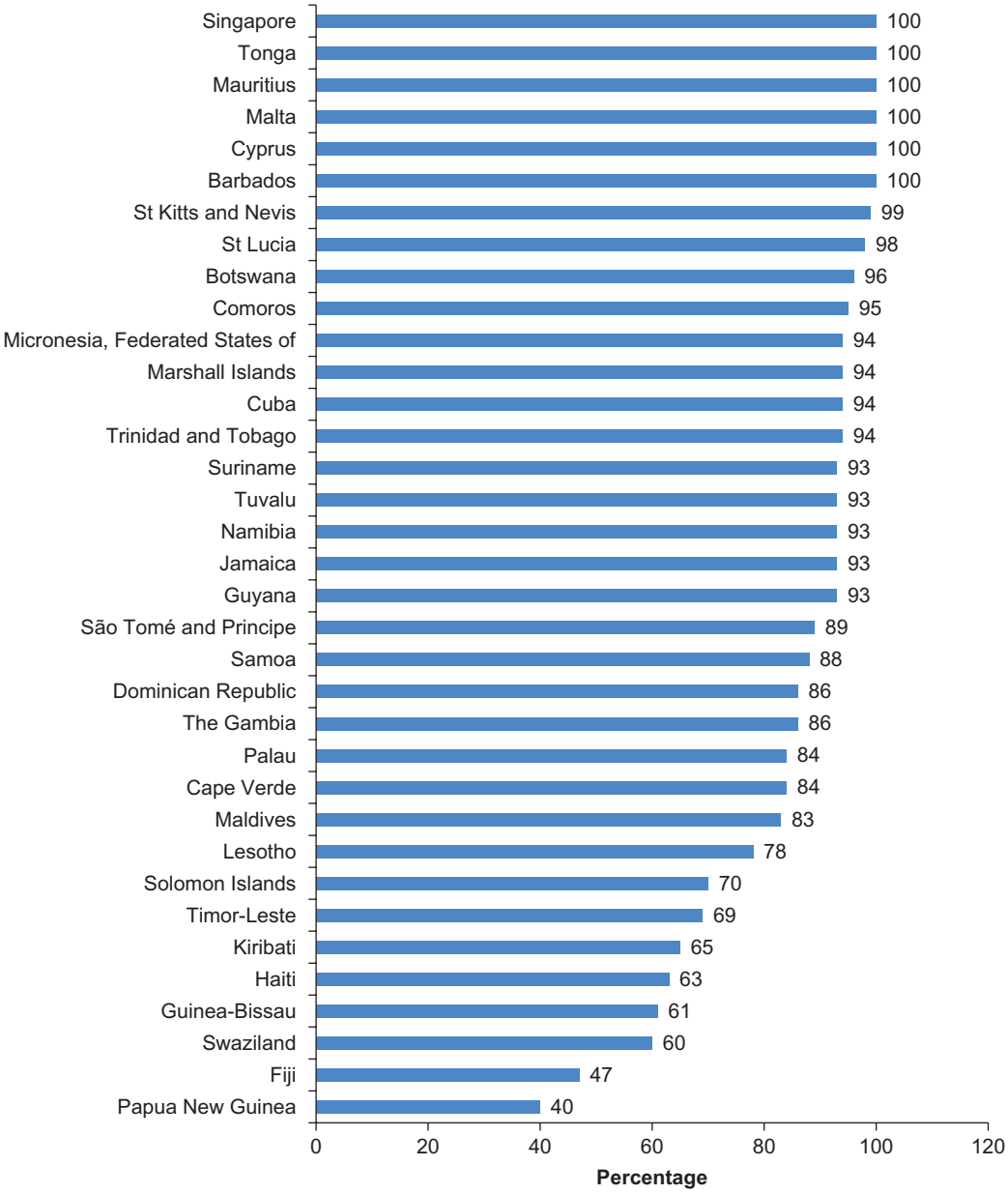
In the 40 small states for which recent data were available, it was found that 35 per cent of the population (amounting to about 22 million people) lacked access to an improved sanitation facility.

10.5 Target 7D: Improve lives of slum dwellers

10.5.1 Indicator 7.10: Proportion of urban population living in slums

Overall, 9 (20%) of the 46 small states made progress towards reducing the urban population living in

Figure 10.10 Proportion of population using improved drinking water



Note: Latest data were for 2008; where these were not available, data for 2006 or 2005 were used.
Source: UN MDG database 2010

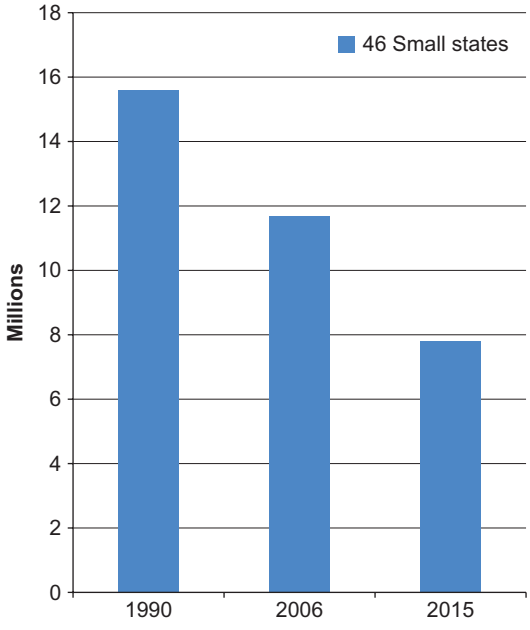
slums. Three countries (6%) were off-track, and in 34 states (74%), missing data prevented assessment of performance. Guyana, Jamaica and Dominican Republic reported increases in their urban slum population.

Extent of urban slum population

The highest levels of urban slum population were reported in Haiti (93%), Dominican Republic (70%), Bahrain (69%), Jamaica (61%) and Belize (47%). The largest decreases were in The Gambia, where the reported urban slum population fell from 67 per cent in 1990 to 45 per cent in 2005. Lesotho achieved a decrease of 50 per cent on the 1990 baseline to 35 per cent in 2005. In Trinidad and Tobago the slum population in urban areas was reported to have decreased from 35 per cent in 1990 to 25 per cent in 2005. Comoros achieved a reduction from 65 per cent in 1990 to 16 per cent in the latest reported year, 2007.

By contrast, in Guyana the urban slum population rose from 5 per cent in 1990 to 34 per cent in 2005; in Jamaica it rose from 29 per cent in 1990 to 61 per cent in 2005; and in Dominican Republic it increased from 28 per cent in 1990 to 70 per cent in 2007.

Figure 10.11 Population without safe water in 1990, 2006 and 2015



Sources: UN MDG database and UNDP 2010

10.6 Action on MDG 7: Environmental sustainability

Many of the 46 small states are taking action to improve environmental sustainability and these programmes are featured in recent budget statements and other government policy announcements. Some examples are given below.

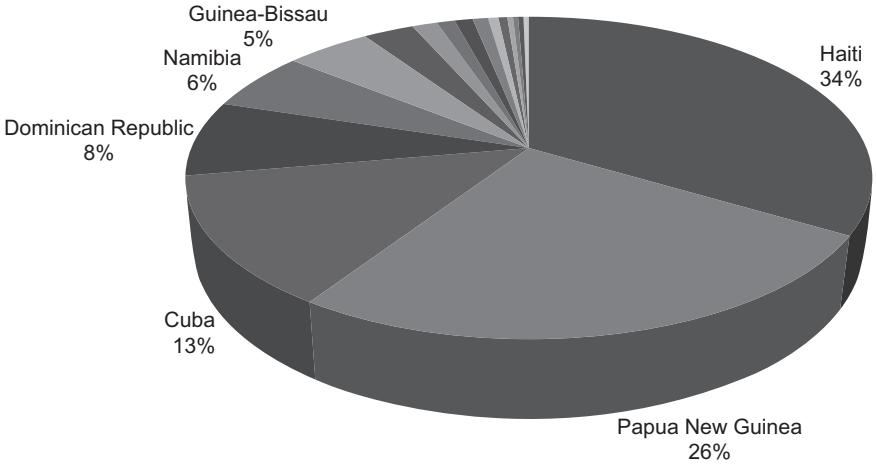
Botswana is working on a new Environmental Management Act by updating its laws on pollution and waste. It is promoting the development of wildlife parks, introducing new regulations for energy efficiency, developing biofuels and increasing its commitment to the provision of safe water.

Cuba has announced an 'Energy Revolution', promoting greater efficiency of energy use and more investment in renewables. It has also announced a new water use efficiency programme.

Fiji has introduced a tax holiday for renewable energy projects and announced a biofuel tax and incentives system. To decrease road congestion it has brought in a road user levy and to facilitate wider continuous provision of safe water it has removed the tax on water storage equipment. It has zero-rated hydro-turbines and energy conservation goods and initiated a project for extracting ethanol from cassava plants. The Fijian government plans to supply 90 per cent of the country's energy from renewable sources by 2011. With diesel costs increasing by 200 per cent over the last four years, it plans to save nearly F$3 million (US$1.7 million) annually and reduce consumption of diesel by 2,500 tonnes a year.

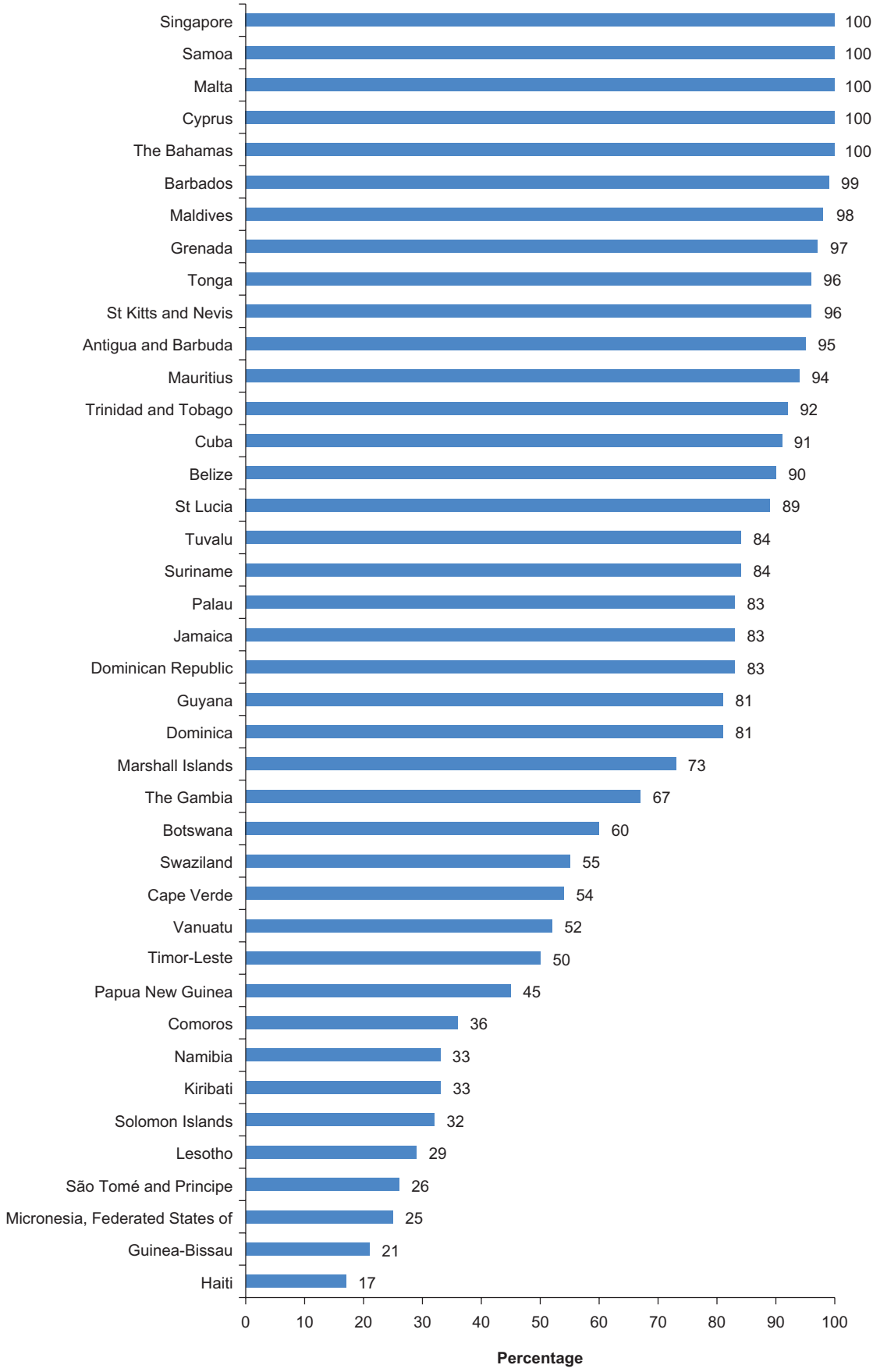
Haiti has seen a joint call by the World Health Organization and UNICEF for improved budget support for the 90 per cent of its population without safe sanitation. It is estimated that for every US$1 invested in sanitation, there is an economic return of US$9.[7] It is recognised that Haitians will continue to die from preventable water-borne diseases, educational access will be limited and economic growth stunted, if the country does not devote sufficient resources to sanitation. These provisions are all the more important following the recent major earthquake disaster. Proposals include a sanitation policy and restructuring governance to include a decentralisation model combined with public-private partnerships,

Figure 10.12 Population without safe water if 2015 target is reached



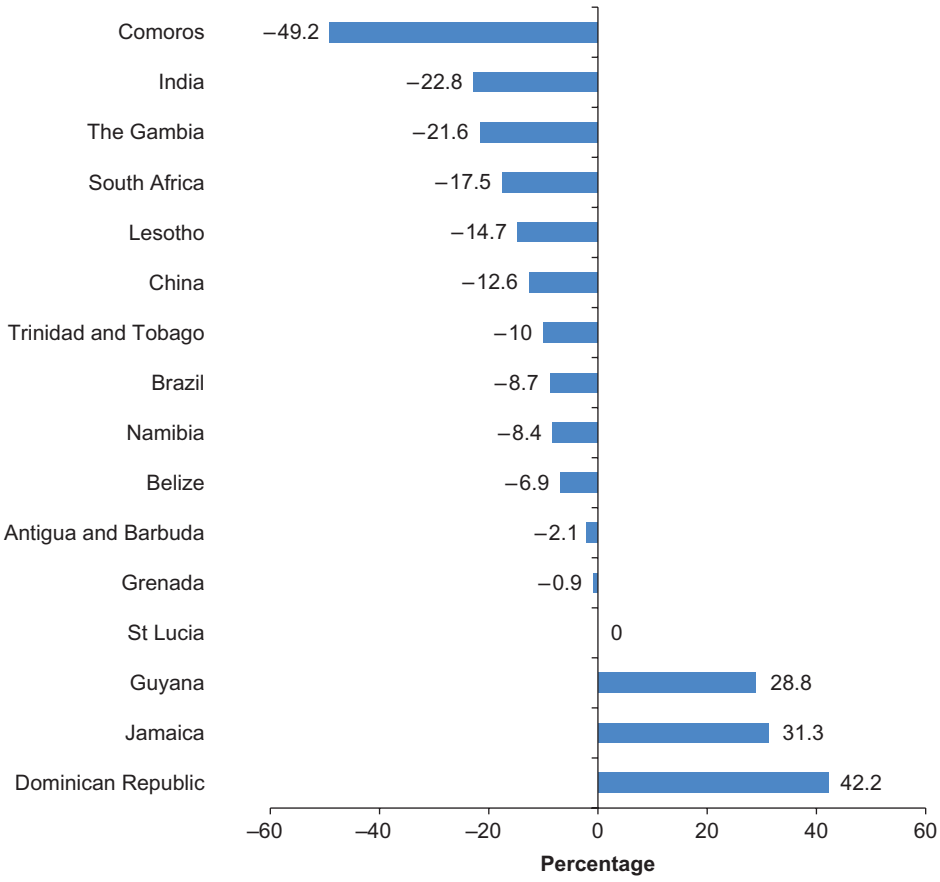
Sources: UN MDG database and UNDP 2010

Figure 10.13 Proportion of population using improved sanitation facility



Note: Latest data were for 2008; where these were not available, data for 2006 or 2005 were used.
Source: UN MDG database 2010

Figure 10.14 Change in slum population as a percentage of the urban population[8]



Note: Data compared from 1990 and 2005.
Source: UN MDG database 2010

with stringent anti-corruption guidelines to increase the accountability of government officials. This, it is claimed, can be done through clear performance indicators, internal and external mechanisms for monitoring and evaluation, and transparent budget lines for financial disbursement schemes. Surprisingly, Haiti ranks relatively high (tenth) in the progress league table (see Table A1.2), but much of its progress relates to movement measured against low baselines and the data reflect its pre-earthquake status.

Jamaica recently set a 20 per cent target for the production of energy from renewable sources by 2030 through the further development of wind and solar sources.

Mauritius has introduced in its major development sector a hotels energy management programme and is developing new regulations to control the impact of tourists, who are encroaching on the natural habitat of whales and dolphins; this has become a risk for these endangered species. To overcome major road congestion, which is estimated to put a 1 per cent drag on economic development, it is introducing a series of town bypass projects. Its renewable energy programme is being expanded through the promotion of solar energy technology. It is also establishing an energy use audit programme for the public and the private sector, and tax incentives for the purchase of hybrid motor vehicles.

Malta introduced a number of tax changes in its 2009 budget to reinforce the country's image as an 'eco-island', including €152 million (US$219 million) investment in environmental projects and alternative energy. With the aim of balancing economic development with sustainability, the 2010 national budget continued to place the environment among the government's top priorities. It established new regulations on the energy performance of buildings and promoted clean and renewable energy. Around €33 million (US$48 million) was allocated from EU funds for environmentally friendly technologies for both the domestic and commercial sectors.

Papua New Guinea has introduced a marine park and established offices to deal with climate change and natural disasters. It has also initiated a carbon trading initiative and a slum clearance programme. However, valuable data related to these targets are missing from the UN MDG database.

St Lucia has given priority to environmental education and has set up a project called 'the safe, clean and beautiful cruise port city'. It has been extending its wetland nature reserves and has introduced an Environmental Management Act. The country has devised new fiscal instruments for water saving and recycling and has a new national land policy for forest conservation. It has also revised its environmental impact regulations. It has set up a wind energy park and is undertaking a sustainable motor transport policy review.

Singapore is promoting a new initiative called 'urban planning for a first class global city'. Its 2010 budget included new policies on climate change economics and mitigation. The JTC Corporation in Singapore has recently unveiled a master plan for CleanTech Park (CTP), Singapore's first eco-business park for companies involved in clean technologies and sustainable urban solutions. The CTP is also a research and development and test bedding centre supported by the government of Singapore through the national Economic Development Board.

Notes

1 46 states x 9 indicators = 414.
2 Data are missing for two countries: Marshall Islands and Nauru.
3 Purchasing power parity figures are produced to adjust national figures in international monetary comparisons, taking into account differences in the cost of living in different countries that are not accounted for by the exchange rate values of the national currencies. The figures are based upon the local cost of a standard basket of goods and services.
4 CDIAC: Carbon Dioxide Information Analysis Centre
5 The adaptation of the Kuznets hypothesis (named after the Nobel Prize winning economist) to environmental economics is as follows: an inverted curve relationship exists between income levels and environmental quality. The effect in an expanding economy is in stages. At first, as incomes increase, so does environmental pollution; then, as income further increases, pollution reaches a peak. In the later stages of increases in income, pollution declines, as technology intervenes to increase efficiency and reduce pollution. This process is stimulated by growing demand for a cleaner environment, which results in the imposition of regulations for constraint on environmental depletion. In addition, with each stage of economic growth there is structural change in the economy with a move first from agriculture to industrial production and then from industrial production to financial and other services giving rise to lower levels of pollution per unit increase in income. (See Nath et al. 2010: 355).
6 Dominican Republic, Haiti, Federated States of Micronesia, Palau and Timor-Leste.
7 See http://esa.un.org/iys/docs/2%20fact-sheet_economic%20benefits.pdf
8 Some data for countries in the UN data base in 2010 were for 2007 and some for 2005. The numbers given in Figure 10.14 are for changes in percentage points from the baseline to the latest value for each country.