



# 3

## Regional Outlook

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### 3.1 Dimension performance 2019

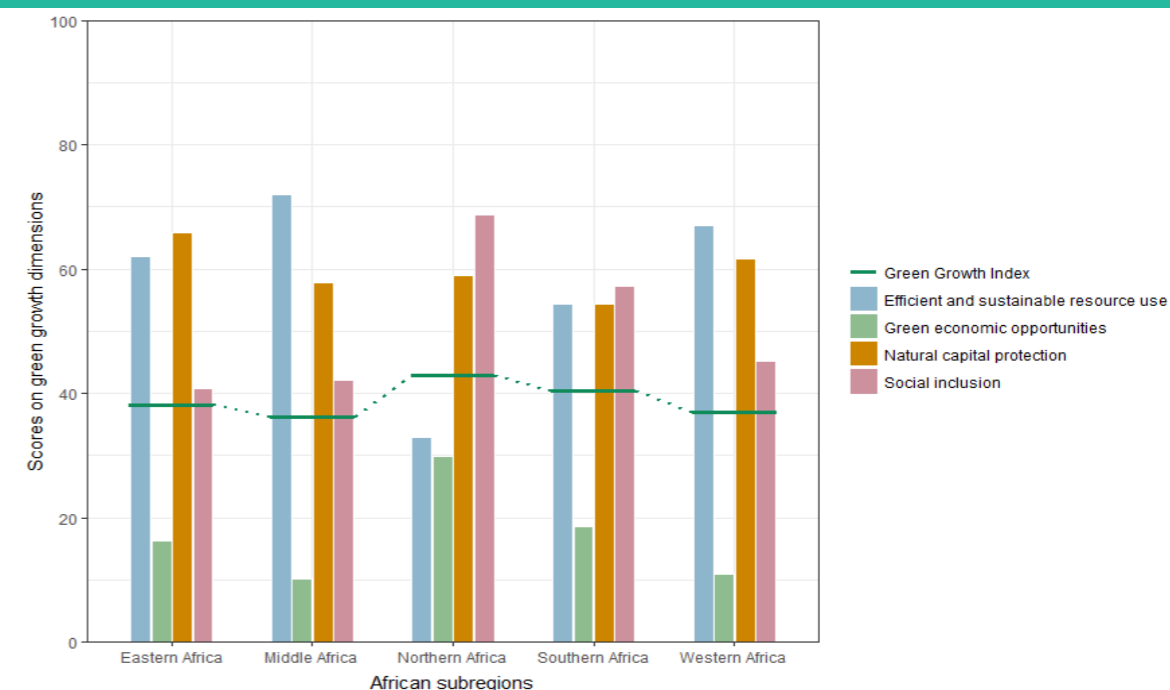
Green Growth Index rankings are provided for countries within five geographic regions – Africa, the Americas, Asia, Europe, and Oceania. To further understand the Green Growth Index results, an in-depth analysis of each region is provided discussing the scores of efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion at a subregional level.

#### 3.1.1 Africa

The Green Growth Index includes the results for five African subregions – Eastern, Middle, Northern, Southern, and Western Africa. The results show that the overall regional performance is moderate to low. Northern Africa has the highest green growth index, as a result of high social inclusion and the best performance

in green economic opportunities compared to the other subregions. The very high scores in social equality in Morocco, Algeria, and Tunisia as well as moderate to high country performance in green investment support this result. However, Northern Africa also has the lowest scores in efficient and sustainable resource use, linked to poorer performance in efficient and sustainable energy and water use. In comparison, the above 60 scores of Eastern, Middle, and Western Africa (Figure 8) in this dimension is mainly attributed to the high scores in efficient and sustainable energy use. Natural capital protection is the most consistent across subregions, with Eastern and Western Africa receiving high scores and having strong performances in GHG emission reductions followed by environmental quality. Whereas, the Northern Africa score is affected by low values in biodiversity and ecosystem protection (Figure 7). Among all subregions, green economic opportunities score the lowest, except Northern Africa. Green investment is observed to be the main contributor to the green economic opportunities dimension, with zero or very low scores provided to the other indicator categories.

Figure 8 Green Growth Index and dimension sub-indices in the African subregions



#### 3.1.2 Americas

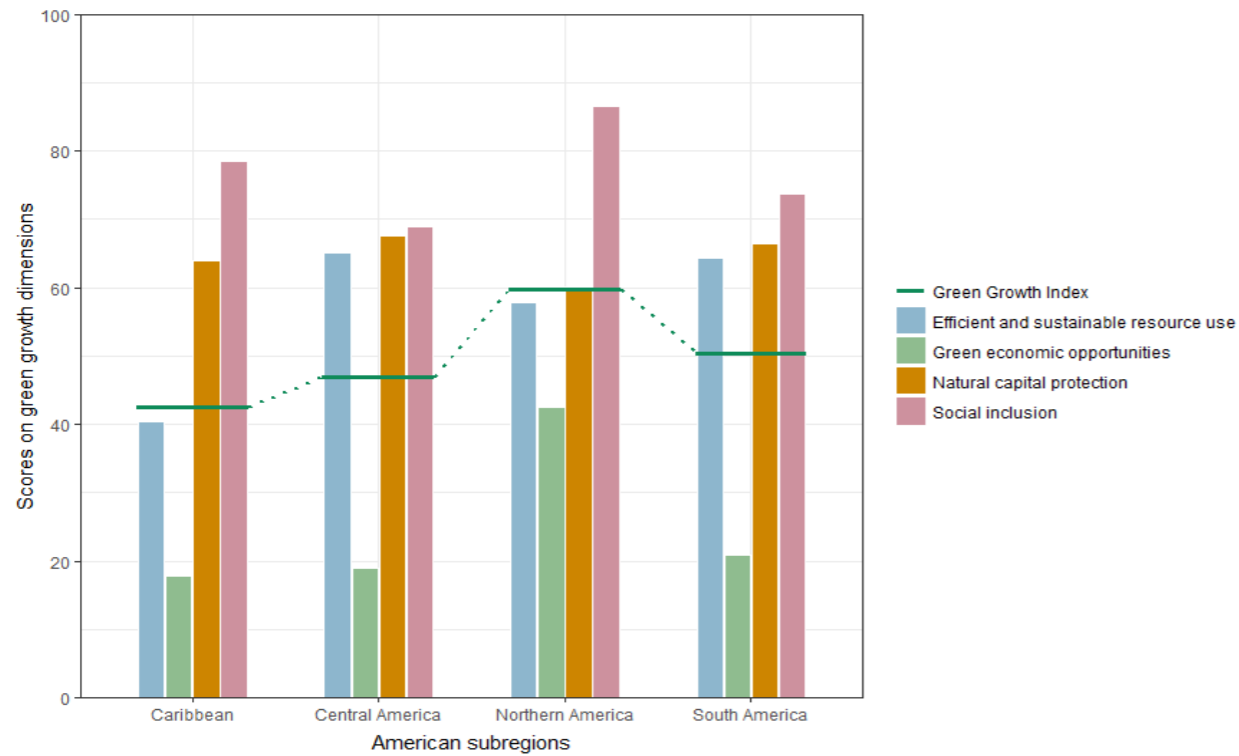
The Caribbean and Central, Northern, and South America are the four subregions of the Americas. Social inclusion is the strongest performing dimension with high scores in the Caribbean and Central and Southern America. The very high scores in Northern America can be attributed to countries such as the United States and Canada as a result of prioritizing social inclusion policies and spending on social programs. However, Northern America falls behind in the dimension of natural capital protection due to lower scores in GHG emissions and biodiversity and ecosystem protection (Figure 9). In comparison, Central America leads the performance in natural

capital protection. Consequently, being an area of the world with high biodiversity, many countries in this region such as Mexico and Costa Rica have higher scores for natural capital protection. Additionally, this region also has the highest efficient and sustainable resource use scores due to higher performance in efficient and sustainable energy use and material use efficiency. South America has comparable values to Central America in terms of natural capital protection and resource efficiency; however, it does have a higher green growth score due to slightly higher scores in gender balance and social equality for social inclusion. The Caribbean has the lowest green growth index score just above 40 (Figure 9), and while this sub-region scores higher in social inclusion, this is offset by the

lowest regional values in green economic opportunities and efficient and sustainable resource use. Green economic opportunities scores are also the lowest among all dimensions, with similar values observed in the Caribbean, Central America, and South America. This is primarily attributed to green investment. On the other hand,

the moderate scores in Northern America are the outcome of higher green trade and green employment scores compared to the other subregions (Figure 7).

**Figure 9 Green Growth Index and dimension sub-indices in the Americas subregions**

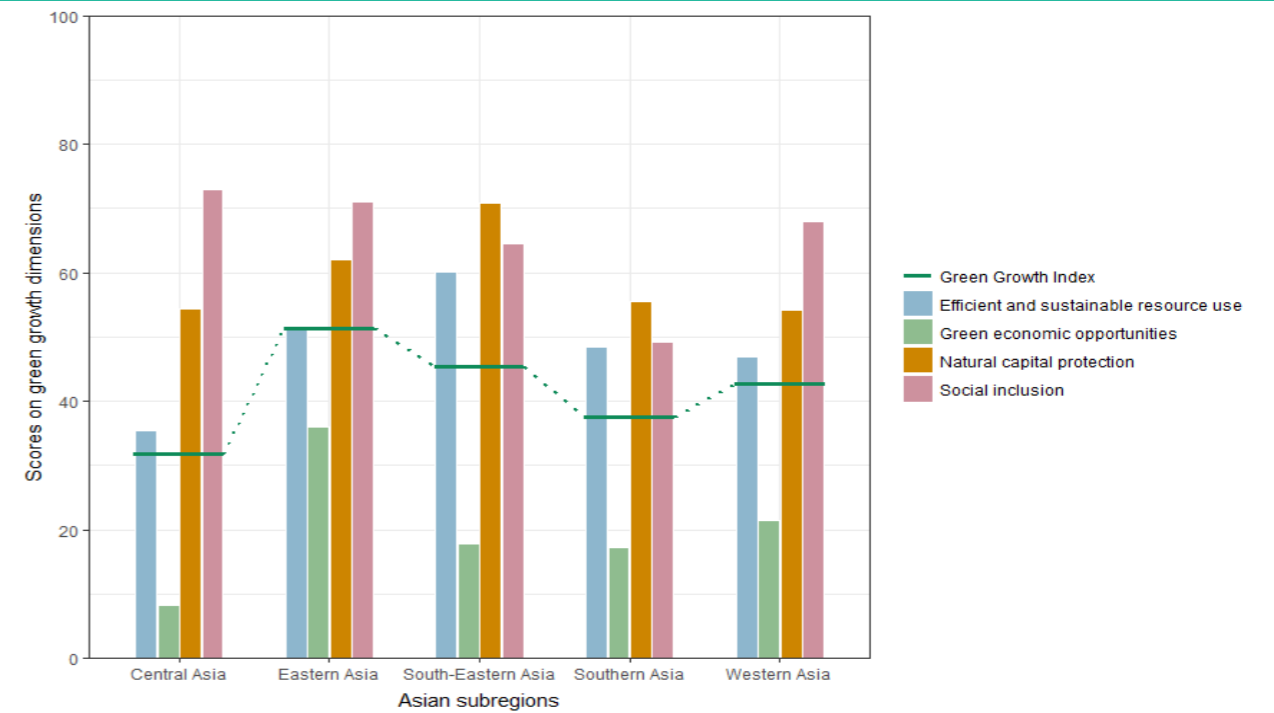


### 3.1.3 Asia

Asia has five subregions – Central, Eastern, South-Eastern, Southern, and Western Asia. Green growth performance is more varied in this region, with a large difference in index scores observed between Eastern and Central Asia. The high social inclusion scores among all the sub-regions are observed except for Southern Asia. The Central Asian countries slightly taking the lead in performance for social inclusion, with three out of the five countries scoring above 70. It is followed by East Asia with countries such as Japan and Korea having very high scores above 80 (Table 11). Both of these regions show high values for access to basic services and social equity among the individual indicators. However, Central Asia scores the lowest in overall green growth as a result of low scores for green economic opportunities and efficient and sustainable resource use. Comparably, Eastern Asia has the highest green growth performance, due to high scores in the green economic opportunities dimension as a result of green investment and green employment (Figure 10).

Natural capital protection performance is highest within South-Eastern Asia, with many countries having very high scores related to environmental quality and GHG emission reductions. Further, this sub-region is also another global biodiversity hotspot, thus it explains the average high score of 70 for this dimension (Figure 10). South-Eastern Asia also has the highest efficient and sustainable resource use score which can be attributed to having slightly higher values in terms of efficient and sustainable energy and water use compared with other sub-regions in Asia. The low scores for green economic opportunities are observed among South-Eastern Asia, followed by Southern Asia, Western Asia, then Central Asia. Similar to other regions, green investment seems to be the main contributing indicator towards a higher score in the green economic opportunities dimension (Figure 7). Additionally, another emerging trend is income-level, as it can be shown that the sub-regions with a higher proportion of upper-middle to high income classified countries have a better performance in green economic opportunities.

**Figure 10 Green Growth Index and dimension sub-indices in the Asian subregions**



### 3.1.4 Europe

In comparison to other regions, Europe is the strongest performer in green growth, with most of its subregions having a high green growth index score. This includes four regions – Eastern, Northern, Southern, and Western Europe. The bar plots of Eastern, Southern, and Western Europe show the same trend in dimension performance for social inclusion, natural capital protection, efficient and sustainable resource use, and green economic opportunities. Northern Europe varies by having a higher resource efficiency score than natural capital protection (Figure 11).

Social inclusion is classified as very high in each subregion, with the highest score in Western Europe and Northern Europe. Both subregions also have high scores across all indicator categories. Top countries include the Netherlands, Germany, and Norway. The variations between these two subregions are that Western Europe has higher scores for natural capital protection and green economic opportunities mainly due to higher biodiversity protection, green trade, and green employment (Figure 7). Thus, Western Europe has the highest green growth index. Though efficient and sustainable resource use scores are higher across the indicator categories in Northern Europe. Scores in Eastern and Southern Europe are also alike, however, the low score in green economic opportunities caused by a lack of green employment and green innovation results in Southern Europe having a lower Index score than Eastern Europe.

### 3.1.5 Oceania

Oceania is comprised of four subregions – Australia and New Zealand, Melanesia, Micronesia, and Polynesia. Due to data limitations with the region, a country-level analysis is presented for Australia and New Zealand. Moderate green growth scores are observed for both countries, with New Zealand being slightly higher than Australia (Figure 12). Global regional trends are further observed such as high social inclusion and low green economic opportunity scores. There are minor differences that appear between the efficient and sustainable resource use and natural capital protection dimensions. The higher scores in GHG emission reduction raise the score for the national capital protection dimension for New Zealand over Australia. While increasing organic agriculture in Australia has resulted in higher scores in sustainable land use for the resource efficiency dimension.

Figure 11 Green Growth Index and dimension sub-indices in the European subregions

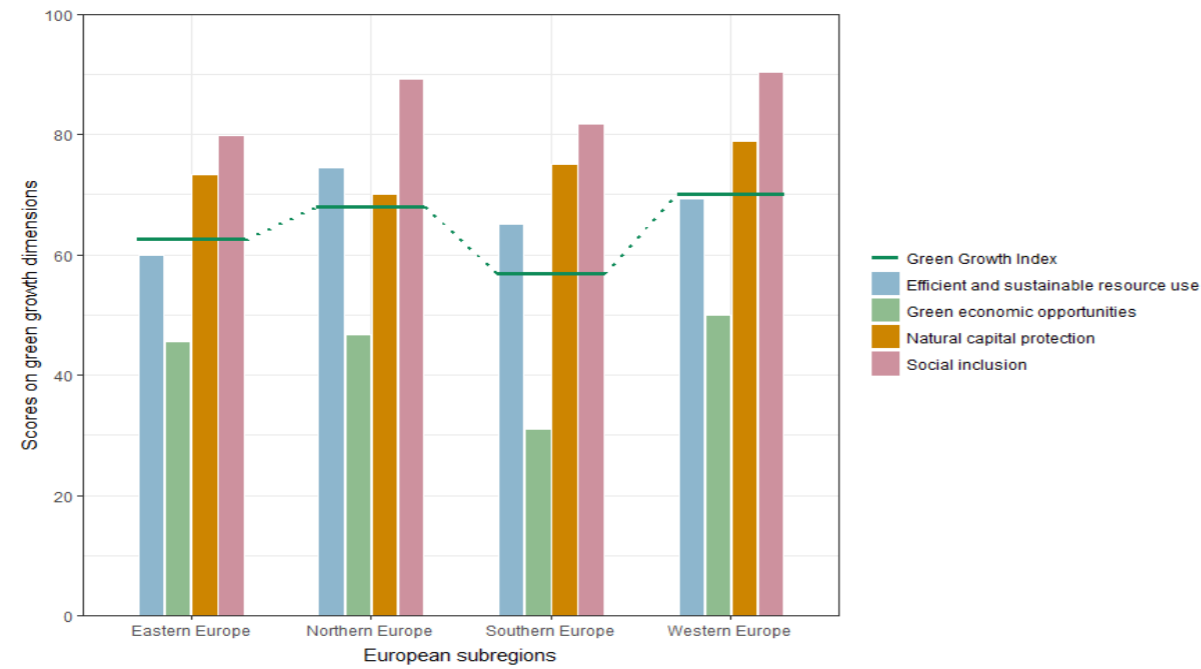
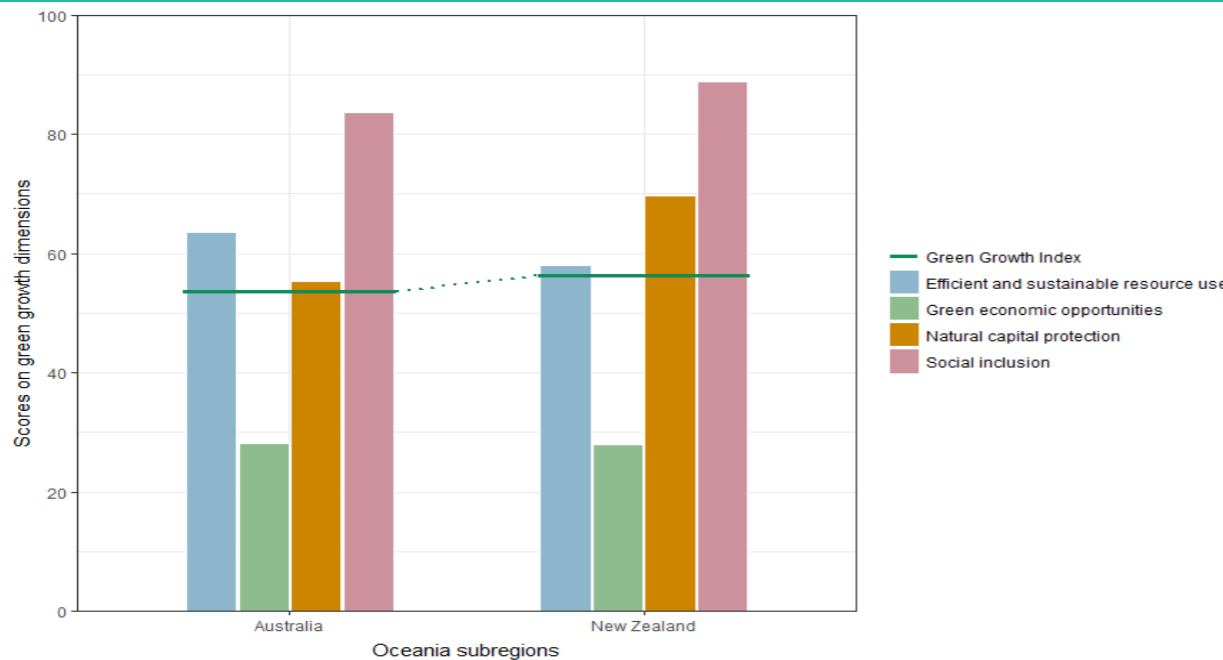


Figure 12 Green Growth Index and dimension sub-indices in the Oceania subregions



## 3.2 Trend 2005-2019

### 3.2.1 Overall trend

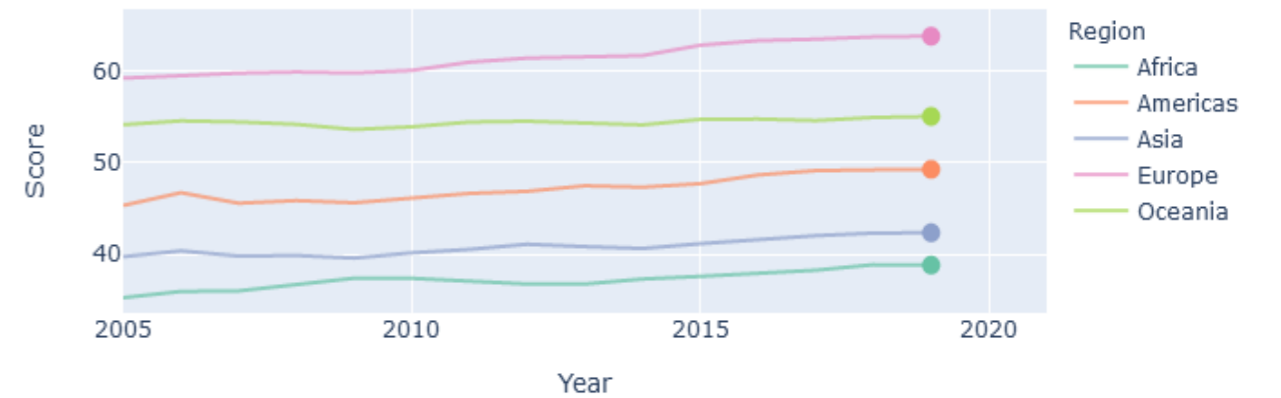
In order to analyze the performances of countries in the Green Growth Index, it is important to review the trends over the past years which are disaggregated by region and dimension. Understanding the reasons for the upward and downward trends in the Index and its dimensions allows policymakers to gain insight

into which areas of green growth require more attention. Figure 13 presents the trends in the Green Growth Index by region from 2005 to 2019. Europe takes the lead in the Green Growth Index performance across time, mostly raised over the years by the European Union's (EU) efforts to push for a more sustainable future. In the past decade, the EU has introduced stringent laws protecting reserved areas, attempting to reduce pollution in cities through the implementation of strict low emissions zones and pushing for greater use of renewable energy. Countries in Europe have scores indicating that they are approaching sustainability target levels as of 2019,

even though the disaggregation by dimensions shows a different picture. On the other hand, Africa and Asia remain the regions with the lowest scores over time. African nations have scores mostly in the low range (20-40), while Asian countries are on the lower end of moderate scores (40-60). But, there are still improvements in performance for these countries, particularly for the social inclusion dimension. For the Americas, the score range is between 40-60, but again. On the lower end of the moderate scores. This is primarily

once again due to the sustained efforts to reduce poverty and inequality in South and Central America. The score for the Americas does not adequately reflect the performance of the United States and Canada who individually score well above the average for the Americas as a whole, at 60 and 59, respectively. Finally, Oceania remains the continent that has seen the least change in score over the past 15 years, with a score between 40-60, but on the upper end of the average scores.

Figure 13 Trend in Green Growth Index by region



### 3.2.2 Trend in dimensions

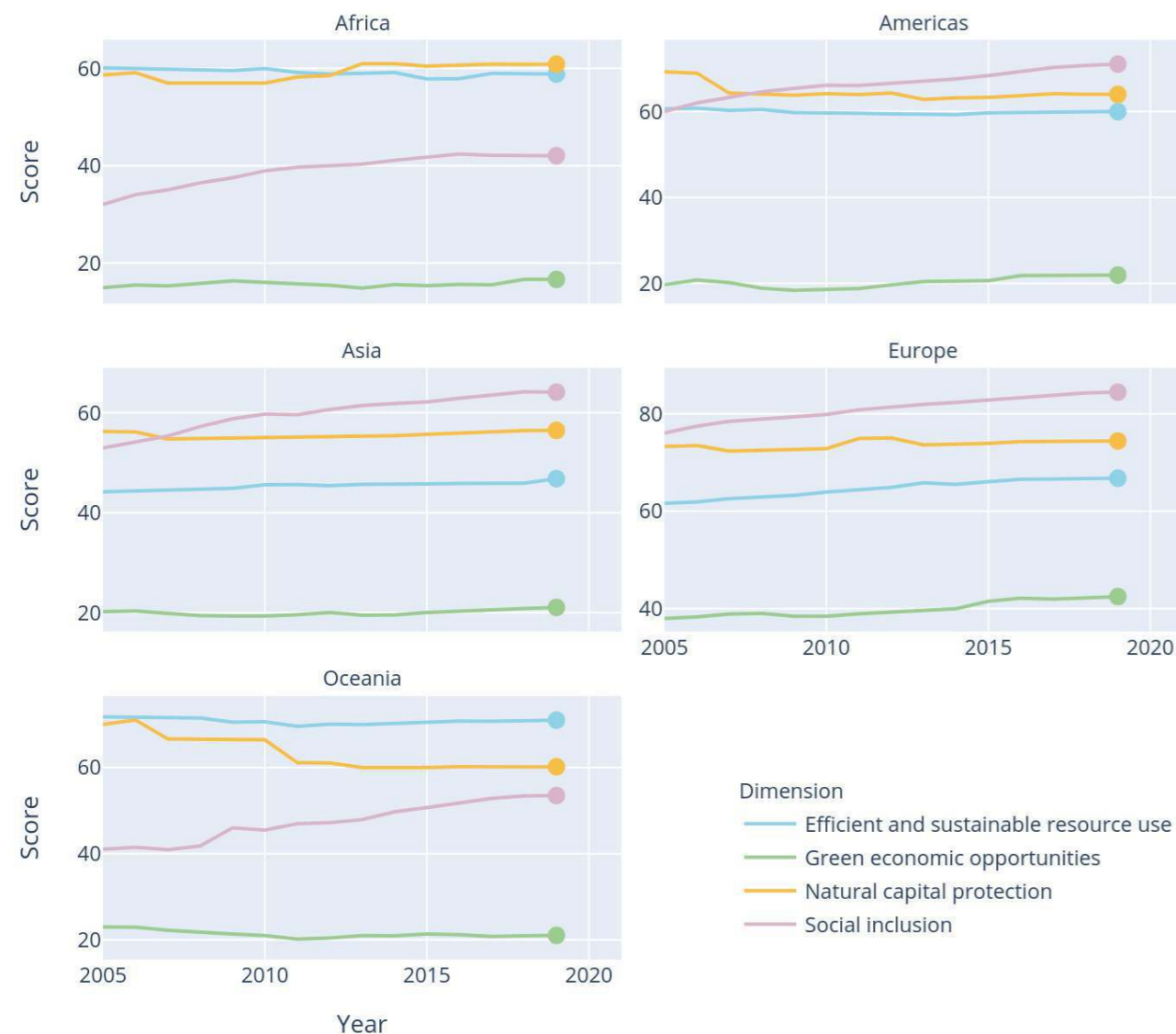
From the disaggregated trends observed in Figure 14, some general conclusions can be drawn. Although the trends differ across continents, green economic opportunities is consistently below targets and largely stable across time, except in Europe where the trend is rising slightly and greater than other regions. Another positive trend to note is that across all continents, social inclusion scores have risen systematically over the past 15 years. This is especially true in areas with many developing countries like Asia and Africa. The increase in social inclusion scores can largely be attributed to the wide-ranging efforts at poverty reduction including the inflow of foreign aid, government welfare programs, and efforts by international organizations including the UN (Ravallion, 2020).

Certain interesting comparative trends can also be noted (Figure 14). For instance, African nations are on par with European countries in the efficient and sustainable resource use dimension. This seems to be at least partly due to the indicator on the ratio of total primary

energy supply to GDP, where many African nations have a score of 100, indicating that they have reached or exceeded the sustainability target. The high scores for this indicator are due to the lower total consumption of energy in many African nations like Burkina Faso and Ethiopia as well as the increasing investments in renewable energy. Moreover, this trend may continue in the future as the continent has many renewable energy resources to exploit, including geothermal and solar energy (IEA, 2019). It can also be observed that Africa scores slightly better on the dimension of natural capital protection than its richer counterpart, Asia. This is because the Asian developing countries have usually prioritized industrialization over conservation, while Africa has only produced 2% of energy-related global carbon-dioxide. This can be expected to change in the coming years as African nations also emerge on a path of industrial development.

The following parts of this chapter provide explanations for the above-mentioned trends in the green growth dimensions.

Figure 14 Trend in green growth dimensions by region



### Africa

Africa has a sustained increase in the social inclusion dimension score, which can be attributed to a variety of factors including the many initiatives to improve education and healthcare and reduce poverty. Some of these include conditional cash transfer schemes implemented in many countries, the popularity of mobile money, and malaria prevention initiatives like the distribution of insecticide-treated bednets. About 450 million malaria deaths were prevented in sub-Saharan Africa between 2000 and 2015 due to the distribution of such nets (WHO, 2015), which has contributed to the rise in the healthcare indicator. The effect of mobile money schemes can be seen most prominently in the case of Kenya, where the indicator on fixed internet broadband and mobile cellular subscriptions has increased rapidly over the past decade. Further, some studies found that mobile money initiatives in Kenya also empowered women which were observable in the gender balance indicators, especially on the account at a financial institution or mobile-money-service provider. Even low-income nations such as Somalia and Mali have recorded rapid increases in the score for fixed internet broadband and mobile cellular subscriptions. Botswana,

which is another country that has prioritized inclusive development in the past years, has also recorded an increase in the social inclusion indicators, particularly in access to basic services and resources.

The efficient and sustainable resource use dimension has remained largely consistent across time since efforts for introducing clean energy have been largely countered by a drive for industrialization. While many African countries have scores near 100 for the indicators on material footprint per capita, soil nutrient budget, and share of freshwater withdrawal, their scores on other indicators like share of organic agriculture are below 20 for most countries. In the natural capital protection dimension, a similar narrative emerges since efforts to conserve biodiversity and forest land have been resisted by politicians and interest groups who wish to exploit these resources. While most nations score highly in certain categories like in forest area to total land area and municipal solid waste generation, there are mixed results in other categories. For instance, in the indicator for Disability-Adjusted Life Year (DALY) rate due to unsafe water sources, countries such as Niger, Chad, and the Central African Republic have consistently scored very low (below 20). In the green economic opportunities dimension, trends

are difficult to ascertain in many cases because there were only a few data available. Generally, African countries perform uniformly low on most indicators, with some nations like Tunisia and Morocco outperforming others. The best performance is in the indicator on adjusted net savings, where many countries score above 70.

### Americas

In the Americas, the social inclusion dimension has seen a steady rise over time, although the developed countries like Canada and the United States outperform other nations substantially. The rise in social inclusion can be largely attributed to South and Central America's investment in social welfare, like the Bolsa Familia program in Brazil and Oportunidades in Mexico (Cecchini, 2020). These two countries have seen a rapid rise in access to basic services, social protection, and gender balance indicators and a moderate rise in social equality scores. On the other hand, there has been a slight decline in the natural capital protection dimension, primarily due to score decreases in cultural and social value indicators in many of the Caribbean countries like Antigua, Barbuda, Barbados, the Bahamas, and Aruba.

In efficient and sustainable resource use, trends in the Americas have remained largely stable, as the adoption of renewable energy has been slow, even in places like the United States and Canada. All countries perform poorly in indicator on water use efficiency, with scores below 20. In indicator on material use efficiency, the Americas perform relatively well, with most countries having high scores above 80. While the score for soil nutrient budget is near 100 for most countries, the indicator on share of organic agriculture is very low and remains persistent across time. The trends for green economic opportunities are more mixed differing from country to country and on average remaining unchanged over time. Canada has seen a rise in indicator values for green employment and share of patent publications in environmental technology. On the other hand, the indicator on adjusted net savings has a decreasing score for many countries, although it remains the highest scored category in this dimension (as also the case in Asia and Africa). The share of export of environmental goods to total export is the indicator in which most countries score consistently below 20.

### Asia

Asia has also recorded increasing trends in social inclusion and stable trends across other dimensions. The rise in social inclusion has been driven by an increase in access to basic services and social protection categories, as well as modest improvements in gender balance indicators across most countries. This is because large investments have been made since the beginning of the 21st century in welfare programs, with the aim of reducing absolute poverty. Some examples are sanitation and healthcare programs in Bangladesh and Sri Lanka, workfare programs in India, and the popularity of cash transfer programs throughout many developing countries (Berg, Bhattacharyya, Rajasekhar, & Manjula, 2018; UNICEF & WHO, 2019).

In the dimension of natural capital protection, Asian countries have not seen an increasing trend towards the sustainability target. This is primarily due to a large failure in curbing air pollution. India and China have cities that frequently appear in the top lists of the most polluted nations. Similarly, cities in Bangladesh, Pakistan, and Mongolia often have dangerous levels of particulate matter (PM) 2.5 levels (UNEP, 2019). In other natural capital indicators including

the biodiversity indicators, DALY rate due to unsafe water sources, and tourism in marine and coastal areas, there are mixed results with most countries recording stable trends across time. In the efficient and sustainable resource use dimension, Asia has failed to improve substantially over the past 15 years, despite large investments in renewable energy by both India and China. The region's score is uniformly poor in the category of water use efficiency, with many countries scoring between 1 and 10 points. Generally, as with Africa, Asian countries have not seen an improvement in performance along the dimension of green economic opportunities and the best performing category in this dimension is the indicator on adjusted net savings.

### Europe

Europe has recorded an increasing trend across the dimensions of efficient and sustainable resource use, green economic opportunities, and social inclusion, which is a positive sign for green growth transition. Countries such as Germany and the Scandinavian nations of Denmark, Norway, Sweden, and Finland have encouraged investments in renewable energy due to which the indicator on efficient and sustainable energy has seen a rise. Although many European nations have enacted strict air pollution laws by using low emissions zones and congestion charging policies (OECD, IEA, ITF, & NEA, 2015), the air pollution indicator (PM2.5) has seen a fall from target levels since 2005. Due to this and only stable trend in biodiversity indicators, the natural capital dimension in Europe has not substantially changed over time. In the case of social inclusion, the increased score can be attributed to improvements across all indicator categories in many of the Eastern European nations like Bulgaria, Slovakia, and the Czech Republic. Additionally, gender balance indicators across most countries have been very close to target levels since the enactment of policies for equality, such as mandating equal pay and treatment of women in the workplace (EIGE, 2020). The green economic opportunities dimension has also seen an upward trend due to consistent importance given to the creation of green employment and the focus on sustainable innovations (Pociovălișteanu, Novo-Corti, Acelanu, Șerban, & Grecu, 2015).

### Oceania

Oceania shows interesting trends across time, with a steep drop in natural capital protection and a rise in social inclusion. The drop in the natural capital protection score is due to a significant decrease in the environmental quality indicators in New Zealand and Australia. Cultural and social value indicators have also dropped for places like Fiji, the Marshall Islands, and Vanuatu. The rise in social inclusion can be attributed to an increase in access to basic services and resources across all countries, as well as a moderate increase in scores for the gender balance category. With respect to efficient and sustainable resource use, information for water-use efficiency remains limited, but performance in other categories has been consistent with a slight increase for most countries in efficient energy use.

Data remains sparse in the dimension of green economic opportunities but indicates that both Australia and New Zealand have had declining scores in share of export of environmental goods to total export and share of green employment in total manufacturing employment. Fiji has shown a steep increase in green employment with a score of 85.34 in 2020 (up from 51.6 in 2005), due to an increase in jobs at tourism resorts and jobs which are energy and water efficient and sustainable (GGGI, 2019).