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Sustainable Business Opportunities in Latin America and the Caribbean

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Photo credit: Livelihoods Funds/Lionel Charrier

EXECUTIVE SUMMARY

Over the past 15 years, the Latin American and Caribbean region has seen huge social improvements – reduced poverty, inequality, and hunger – as well as economic and technological progress. The share of people living in extreme poverty fell by two-thirds in Latin America and by one-third in the Caribbean. But there are still distinctive environmental and social challenges facing the region and putting its future economic growth, stability, and shared prosperity at risk. As with every continent or trade bloc, one cannot generalise the findings of this report to each country in Latin America or the Caribbean. However, we trust that this content will be helpful to anyone that has an interest in the broader region.

Air pollution and congestion are choking the region's rapidly growing cities. Expanding agriculture and natural resource extraction are fast degrading its natural capital – Latin America lost almost 90 million hectares of its forests between 1990 and 2010.[1] Extreme weather events – droughts, floods, and hurricanes – are intensifying in the region, a trend that is linked to global climate change. The average number of people affected each year by natural disasters in Latin America has doubled over the past decade, and reconstruction costs are draining public resources. One study estimates the cost of hurricanes in the Caribbean will reach US$5 billion a year by 2050.[2] The 2017 Atlantic hurricane season has already been the priciest season on record, with damages from Hurricane Irma alone costing the Caribbean US$30 billion in September.[3]

On the social front, average unemployment in the region rose above 8 percent in 2016, even higher than during the 2008–09 financial crisis. Yet the share of workers in vulnerable employment has grown at the same time, as relatively low investment in new technology

and skills limits the region's capacity to create good new jobs. Although women's participation in the region's labour force, at 53 percent, is now above the 50 percent global average, gender inequalities in the workplace remain. And almost a third of women still have no income source of their own.

There are many signs that Latin American and Caribbean governments and businesses are not yet pulling together to effectively tackle these challenges. Governments collect unusually low levels of tax: the regional average ratio of tax to gross domestic product (GDP) was 22.8 percent in 2015, compared to an Organisation for Economic Co-operation and Development (OECD) average of 34.3 percent, while tax evasion that year reached an estimated 6.7 percent of regional GDP. Corruption continues to buffet social and economic progress. The region scored 44 out of 100 on Transparency International's 2016 Corruption Perceptions Index, where a score below 50 indicates a serious problem.

Latin American and Caribbean businesses, governments, and civil society leaders need to face these challenges quickly to maintain the region's economic momentum, protect its natural capital, and achieve inclusive social development. This report offers them a practical way forward. Aligning their strategies with the 17 United Nations Global Goals for Sustainable Development (Exhibit 1) and with each other's objectives will effectively reframe the region's environmental and social threats as potential growth and development opportunities.

Latin America's large urban population and remarkable natural resources position the region exceptionally well to develop a low-carbon, more socially inclusive economy aligned with the Global Goals. Taking this route opens up attractive investment opportunities in 60 sustainable market 'hotspots'. Together, these markets could yield an economic prize worth more than US$1.2 trillion across the Latin American and Caribbean region by 2030,[4] not to mention large environmental and social benefits, notably in employment. These hotspots could create more than 24 million new jobs, spreading prosperity in rural and urban populations.

Major market opportunities

This report details the most significant business opportunities aligned with the Global Goals in four key areas of the the Latin American and Caribbean economy: cities; energy and materials; food and agriculture; and health and well-being. Forward-looking firms are already developing innovative solutions in all four areas.

Cities: With more than 80 percent of its population living in cities, Latin America is now the world's most urbanised region.[5] Its cities are expected to add another 92 million people by 2030.[6] But rapid urbanisation has gone hand in hand with shortages of adequate housing, soaring energy demand, and crippling traffic congestion and air pollution. Business opportunities with the greatest urban economic, environmental, and social impact lie in affordable housing designed to weather natural disasters; increased energy efficiency in buildings; and electric and hybrid vehicles, along with lean, green public transport systems.

Food and agriculture: In Latin America, developing services to manage ecosystems – protecting forests while generating value from them – offers more potential rewards than in any other region of the world. Forest ecosystem services could be worth US$193 billion a year in Latin America and the Caribbean by 2030, representing the region's largest opportunity. Reducing food waste in supply chains, scaling resource management technology in large farms, and expanding urban agriculture offer further attractive possibilities.

Energy and materials: Here, the business opportunities largely stem from anticipating stricter regulation to protect natural resources and the shift from fossil fuels to cleaner energy sources. These trends open up particularly interesting prospects in Latin America and the Caribbean for 'circular' business models in the automotive, appliance, and electronics industries, and in expanding renewable energy. Extractive industries could also pool their investment in essential infrastructure, greatly reducing their transportation costs and facilitating trade.

Health and well-being: Latin America's expanding consumer class means more care is needed for the long-term health conditions linked to higher consumption and more sedentary lives. At the same time, income inequality and the region's varied terrain mean access to healthcare varies enormously. Around 30 percent of the population does not have access to healthcare for economic reasons, and 21 percent of people have difficulty reaching care because of geographical barriers.[7] Digital technologies offer potential business solutions to all these challenges. New technologies underlie significant business opportunities in risk pooling, remote patient management, and telehealth.

The total economic prize for pursuing the Global Goals will be bigger than the estimated US$1.2 trillion available in the region from opportunities in these four areas. More value can be released from other sectors critical to sustainable development – notably, information and communications technology (ICT), education, and consumer goods. In addition, pricing the actual costs of environmental damage – such as that caused by climate change – into value projections could increase the 'real' size of the prize by a further 40 percent.

Sustainable infrastructure financing

Pursuing these opportunities will inexorably bind economic growth in Latin America and the Caribbean to greater social inclusion and environmental protection across the region. But realising their full potential will depend on unlocking the necessary investment and renewing the social contract between business, government, and civil society.

Investment in sustainable infrastructure is a pre-condition to fully achieve the economic prize presented by the 60 market hotspots, since gains from most of them depend on the supporting infrastructure being in place. This infrastructure is needed in a range of sectors – energy, transportation, agriculture, water – and will need to take many forms, from schools and hospitals to broadband networks that supply high-speed internet access.

But public infrastructure investment in Latin America has been trending downwards, and reconstruction following extreme weather and natural disasters is increasing the demand on public resources. In contrast, Latin America and the Caribbean leads the developing world in private investment in infrastructure. From 1990 to 2013, the private sector invested US$680 billion in Latin America and the Caribbean, about 30 percent more than in the high-growth Asian economies (US$503 billion) and more than five times as much as in sub-Saharan Africa (US$130 billion).[8]

Nevertheless, the Latin American and Caribbean region has a significant infrastructure investment gap. In 2012, the United Nations Economic Commission for Latin America and the Caribbean estimated that Latin American markets should invest 6.2 percent of their GDP – US$320 billion across the region – in infrastructure every year to 2020 to satisfy the most immediate infrastructure needs.[9] At best, the public sector will likely be able to finance about one-third of this investment. This implies the need for roughly a fourfold increase in private investment in sustainable infrastructure across the region to fill the gap.

Wider and more efficient use of blended finance instruments and vehicles could attract much more private capital for sustainable infrastructure in Latin America and the Caribbean. These instruments can help apportion the risks of infrastructure projects between public and private investors in a way that makes the risk/return profile more feasible. There is potential to extend the use of blended finance beyond infrastructure to encourage private investment into new or riskier sectors including healthcare, sustainable agriculture and land use, social housing, education for girls, and off-grid clean energy.

Renewing and energising the social contract

Not only do governments and businesses in Latin America and the Caribbean need to learn how best to blend and grow the pool of capital for investment into sustainable infrastructure and development, but they must also learn to accelerate both individual entity, industrial sector, and cross sector solutions in working towards the Global Goals. Businesses must make sure they create well-paid jobs, and provide decent working conditions and training. Governments must make sure policies are clear and aligned with the Global Goals. They must avoid the waste, inefficiency, and corruption that ambiguous and contradictory policies – such as fossil fuel subsidies – encourage today. Civil society also has a critical role to play in making sure that that businesses and governments act legally. They must lobby for changes in the law and local practices when businesses and governments fail to combat corruption or to protect those hit by rapid and disruptive change.

This report shows how business, government, and civil society can and should be guided by the same, inspiring vision of a Latin American and Caribbean region that is economically dynamic, socially inclusive, and environmentally stable. Both the economic and the moral case for doing so are crystal clear. By taking this route, Latin America and the Caribbean can set an example for the rest of the world.

La Castañuela, a small cattle, coffee, and fruit farm, is located near a national park in Colombia, the Parque Nacional Natural Farallones de Cali. The farmer has begun a project to restore degraded land on his estate by planting trees and conserving remnant forest. Photo credit: World Resources Institute/Flickr.com

1. WHY THE GLOBAL GOALS MATTER FOR LATIN AMERICAN AND CARIBBEAN BUSINESS LEADERS

Latin America and the Caribbean has seen huge social improvements in recent years, with reduced poverty, inequality, and hunger across the region. The share of people considered to be in extreme poverty declined by two-thirds in Latin America – from 13 percent in 1990 to 4 percent in 2015 – and by one-third in the Caribbean, from 33 percent to 22 percent.[10] The region as a whole has made considerable progress in reducing income inequality: over the past 25 years, the number of hungry people in Latin America and the Caribbean halved, and the rate of undernourishment dropped to 5.5 percent.[11]

The economic progress in Latin America and the Caribbean is beginning to show signs of recovery, after a lull in the past decade. The region's GDP has nearly doubled in the last 20 years, and finally stabilised in 2017 as private consumption strengthened and investment picked up.[12] Growth is projected to increase to 2.1 percent in 2018 as Brazil – Latin America's largest economy – and other commodity exporters recover.[13] However, the region relies on fragile natural resources and extractives for its economic activities,[14] and there remain worrying projections of increasing income poverty, rising unemployment, mounting inflationary pressures, and increased tax evasion.

There are significant inequalities in the region, particularly between genders and races. While Latin America has decreased its region-wide Gini coefficient (a measure of income inequality) to 0.52 – the lowest ever recorded for the region – it still remains greater than 0.40, the threshold of 'high inequality'.[15] On average, female poverty in Latin America has fallen less than in other regions. Women earn less than men for the same jobs; their representation in public institutions is lower; domestic violence ended the lives of 1,678 women in 2014; and women continue to suffer poverty, discrimination, and exploitation in a disproportionate manner. The gender gap is even more evident between urban and rural areas: 40 percent of rural women in Latin America do not have their own income.[16] Indigenous and Afro-descendent populations are overrepresented in the lowest quintiles of income distribution, and their levels of poverty and indigence – as well as their vulnerability to poverty – are much higher than in the general population.[17]

The current model of development is unstable, uneven, and not moving fast enough. The region's future economic growth, stability, and shared prosperity are all under threat from the local impact of a swelling list of political, environmental, and social burdens. Nearly all countries in the region have fiscal deficits, most of which have been increasing, and more than a quarter have deficits greater than 5 percent of their GDP.[18] Domestic political and policy uncertainty – as well as uncertainty about policy changes in the United States – could further reduce confidence and hinder the region's growth in the short and medium terms. The present path to recovery is uneven; while Argentina and Brazil appear to be pulling out of recessions, growth in Mexico and Colombia has slowed.

On the environmental front, the world has already 'overshot' four of nine planetary boundaries. Human activity has led to climate change; biosphere damage; changes in land use; and changes in biogeochemical cycles affecting, for instance, water, nitrogen, and phosphorus. Although Latin America has contributed to climate change less than other parts of the world, its geographical location, biodiversity, and patterns of production specialisation make it particularly vulnerable to the effects of this change. The impacts of climate change have been linked to intensifying extreme weather events in the region. Per year, the average number of people in the region affected by natural disasters – especially droughts and floods – doubled in the last decade compared to the previous one. Drought affected approximately 4.3 million people in the region in 2016,[19] and the Caribbean now experiences a greater number of Category 4 and 5 hurricanes than it once did.[20] The 2017 Atlantic hurricane season has already featured two Category 5 hurricanes: Irma and Maria. In the past 40 years, it is estimated that such disasters have cost nearly 5 percent of the Caribbean sub-region's GDP.[21] One assessment estimates the annual costs of intensified hurricane activity will be around US$5 billion by 2050.[22] Hurricane Irma alone cost the Caribbean US$30 billion in September of this year.[23]

The uncertainty created by these issues makes it hard for businesses to invest confidently in Latin America, and many of the existing burdens are beginning to place significant

constraints on future growth prospects. The region needs a different economic model – one that is not only low-carbon and environmentally sustainable, but that also recognises how poverty, inequality, and lack of financial access can create new market opportunities for smart, progressive, profit-oriented companies.

This report offers a compelling alternative growth model based on pursuing strategies in line with the 17 UN Global Goals for Sustainable Development (Exhibit 1).[24] These 17 Global Goals and their 169 component targets – formulated through collaboration with governments, businesses, and civil society – aim to deliver the practical solutions needed to protect our planet's resources and leave no one behind. Delivering these outcomes begins with setting policies and prioritising public investment, but that is not nearly enough. Setting business strategy and transforming markets in line with the Global Goals will reframe Latin American and Caribbean environmental and social challenges as economic growth and development opportunities. By 2030, this will have opened up an economic prize worth more than US$1.2 trillion and untold social benefits across the region.

This report is based on research presented in *Better Business, Better World*, published by the Business and Sustainable Development Commission in January 2017. This research identified the 60 most significant business opportunities related to pursuing the Global Goals in four industry systems worldwide: food and agriculture; cities; energy and

EXHIBIT 1

17 UN Global Goals for Sustainable Development

materials; and health and well-being. This report details the research findings and case studies particularly relevant to Latin America and the Caribbean.

The Global Goals can only be delivered with the help of strong private sector engagement. The business case for sustainable development is already strong. After all, sustainable development opens up new opportunities and potential efficiency gains, driving innovation and enhancing reputations. Companies around the globe are thriving by being sustainable and delivering attractive returns to shareholders. The growing body of evidence showing that better sustainability performance means better financial performance is steadily gaining traction with investors. In a review of 200 studies on sustainability and corporate performance, 90 percent of those studies found that high environmental, social and governance (ESG) standards reduced companies' cost of capital, and 80 percent showed a positive correlation between stock price performance and good sustainability practices.[25] A 2014 McKinsey & Company study found that 44 percent of sustainable business leaders cite growth and new business opportunities as reasons for tackling sustainability challenges.[26] Companies can use their reputations for sustainability to attract and retain employees, consumers, business-to-business customers, and investors, and to secure their licences to operate. And the business case for sustainable development as a core strategy gets much stronger as the world achieves the Global Goals. That's why sustainable companies around the globe are thriving and delivering attractive returns to shareholders.

Across Latin America and the Caribbean, business pioneers are already using innovative business models and technology to unlock sustainable opportunities in line with the Global Goals, which they are taking as serious signals of future policy and market direction. Nearly 2,200 companies throughout the region have already signed up to the 10 principles of the UN Global Compact, a guide to sustainable business behaviour for companies around the world.[27] In doing so, they represent more than 20 percent of UN Global Compact business participants.

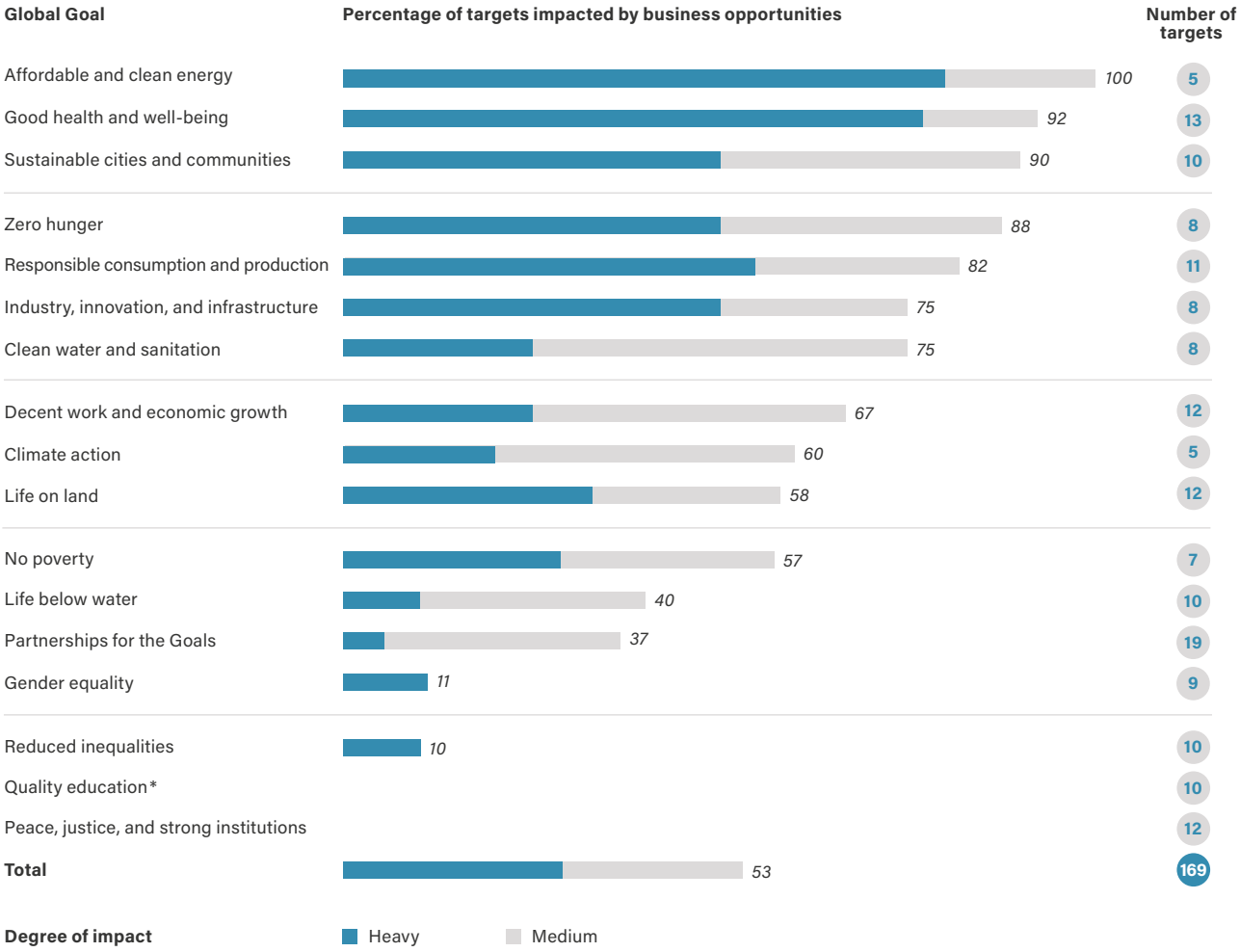
Others can follow the lead of these pioneers by incorporating the Global Goals into their core growth strategies, value chain operations, and policy positions, whatever the scale of their business. Business as usual will not be enough to deliver all the potential benefits. Businesses must make sure the jobs they create offer decent pay, working conditions, and training. Governments must make sure policies are clear and aligned with the Global Goals, to avoid the waste, inefficiency, and corruption that ambiguous and contradictory policies currently encourage. And civil society must make sure businesses and governments act in line with the law, or lobby for changes to laws and local practices that have failed to combat corruption or to protect people from losing out when rapid and disruptive change occurs.

If businesses in Latin America and the Caribbean do not choose to embrace the Global Goals, the costs of the global burdens described above will continue to grow. This will result in less stable and less equitable societies, an irreversibly damaged environment, and higher political risk. Increased volatility will weaken business conditions and further curtail growth.

Governments will be forced to enact strong regulations to try to avert the worst effects of the compounding social and environmental burdens. For these reasons, the private sector cannot afford to ignore the Global Goals. Furthermore, the world cannot afford to let the private sector ignore them. Our analysis of the impact of the Global Goals in the four industry systems we studied shows that private sector activity in these key areas will be crucial to delivering more than half of all the 169 Global Goal targets worldwide (Exhibit 2).

EXHIBIT 2

Business opportunities significantly impact more than half of the Global Goals targets



Source: Literature search; AlphaBeta analysis

* Not directly impacted as this analysis covered only four systems: food and agriculture; cities; health and well-being; and energy and materials.

Efforts to achieve the Global Goals in Latin America and the Caribbean will create 24 million jobs in the region, especially in medium-sized and small enterprises, spurred on by incremental investments and largely built on digital technologies. This will spread prosperity in both rural and urban settings and help to reinvigorate local labour markets. The following sections of the report detail some of the major market opportunities for sustainable business-led growth in Latin America and the Caribbean.

Volvo Bus Latin America and Ericsson have signed a partnership to foster urban mobility. Photo Credit: Ericsson.

2. MAJOR MARKET OPPORTUNITIES

The business case for including sustainable development as a core strategy gets much stronger as more and more countries around the world achieve the Global Goals. This is especially true in emerging and developing economies that have the greatest potential for change, representing more than half of the total value of business opportunities created by achieving the Goals. The Business and Sustainable Development Commission has previously identified US$12 trillion in annual business opportunities that will open up for the private sector if it delivers the Global Goals across four systems: food and agriculture; cities; energy and materials; and health and well-being.[28] These categories were chosen for their economic impact and relevance to achieving the Global Goals. They give an idea of the significant economic prize to be claimed in pursuing the Goals and help companies identify where to focus their efforts in order to achieve the greatest returns. (See Box 1. *Quantifying business opportunities linked to the Global Goals.*)

In Latin America and the Caribbean, our research shows that by 2030, the 60 largest opportunities created by achieving the Global Goals could generate business revenues and savings worth more than US$1.2 trillion, out of the total global prize of US$12 trillion.[29]

The 20 largest opportunities account for nearly 80 percent of this prize (Exhibit 3). These are, in order of rank: (1) forest ecosystem services; (2) affordable housing; (3) risk pooling in healthcare; (4) circular models in automotive; (5) renewable expansion; (6) circular models in appliances; (7) reducing food waste in the value chain; (8) electric and hybrid vehicles; (9) improving energy efficiency in buildings; (10) remote patient monitoring; (11) circular

models in electronics; (12) technology in large-scale farms; (13) shared infrastructure; (14) local content in extractives; (15) public transport; (16) improving energy efficiency in non-energy-intensive industries; (17) telehealth; (18) energy storage; (19) product reformulation; and (20) car and ride sharing.

EXHIBIT 3
Top 20 opportunities for Latin America and the Caribbean

(US$ billion)

	System	HotSpot	Latin America	World
1	Food	Forest ecosystem services	193	365
2	Cities	Affordable housing	154	1,079
3	Health	Risk polling in healthcare	110	500
4	E&M	Circulat economy: automotive	60	809
5	E&M	Renewable expansion	41	606
6	E&M	Circular economy: appliances	39	526
7	Food	Reducing food waste in the supply chain	38	406
8	Cities	Electric and hybrid vehicles	32	319
9	Cities	Energy efficiency: buildings	31	768
10	Health	Remote patient monitoring	27	440
11	E&M	Circular economy: electronics	27	364
12	Food	Technology in large-scale farms	24	181
13	E&M	Shared infrastructure	24	120
14	E&M	Local content in extractives	24	120
15	Cities	Public transport	22	206
16	Cities	Energy efficiency: non-energy intensive industries	22	313
17	Cities	Telehealth	20	320
18	Cities	Energy storage	19	262
19	Cities	Product reformulation	15	204
20	Cities	Car and ride sharing	15	203

Note: Energy and Materials (E&M).

In the following chapters, we explore some of the high-potential opportunities in each of the four systems throughout the region.

Box 1. Quantifying business opportunities linked to the Global Goals

To understand the business opportunities, we focus on 'industry systems', which we define as areas of economic activity with common value drivers. For example, the food and agriculture industry system embraces all the economic activities that deliver value while providing food to consumers, from fertilisers and farm production to logistics and retail. We focus on industry systems rather than traditional business sectors because the generally narrower definition of business sectors fails to capture the dynamic changes in the business landscape that pursuing the Global Goals could trigger, particularly in related value chains. Based on criteria including economic impact, geographical relevance, and importance for achieving the Global Goals, we prioritised the following four industry systems:

- **Cities** – including vehicles and transport-related sectors, housing, construction, and utilities;
- **Energy and materials** – including mining, oil and gas, renewable energy, power generation, and durable goods;
- **Food and agriculture** – including food production, fertilisers, distribution, and retail; and
- **Health and well-being** – including pharmaceuticals, primary and secondary care, gyms, and prevention and well-being.

Our research team engaged extensively with business and academic experts from each industry system, and consulted industry reports and academic literature to identify and estimate the size of the major opportunities for the private sector. The researchers established that for all four industry systems combined, the opportunities will be worth at least US$25 billion globally by 2030.

Some of the benefits of implementing the Global Goals – such as increased workforce participation through gender equality – are diffused across the economy. We focused instead on areas that generate specific opportunities for business.

The opportunities we identified are based on existing commercialised technology, though we note that many important opportunities related to the Global Goals will arise from technologies that are not yet known or are at an embryonic stage in their development. The 'size of the prize' figures value the annual opportunity in 2030, calculated in 2015 United States dollars rounded to the nearest US$5 billion. The figures are based on estimated savings (e.g., the value of land saved from improving smallholder yields) or market size (e.g., food market demand from low income consumers who move out of extreme poverty). In each case, we have measured the incremental size of the opportunity in a Global Goal scenario compared to the business-as-usual (BAU) scenario. For example, we would calculate the opportunity to improve smallholder farm yields as the productivity improvement expected from implementing the Global Goals compared to the productivity levels expected in a BAU scenario. The Global Goals scenarios are based on achieving all relevant Global Goals targets and staying on track to keep the rise in the average global temperature at or below 2 degrees Celsius by the end of the century. But they do not build in pricing of carbon or other externalities (except forest ecosystem services, where carbon pricing is a principal revenue source). We derived the BAU scenarios from existing policies and policy announcements. Where possible, we have used multiple sources for each opportunity to generate a range of values. The sizings are estimated from a bottom-up microeconomic perspective and do not take into account interaction and general equilibrium effects.

A. Cities

By 2030, 60 percent of the world's population will live in cities, up from about 54 percent today, which means adding more than 1 billion people to cities over the next 15 years.[30] Over the next two decades, nearly all the world's net population growth is expected to occur in urban areas, adding about 1.4 million people – close to the population of Stockholm – each week.[31] Latin America is currently the most urbanised region in the world. More than 80 percent of the population lives in cities,[32] and its urban population is expected to grow by an additional 92 million people by 2030.[33]

Urbanisation is a crucial driver of economic growth; no country has ever climbed from low-income to middle-income status without a significant population shift into cities. Reasons include the economies of scale available in larger cities, as well as the higher wages that people typically receive as they shift from farming to jobs in urban manufacturing and services. Cities also promote social inclusion and participation, and economic dynamism.

However, rapid urbanisation challenges the value chains supporting city mobility, infrastructure, and housing.[34] Cities today account for nearly two-thirds of global energy consumption and generate more than 70 percent of greenhouse gas emissions.[35] Growing cities will require large investments in infrastructure that have a lighter environmental footprint. More systemic planning of city spaces – integrated with features that improve mobility, such as roundabouts and arterial roads – can contribute to better air quality, decrease congestion, and reduce urban sprawl.

Latin America's urban mobility is characterised by major congestion, air pollution, and traffic fatalities. And private vehicle ownership continues to grow.[36] Latin America is particularly deficient in transport infrastructure, and four of its cities – Buenos Aires, Santiago, Rio de Janeiro, and Mexico City (ranking number 1) – place in the top 20 worst congested cities in the world.[37] Congestion and illness related to inadequate air quality are becoming increasingly severe in Latin America's cities. Air pollution already kills about 49,000 Brazilians every year, and more than half of these deaths arise from outdoor pollution, making it the ninth largest mortality risk in the country.[38]

In addition to managing rapid migration into urban areas, cities must also close equality gaps and tackle environmental degradation. There is an identified link between rising crime and urbanisation in Latin American cities that are unable to meet the needs of marginalised groups.[39]

The UN's Global Goals agenda proposes shifting city development onto a sustainable pathway. This shift will have a big impact on the value chains supporting mobility, infrastructure, and housing in Latin American and Caribbean cities, leading to a number of disruptive business opportunities. Together, these opportunities will be worth US$336 billion in 2030.[40]

The following section discusses some of these opportunities in further detail.

Box 2. Addressing the risk of natural disasters in Latin America and the Caribbean

The Latin America and Caribbean region is one of the world's most disaster-prone areas. It is highly exposed to natural hazards such as earthquakes, volcanic eruptions, floods, tsunamis, landslides, and droughts. The region is home to nine of the top 20 countries in the world most exposed to disaster-led economic impacts. These natural disasters are becoming very costly for the region. The economic impact of damage from tropical cyclones is considerable – projected to be US$110–149 billion for the period 2021 to 2025, including US$80–103 billion for Mexico's Gulf Coast and US$30–44 billion for Central America and the Antilles.

Post-disaster assessments point to housing as one of the most affected sectors in the wake of climate-related and other natural hazards – most commonly floods, earthquakes, landslides, and fires. In the 22-year period between 1990 and 2011, minimum losses in the housing sector for 16 countries in Latin America and the Caribbean totalled US$53 billion.[41] Between 2010 and 2017, Chile was struck by 10 major natural hazard events, affecting as many as 340,583 houses and costing US$3.6 billion in reconstruction.[42] The 7.1-magnitude earthquake that tore through central Mexico in September of this year caused at least 60 buildings to collapse or become severely damaged in country's capital, with an additional 360 buildings and homes in danger of collapse.[43]

While the Latin American and Caribbean region naturally sits on a territory prone to hazards, not enough preventive measures have been put in place to increase the region's resilience to disasters.

Affordable housing

Worth US$154 billion per year by 2030

The growth of cities can run counter to social inclusion, particularly as housing becomes increasingly expensive. By 2025, one-third of the urban population – 440 million urban households – could lack affordable, adequate housing.[44] Currently, 25 percent of Latin Americans lives in slums, characterised by the prevalence of substandard housing as well as incremental and self-constructed homes.[45] As of 2012, one in three families in Latin America and the Caribbean – 59 million people – live in dwellings that are either unsuitable for habitation or are built with poor materials and lack basic infrastructure services.[46] In Brazil the housing deficit affects 28 million people,[47] and in Mexico 9 million families live in substandard housing.[48] To solve homelessness in Honduras, 45,000 housing units would need to be built every year for the next 20 years.[49] These families are at the greatest risk of feeling the impacts from natural disasters.

While strides have been made to tackle the quantitative housing shortage, efforts to improve the quality of housing have not reached the same scale and momentum. Low-cost housing should also be resilient, aiming to reduce inherent vulnerabilities. If resilience to extreme weather is not taken into account, houses are more likely to need to be rebuilt (see Box 2. *Addressing the risk of natural disasters in Latin America*). The Adaptation Fund has recently approved projects on climate-resilient infrastructure in El Salvador valued at US$5.4 million.[50]

There is a significant financing gap to close. Less than 30 percent of dwellings in Latin America and the Caribbean are built using some kind of formal financing.[51] If the region aims to close the housing deficit with government housing and urban development alone, it would have to boost investment in public housing programmes sevenfold, to US$310 billion a year or 7.8 percent of regional GDP.[52] Some initiatives are already working to close this gap. In 2007, Mexico's Comisión Nacional de Vivienda (the National Housing Commission, known as CONAVI) launched a large-scale programme to build sustainable low-income housing using ecological materials and a minimum of water and energy, while also providing access to financing for low-income residents. From 2007 to 2012, the government aimed to provide 6 million housing credits to contractors, 20 percent of them for sustainable housing.[53] In Chile, the operational architecture think tank Elemental has become known for designing flexible low-cost housing for low-income families.[54]

Realising this opportunity will require efforts to unlock new land through innovative mechanisms (e.g., by providing density bonuses); employ available efficiency techniques to reduce costs by up to 30 percent; and support access to lower-cost financing options for developers and purchasers. Turning this gap into an opportunity will depend on three broad initiatives. The first is in 'inclusionary' housing development strategies that increase the supply of low-cost housing by giving developers planning concessions in return for providing affordable housing units. The second initiative is lean construction, which lowers the costs of building by adopting industrial techniques such as prefabricating components off-site and assembling them on-site, and standardising major operations like structural design and finishing elements. The third initiative is low-cost property management to reduce the cost of running homes. Techniques include retrofitting units with more energy-efficient appliances, and integrating repair and maintenance services in a 'one-stop shop'.

Box 3. Serving Brazil's demand for affordable housing

Minha Casa Minha Vida (My House My Life) was launched in 2009 to tackle Brazil's shortage of 5.4 million homes by offering subsidised mortgages to families with incomes below R$5,000 (US$1,600) a month.[55] By stimulating private sector development, the initiative aims to reduce the number of Brazilians living in *favelas* (slums) – 11.4 million at the time of the 2010 Census, with millions more squeezed into substandard formal accommodation. The programme has been criticised for inefficiency and patchy construction, and for placing developments in isolated areas away from public services and infrastructure, something Brazil's government has sought to address with tightened standards. But its overall figures are striking: 10.5 million low-income people placed in 2.6 million housing units across the country by 2016. Companies too are churning out strong numbers: in 2014, Direcional Engenharia delivered an average of 1,540 homes per month, and achieved a turnover of US$575 million.[56]

Box 4. Giving Mexican families a chance to build their own safe, green and affordable homes

The social enterprise ¡Échale! a Tu Casa aims to provide low-income families in Mexico with the opportunity to own safe, affordable and environmentally friendly homes. It is doing so through innovative lending and an assisted self-building programme where communities are trained with the appropriate technical capacities to build their own homes, supervised by certified architects. In the face of a severe housing shortage – and the failure of stretched government programmes to tackle it – the organisation's founder, Francesco Piazzesi, developed a model that aims to increase the quantity of high-quality accommodation for lower-income groups, while using the process of home creation to foster financial and technical skills, and boost social inclusion.

Low-income families in Mexico are thought to spend an average of around 30 percent of their income trying to build or improve their homes. But without technical or financial help, they often pay high prices for poor materials – and a poor result. ¡Échale! buys more than 60 percent of its building materials locally and provides employment to local construction workers. It also offers low-interest credit designed specifically for its customers, and financial workshops to help families manage their incomes and save money. Under its assisted self-building programme, participants receive the materials and technical training necessary to build a two-bedroom house within one month, as well as supervision from a certified architect. The resulting homes, made from ¡Échale!'s patented compressed-earth blocks, are designed for minimal energy and water use, making them eco-friendly as well as cheap to run. Green features include solar water heaters, wood-saving stoves, and rainwater-harvesting systems.

By harnessing construction innovations, ¡Échale! has managed to streamline the self-build process, keeping costs down and construction rates up. Already, 30,000 new houses have been built and more than 150,000 existing homes improved in Mexico alone. ¡Échale! is now exporting its technology to Belize, Egypt, Haiti, Nicaragua, and the United Arab Emirates, and developing a social franchise model that allows others to replicate its success. That success is clear from the figures: by 2014, ¡Échale! had reached 1 million people, and was achieving annual turnover of US$5 million.

Electric vehicles and hybrid vehicles

Worth US$32 billion per year by 2030

Evolving mobility options are set to significantly change the automotive industry and private vehicle ownership patterns. Several cities in Latin America and the Caribbean have developed local policies that seek to reduce carbon emissions and air pollution. In June 2016, 149 Latin American mayors signed on to the Compact of Mayors, a global platform for standardised measurement and reporting of emissions and climate risk.[57] Widespread adoption of hybrid or electric cars across Latin American cities would be a game-changer, tackling the outdoor air pollution that burdens the health of the region's urban residents and weighs on its economy. According to Navigant Research, global electric vehicle (EV) sales will grow at a rate of 10 percent a year from 2019 onwards, reaching a value of more than US$318 billion by 2030. In Latin America, annual sales for EVs are projected to reach up to 230,000 units in the next six years.[58] It is estimated that EVs and hybrid vehicles could comprise 62 percent of new light-duty vehicle sales globally in 2030,[59] though that depends on a significant and continued decrease in the cost of batteries. In addition to innovations in battery technology to improve range and reduce cost, it would also be necessary to invest in extensive charging infrastructure to ensure grid access and power sources that can support widespread use of EVs.

EVs and hybrid vehicles raise a range of business opportunities, including for suppliers of components such as cathodes, and charging infrastructure providers. Retailers, shopping centres, hotels, fast-food outlets, car-parking providers, and all kinds of businesses with off-street parking could offer charging services. In Chile, the largest energy company, Chilectra, has taken on several pilot projects. These include Smartcity Santiago – testing everything from smart grids to EVs in an urban business park – and an EV car-sharing programme, which would be the first of its kind in Latin America.[60] In Argentina, a landmark project to develop hydrogen as a fuel and energy vector has also been underway. The project is linking all the hydrogen research institutions across the country so they can work together to develop technology that can be used for vehicles and fixed installations.[61]

Another mobility solution is to introduce car sharing, so each vehicle is used more intensively while reducing the number of cars on the road. According to a study by McKinsey & Company, most cars sit idle 90 percent of the time – or more.[62] Car-sharing services have grown at roughly 35 percent a year in the United States, reaching 1.6 million members in 2014. The future pace of growth for this opportunity in Latin America and the Caribbean will depend on whether supporting regulations are developed; how the technology and products evolve to facilitate ease of use for customers; and whether capital investment is available for the necessary infrastructure, such as for purchasing car fleets.

Energy efficiency in buildings

Worth US$31 billion per year by 2030

Globally, the building sector accounts for around one-third of total final energy consumption and more than half of all electricity demand.[63] In Latin America, demand for energy is expected to increase by more than 50 percent in the next decade, and emissions from the building sector alone are expected to double between 2010 and 2030.[64] There are significant opportunities to improve building energy efficiency through two main channels: temperature control and electricity consumption. Heating and cooling performance can be improved by retrofitting existing buildings and installing more efficient technology in new buildings. An alternative approach is to expand district-wide heating and cooling systems instead of installing individual heating and cooling systems in each building. The additional step of using cogeneration to link electricity with heating and cooling supply could improve efficiency by up to 90 percent.[65] And efficient lighting, appliances, and electronics can reduce demand and consumption.[66]

These opportunities suggest a number of business models, from those that develop energy-efficient building components through to those that provide energy services. Among the latter, there is potential for specialised energy service companies and utilities that provide funds for upfront investment, and deploy their expertise in identifying and capturing energy-efficiency savings. Energy performance contracts can help overcome capital constraints by tying loan payments to the property or utility meter, instead of to the homeowner. Mexico's Instituto del Fondo Nacional de la Vivienda para los Trabajadores (the Federal Institute for Workers' Housing, known as Infonavit) launched the Hipoteca Verde in 2007, which provides a mortgage credit of up to US$1,250 to homeowners who install eco-technologies such as energy-efficient lighting, solar water heaters, separated solid waste containers, and energy-efficient gas water heaters. Around 3 million people have benefited from the programme, and more than 900,000 credits were distributed between 2007 and 2012.[67]

If current energy efficiency best practices were widely implemented, Latin America could reduce its energy demand by one-third.[68] However, not enough is known within the population about the actions and technologies that could improve energy use and their likely economic benefits. Buying equipment based solely on the initial cost without taking account of the operating expenses (e.g., energy consumption) over its useful life continues to be standard practice.[69]

Box 5. Installing energy-efficient lighting in Latin American cities

Over the past few years, light-emitting diode (LED) luminaires have become increasingly common, as they provide long-lasting performance and use a fraction of the energy of traditional lights. Many LEDs have an expected lifespan of more than 20 years while using 80 percent less energy to produce the same amount of light. In Ensenada, Mexico, city officials have partnered with private company Optima Energía,[70] a Mexican energy service company based in Monterrey, to finance the installation of 28,000 high-efficiency LEDs throughout the municipality. The city has now replaced 25,000 low-efficiency streetlights with new high efficiency, long-life LED fixtures, dramatically reducing electricity consumption and greenhouse gas emissions, while improving public safety. The innovative project is set to reduce the municipality's street lighting expenses by 60 percent.

Most municipalities do not have the budget to buy the LED fixtures outright and often have very limited or no access to financing. City officials in Ensenada overcame this barrier through the partnership with Optima Energía. The privately-owned energy service company acts as a facilitator, packaging engineering and financial solutions in a way that allows the city to pay for the upgrades through the savings generated by the new streetlights, with no upfront cost. Also, to help early movers like Optima Energía on their pathway to scale, the Inter-American Investment Corporation (IIC) is offering tailored financing through its Climate and Clean Energy Facility.

In addition to the significant economic incentives for local municipalities, the Ensenada project carries obvious benefits for the climate, preventing 150,000 tonnes of carbon emissions over a 20-year period. It has also contributed to gender empowerment: Optima Energía created an internship programme for female engineering students so they could gain experience in a growth sector in which they are underrepresented.

There is a real need for municipalities to replace existing street lighting with more efficient, sustainable alternatives. In Mexico alone, close to 2,000 street lighting systems need upgrading – a total investment estimated at more than US$4 billion. Projects like the one in Ensenada are increasingly attractive to energy service companies like Optima Energía, and the IIC is currently working with Optima Energía to replicate the Ensenada project in other Mexican cities.[71]

In 2013, the city of Buenos Aires in Argentina embarked upon a plan to switch the majority of its streetlights – more than 90,000 bulbs – to more energy-efficient, remote-controlled LED bulbs as part of a public–private partnership with Philips Lighting.[72] The complete installation, finished in 2015, replaced 75 percent of the city's lighting stock and is estimated to have saved 50 percent in operational costs,[73] as well as reduce the city's energy usage by 40–50 percent.

Looking across Latin America, an estimated 25 million streetlights could be replaced, offering a staggering US$2 billion in potential annual savings and making this one of the region's next potential growth sectors. Countries like Brazil, Chile, and Colombia are all markets with a real demand for more efficient street lighting. Local communities and the environment stand to reap the benefits, as do the private businesses that help facilitate this transition.

Public transport in urban areas

Worth US$22 billion per year by 2030

Transport infrastructure will need to evolve so that cities can sustainably manage access and respond to changing mobility systems. In modern, more heavily populated cities with medium- and high-density housing, public transport is the most effective way to meet urban mobility needs. Mobility patterns associated with unplanned urban expansion and increased private motor vehicle use are a major source of greenhouse gas emissions. According to the International Energy Agency (IEA), in order to limit average global temperature increases to 2 degrees Celsius by 2050, 21 percent of all carbon reductions must come from within the transport sector.[74]

As improving access to public transport becomes a priority, the construction of roads for private vehicles will slow in favour of bus rapid transit (BRT) systems, railways, and metro networks. These all play a significant role in reducing poverty by improving access to labour markets, and in reducing harmful emissions that cause global warming. If a quarter of passenger kilometres were shifted from light-duty vehicles to a mix of public transport modes, it could reduce energy consumption by 5 Quadrillion British Thermal Units (QBTUs, or 'quads') in 2030, or the equivalent of 225 billion tonnes of coal.[75] Investment in public transport has also been shown to cut congestion costs and reduce household transport expenditure by 20 percent.[76]

Efficient and reliable urban transport systems are crucial for Latin America to sustain high economic growth. Currently in the region, 38 percent of urban greenhouse gas emissions come from burning fossil fuels for transport, and approximately 94 percent of urban transport is powered by oil derivatives.[77] The solution for urban mobility in Latin America is to integrate a multi-modal system. BRT offers the potential of lower-cost systems that enable greater access to public transport, particularly in countries where cities' fiscal capacities are more limited.[78] BRT corridors can carry up to 43,000 passengers per hour in each direction,[79] and the cost is estimated to be less than 15 percent of the cost of a metro system with comparable capacity.[80] Rio de Janeiro's Transoeste BRT system increased residents' use of public transport from 18 percent in 2009 to 63 percent in 2016[81] and lowered CO_2 emissions by an estimated 107,000 tonnes per year.[82]

High-speed electric trains and electrified urban public transport are other examples to follow. In addition to having a smaller environmental footprint, they also have a smaller social footprint because of their positive effect on social inclusion. In 2004, the city of Medellín in Colombia installed its first public Metrocable gondola line, designed not only as a means of transportation up and down the steep hills of the valley, but also as a way to shuttle commuters, tourists, and businesses into poor neighbourhoods formerly held hostage by the drug trade.[83] The Metrocable is a public–private intervention that seeks

to tackle multiple urban problems at once: mobility, socio-economic segregation, public insecurity, and lack of economic opportunity.

There is a great opportunity for operators in the private sector – app builders, data processing companies, taxi cooperatives, phone carriers and makers, and payment systems providers – to provide better transportation services by building and operating public transport systems in close partnership with government. Latin America's public investment in the transportation sector increased by an average of 0.37 percent of GDP from 2008 to 2015, reaching 1.52 percent of GDP in 2015.[84] More remarkably, public investment in transportation in Bolivia, Mexico, and Panama more than doubled the during that period.[85]

Box 6. Improving Goiânia's intelligent transportation system with Ericsson and Volvo Bus

RedeMob Consórcio, a group of enterprises responsible for public transportation in Goiânia, the sixth largest city in Brazil, was able to improve the city's smart transportation system thanks to a partnership with Ericsson and Volvo Bus Latin America. RedeMob's daily operations are supported by Volvo's ITS4mobility solution, combined with Ericsson's services and systems integration leadership support. The network involves 1,300 buses and 6,000 bus stops, and is responsible for mobilising 600,000 people every day in the Goiânia metropolitan area.

Bus operators in Goiânia can track the fleet in real time – accessing information on the travel time, punctuality, and quantity of buses on each route. They use this data to efficiently distribute buses across the network, thus providing a better service for passengers. Since the initiative began, RedeMob customers have experienced a 7.5 percent improvement in operational efficiency due to the higher-quality transport service and reduced congestion. Passengers also have access to real-time information about arrival times and bus locations online and via smartphone apps. In addition to these social benefits, more efficient bus operations mean fewer CO_2 emissions. Public transport satisfaction rates in Goiânia are among the highest in Brazil, at more than 80 percent.[86]

B. Food and agriculture

Over the next 15 years, the Latin American and Caribbean food and agribusiness sector will face numerous challenges and opportunities related to inputs, production, processing, logistics, retail, and disposal. The inputs to the agricultural and fisheries sectors will be transformed by the Global Goals' emphasis on ending hunger, improving agricultural productivity, and mitigating and adapting to climate change. Severe land degradation and obstructed access to arable land in regions with limited infrastructure could limit production, especially if combined with political instability. Lack of investment in innovation can also affect yields. Underinvestment in agricultural innovation is significant worldwide: although agriculture represents 10 percent of global GDP, venture capital funding in agricultural technology (AgTech) experienced a 30 percent decline in 2016 compared to the previous year.[87]

The agriculture system is also heavily affected by resource subsidies, which place an increasing financial strain on many governments. Food markets are currently distorted by a range of global subsidies, including US$490 billion in agricultural subsidies, US$35 billion in fishery subsidies, and roughly US$455 billion in water subsidies (since agriculture accounts for about 70 percent of global water demand).[88] As such, reforming subsidies and/or carbon pricing regimes could have a dramatic impact on competitive dynamics in the food and agriculture system. The prices of soft commodities could increase by 50–450 percent if they reflected the environmental impact of current food production.[89] These challenges could drive the widespread adoption of a range of sustainable farming practices involving new technologies such as robotics and the mobile internet.

The logistics value chain in urban consumer markets in Latin America and the Caribbean will soon be transformed by a combination of new, on-demand customer models (such as UberEATS); technology innovations driven by the Internet of Things (IoT); and responses to growing concerns about food fraud and food safety. The retail sector will undergo one of the biggest transformations in the value chain. Pursuing the Global Goal of ending extreme poverty will open up new markets for delivering nutritious foods to low-income consumers. Sustainably sourced products will cease to be a niche category and instead become the industry standard. And consumers' concern for animal treatment, animal-welfare standards, and overall farming conditions will continue to grow.

Global food production must increase by 60–70 percent by 2050 to feed the world's growing population.[90] Latin America is an overall net food exporter and represents 13 percent of all agricultural trade.[91] However, increased agriculture expansion to meet the world's growing food needs has had significant negative effects on the natural ecosystem – through land degradation and loss of biodiversity – and rural livelihoods. Moreover, much of the food produced is lost or wasted before it reaches the market, and major environmental stresses threaten supply. Farming and agriculture communities in Latin America and the Caribbean

desperately need sustainable solutions to ensure their food security without damaging the environment.

The UN Global Goals agenda proposes meeting these profound challenges by shifting the food and agriculture system onto a sustainable development pathway. This shift will be transformative and will have major impacts throughout the food and agriculture value chain, potentially producing a number of disruptive business opportunities worth more than US$328 billion in the Latin American and Caribbean region by 2030.[92]

The following section discusses some of these opportunities in further detail.

Forest ecosystem services

Worth US$193 billion per year by 2030

Specialisation and intensification in Latin America's land use sector have caused the massive destruction of natural ecosystems while at the same time making national economies heavily dependent on a reduced number of export products.[93] At present, deforestation and forest degradation account for 17 percent of global emissions, which is more than the transport sector.[94] Latin America and the Caribbean boasts 23 percent of the world's forests, but between 1990 and 2010 lost almost 90 million hectares mainly due to fires, pest infestation, and extraction of timber and fuelwood [95] The region also holds 23 percent of the world's arable land (the second highest region next to sub-Saharan Africa); however, 50 percent is projected to be desertified by 2050.[96]

There is a great business opportunity in sustainable forest management approaches that balance environmental, socio-cultural, and economic needs for forest products and services, combined with payment mechanisms for ecosystem services. The natural capital in forests is closely linked to the resilience of the food and agriculture system, since forests play a critical role in soil management, nutrient cycling, and water systems. The New Climate Economy has estimated that reduced deforestation and forest degradation can achieve a carbon abatement of 2.8–7.3 gigatonnes of CO_2 emissions by 2030. [97]

Some companies have already committed to eliminating deforestation from their supply chains for agricultural commodities by 2020, under the New York Declaration on Forests.[98] The positive impact of subsequent programmes is visible in Northern Argentina, which has more than 90,000 hectares covered by silvopastoral systems – which combine forestry and grazing – and an adoption level considerably higher than other regions. In Brazil, the adoption of these systems is still limited to a small number of producers, but there is potential for upscaling (see Box 7. *Upscaling silvopastoral systems in South America*).

Payments for ecosystem services (PES) include climate change mitigation, watershed services, and biodiversity conservation. In 2011, income from PES amounted to US$2.5

billion globally.[99] The experience of PES systems set up in Costa Rica, Mexico, and Ecuador in the last decade provide valuable insights to help shape reducing emissions from deforestation and forest degradation (REDD+) strategies in participating countries across the region. Between them, these programmes are currently helping to conserve more than 3 million hectares of forest.[100] Since 1997, nearly 1 million hectares of forest in Costa Rica have been part of a PES programme at one time or another, and forest cover has now returned to more than 50 percent of the country's land area, from a low of just 20 per cent in the 1980s.[101]

Box 7. Upscaling silvopastoral systems in South America

In recent decades, export-oriented industrial agriculture has become the main driver of South American land use patterns, increasing the pressure to find more efficient and intensive production systems.[102] Silvopastoral systems – combining forest management and livestock grazing in a mutually beneficial way – are an attractive and promising approach to land use for large-scale beef producers and small-scale agroforestry operators. Silvopastoral systems have proven to deliver superior economic, environmental, and social benefits compared to single purpose land use strategies. They increase economic stability by allowing for the production of different goods on different time horizons; diversifying revenue streams to increase resilience in times of crisis; and providing more revenues than traditional livestock systems. Silvopastoral systems also achieve better erosion control, watershed protection, and carbon sequestration compared to pure beef production, while at the same time reducing the pressure on natural forests. And since the forestry sector provides more employment than the beef production sector, silvopastoral systems can offer improved long-term social benefits.

Despite these positive results, the adoption of silvopastoral systems in South America is still marginal. The complex interactions between the different components of the food and agriculture sector require more technical knowledge than pure beef or pure forestry production. Silvopastoral systems also require greater investments, which producers can contribute on their own or in a joint venture with forest management companies and purchasers, as has been the case in Eastern Paraguay.

Eastern Paraguay boasts an area of roughly 5.8 million hectares apt for silvopastoral use in a way that would not affect natural forests or agriculture. Approximately 1.9 million hectares is already covered with implanted pastures.[103] The Paraguay Agricultural Corporation – a large scale company that invests in agriculture, beef production, and forestry in Paraguay – has successfully implemented silvopastoral systems in Eastern Paraguay since 2011 by combining eucalyptus plantations with different pastures of the grazing crops *Brachiaria* (signalgrass) and *P. maximum* (Guinea grass). The company will potentially expand its operations by investing US$60–70 million over the next 10 years, reaching an area of about 20,000 to 25,000 hectares.

Box 8. Producing water-neutral beverages

Founded in 1908, Florida Ice and Farm Company S.A. (FIFCO), is a leading Costa Rican food and beverage company and one of the largest corporations in Central America, with a large share of the domestic beer market in particular. In 2008, CEO Ramón Mendiola Sánchez gave his executive team a new challenge: to perform with excellence in the social and environmental spheres, as well as the economic sphere. Using a new Corporate Sustainability Balanced Scorecard, the company's management team set 12 sustainability objectives: three for the economic dimension, three for the environmental, and six for the social. FIFCO also made its financial statements available to the general public – including information on its social and environmental performance, reported against the Global Reporting Initiative (GRI) standard.

The company established a strategy to mitigate and offset the environmental cost of its operations through PES for the water supply. One of FIFCO's new goals was to become water neutral by 2012, by measuring 100 percent of water consumption in its operations and offsetting this with improvements that enhance the availability of fresh water in Costa Rica. Because of its resource needs, water conservation is a company priority. In 2003, Sánchez's first year as CEO, FIFCO consumed 14 litres of water for every litre of beverage produced. By 2008, its water consumption had reduced to 8 litres. FIFCO accelerated its efforts after introducing the Corporate Sustainability Balanced Scorecard, and water consumption was down to 4.72 litres by 2011. These steps have achieved an average 44 percent reduction in FIFCO's water use over the last nine years, while increasing production by 70 percent.[104]

Under the environmental aspect of its commitment, FIFCO has made significant progress in sustainable packaging, solid waste, and carbon emissions. In 2015, it set a goal to reduce its carbon footprint for the beverage operation in Costa Rica by 3.5 percent between 2016 and 2017, which represents a decrease of 46,088 tonnes of CO_2 emissions – equivalent to removing more than 10,000 cars from the road.[105] The company is also lobbying the national authorities to shift from a penalty-based environmental policy to one based on positive incentives for good social and environmental performance. FIFCO pays local communities to replant trees, enhancing conservation of the natural capital in the watershed. It also supports other conservation actions, investing in reforestation in Costa Rica's Guanacaste area, and protecting 449 hectares of forest in the upper basin of the Segundo River and 370 hectares in Santa Cruz.[106] In addition, FIFCO supports its employees' actions related to water concerns (e.g., by building water supply infrastructure in underserved communities).

Food waste in supply chains

Worth US$38 billion per year by 2030

Globally, 20–30 percent of food is wasted somewhere along the value chain between grower and consumer – the majority in developing countries.[107] The underlying causes of substantial post-harvest losses in value chains include limited information about feed production planning, pest infestations, and diseases; poor and inadequate infrastructure such as roads, water, power, and market facilities; a lack of dedicated food transport systems; and low-quality bulk packaging that results in spills and damage.

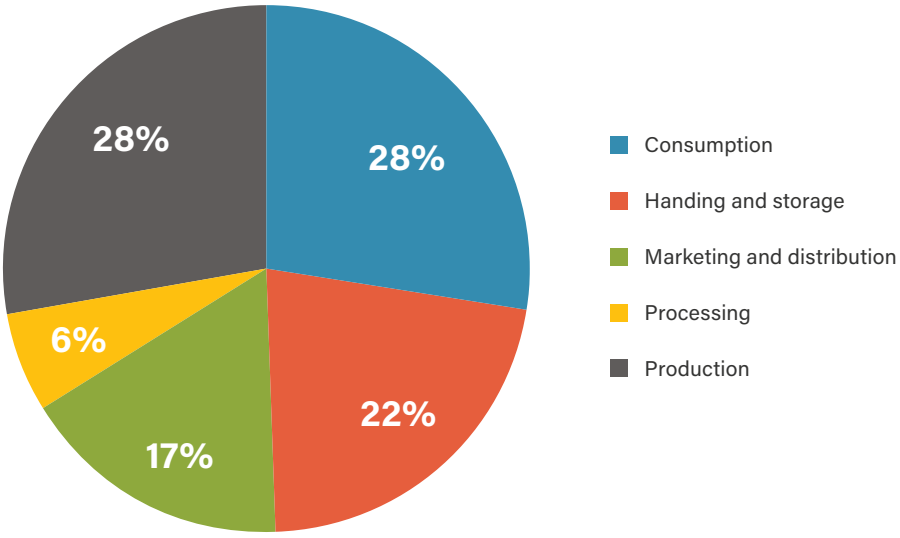
Latin America and the Caribbean is responsible for 6 percent of global food loss; its producers wasted 28 percent of the region's production in 2014 (see Exhibit 3).[108] The equivalent of more than 500 kilocalories of food per person a day is lost in the region's supply chain before it even gets to the final consumer.[109] Globally, only 2 percent of food retail sales take place in modern outlets that contain the appropriate storage units. In Latin America, it is estimated that discarding accounts for 4.4 percent of retail sales, and the containment of losses could increase profits by up to 29 percent in Brazil, 14 percent in Argentina, and 7 percent in Mexico.[110]

There are a range of investment opportunities, from data systems to better manage production processes through to investment in cold storage facilities. Solutions to recover profits from these losses include using active intelligent packaging for perishables, optimising food packaging, and expanding secondary markets for food items with cosmetic damage. Cost concerns and growing consumer awareness, supported by increasing sustainability reporting requirements for food retailers, will favour the development of low-waste food processors. Pilot efforts to develop low-cost storage techniques and handling practices in sub-Saharan Africa and South Asia have reduced food loss by more than 60 percent, and increased incomes for smallholders involved in the pilots by more than 30 percent.[111]

A significant opportunity higher up in the Latin American and Caribbean food value chain lies in strengthening cold chain logistics, using increasingly clean and sustainable refrigeration technologies. A key challenge to scaling this opportunity is the high capital outlay required for cold chain systems, although partnerships between firms can make financing viable. Current cold chain technologies also risk adding to air pollution, so new technologies that reduce hydrofluorocarbon (HFC) emissions in cold storage are crucial to preventing greenhouse gas production and protecting the ozone layer. Many food companies are already adopting more environmentally responsible measures that will increase demand for ozone-friendly refrigeration.

EXHIBIT 4

Food losses and waste in Latin America, by food supply segment



Source: Food and Agriculture Organization of the United Nations, based on World Bank data (2014)

Technology in large-scale farms

Worth US$24 billion per year by 2030

Latin America and the Caribbean accounted for 16 percent of total global food and agriculture exports in 2015, and the region will continue to play a pivotal role in global food production and exports in the future.[112] Agricultural production in Latin America will have to grow by 80 percent between 2007 and 2050 to meet an expected population increase of more than 35 percent in the same period.[113] Large-scale farms (those with more than 2 hectares of land) account for an estimated 70 percent of the region's land under cultivation.[114] Although large-scale farms have, on average, double the yields of equivalent smallholder farms, evidence shows there is still an opportunity to improve yields by a further 40 percent over the next 20 years.[115]

Technology can play a particularly important role in overcoming information gaps and supporting cost-effective business models that serve large-scale farms. New techniques and technologies are already being used to transform formerly unusable and barren areas of Latin America into productive lands, resulting in considerable growth in agricultural production in the region over the last 10 years.[116] The Brazilian Agricultural Research Corporation (Embrapa) has pioneered more than 9,000 technology projects to develop Brazilian agriculture, including designing tropical strains of soybean and other crops that

can thrive in Brazil's climate.[117] In Argentina, Grupo Los Grobo is planting many of its rented fields with sensors that send real-time data about soil temperature and humidity to the firm's managers, helping them manage the crops.[118] Argentina's rapid adoption of technology – specifically no-till farming techniques and genetically modified seeds – have enabled the country's agriculture sector to thrive.[119]

Box 9. Using modern technology to improve Brazil's land use efficiency[120]

As Latin America seeks to slow carbon emissions by shifting towards renewable energy and more efficient land use, remarkable opportunities are arising for Brazil. A surprising phenomenon has already begun to occur in the country: tropical secondary vegetation – regrowth that occurs on deforested lands in the Amazon – jumped by more than 70 percent between 2004 and 2014.[121] This regrowth is sizeable – rising from 10 million hectares in 2004 to more than 17 million hectares in 2014[122] – and is ongoing. Recent studies show that modern agricultural practices have helped to reduce deforestation, allowing this regrowth to occur.

Research from the Climate Policy Initiative (CPI/PUC-Rio) shows that major transformations in agriculture have promoted yield gains without increasing new forest clearings. The studies provide four examples where productivity increased while the production footprint did not: the soybean revolution in the Cerrado region; the expansion of electricity in rural areas; a change in the relative crop-to-beef prices; and the recent surge in number of sugar cane mills. In all four areas where productivity increased, deforestation fell.

- **The soybean revolution:** Major technological innovations throughout the 1970s adapted soybeans to be able to thrive in Central Brazil.[123] These advances created economic benefits – reflected in higher farm and land values – as well as environmental benefits. Deforestation slowed in municipalities that were more suitable for soybean cultivation.
- **Electricity expansion:** Between 1960 and 2000, Brazil expanded access to electrical power throughout various rural areas. Electrification shifted farmers away from cattle grazing and towards crop cultivation, which is a more productive activity. A 10 percent increase in access to electric power led to a decrease of 3 percentage points in land dedicated to cattle grazing.[124] This change is also associated with less deforestation, since crop farmers are more likely to retain native vegetation.
- **Price shifts:** In Brazil's Tapajós Basin, when relative crop-to-beef prices increased, farmers shifted their land use towards crop cultivation.[125] The pastures were transformed for more productive purposes, protecting forested lands from further clearing. This land conversion reduced deforestation by 5,300 square kilometres between 2002 and 2012.
- **The sugar cane industry's surge:** Between 2005 and 2012, the area of land in Brazil used to farm sugar cane increased by 70 percent. Brazil was already the world's leading sugar cane producer, and this growth is projected to increase an additional 37 percent by 2024.[126] In the state of Mato Grosso do Sul, sugar cane cropland area increased by more than 300 percent over the same period, mainly in pasturelands. One study reveals that three years after a mill arrived in the state, a typical municipality benefited from a 30 percent increase in GDP in addition to employment jumps of 40 percent, wage hikes of 44 percent, and tax revenue increases of 31 percent.[127] In the same three years, deforestation reduced by an average of 6,300 hectares. These results have added an interesting dimension to the global 'food versus fuel' discussion.

Despite the potential for agriculture to expand without compromising environmental protection, Brazil's deforestation challenge remains. Brazilian Amazon deforestation increased by nearly 30 percent in 2016 from the previous year, and tropical regeneration does not share biological or ecological equivalence with primary forested areas – nor does this regrowth fully make up for the devastation caused by years of deforestation. However, it is possible to shift Brazil's land use at scale by employing more technological innovations, increasing private investment, and implementing improved policies.

Other applications of technology associated with this opportunity include using big data techniques to optimise crop yield; fitting tractors with global positioning system (GPS) connectivity and multispectral sensors (to allow precise application of nitrogen); and using farm management software, drone technology, and advanced robotics. Just this year, NXTP Labs – an Argentina-based early-stage investment fund – set up an AgTech programme that will help large-scale farmers identify agriculture start-ups they can work with, and it will initiate more AgTech pilots in the future.[128]

Box 10. Helping farmers connect with their land

Launched in 2011 in Argentina, Tambero (meaning 'dairy farmer') is the first free, global, web based system for improving yields from dairy cattle farming, beef cattle, and other agriculture.[129] Developed in rural Argentina and now used in more than 150 countries, the software aims to help farmers around the world – especially those in the most isolated places – improve production yields.

The Tambero app allows dairy farmers to increase the efficiency and productivity of their operations. They can manage animals directly in the field with a phone, tablet, or notebook, and see comparative reports. They can also use QR codes to manage land plots and display satellite images. The app can show farmers the history of an animal and its condition, in real time, crossed with climatic data. It helps them to avoid overgrazing, and warns of caloric stress risks. The results have been evident – dairy cows managed by Tambero app users increased their milk production with each lactation cycle, doubling their supply by the 350th cycle.[130]

The benefits Tambero offers are growing. In 2014, Tambero launched an application programme interface (API) that allows other AgTech start-ups to integrate with the Tambero platform and offer a wider suite of products. Late last year, Facebook invited Tambero to be part of its Internet.org programme in Colombia, giving Colombians free and easy access to the app, even without a data plan.[131]

Urban agriculture

Worth US$4 billion per year by 2030

An estimated 800 million people grow food in urban and peri-urban environments, for subsistence and as a supplementary source of income.[132] Urban agriculture improves the food security of the urban poor by increasing the supply of food to growing urban populations, and lowering costs due to reduced transportation and storage. In addition to catering to growing demand, urban agriculture also increases resource efficiency, improves economic independence for women, and may help to mitigate climate change. The vast majority of urban agriculture currently occurs at a small scale, and yields are low. Connecting urban farmers to regional supply chains and offering training and better equipment could significantly increase their productivity.

Rural areas surrounding cities have the potential to produce much of the food consumed by urban residents. There are also ample opportunities to grow food in cities themselves. In recent years, several cities in Latin America and the Caribbean have successfully boosted incomes for households involved in urban agriculture by facilitating networks and businesses that provide productivity-enhancing services.[133] Havana, Cuba, which previously struggled with food rationing and child malnutrition, now boasts 97 *organopónic* (small, organic, and urban) gardens. An estimated 90,000 households in the city are now growing their own vegetables and raising small animals for consumption.[134] Throughout Cuba, 40 percent of households are following the trend, along with 20 percent of households in Guatemala and Saint Lucia.[135] In the main cities and municipalities of the Plurinational State of Bolivia, 50,000 families are also food producers. In Haiti, 25,500 families cultivate 260 hectares of land in and around Port-au-Prince and other towns.[136] Medellín's Metropolitan Greenbelt initiative is exploring whether it is possible to reignite the local knowledge of the area's older residents to help solve problems of urban food security in a changing climate.[137]

C. Energy and materials

Slower demand growth for energy and materials combined with more diverse and flexible supply creates new challenges and opportunities in the energy and materials system. The emphasis on adopting sustainable patterns of production that reduce waste and improve energy and resource efficiency – as set out in the Global Goals – will transform manufacturing processes. Supply of municipal solid waste may rise by 70 percent to 2025, increasing the cost for governments and consuming valuable land resources.[138] In response, extended producer responsibility regulations are becoming more widespread, requiring manufacturers to better handle the waste generated from their products. Circular models based on recycling and remanufacturing may displace linear production models in the durable goods and automotive industries, driving changes in product design. Low-visibility supply chains will be replaced by more traceable systems that encourage sustainability reporting. Advanced lightweight and high-strength materials will improve production

efficiency, reducing waste and energy use. Greater energy efficiency is another major objective of the Global Goals, leading to process changes across traditionally energy-intensive industries (such as steel and cement) as well as less-energy-intensive sectors.

The extractives sector faces several regulatory and production challenges. Latin America's production structure depends heavily on extractive activities that have high environmental impacts, both directly and in terms of energy consumption. Oil and gas extraction and mining have escalated across Latin America in the last decade. But climate regulations could put returns on capital invested in energy at risk, resulting in US$300 billion of potentially 'stranded' assets worldwide by 2035.[139] Pricing of carbon and water would significantly alter cost curves for major resources and fuels. For example, pricing water to reflect its 'shadow cost' – the economic value of the water if put to its best alternative use – could increase iron ore costs by 3.3 percent across the industry.[140] Regulators' increasing interest in reducing the more than US$400 billion in fossil fuel subsidies in force worldwide could significantly reduce demand by increasing end-user prices. In addition, while the world is not running out of energy or mineral resources, production is shifting to more remote locations that have weak infrastructure, high political risk, and greater input constraints. Copper production in Chile was deeply disrupted earlier this year by a strike at Escondida, the world's largest copper mine. Lack of water could also significantly constrain output, given that 32 percent of copper mines and 39 percent of iron ore mines are in areas of moderate to high water scarcity. This increases the risk of supply disruptions and makes supply even more inelastic.

The expansion of renewable energy could drastically slow down growth in fossil fuel demand. At the same time, fossil fuel generation will become more efficient as coal plants move to supercritical technology and combined-cycle gas turbines become the norm. Remaining coal generation will increasingly use carbon capture and storage to reduce emissions.

Challenges facing fossil fuels are a primary concern to Latin America, since oil and its by-products make up 41 percent of energy distributed in the region.[141] The region's public investment in energy has stagnated, returning to an average of 0.55 percent of GDP in 2015 after peaking at 0.67 percent in 2013.[142] The supply of renewable energy has also decreased in the last two decades, creating a more urgent need for new investments in the region to reverse this trend. Latin America has the capacity to develop its own renewable energy technology – geothermal energy being one example – and to design and produce vehicles powered by renewable energies. There is greater scope for developing technologies related to natural resource use, where environmental and inclusion issues likewise converge.

The UN's Global Goals agenda proposes meeting these challenges by shifting energy and materials onto a sustainable development pathway. This shift will be transformative, and will have major impacts throughout the energy and materials value chains. It could lead to the emergence of disruptive business opportunities worth US$321 billion in Latin America and the Caribbean by 2030.[143]

The following section discusses some of these opportunities in further detail.

Circularity in the automotive, appliance, and electronics industries

Worth US$126 billion per year by 2030

Circular business models based on recycling and remanufacturing may displace linear models, driving changes in product design and value chains. The automotive sector will be particularly affected. Latin America's share in global car registrations and sales has increased by 165 percent since 2005[144] – Brazil, Mexico, and Argentina together have around 140 million registered vehicles.[145] Peru is the most rapidly growing market, where the number of cars on the road is growing by 9.3 percent annually.[146] Some of these end-of-life vehicles (ELVs) will be exported as second-hand stock, and the rest will be sent from automobile retailers to auto dismantlers and scrap metal companies to be processed for reusing and recycling.

Recycling ELVs into base materials is energy-intensive and results in loss of value. Given that the end of a vehicle's life is usually brought about by the failure of only a small number of weakest-link components, it is possible to significantly extend the life of a vehicle by increasing the rates at which these components are refurbished and remanufactured.[147] This increases the efficiency of material and energy use, and raises the residual value of the vehicles. However, shifting to a circular model is challenging. Vehicle designs will need to anticipate disassembly, and capital will be required to build centralised refurbishment plants. Consumers may also resist buying refurbished vehicles, though warranties should partly assuage their concerns.[148]

Many domestic appliances, electronics, and industrial machines are also well-suited to circular models. The amount of discarded electronics (e-waste) is growing in Latin America; Brazil and Mexico are the biggest contributors, discarding nearly 4,000 kilotonnes of electronic products in 2014.[149] Mobile phones represent 17 kilotonnes of this waste.[150] Collection rates at present are lower than for vehicles – generally below 50 percent for appliances and 15 percent for electronics – so the opportunity to capture more material for recycling and refurbishment is high. A washing machine, for example, typically contains 30–40 kilograms of steel, and a refurbished machine could reduce material input costs by 60 percent.[151]

While many of today's circular economy models are in Europe and North America, some are emerging in Latin America. In 2013, Telefónica Movistar Ecuador processed 112,321 obsolete mobile phones surrendered by users. In 2012, Descarte Certo collected 43,782 mobile devices, batteries, and chargers from customers of the Brazilian mobile network operator Oi.[152] To ensure collection and refurbishment capture as much value as possible, business models may need to shift from purchasing to leasing or performance-based arrangements.

This will also encourage manufacturers to design products that last longer. In this way, countries like Chile and Peru might adopt higher-value production or circular economy processes, moving them away from a linear dependency on resource extraction.

Box 11. Forging value from scrap

The Inter-American Development Bank (IDB) Group is working with a steel company in Ecuador to turn what was once a small incentive programme for scrap collectors into a pillar of its growth strategy – and, in the process, build shared value. Adelca, short for Acería del Ecuador C.A. (Steelworks of Ecuador, Inc.) is a family-owned company founded more than 50 years ago. Ecuador does not mine any iron ore, so all of its domestically made steel is manufactured from ferrous scrap – recyclable iron and steel. This might include excess material from production – say, cuttings from an appliance manufacturer – or metal that can be recycled at the end of a product's useful life. Steel can be recycled over and over again with no loss of strength, and in fact is the most recycled material in the world. Demand for steel has risen at a healthy pace in Ecuador in recent years, a result of growth in the construction industry and greater public infrastructure investment. While Ecuadorian companies produce most of the 'long steel' (e.g., reinforcing bars, galvanised wire, mesh, and nails) the country needs, the domestic scrap supply falls far short of demand.

Adelca's melt shop turns ferrous scrap into lengths of steel known as billets, which are then put through a rolling mill to produce long steel products used in the construction industry. More than half of Adelca's raw materials come from wholesale and retail suppliers in Ecuador. And a critical component of that supply chain is the network of small and medium-sized providers that accumulate the scrap piece by piece, pile by pile, tonne by tonne. As the company prepares to build a second steel plant – with significant financing from the IDB Group – it is looking to maximise the amount of scrap it can source from these smaller providers.

The company started an incentive programme, called the Recyclers Club, to build loyalty among its smaller suppliers. Once suppliers establish a relationship with Adelca, they become eligible to receive money upfront to finance their purchases of scrap metal. The IDB team quickly realised that this kind of value sharing could take the programme to a whole new level. It could strengthen Adelca's business model, while increasing the social and economic impact by helping individuals and small businesses at the lower end of the supply chain, ultimately benefiting their communities. Through its appraisal process, the IDB team developed a comprehensive five-year strategy, laying out several areas where the company could invest in its smaller suppliers and expect to see a return on that investment in just a few years. Estimates show that the shared value programme will benefit more than 800 suppliers in the value chain and provide Adelca with an additional 80,000 tonnes of scrap. That should enable the company to turn what started as a US$50,000 experiment into a US$2.7 million programme central to the company's core business.

Expansion of renewable energy

Worth US$41 billion per year by 2030

Renewable energy – including solar, hydro, wind, and geothermal – can potentially increase energy generation and reduce local pollution while drastically slowing down the growth in fossil fuel demand and mitigating global climate change. Countries in Latin America and the Caribbean are rethinking their energy mix in search of greener alternatives, prompted by costly and unpredictable energy prices, rapid growth in energy demands, and increasing climate impacts.

The Latin American and Caribbean region's potential for renewable energy is extensive, and the region has already taken substantive steps towards tapping renewable sources, which accounted for about 24 percent of the region's energy mix in 2015.[153] Many Latin American countries currently have a high share of hydropower, which makes up 50 percent of the electricity mix for the whole region.[154] And more than 20 percent of the region's feasible hydro potential is still untapped.[155] However, hydroelectricity depends heavily on rainfall and becomes expensive during times of drought.

The supply-side economics of renewable generation are improving, and renewable technology costs are expected to continue falling. From 2010 to 2015, the costs for new utility-scale solar photovoltaic (PV) cells declined by two-thirds and are expected to fall an additional quarter by 2020.[156] Solar, along with wind, has emerged as the most attractive investment among renewable energy technologies and will likely attract the bulk of future investment, especially given the potential for costs to fall further.

Two particularly promising areas for solar investment have recently opened up. The first is low-cost residential and commercial solar generation, the growth of which will depend on the availability of low-cost financing for customers, reactions from regulated utilities, and the competitiveness of power tariffs compared with traditional grid pricing. The increase of distributed renewable energy devices such as rooftop solar PV panels will allow consumers to sell energy back into the grid. The second area is the provision of peak capacity in large-scale plants. The key to commercialising this area, as with other renewable areas, is to lower deployment costs by using 'lean' techniques such as prefabricated components, automation, and aerial site assessments to speed up design prototyping, and by collaborating with engineering, procurement, and construction companies to share cost-saving ideas. In 2013, reforms in Honduras took advantage of the country's excellent solar potential through targeted incentives, leveraging more than US$1 billion in investments in the solar PV industry.[157] (For more examples in the region, see Box 13. *Financing solar photovoltaic projects in Latin America*.)

Box 12. Creating a partnership to transform the Central American power matrix

Electric power generation plays a fundamental role in the development of any country or region. In the early 2000s, inefficient and highly polluting thermal plants dominated the Central American power matrix. Mesoamerica, a mid-market private growth equity firm saw an industry in need of transformation. In 2004, it acquired a small 20-megawatt (MW) wind farm in Costa Rica called Plantas Eolicas, the first-large scale wind farm built in Latin America. This initial investment served as the cornerstone for the creation of Globeleq Mesoamerica Energy (GME), the region's leading renewable energy development company. Actis, a global emerging markets private equity investor, acquired a majority stake in GME in 2010. This partnership drove GME's further expansion as it developed and began to operate new wind and solar projects in Honduras, Nicaragua, and Costa Rica. By late 2016, GME had become the largest private renewable energy company in the region, generating more than 1.5 TWh (terawatt hours) of energy a year and expanding its production capacity 16 times since 1996, to close to 400 MW. Following the success of GME, Mesoamerica and Actis are now replicating the successful partnership with a co-investment in Zuma Energía, Mexico's second-largest renewable energy company.

Several countries – including Brazil, Chile, Costa Rica, Ecuador, Mexico, and Uruguay – have already begun scaling up other renewable energy technologies to harness a range of complementarities in their energy mix.[158] Mexico has set a goal of producing 35 percent of its energy from renewable energy sources by 2024, 40 percent by 2035, and a minimum of 50 percent by 2050.[159] Despite the region as a whole reducing public investment in the energy sector in the last few years, Argentina, Belize, and Bolivia have reported notable increases.[160] Additional reforms and investment, including in energy storage solutions and transmission, will be needed to ensure renewable development is as sustainable financially as it is environmentally.

Box 13. Financing solar photovoltaic projects in Latin America

The Inter-American Investment Corporation (IIC) has joined efforts with an independent renewable energy producer – Providencia Solar S.A. de C.V – to finance the development of the first-ever commercial-scale solar photovoltaic (PV) energy project in El Salvador.[161] The so-called "Providencia Solar PV Project" consists of the construction, operation and maintenance of an approximately 100 MWp (megawatts peak – the maximum output) solar photovoltaic power project and its associated facilities near the international airport in La Paz Department. It aims to help diversify the country's energy matrix, which is highly dependent on fossil fuels. Providencia Solar is expected to displace an estimated average of 163,800 MWh of thermal power generation per year for an average of 20 years to end consumers through seven electricity distribution companies, while avoiding an estimated 114,500 tonnes of Greenhouse gas emissions per annum on average. The project will also boost the social and economic development of nearby communities, as the sponsor will allocate a portion of the revenues generated from one of the plants to finance high priority social investments in health, education, electricity, and water supply in the Municipality of El Rosario, La Paz. The first donation has already helped finance a local clinic.

The project has been instrumental to crowd in private capital into the non-thermal power sector in El Salvador by demonstrating the commercial viability of industrial-scale PV investment. It has encouraged private participation by awarding a Power Purchase Agreement, where developers arrange for the design, permits, financing, and installation of a solar energy system on a customer's property at little to no cost, making the contractual structure bankable and improving the viability of the government's most recent renewable power tender. This establishes a new benchmark in the country and throughout Central America, helping project developers and regulators agree on economically feasible tariffs for solar projects. This first commercial PV project has also contributed to building local know-how by preparing the public authorities in the renewable energies sector for negotiations with private operators. The project demonstrates that solar energy can be competitive and viable, benefiting the country and future project developers.

More recently, the IIC has signed its first solar PV project in the Bahamas, with the Caribbean Bottling Company (CBC).[162] The US$1 million loan will finance the installation of a rooftop solar PV system at CBC's main bottling plant in Nassau. In addition to being the IIC's largest commercial-scale solar PV installation in the Bahamas, this project will improve CBC's financial strength and competitiveness by reducing electricity costs. The loan will also support CBC's larger investment in roof-mounted solar PV panels, inverters, racking, and installation. In addition to long-term financing, the IIC provided CBC with an energy efficiency study to identify ways it can mitigate carbon emissions and operating costs.

Shared infrastructure

Worth US$24 billion per year by 2030

There is potential for new forms of partnership between extractive companies and resource-rich countries. The Global Goals aim to reinforce natural resource ownership rights and enable developing countries to add value to their commodities. Closer engagement with local communities – in the form of partnering to develop shared infrastructure – will be critical. Building shared infrastructure will help support the economic development of these economies by facilitating stronger and more sustainable growth rates.

Extractive industries will need to evolve their business models to ensure they maintain their licences to operate. Infrastructure sharing can boost the productivity of extractive sector infrastructure assets, presenting an attractive option for both governments and extractive companies. Through shared infrastructure, countries can access new investment capital and the expertise of extractive companies.

The extractive industry often requires investment in large infrastructure projects (e.g., ports and railways) before it can successfully bring resources to market. McKinsey Global Institute estimates that between now and 2030, extractive companies will likely account for almost 9 percent of the US$1.3 trillion in annual infrastructure spending needed in resource-driven countries, equating to around US$111 billion a year.[163] A substantial portion of this infrastructure could be shared, increasing the economies of scale in any particular infrastructure project. For example, if several mining companies in a region needed a railway, they could share one instead of each constructing separate tracks.[164] In general, power infrastructure is one of the best candidates for multi-user sharing, especially in cases where it can be plugged into a functioning national grid.[165]

Although there has been little research so far in analysing types of potential shared infrastructure, resource-rich countries can use extractive-driven infrastructure to support the diversification of domestic markets and encourage economic growth. For example, there is an increasing trend for mobile network operators in Latin America to use shared infrastructure models to optimise asset usage, reduce costs, and avoid duplication of infrastructure. Capital needs for shared infrastructure are high, and effective partnerships will be needed to achieve this opportunity. But if the extractive industry's infrastructure is integrated and shared with other productive sectors such as manufacturing and agriculture, transportation costs will be greatly reduced and trade across borders will open up.

Box 14. Taking a rare sustainable approach to mining

Compañia Minería del Pacífico (CAP Minería), a 60-year-old Chilean mining and steel holding company, pioneered sustainability at its iron ore mining site, Cerro Negro Norte, launched in December 2014.[166] The company incorporated sustainable processes and modern technologies into its operations, which allows the site to recover greater amounts of water, increase its seismic stability, and reduce the pollution it produces due to wind and rain water erosion – among other benefits. The mine uses 100 percent desalinated seawater for the site's fresh water requirements, up from its previous 50 percent, using reverse osmosis to help preserve fresh water in the notoriously dry Atacama Desert region.[167] The mine's energy needs are met by solar power for a few hours every day. According to the company, the solar-powered plant will prevent more than 135,000 tonnes of CO2 emissions annually – equivalent to removing more than 30,000 cars from the road.[168] Furthermore, ore and water are transported from the mine to the port via a concentrated pipeline instead of on roads, which means less impact on infrastructure and the surrounding environment.

CAP Minería has been implementing a plan to use raw materials and energy more efficiently. In doing so, it predicted the associated costs would decrease by more than US$10 million in 2015, while mining operations and maintenance efficiency would reduce costs by an additional US$12 million the same year. The Cerro Negro Norte mine added 4 million metric tonnes of high-grade iron ore to CAP Minería's output each year, and expanded production in the Valle del Huasco in December 2013 resulted in an additional 2 million metric tonnes. Based on this, CAP Minería's annual sales tonnage was projected to increase by an additional 18 million tonnes in 2017, compared to its 2014 sales.

Fernando Reitich, General Manager of CAP Group, said that 'not only does Cerro Negro Norte constitute a contribution towards the economic progress of the Atacama Region and the country, but it also represents the development of sustainable mining that respects the environment and that is adapted to the current reality of Chile'.[169]

D. Health and well-being

The health sector in Latin America and the Caribbean faces several challenges and opportunities related to research and development; inputs and devices; primary and secondary care; and lifestyle management. There will be rapid growth in demand for healthcare in the region over the next 15 years due to the combination of an ageing population, a rising consuming class, and increased prevalence of chronic diseases such as cancer and diabetes. Latin America's total healthcare expenditure is expected to reach 7.7 percent of GDP this year, and to rise to an average of 4.6 percent next year.[170]

There are significant gaps in healthcare supply. The World Health Organization (WHO) estimates that 4.45 skilled health workers are needed for every 1,000 people. Based on that ratio, an additional 14 million medical professionals will be required worldwide by 2030. There are huge disparities in the provision of healthcare services in Latin America and the Caribbean, both across countries and along the rural–urban divide. Approximately 30 percent of the population in Latin America does not have access to healthcare for economic

reasons, and 21 percent of people do not seek care because of geographical barriers.[171] It is becoming increasingly urgent to identify smarter investments that will provide health services to the population. The development of low-cost products that use digital technologies could help overcome these challenges by transforming how healthcare services and instruments are used, and their overall efficiency.

With increased emphasis on preventive care, the lifestyle sector will continue to grow. As a side effect of Latin America and the Caribbean's increased affluence, inactive lifestyles are becoming more prevalent, which leads to chronic diseases. Mexico, Venezuela, and Argentina have populations among the most obese in the world, and Brazil and Colombia are beginning to follow the same trend. The obesity epidemic and an ageing population have led to rising rates of related problems such as diabetes, cardiovascular diseases, and blood vessel blockage.[172] Deaths stemming from chronic diseases in the region are projected to make up 84 percent of all deaths by 2030.[173]

The Global Goals agenda proposes meeting these profound challenges by shifting health and well-being onto a sustainable development pathway. This shift will be transformative throughout the value chain, and could lead to the emergence of a number of disruptive business opportunities, worth US$223 billion for the Latin American and Caribbean region in 2030.[174]

The following section discusses a few of these key opportunities in further detail.

Risk Pooling

Worth US$110 billion per year by 2030

Increasing the penetration of private, public–private, and community insurance schemes is an essential step towards making healthcare affordable and achieving universal healthcare coverage in line with the Global Goals. In Latin America, 32 percent of health expenditure is paid for out of pocket, perpetuating income inequality since the poor spend a disproportionate share of their income on health costs. These out-of-pocket health payments made up 65 percent of private expenditure across the region in 2014.[175]

Risk pooling helps to better distribute health risks across communities. It often includes organised contracting functions that purchase healthcare on behalf of the individuals covered, which in turn encourages the development of higher-quality private sector providers. As risk pooling is expanded, consumers will need to be educated on how to invest in their future health needs and build the analytical talent to operate risk pooling arrangements, especially given the lack of good-quality health statistics in many developing countries.[176]

Microinsurance, which brings affordable insurance to previously unreachable groups through micropayment options, is a nascent business model gaining momentum across developing countries due to the large untapped market. Swiss Re estimates the market for 'commercially viable microinsurance products' to be 2.6 billion people and US$40 billion in direct written premiums.[177] Lloyd's estimates a potential market of 1.5–3 billion microinsurance policies at an annual growth rate of 10 percent.[178] While these numbers cover demand for all insurance, most of the demand is for health and life insurance products.

Private sector firms have devised innovative digital payment methods to spur more risk pooling. Increased access to mobile and internet services, even in developing and rural areas, is facilitating digital business models. These new approaches combine more conventional insurance mechanisms with modern technologies, including digital distribution technology, big data, and blockchain. As of late 2016, mobile insurance start-up BIMA had almost 24 million customers across developing countries in Asia, Africa, and Latin America, which the company charges for monthly rolling insurance through their mobile subscription plans.[179] In 2016, 28 emerging insurance start-ups had been identified in Latin America alone.[180]

Box 15. Finding opportunities in digital finance inclusion

Between 2011 and 2014, 700 million people became account-holders at banks or other financial institutions for the first time, reducing the number of 'unbanked' adults by 20 percent, to 2 billion people.[181] Of these 2 billion, 250 million live in Latin America and the Caribbean, without access to banking services or financing.[182] They are found across all income levels – an estimated 42 percent of those in the wealthiest 60 percent of the population do not have an account in a formal financial institution, nor do 59 percent of people among the poorest 40 percent.[183] Those excluded from the financial system turn to the informal sector, which tends to offer them insufficient solutions with high costs and low security.

The digitisation of the financial system could provide access to financial services for 1.6 billion people in emerging economies, and increase the volume of loans offered to individuals and businesses by US$2.1 trillion.[184] Financial inclusion can be a particularly powerful driver of gender equality, a crucial area for progress given the global gap between genders in their access to financial services. Promoting women's access to financial services – as well as to digital and property assets more broadly – is a key area where business can facilitate a better gender balance.

Digital finance is gaining traction across Latin America as more companies and governments use web-based financial technology to expand financial services offerings for lower-income households. This transformation has accelerated thanks to the emergence of new financial technology (fintech) applications that supply products and services in the industry, modifying the way businesses and consumers make payments, transfer money, obtain loans, trade assets, and manage their resources.

Fintech start-ups have been penetrating Latin America's financial system at break-neck speed: more than 60 percent of those currently operating were established since 2014. One study identified 703 fintech start-ups in 15 countries across Latin America, almost 90 percent of them concentrated in Brazil, Mexico, Colombia, Argentina, and Chile.[185] An important trend among these Latin American fintech start-ups is that they seek to serve segments previously neglected by the financial system. In one survey, 41 percent of respondents said their mission was to serve clients that have been excluded or underserved by traditional financial services, whether they were individuals or small and medium-sized enterprises (SMEs).[186]

These firms' technological and strategic orientations, as well as their business models, provide the conditions to tackle two major obstacles that have prevented further progress when it comes to financial inclusion: limitations due to the lack of demand, reflecting the absence of products adapted to the needs of the market; and the high operational costs versus low profit margins traditional methods deal with when serving excluded segments. Because of this, several governments throughout the region are considering fintech development as one of the pillars that may help to reduce financial exclusion.

Remote patient monitoring

Worth US$27 billion per year by 2030

Ageing populations place increasing pressure on healthcare systems, in terms of physical infrastructure and human capital. By 2040, it is expected that more than 20 percent of Latin America's population will be over 60 years old, around double the current proportion.[187] The changing nature of the region's disease burden – from epidemics to chronic diseases – has also left the hospital-based healthcare system outdated and expensive to maintain. Chronic diseases are the principal cost driver associated with an ageing population; more than 80 percent of adults aged over 60 have at least one chronic disease.[188] Such diseases require long-term treatment and routine visits as part of ongoing lifestyle management.

Alternative solutions that incorporate home-based healthcare may present opportunities for care providers, nursing homes, and medical equipment suppliers, by providing products that can affordably meet the needs created by these demographic changes. Remote monitoring systems can reduce unnecessary hospitalisation and make preventive care more effective. Using sensors that read the vital signs of patients at home, nurses and doctors can be alerted to small changes in health status and identify issues before they worsen. Remote patient monitoring can reduce the cost of chronic disease treatment by 10–20 percent by reducing emergency room visits and unnecessary routine monitoring in hospital for those whose conditions could be remotely monitored on a regular basis.[189] Recent studies indicate that telemonitoring patients can decrease the annual costs of managing their diseases by nearly US$4,500. Home-based care solutions in Latin America are expected to grow by 8.7 percent between 2015 and 2020, reaching a value of US$17.5 billion.[190]

Obesity is one of the chronic diseases plaguing Latin America and the Caribbean that can be addressed with new technologies. Innovative diagnostic and monitoring technology can quantify changes and make patients aware of their progress, which can impede gradual weight gain. Though market studies suggest Latin America and the Caribbean is not yet ready for wearable devices, the region is forecast to follow in the footsteps of more developed markets, with alluring growth prospects in the wearable technologies market of up to 41 percent annually by 2018.[191]

While demand for remote patient monitoring is rising quickly, there has been no consensus on the ideal business model. This leaves an opening for entrepreneurial vendors to gain the first-mover advantage in a competitive market.[192] An already common model is for vendors to form partnerships with stakeholders such as hospitals, governments, telecommunication companies, and insurance providers. For example, insurance companies are willing to provide remote monitoring devices and services to reduce the probability of hospitalisation claims.[193]

Box 16. Monitoring health at home

AccuHealth is a Franco-Argentinian health telemonitoring start-up operating in Chile and elsewhere in South America. In Chile in 2014, as Latin America's first telehealth monitoring company, it launched an initiative to monitor and stabilise chronic disease patients using predictive information technologies. These home-based digital technologies allow for remote monitoring of a range of chronic conditions. AccuHealth employs professionals with extensive experience who can monitor patient health at a distance, while giving expert support to the patient's treating medical team.

AccuHealth's inclusive business model aims to give patients who been diagnosed with non communicable diseases – and their families – a better quality of life. It does so by combining evidence-based remote health monitoring with big data, predictive modelling, and data-mining techniques. This allows hospitals and clinics to improve bed rotation, optimise patient control, and increase the geographical coverage of their specialists. At the same time, it allows insurance companies to better manage their clients' health needs, reducing the incidence of medical emergencies and containing costs.

With AccuHealth's model, patients are now cared for through virtual clinics as well as by their regular healthcare providers, allowing them to save an average of 55 percent in healthcare costs. In Chile, AccuHealth has monitored and improved more than 9,000 patients' health conditions. Between 2014 and 2016, the company's revenues multiplied by eight, from US$600,000 to US$4.9 million. AccuHealth is gearing up for dramatic growth both within and outside of Chile. By 2020, it aims to serve 200,000 patients living at the base of the economic pyramid in Chile, 500,000 patients in Mexico, and 300,000 patients in Colombia – more than a million in total across Latin America.[194]

Telehealth

Worth US$20 billion per year by 2030

Much of Latin America and the Caribbean faces a major challenge that could be addressed through telemedicine: a shortage of providers, and large populations living in rural areas that lack access to physicians, particularly specialists.[195] Telehealth facilitates greater access to healthcare by expanding remote consultation and diagnosis of patients. According to the American Medical Association, 74 percent of medical visits could be done remotely.[196] Using basic mobile internet technologies such as videoconferencing, doctors and patients – or doctors and local health workers – can discuss symptoms and determine treatment without anyone needing to travel or wait for services.

Three types of business models are particularly interesting in telehealth. The first focuses on increasing consumer power by allowing patients to store and share medical records with doctors and pharmacists via apps.[197] Revenue streams include commissions on consultations, subscription fees for providers, and fees per employee of a corporation signed onto the platform. The second type of business model provides 'e-doctor' services. These use basic mobile and internet technologies to extend patients' access to healthcare by enabling remote consultation and diagnosis. The third type of model uses technology to upskill health workers so they can handle more complicated cases and undertake higher-value activities.[198] For example, trained midwives can use handheld ultrasound scanners to monitor fetal health in remote villages, greatly improving the care they provide to high-risk patients and the decisions they make as to when patients should be referred to hospital.[199]

Webcam and audio technologies have already been pioneered in a number of remote locations across Latin America, including in Mexico and Argentina, allowing senior physicians to give expert advice and guidance to distant medical workers on the ground. More than 40 million additional patients in Brazil and Mexico alone could be treated using mobile ealth (m-health) services, saving almost US$18 billion in costs.[200]

Box 17. Using mobile technology and e-health in Latin America

Today, many Latin Americans still live in rural areas, but technology has made things easier. The internet continues to lower information barriers, and rapid technology adoption is connecting remote villages and leaving fewer people out of reach. The penetration of devices has progressed at break-neck speed in Latin America, where internet and smartphone usage rates are now on a par with those in North America, Europe, and Southeast Asia. Already home to more than 155 million smartphone users in 2015, the region is expected to maintain growth rates of more than 20 percent per year. By 2019, it is estimated that 42 percent of the population will possess a smartphone device, and the majority will have internet access.[201]

The m-health industry generates income for network operators, software developers, and data platform management providers. Consultancy firm Visiongain calculated that the m-health market generated global revenues of approximately $10.3 billion in 2015.[202] This market is expected to reach US$59 billion by 2020, growing 33 percent annually.

Given Latin America's concentrated use of mobile technologies, its vast distances to cover, and its infrastructure failings, the region offers an attractive target market for m-health software solutions. Apps dealing with diabetes management, blood pressure, and electrocardiogram management are expected to be the fastest growing sub-segments of m-health apps.[203] These healthcare and medical smartphone applications – designed for patients and healthcare professionals – are the most promising solution for Latin America.

Mexico is one of the fastest-growing mobile markets in Latin America – at 46 million unique mobile subscribers and 104 million mobile connections – and is expected to offer the largest m health opportunities within the region.[204] Moreover, more than 6 million people in Mexico require disability-related support. In 2015, Mexico's mobile operators – AT&T, Telcel, and Telefónica Movistar – together with the GSMA and the Brazilian Agency of Telecommunications (ANATEL) signed an agreement with the Mobile Manufacturers Forum to facilitate access from its websites to the Global Accessibility Reporting Initiative, part of the GSMA WeCare campaign. This system enables users to identify mobile devices in their region that offer features to aid users with disabilities.[205] This is one example of how the mobile industry and the public sector can work together to improve the quality of life in Latin America though mobile technology.

Men assemble women's coats in a manufacturing factory in Chimaltenango. Photo credit: World Bank

3. THE IMPACT ON JOBS

Latin America's unemployment rate rose to 8.1 percent in 2016, higher than the level seen during the 2008–09 global crisis.[206] Furthermore, it is expected to increase by an additional 0.3 percentage points this year, as labour force growth exceeds job creation.[207] Brazil's unemployment rate is expected to reach 12.4 percent in 2017, almost 1 percentage point higher than last year.[208] A large proportion of the newly unemployed are women and young people. Self-employment is growing faster than wage employment, which suggests that job quality is deteriorating.[209] The technology gap is the main determinant of the region's capacity to create good jobs.[210]

The share of workers in vulnerable employment has risen at a steady pace since 2015; it currently affects 134 million workers and is expected to continue to increase in 2018.[211] The International Labour Organization (ILO) defines vulnerable employment as 'the sum of own-account workers and contributing family workers'.[212] They are less likely to have formal work arrangements, and are therefore more likely to lack decent working conditions, adequate social security, and 'voice' in the form of effective representation by trade unions and similar organisations. Vulnerable employment is often characterised by inadequate earnings, low productivity, and difficult conditions of work that undermine workers' fundamental rights.

Notwithstanding these challenges, the good news is that by 2030 opportunities created by pursuing the 60 Global Goals identified in this report could create over 24 million new jobs in Latin America and the Caribbean, particularly in cities.[213] Developments in urban construction, mobility, and infrastructure will generate an estimated 11 million jobs. Almost one-fourth of the total employment potential in Latin America and the Caribbean – around 6 million jobs – comes from just one opportunity: affordable housing. Pursuing Global Goals opportunities could create nearly 6 million jobs specific to energy and materials, more than 5 million in food and agriculture, and around 3 million in health and well-being. However, these jobs will only meet Global Goals targets if they provide decent, well-paid work, and if the companies that create them are inclusive in all their activities.

How to ensure decent work and inclusive growth

The imperative for businesses to provide 'decent work' – that which complies with ILO decent work guidelines and the UN Principles for Human Rights – remains critical. The ILO defines decent work as work that is productive and delivers a fair income; provides security in the workplace and social protection for families; offers prospects for personal development and social integration; gives people freedom to express their concerns as well as to organise and participate in the decisions that affect their lives; and ensures equality of opportunity and treatment for all women and men.[214] Businesses should ensure these principles are embedded in their own workforces, and that their suppliers are doing the same.

The changing shape of employment reflects the structural transformation taking place in the Latin American and Caribbean region, where investments and jobs are moving from lower- to higher-value sectors. Ensuring that schooling and skills training align with future job requirements will remain an essential component of many Latin American and Caribbean education and labour market policies. Businesses could provide critical advice to government on the skills required for jobs of the future, and then provide appropriate training or reskilling. In Latin America, around 50 percent of firms do not find the skills they need within the workforce.[215] The particular challenge of youth unemployment requires businesses to engage with career guidance services and programmes that prepare young people for the world of work. There are many opportunities for businesses to be more actively involved in this area.

Increased digitisation and automation of processes is expected to displace jobs in traditional labour-intensive functions such as assembly-line manufacturing. Many businesses will face the cost–reputation trade-off, in the sense that laying off workers in favour of automation could lead to productivity gains but also political and social backlash from workers and consumers. However, businesses must be mindful that the choice is not a binary one. Automation allows businesses to rethink their business models, including scaling up and diversifying into services related to their core

operations. This creates opportunities for workers to be retrained and to take on higher-valued jobs that complement automation, rather than being replaced by automation. Dialogue between companies and governments must take place to ensure they continue to meet changing labour market requirements in a socially sustainable manner.

Increasing women's participation in the workplace and ensuring their equitable treatment is widely understood to be a positive driver of economic progress. The opportunity to involve women more significantly in the economy is one of the greatest opportunities for the Latin America and the Caribbean. Nearly half of women's productive potential in the region remains untapped, compared to one-fifth for men.[216] There are excellent examples of businesses that have realised the benefits of gender equality, making significant contributions to women's empowerment in the workplace and deploying inclusive business models that deliver remarkable productivity gains. (See Box 18. *Supporting women at work in Latin America*.)

Finally, developing inclusive business opportunities and linking SMEs to global, regional, and national supply chains are two of the most powerful ways businesses can pursue the Global Goals in Latin America and the Caribbean. Linking these enterprises to larger value chains and providing them with viable finance options will be critical to improving the region's productivity and delivering on the Global Goals.[217]

Box 18. Supporting women at work in Latin America

The growing number of women participating in Latin America's labour force is noteworthy. More than 70 million women joined the labour force in the past 20 years, raising the regional average to 53 percent, which is above the global average of 50 percent.[218] However, despite these and other gains, gender inequalities in the workplace persist within the region. Only 8.5 percent of board positions in Latin America and the Caribbean are held by women. Using data from 1,259 publicly traded companies in 31 countries across the region, 63 percent do not have women on their boards and 73 percent do not have any women in upper management.[219] The region's gender wage gap ranges between a 10 and 40 percent difference in pay for equal work, and the gap increases in economic sectors that involve a higher educational background. Twenty-six percent of women receive an income lower than the minimum wage, compared to 18.3 percent of men. And between 71 and 86 percent of women still remain involved largely in non remunerated household work.[220] Almost 29 percent of women don't have their own source of income, compared to only 12.5 percent of men.

Gender equality is pivotal to accelerating the process of Latin America's economic and social development. Increasing women's participation in the workplace and ensuring their equitable treatment is widely understood to be a positive driver of economic progress, and is crucial for Latin America's global economic competitiveness. It is estimated that if women had the same employment and entrepreneurship levels as men, the region's GDP could increase by 14 percent.[221] Studies show that increasing female labour force participation can lead to significant per capita income growth and poverty reduction. Additionally, experiences with conditional cash transfer (CCT) programmes in Brazil, Mexico, and other countries in the region have shown that employed women spend a higher percentage of their income on education, health, and nutrition for the household, decreasing the inter-generational transmission of poverty.

When financial institutions invest internally in gender equality practices, they enhance economic productivity, ensure stronger employee retention, and drive greater company profitability. In Costa Rica, SMEs employ 46 percent of the labour force and contribute to 30 percent of its GDP. Banco Nacional de Costa Rica is drawing on an IIC investment to expand its Banca Desarrollo and Banca Mujer programmes, both of which help women entrepreneurs overcome the financing challenge that women-led micro, small and medium-sized enterprises (MSMEs) face. The project also channels financing and capacity building for women-led SMEs and offers training for credit officers. By 2019, the IIC loan will help Banco Nacional double the number of MSME clients financed, including women-led enterprises. The total portfolio is expected to reach more than US$2 billion.

In 2009, the IDB Group launched a Gender and Diversity Fund, committing $10 million in grant resources and $6 million in contributions from donors to support gender and diversity mainstreaming in Latin America. In November 2010, the IDB Group approved a new Operational Policy on Gender Equality in Development,[222] which will improve its ability to support member countries' commitments to gender equality and women's empowerment by applying a gender perspective systematically across its operations. the IDB Group also invests directly in strategic areas for gender equality and women's empowerment, through knowledge- and capacity-building products. Examples include the GEPPAL database on women's political participation, and projects such as a $10 million loan to MiBanco in Peru, which seeks to expand access to financial services for women micro-entrepreneurs.[223] In March 2017, the IDB Group became the world's first regional development bank to earn an EDGE certificate for gender equality.

Box 19. Weaving a strong social fabric

Vicunha Ecuador S.A. – a company that manufactures denim cloth – is working with The IDB Group to create a cluster of local, small-scale makers of jeans. The aim is to yield better financial performance for the company, and jobs for women in the local community. The company churns out around 2 million metres of denim per month, which it then wholesales to clothing manufacturers in Ecuador and abroad. It is Ecuador's largest producer and exporter of textiles, and an economic mainstay in the local San Antonio de Pichincha economy. Its parent company, Vicunha Têxtil of Brazil, is one of the largest denim manufacturers in the world. The bulk of its production is in Brazil, and it has another plant in Argentina.

The IDB Group is providing Vicunha Ecuador with a US$20 million loan to modernise its equipment and complete environmental upgrades, as well as helping the company identify opportunities for shared value so it can achieve breakthrough financial results with high development impact. As a first step, Vicunha will help a dozen local seamstresses from the Association of Women Clothing Makers ('United by a Hope', known as ASOCONFEC) get into the business of making jeans. In addition to providing training and other support, it is giving the association a contract to make uniforms for Vicunha employees. The 'hope' in the association's name refers to the members' aspirations for better work, but also their hope that they will someday be able to provide jobs for more women in the community, many of whom are single mothers or victims of abuse. The garment workers stand to make a better living with a fairer and more reliable income stream, and may eventually be able to expand the association.

Vicunha pays for about three months of initial training for ASOCONFEC members to learn how to work with denim and make jeans. Down the road, it will also provide other types of training, ranging from basic fashion design and marketing to such topics as cash flow, taxes, credit, and business management. The company will ensure participants receive training in 'soft skills' such as collaboration and communication, to further solidify the effectiveness of the association's work. Vicunha is also providing other types of support, extending a 120-day credit to ASOCONFEC to buy its fabric, compared to the seven or 10 days set out in standard sewing contracts. These favourable credit terms will help the seamstresses access the raw materials they need to take on larger contracts for making jeans, denim uniforms, and other garments for public and private sector clients. Vicunha Têxtil will monitor the Vicunha Ecuador project to see how it matures, before determining whether it might implement similar projects on a larger scale in Brazil.

Buildings in Leblon neighborhood on Rio de Janeiro. Photo credit: WRI Ross Center for Sustainable Cities/flickr.com

4. SUSTAINABLE INFRASTRUCTURE FINANCING

Substantial investment will be needed to capture the Global Goals opportunities. The total investment required to capture all 60 opportunities in the areas of cities, energy and materials, food and agriculture, and health and well-being is estimated to be US$2.4 trillion a year.[224] However, major changes in the financial system will be required for that seemingly ample capital supply to meet the investment demand generated by the Global Goals. Achieving the Global Goals depends on aligning the global financial system with sustainable, long-term outcomes. Lengthening the investment horizons of many market participants and attracting them to sustainable investments in line with the Global Goals requires clear thinking, individual and sectoral action, and unprecedented collaboration between the public and private sectors.

The most critical type of investment to achieve the Global Goals is investment in sustainable infrastructure: gains from most other types of investment depend on the supporting infrastructure being in place. The International Monetary Fund (IMF) has estimated that in advanced economies, a one percentage point increase in infrastructure investment leads to a 0.4 percent rise in GDP in the first year, and a rise in GDP of up to 1.5 percent four years out.[225] To achieve the Global Goals, infrastructure is needed in a range of sectors – such as energy, transportation, agriculture, and water – and in many forms, from schools and hospitals to broadband networks that deliver high-speed internet access.

Estimates suggest that the total additional infrastructure investment needed globally is around US$1.6 trillion a year.[226]

Public investment in infrastructure in Latin America is declining. In 2015, annual investment in infrastructure from governments in the region was only 2.55 percent of GDP.[227] Given the region's vulnerability to extreme events, the cost burden of rehabilitation following extreme weather and natural disasters could further reduce the public capital available for investment in infrastructure. On the other hand, private investment in infrastructure has made Latin America the leader among developing regions. From 1990 to 2013, the private sector invested US$680 billion in Latin America, about 30 percent more than in the high-growth Asian economies (US$503 billion) and more than five times as much as in sub-Saharan Africa (US$130 billion).[228] Regardless, this high level of private investment in infrastructure are not sufficient to compensate for the low levels of public investment.

Latin America and the Caribbean's infrastructure investment gap remains significant. In 2012, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) estimated that Latin American and Caribbean markets should invest 6.2 percent of their GDP in infrastructure each year – US$320 billion dollars across the region – every year to 2020 to satisfy the most immediate infrastructure demands.[229] At best, the public sector is likely to be able to finance about one-third of this investment, implying the need for roughly a fourfold increase in private investment in sustainable infrastructure in the region (from 1 percent to 4 percent) to fund the other two-thirds of the infrastructure investment need.

More blended finance – which taps the large pools of private capital in the region – will be needed to fill the gap. The risk profile of many infrastructure projects could deter private investors, but wider and more efficient use of blended finance instruments in Latin America and the Caribbean could encourage much more private capital into sustainable infrastructure by helping to share the risks between public and private investors. Achieving a step change in the number of projects financed this way will depend on public and private players learning how to develop more blended products together, a greater supply of bankable projects, and improvements in legal protection and enabling regulatory environments. There is also potential to extend the use of blended finance beyond infrastructure, to encourage private investment into new or riskier sectors including healthcare, sustainable agriculture and land use, social housing, education for girls, and off-grid clean energy generation. If executed well, blended finance could be the single most important factor in delivering the Global Goals.

Kichwa villagers sit next to timber on the banks of the Puni River during the Friday markets, Napo Province, Ecuador.
Photo credit: CIFOR/flickr.com

5. RENEWING AND ENERGISING THE SOCIAL CONTRACT

More than half of the Global Goals aim to meet basic needs, empowering and protecting those currently disadvantaged in society. But achieving these goals is also a business imperative. Without improving the incomes, health, rights, and education of the vast majority of the world's working people – not to mention providing better social protection – the business opportunities arising from sustainable development will not materialise. Various global multi-stakeholder initiatives have focused exclusively on developing principles for responsible business, and spreading responsible business standards along global supply chains. The largest initiative is the UN Global Compact, with its principles-based framework that calls on companies to align their strategies with universal principles of human rights, labour, the environment, and anti-corruption.

The public sector, civil society, and increasingly the private sector are urgently pursuing the same Global Goals, and they need to support each other to achieve them. There will be different emphases and difficult trade-offs to negotiate but, in principle, all these stakeholder groups are pointing in the same direction. All three groups could renew a social contract through the following actions.

Actions for businesses

Companies can show their commitment to the Global Goals by respecting basic standards of behaviour enshrined in both the UN Global Compact and the UN Guiding Principles on Business and Human Rights. While many companies have embraced the need to reduce their negative environmental impacts, much less progress has been made on improving businesses' social impacts. Incorporating the Global Goals into business strategy promotes the targets that aim to meet basic needs and extend social and economic development to those currently marginalised. The result will be an increased focus on inclusion in everything businesses do.

Businesses should develop good jobs that offer reasonable pay at every step along their supply chains, and integrate human rights into their operations. This approach promotes sustainable development while also reducing harm. Businesses can be powerfully inclusive – not only as creators of jobs that offer decent work and conditions, but also as developers of inclusive services and other innovations that improve the lives of the very poorest. Sustainable company leaders should look for ways to support their smallest and poorest suppliers, working with them to improve productivity, invest in skills, build resilience, improve access to credit, and ensure no one is left behind. The 10 principles of the UN Global Compact, developed to help businesses do the right thing, are a helpful guide. Fully implementing these principles should extend into the informal sector as well, and businesses can also do a great deal to promote inclusion through business innovation.

Different companies will have different ways to reduce poverty and promote inclusion. Developing inclusive business opportunities and linking SMEs to global, regional, and national supply chains – providing them with viable finance options – are two of the most powerful ways for businesses to pursue the Global Goals in Latin America and the Caribbean. One commonly effective tactic is to pursue gender equality within companies – and within their supply chains and direct suppliers – while expanding business opportunities that promote gender equality. That could involve publishing company gender profiles from top to bottom, covering pay differentials as well as the representation of women and men at each level of seniority. Companies can ask their top suppliers to do the same. And they can progressively embed the UN Women's Empowerment Principles throughout their activities.[230] These Principles help companies to tailor existing policies and practices or establish new ones to achieve gender equality in their businesses.

Latin American and Caribbean companies should pay their taxes and disclose tax information transparently. Part of the region's resource mobilisation challenge is its generally low levels of taxation, with a low average tax-to-GDP ratio of 22.8 percent in 2015, compared to the average of 34.3 percent of GDP for OECD countries. This is compounded by the high rate of tax evasion in the region, which ECLAC estimates was around US$340

billion in 2015 – equivalent to 6.7 percent of regional GDP that year. Some studies believe corporate income tax evasion to be as high as 70 percent in some Latin American and Caribbean countries.[231]

Finally, businesses can use their influence to push policy in a responsible, transparent, and accountable direction. Much of the current mistrust in business derives from occasions when companies have used their power to access policymakers, petitioning them to lobby for the business's own narrow interests rather than aligning their agenda with the common good. Instead, companies should be transparent about all public affairs activities, avoid lobbying for policies that are contrary to achieving the Global Goals, and support sound science and the greater good.

Actions for governments

Governments in Latin America and the Caribbean can help businesses pursue these shared goals by creating an environment that enables private sector growth; good and accountable governance; the rule of law; effective contract enforcement and legal systems; and functioning customs regimes. More can be done to improve competitiveness and productivity. In the 2016–17 World Economic Forum competitiveness rankings, the five largest Latin American countries by GDP – Brazil, Mexico, Argentina, Colombia, and Peru – came in between 51st and 104th, of the 138 economies measured.[232] As a region, only sub-Saharan Africa scored lower. Administrative burdens for businesses in Latin America are high. According to the World Bank, it takes 79.5 days to start a business in Brazil, which compares to 26 days in India and 6.5 days in Italy – countries that are similar in size to Brazil in terms of GDP.[233]

In 2016, from the Panama Papers[234] to the Odebrecht settlement,[235] the fight against corruption in Latin America and the Caribbean made great strides. But there is still a long way to go. The average score for the Americas on the 2016 Corruption Perceptions Index was 44 out of 100, where anything below 50 indicates governments are failing to tackle corruption. Mexico is the region's biggest decliner on the index, losing five points in one year.[236] Kickbacks on government contracts in Mexico can reach 25 to 30 percent of project value in the form of cash and other material goods such as computers, cars, land, constructions, homes, and political favours. Transparency and accountability are needed to mitigate these practices.

It is also imperative for countries to substantially reduce illicit financial flows and address the tax avoidance stemming from multinational corporations' international transactions. Tax evasion constitutes one of the principal weaknesses of tax systems in Latin America and the Caribbean. Global and regional tax cooperation efforts must be redoubled to avoid harmful tax competition between countries.[237]

Actions for civil society

Civil society has a crucial role to play in monitoring institutions and ensuring businesses, governments, and community organisations are transparent and respect the rule of national and international law. Civil society also has a responsibility to engage in dialogue with all sectors, and to advocate for changes to laws and practices that are failing to deal with or are inadequately dealing with corruption, modern technology, socially destructive practices, and disruptive change. For trade unions, there is a specific responsibility to engage in social dialogue with businesses – and governments, where appropriate – to ensure rights, fair wages, and safe and secure work are accepted and respected as part of the social contract.

Many of the greatest human rights challenges are relatively remote, existing in the supply chains of large companies where civil society's influence is limited. Yet there is a special role for civil society under these circumstances, where action could have a lasting positive impact.

All parties need to follow up on the guarantee of social protection and monitor labour market institutions, to ensure a dignified future for societies and a fair competitive basis for business.

6. CONCLUSION

This report has presented the case for businesses to concentrate on solving Latin America and the Caribbean's greatest challenges that the Global Goals set out to overcome. There is much more than US$1.2 trillion in value at stake. There is the opportunity to shape a safer, more prosperous world with a more predictable future that is worth investing in and innovating for.

Achieving the Global Goals would make the world more sustainable, inclusive, and full of opportunities for everyone. There would still be many challenges, but societies would be better equipped to tackle them. The alternative is more uncertainty, intensifying risks, growing social and environmental costs, and bigger shocks. Reaching that better world depends on business leaders in the private sector choosing to lead the charge for sustainable growth.

The Commission has identified six actions you can take as a business leader to make this transformational change a reality.

1. **Build support for the Global Goals as the right growth strategy.** The more business leaders who understand the business case for the Global Goals and pursue them in their companies and across the business community, the faster progress will be towards better business in a better world.

2. **Incorporate the Global Goals into your company strategy.** That means applying a Global Goals–focused lens to every aspect of strategy: appointing board members and senior executives who will prioritise and drive execution; aiming strategic planning and innovation at sustainable solutions; marketing products and services that inspire consumers to make sustainable choices; and using the goals to guide leadership development, women's empowerment at every level, regulatory policy, and capital allocation.

3. **Drive the transformation towards sustainable markets with your peers in the sector.** Shifting whole sectors onto a sustainable footing in line with the Global Goals will unlock much bigger business opportunities. 'Business as usual' will not achieve this market transformation, nor will disruptive innovation by a few sustainable pioneers. The whole sector has to move.

4. **Work with policymakers to pay the true cost of natural and human resources.** Sustainable competition depends on all competitors accepting prices that reflect the true costs of the way they do business. Business leaders must therefore work openly with regulators, businesses, and civil society to shape fiscal and regulatory policies that create a level playing field more in line with the Global Goals.

5. **Push for a financial system oriented towards longer-term sustainable investment.** Business leaders can strengthen the flow of capital into sustainable investments by pushing for transparent, consistent league tables of sustainability performance linked to the Global Goals. They can also aim for wider and more efficient use of blended finance instruments to share risk and attract more private finance into sustainable infrastructure, and alignment between regulatory reforms in the financial sector and long-term sustainable investment.

6. **Rebuild the social contract.** Business leaders can regain society's trust and secure their licence to operate by working with governments, consumers, workers, and civil society to achieve the whole range of Global Goals. This means taking on a role of responsible, open policy advocacy.

The members of the Business and Sustainable Development Commission have chosen to lead our own companies towards the Global Goals. With this report, we urge others to join us. The world has 13 years before we reach the 2030 deadline. There will never be a better time for company leaders to align their business objectives with the goal of creating a better world.

The current 'business as usual' approach will not unlock the Global Goals business opportunity. It will take a different kind of leadership to be a Global Goals leader. It will require transparent and accountable partnerships with sector peers (and competitors). Perhaps above all, it will require a new way of doing business: one that is driven equally by purpose and profit.

The Business Commission believes no single company or sector can do it alone. The Global Goals need the full engagement of business, government, and society to set the world on a far more inclusive and sustainable path. The Commission has laid out six ways companies can align with the Global Goals, and provides assets for individuals to make the business case in their companies and sectors.

To learn more about the work of the Business & Sustainable Development Commission and to learn how to become a Global Goals Leader, please visit www.businesscommission.org/join, or contact us at info@businesscommission.org.

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THE BUSINESS AND SUSTAINABLE DEVELOPMENT COMMISSION

The Business and Sustainable Development Commission was launched in Davos in January 2016. It brings together leaders from business, finance, civil society, labour, and international organisations, with the twin aims of mapping the economic prize that could be available to business if the UN Sustainable Development Goals are achieved, and describing how business can contribute to delivering these goals.

The *Better Business, Better World* report was led by the commissioners, and supported by: the Australian Department of Foreign Affairs and Trade (DFAT), the Bill & Melinda Gates Foundation, the Global Green Growth Forum (3GF), the Swedish International Development Cooperation Agency (Sida), the Netherlands Ministry of Foreign Affairs (MoFA), the Norwegian Ministry of Climate and Environment, the Rockefeller Foundation, and the UK Department for International Development (DFID). The Commission also benefits from the generous financial support of its commissioners.

The Business and Sustainable Development Commission has overseen this report with secretariat support provided by the UN Foundation and SYSTEMIQ. Chaired by Lord Mark Malloch-Brown, the Commission comprises business leaders from around the world.

Members of the Business and Sustainable Development Commission endorse the general thrust of the arguments, findings, and recommendations made in this report, but should not be taken as agreeing with every word or number. They serve on the Commission in a personal capacity. The institutions with which they are affiliated have not been asked to formally endorse the report.

The Business and Sustainable Development Commission is committed to mobilising a growing community of executives who want to align their companies with the Sustainable Development Goals. To learn more, visit www.businesscommission.org/join.

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