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Bridging Costa Rica's green growth gap

How to support further transformation toward a green economy in Costa Rica

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ODI

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List of Abbreviations

AED	Asociación Empresarial para el Desarrollo (Business Development Association)
ARESEP	Autoridad Reguladora de los Servicios Públicos (Public Service Regulating Authority)
AyA	Instituto Costarricense de Acueductos y Alcantarillados (Costa Rican Water and Sanitation Institute)
BCCR	Banco Central de Costa Rica (Central Bank of Costa Rica)
BCR	Banco de Costa Rica (Bank of Costa Rica)
BIOFIN	UNDP Biodiversity Finance Initiative
BRT	Bus Rapid Transit
CEPAL	Comisión Económica para América Latina y el Caribe (Economic Commission for Latin America and the Caribbean)
CICR	Cámara de Industrias de Costa Rica (Costa Rica Chamber of Industries)
CINDE	Coalición Costarricense de Iniciativas de Desarrollo (Costa Rican Investment Promotion Agency)
CONAVI	Consejo Nacional de Vialidad (National Roads Authority)
CO2	Carbon Dioxide
CRC	Costa Rican Colones
CTP	Consejo de Transporte Público (Public Transport Council)
EPI	Environmental Performance Index
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FTZ	Free Trade Zone
GAM	Gran Área Metropolitana de Costa Rica (Greater Metropolitan Area, Costa Rica)
GDP	Gross domestic product
GHG	Greenhouse gas
GIZ	Deutsche Gesellschaft fűr Internationale Zusammenarbeit (German Development Agency)
GW	Gigawatt
IADB	Inter-American Development Bank
ICE	Instituto Costarricense de Electricidad (Costa Rican Institute of Electricity)
ICT	Information and Communications Technology
IMF	International Monetary Fund
INA	Instituto Nacional de Aprendizaje (National Apprenticeship Institute)
INCOPESCA	Instituto Costarricense de Pesca y Acuicultura (Costa Rican Institute of Fisheries and Aquaculture)
LAC	Latin America and Caribbean
MICITT	Ministerio de Ciencia, Tecnología y Telecomunicaciones (Ministry of Science, Technology and Telecommunications)
MEIC	Ministerio de Economia, Industria y Comercio (Ministry of Economy, Industry and Commerce)
MIDEPLAN	Ministerio de Planificación Nacional y Política Económica (Ministry of National Planning and Economic Policy)
MINAE	Ministerio de Ambiente y Energía (Ministry of Environment and Energy)
MIVAH	Ministerio de Vivienda y Asentamientos Humanos (Ministry of Housing and Human Settlements)
MOPT	Ministerio de Obras Públicas y Transportes (Ministry of Public Works and Transport)
NAMA	Nationally Appropriate Mitigation Actions
NCCSAP	National Climate Change Strategy Action Plan
OECD	Organisation for Economic Co-operation and Development
OHI	Ocean Health Index
PEN	Programa Estado de la Nación (State of the Nation programme)
PES	Payment for Ecosystem Services
POPS	Persistent Organic Pollutants
PROEMPRESA	Costa Rica Local Business Promotion Agency
PRONAE	Programa Nacional de Empleo (Costa Rica Reemployment Promotion Agency)
PROCOMER	Promotora del Comercio Exterior de Costa Rica (Export Promotion Agency of Costa Rica)
PV	Photovoltaic
REPCAR	Reduciendo el Escurrimiento de Plaguicides al Mar Caribe (Reducing Pesticide Runoff to the Caribbean Sea)
R&D	Research and Development
SBD	Costa Rica's Development Bank System
SMEs	Small and Medium Enterprises
TOD	Transit-oriented Development
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VAT	Value Added Tax
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WEF	World Economic Forum
WHO	World Health Organization
WOR	World Ocean Review

Executive summary

Costa Rica is regarded by many as an economic and environmental success story. The country's historical choices have led to an admirable record of 'green growth'—economic growth that minimizes pollution and uses and manages resources efficiently. Yet Costa Rica is also a victim of its own success: its leadership in some areas may have blinded it to its green growth gaps.

This report explores the performance of the country seen as an economic and environmental model. It looks at concrete results, first in the economy and then in the environment, rather than listing the country's policies and projects. Where results are poor, it examines root causes for under-performance, and the prospects for synergies to improve economy and environment together.

Costa Rica's current economic model finds its roots in the liberalisation that was the government's primary response to the 1980s Latin American debt crisis. The result is an economy characterised by a shift from a rural to an industrial economy, trade liberalisation, the export of goods and services and the inflow of foreign direct investment (FDI). This shift has had some significant benefits to the economy, providing the basis for much of its recovery in the 1990s.

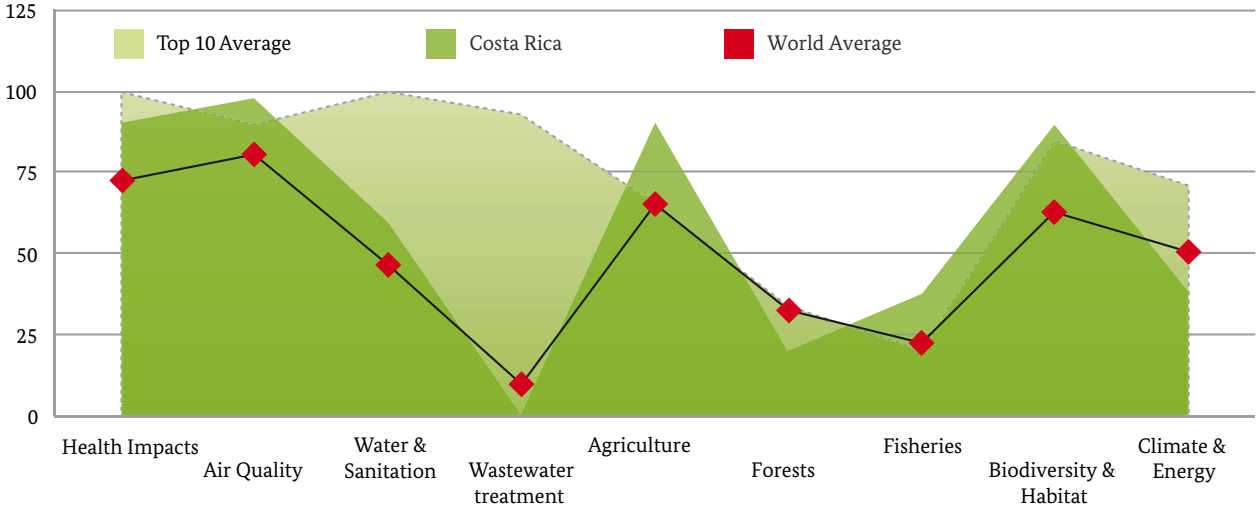
Costa Rica was able to achieve such a timely economic transition because it chose to invest heavily in education and health care from the 1950s to the late 1970s. As a result, its citizens had the skills needed by rapidly expanding manufacturing and services sectors. Natural capital investment, through the protection of forests and biodiversity, also paid off, as eco-tourism became the backbone of the country's service exports.

These government expenditures survived market liberalisation, perhaps because represented by powerful public constituencies. Today, however, human capital investments must be re-tooled to respond to slowing industrial growth, increasing rural unemployment, and demand for a workforce to bolster innovation-driven economic growth. While the country has invested heavily in the education of its workforce for decades, it now faces new choices on how to allocate that investment to generate green jobs across all skills levels.

The choices that are made on which activities to support are crucial for the country's industrial policy, which needs to build on the hard-wired comparative advantage of a well-educated workforce and reduce its economic and environmental vulnerabilities, making new jobs into *green* jobs. These include careful choices to close the country's skills gap. While Costa Rica has a skilled workforce and plenty of industrial labour, it is short of the workers with more technical, creative and 'soft' skills that it needs to build an economy based on innovation. At the same time, low-qualified workers are often trapped in sectors that are in decline, such as agriculture and manufacturing, lacking the education they need to move to new, more dynamic and better-paid sectors.

Two of the country's biggest environmental successes – biodiversity and eco-tourism – have fuelled macroeconomic growth, while the biggest gaps – wastewater management and rising emissions of greenhouse gases (GHGs) – are largely the result of a major gap in macroeconomic fundamentals: in this case, low spending on sustainable public infrastructure.

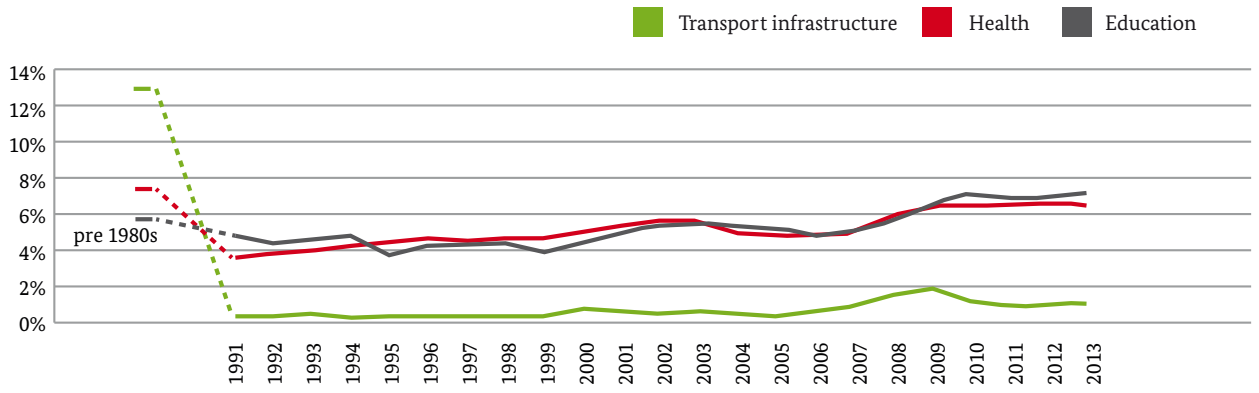
EPI sector scores for Costa Rica, the global top-10 performing countries and the global average (EPI, 2014)



Following the austerity associated with market liberalisation, public infrastructure did not fare as well as social investments. Key areas have suffered as a result, particularly public transport and wastewater treatment. These shortfalls are visible as the "gaps" between Costa Rica's environmental performance and high-performing countries in the figure above.

Spending on public transport was slashed after the economic crisis of the 1980s and, as a result, private vehicles have rushed to fill the gap, resulting in higher GHG emissions. There has been little or no new investment into wastewater treatment since the 1980s until the development of the country's single mega-project at Los Tajos, which aims to treat just over half of the residential wastewater from the country's capital, San José. But there is still no credible strategy for the long-term financing of other projects to meet growing demands. Water supply and energy investment, meanwhile, continue to rely on tariffs collected by autonomous institutions to finance further infrastructure investments.

Public investment (% of GDP) (PEN, 2014)



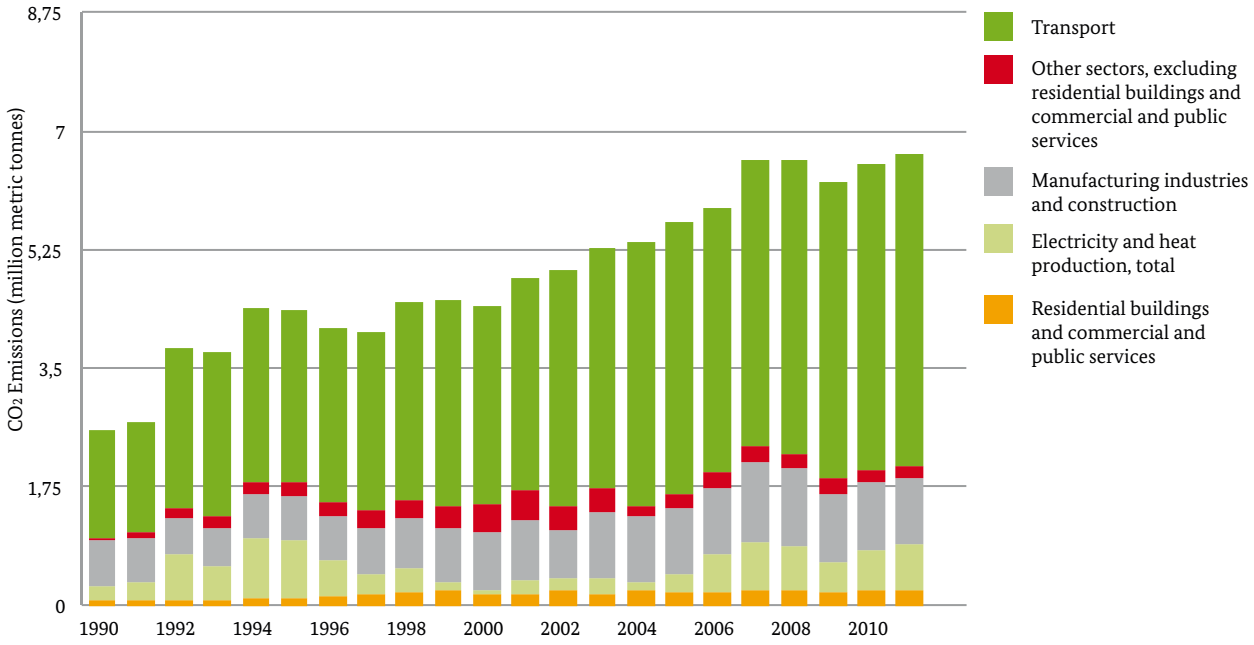
If macroeconomic fundamentals like public infrastructure and employment continue to deteriorate, so too will the economy and the environment. The pursuit of green growth in the medium and long term will also be undermined and may unravel some of the progress that Costa Rica has achieved to date. The potential consequences are alarming. Put simply, foreign investors may leave Costa Rica if its infrastructure does not improve, its industries may watch jobs slip away to foreign markets, and the country's economic and environmental credentials are on the line. Likewise, Costa Rica's bold goal of leading the international community on carbon neutrality could succumb to poor urban planning and the lack of investment in mass transit.

It is clear, then, that Costa Rica needs to choose the economic and environmental interventions that can improve performance in both areas, and realign the country's trajectory along green growth lines.

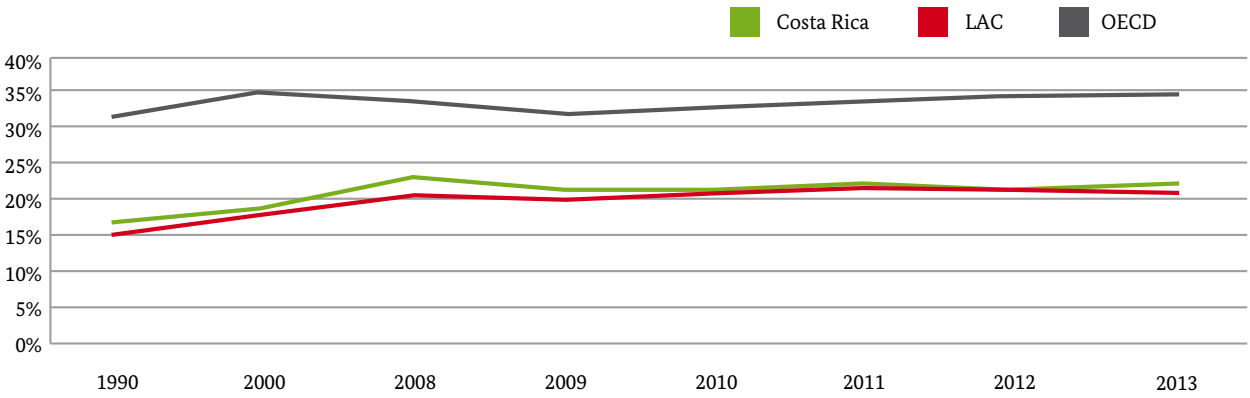
Ultimately, the country's ability to close its green growth gap will depend on whether it can rebalance its economy to deliver higher levels of public goods via public investment. Higher levels of public spending, and therefore public revenue, are vital to provide the public infrastructure, planning and governance that are needed to improve its macroeconomic and environmental performance.

There is, however, some way to go. It will need to deliver these public goods despite its high and rising fiscal deficit. Costa Rica currently mobilises less than two-thirds of tax receipts from its GDP compared to the average rate of mobilisation for OECD member states – a major concern, given that Costa Rica is about to become an OECD member itself.

Sector CO_2 emissions 1990-2010 (World Bank Group, 2013)



Government tax revenue as a proportion of GDP (OECD, 2015b)



This analysis highlights the deep structural challenges to the organisation of Costa's Rica's economy. We also however, suggest some 'quick wins' that will propel Costa Rica towards long-term approaches to better align its economic and environmental performance. These include concrete measures to:

- **close the infrastructure gap sustainably**, such as feasibility studies, stakeholder mapping/political-economy analysis of the transport sector and institutional changes among relevant ministries

- **improve resilience**, both in terms of economic vulnerability, diversity of the energy mix (toward non-hydro renewables), and the forecasting of climate impacts

- **plan green industrial policy**, including better incorporation of the Chamber of Industry's sophisticated green industrial policy proposal into national planning: this needs to include measures to support Costa Rica's transformation into an innovation-based economy, green private sector development and workforce skills development for green jobs

- **reduce the fiscal deficit**, through targeted taxation and fiscal policy reforms, and possibly green fiscal tools, and even by changing the national conversation about public budgets and public services.

Costa Rica has a track record on economic, social and environmental issues that is second to none. It has strong comparative advantages, from its skilled and educated population to its political stability, and from its robust economy to its abundant natural resources. It has weathered numerous financial and economic storms and remains competitive on the global stage. It has made some wise choices in the past but its continued success, and global leadership is not assured. As Costa Rica approaches a crossroads in its economic and environmental journey, its choices could provide the model for others to follow.

1. Introduction

1.1 Costa Rica's green growth success story

Costa Rica has been seen as a global model for sustainable development. Its economy has grown steadily, built on sound investments in human capital and political stability, and it has a global reputation as a country that takes its environmental performance seriously.

For more than five decades, the country has maintained a consistent level of economic performance. That performance has been invested in social development, especially in health and education, which has, in turn, reinforced its economic and social gains. Costa Rica has also weathered economic shocks admirably. Latin America faced one of its most severe crises in the 1980s, and Costa Rica's policy response allowed its economy to recover faster than other countries in the region (Rodríguez-Clare, 2003). It has also emerged from the most recent global financial crisis comparatively unscathed (World Bank Group, 2014). With export-led growth coupled with strong levels of foreign direct investment (FDI) and generous social services, Costa Rica has become one of the most competitive economies in the region (World Economic Forum, 2014).

Box 1: Green growth defined

Green growth is defined as *economic growth that is driven by, or compatible with, the efficient use and management of natural resources and the minimisation of pollution, particularly of greenhouse gases.* The central premise of green growth is that efficient use and management of natural resources and the minimisation of pollution are compatible with economic growth. As green growth is a measure of the 'quality' of growth, any robust analysis will also consider broader social and economic implications of improved environmental performance beyond mere GDP growth, such as job creation, economic inclusion, and resilience.

For decades, Costa Rica has also maintained a strong track record on environmental sustainability. It has ranked highly in many international assessments of environmental performance (*Yale Environmental Performance Index 2012* – measuring multidimensional environmental performance – Emerson et al., 2012; *Happy Planet Index 2012* – measuring sustainable well-being – Abdallah et al., 2012; World Energy Council, 2013 – measuring energy; World Future Council, 2010 – measuring biodiversity protection).

In the 1980s, Costa Rica was able to develop a pioneering system of forest and biodiversity protection, thanks to lower commodity prices coupled with the need for economic diversification after that decade's economic crisis (Brown and Bird, 2011). The nation could put its green reputation to good use, building on it to promote ecotourism (see, e.g., Koens et al., 2009). Its green credentials may even have contributed to Costa Rica's reputation for political stability, strong economic stewardship and competitiveness. Growing the economy while maintaining a good environmental track record has made Costa Rica a 'green growth' success story in many respects (see Box 1 for a definition of green growth).

1.2 Victim of its own success?

Costa Rica may, however, be a victim of its own success. Recent analyses suggest that the economic momentum provided by an export-led manufacturing sector is now slowing (Vargas et al., 2014; IMF, 2014). Its dependence on exports has also left Costa Rica vulnerable to the decisions of foreign investors. This was underscored by Intel's partial exit from the country in 2014, wiping out 1,500 jobs (Randewich, 2014).

More robust sustainability analyses have also shown that while Costa Rica remains an environmental leader in some domains, it lags behind in others. Costa Rica dropped from fifth to 54th in the Environmental Performance Index (EPI) when the Index changed its measurements (Lujan, 2014). This demonstrates that while the country has focused on issues like biodiversity and forest protection, it has suffered from a 'blind spot' when it comes to areas like wastewater management.

Costa Rica's varied performance on green growth is also reflected in its green growth policy framework — or the lack of it. The country has a general commitment to environmental sustainability: its ambition to achieve carbon neutrality by 2021 has been reaffirmed by the current administration (Dyer, 2014) and it has signed the OECD Declaration on Green Growth as part of its pursuit of OECD membership. However, while some individual policies integrate the principle of green growth, there is no economy-wide green growth strategy. The National Development Plan, for example, has adopted environmental sustainability as a guiding principle, and contains individual sector proposals with green-growth aspects (MIDEPLAN, 2014).[1] Similarly, the Costa Rica Chamber of Industries' (CICR) industrial policy (CICR, 2014)[2] and the National Plan for Science, Technology and Innovation (MICITT, 2015)[3] both refer to green growth. By spanning energy, transport, agriculture and water, the National Climate Change Strategy Action Plan (NCCSAP) starts to develop a cross-sectoral approach to the low-carbon and resilience elements of green growth (MINAE, 2012). Yet these overarching commitments have not translated into a coordinated, integrated green-growth approach at the core of national policy planning.

How Costa Rica handles its economic, social and environmental challenges in the next few years — regardless of whether it has an overarching policy framework labelled 'green growth' — will determine whether it can maintain its reputation for having a green economy, or whether its 'green growth gap' will widen.

1 For example, the government has considered some investment in the rail infrastructure as part of the policies for transport and infrastructure or the proposals to include principles for the protection of the natural heritage and climate-change risk management into territorial planning.

2 The CICR proposes the alignment of fiscal and economic policy with Costa Rica´s transition to a green economy.

3 The MICITT proposes, e.g., to develop a research programme for community-based adaptation and mitigation strategies.

1.3 About this report

This report aims to help Costa Rica bridge its emerging green growth gap. It starts with detailed analyses in sections 2 and 3 of the country's economic and environmental performance (and underperformance). It then builds on this analysis in section 4 to explore ways in which the green growth gap could be closed, exploring the close links between the economy and the environment rather than using a traditional approach that treats these two domains separately. It identifies the roots of any underperformance and opportunities to align Costa Rica´s economic and environmental policy objectives more closely in the future.

The report does not attempt to analyse green growth by setting out Costa Rica's long list of policies and projects with a green or sustainability label. These activities are important and laudable, but Costa Rica's green growth is a result of the entire policy mix: we aim to identify weak outcomes, tracing them back to their sources in policy gaps or structural weaknesses.

The recommendations set out in section 5 include both 'quick wins' and the more challenging and long-term structural changes that are needed for Costa Rica's future green growth. By analysing gaps and opportunities, the report also considers the implications of a green-growth strategy for social development, in particular in job creation and shifting educational needs.

Historically, Costa Rica has used its economic strengths and its natural resource endowments to its advantage. Although there are emerging signs of challenges to come, Costa Rica is in a good position to take immediate action to continue its already successful green-growth trajectory. This is the moment, with a new government pushing for stronger strategic planning, for Costa Rica to align its economic and environmental goals.

2. Economic performance

2.1 Overview

For more than five decades, Costa Rica has maintained a consistent level of economic performance to become one of the most competitive economies in Latin America and the Caribbean (LAC) (WEF, 2014). Its growth has been driven by the transformation of the 1980s, when the country shifted from a predominantly agricultural economy focused on the replacement of foreign imports with domestic production (import substitution) to an economy driven by exports and foreign direct investment (FDI). In the past decade, the country's economy has been based increasingly on services, including tourism, and the export of technological goods. At every stage, its competitiveness and economic growth have been supported by high levels of investment in human and natural capital.

Nevertheless, the country's model of an export-led economy and steady social investments has resulted in a few significant weaknesses. Export-led growth has made macroeconomic growth more volatile, hurting both employment and competitiveness. As the economy evolves, a growing mismatch between the skills available and those needed for green growth is only increasing vulnerability in employment. At the same time, fiscal and infrastructure deficits constrain future economic growth.

This section summarises the economy's strengths and weaknesses to identify ways to realign its trajectory to the needs of green growth.

2.2 Economic strengths

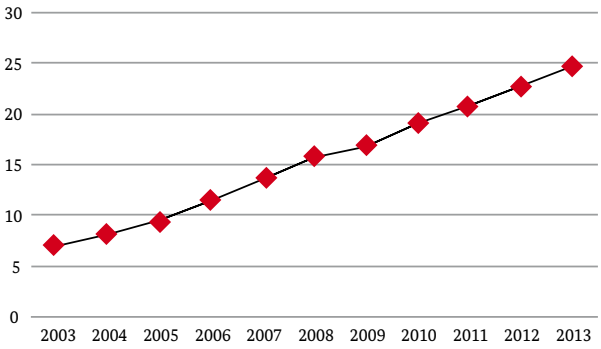
Costa Rica's economy is characterised by three main strengths:

- sustained and growing economy
- competiveness in its export-led growth
- Investment in human and natural capital and political stability

2.2.1 Resilient and growing economy

For the past decade, Costa Rica's economy has grown consistently from CRC 7 billion in 2003 to CRC 24.8 billion in 2013 (Figure 1), corresponding to an average annual per capita growth rate of 3.3% during this period (PEN, 2014).[4] Between 2000 and 2012, annual GDP growth was also 1.1% above the LAC average and the difference is thought to be even greater for 2014, at 2.9% (World Bank Group, 2015).

Figure 1: Costa Rica's GDP (in current CRC billions) (World Bank Group, 2013)



The impressive performance of the past decade tallies with the country's history of economic strength. Costa Rica's economy has grown continuously for the past 50 years despite suffering the impact of two global economic shocks: it bounced back from both the debt crisis of the 1980s and the most recent global financial crisis (World Bank Group, 2011). This resilience has reduced the poverty rate by one third, from around 33% of the population in the early 1990s to around 22% in 2014 (World Bank Group, 2014; Sauma, 2010) and has boosted the country's Human Development Index (HDI) value from around 0.65 in 1990 to 0.76 in 2013 (UNDP, 2014). This success has translated into high levels of well-being, with 44% of the population reporting that they are satisfied with, for example, their personal finances, social environment and health (Guerrero, 2014).

4 1 CRC (Costa Rican Colón) is equivalent to $0.0019, as of 15 July, 2015.

Table 1: Economic sectors' relative contributions to GDP (BCCR, 2015)

Sector	Relative contribution to total GDP by sector in 2014	Change in relative contribution to GDP (annual average rate) 2004 – 2014	Change in relative contribution to GDP (annual average rate) 2009 - 2014
Agriculture, fisheries and forestry	5.5%	-3.2%	-2.0%
Utilities and mining	2.6%	-0.4%	-0.5%
Manufacturing	16.0%	-5.7%	-1.8%
Construction	5.8%	1.1%	-0.6%
Services (comprised of the following activities)	41.0%	2.0%	2.3%
Trade, restaurants and tourism	17.2%	-2.3%	-0.8%
Transport, warehousing and communications	10.7%	1.0%	1.4%
Financial and professional services (including real estate)	13.1%	3.2%	1.7%
Public and communal services	29.1%	6.2%	2.6%

Services dominate the economy, representing 41% of GDP and growing at 2% each year since 2004, the highest rate of increase in the economy (Table 1) (BCCR, 2015). The services sector also employs 68% of the population (PEN, 2014). The largest services-employment sector is commerce, hotels and restaurants, which accounted for almost a quarter of the economically-active population in 2013 (PEN, 2014), reflecting the importance of tourism for the services industry and the wider economy.

Manufacturing, which employed around 19% of the economically active population in 2013 (PEN, 2014) contributed to 16% of the country's GDP, although its share has diminished over the past decade.

2.2.2 Costa Rica's shift to export-led growth

The government's response to the 1980s debt crisis has shaped Costa Rica's economic framework since the 1990s. Before the crisis, this was an agricultural economy that relied on import substitution, replacing industrial imports with domestic production of rice, maize, beans and vegetables, among other crops (Rodríguez-Clare et al., 2003). The response to the debt crises triggered a transition to a new economic model that relied on international capital and trade liberalisation, exports and inbound foreign direct investment (FDI).

Trade liberalisation, and in particular free trade zones (FTZs), brought more FDI for the manufacturing of industrial goods for export. Since the 1990s, Costa Rica's tax-exemption regime has promoted exports and attracted FDI: in 2014, these exemptions represented 5-6% of GDP, according to the Programa Estado de la Nación (PEN), roughly the same amount as the fiscal deficit (PEN, 2014). Between 2010 and 2014, exports of goods and services accounted for 35.1% of Costa Rica's GDP (World Bank Group, 2015).

As of 2013, most FTZs manufactured electronics and micro-electronics (38%), medical equipment (22%), and agro-industrial goods (10%) (Arguedas et al., 2014). This has diversified exports (Alonso, 2013), and FTZs now account for 20% of all FDI (BCCR, 2015). Figure 2 shows their rapid expansion as a proportion of exports since the 1990s, from just under 12% to well over 50% by 2013.

Figure 2: The transformation of Costa Rica's export structure reflects its economic transformation (PEN, 2014)

During the past decade, the type of goods being exported has shifted to more advanced manufactured goods (Alvarado and Padilla, 2013; PEN, 2014). This is reflected in the domination of micro-electronics (20%), followed by medical equipment and precision tools (13.5%) in the current composition of exported goods (Figure 3).

The increase in the export of services has been even greater than the increase in the export of goods: up by 5% between 2011 and 2013. This includes IT support services and communications, which accounted for 25% of total exports as of 2013, the second-largest export sector overall (after goods produced in FTZs). Tourism accounted for 13.5% of exports, the third largest sector, but has shown the strongest growth, at 12.4% in 2013 (PEN, 2014).

About 41% of Costa Rica's exports go to North America (almost exclusively the US), with the rest going to Central America (19%), the EU (17%) and Asia (13%) (Figure 4). The most promising export market is Asia: exports to that region increased as a proportion of total exports (by 24%) between 2011 and 2014, compared to the US (by 8.2%) (Arguedas et al., 2014).

Figure 3: Major manufacturing exports in 2013 (by type of product) (Lücke, 2014)

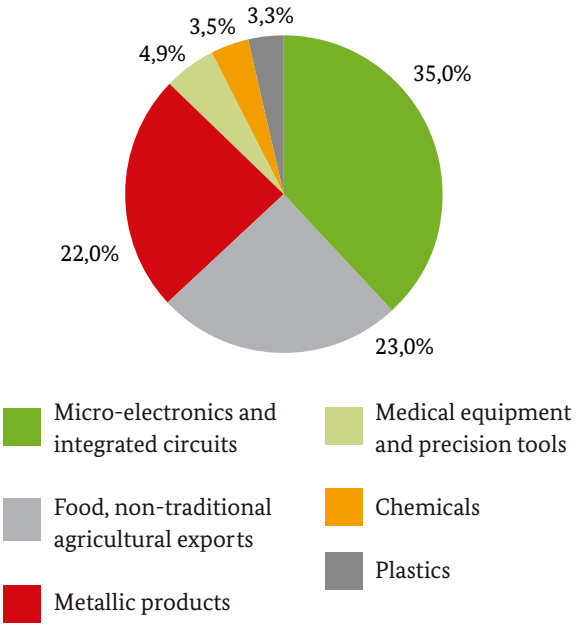
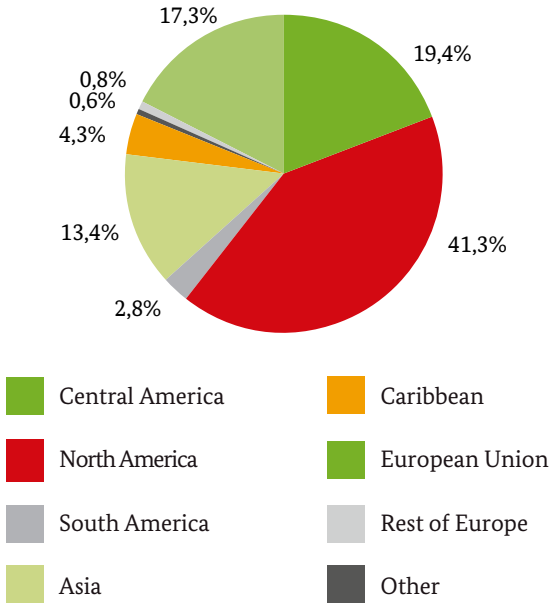


Figure 4: Proportion of total exports (by region) (Arguedas et al., 2014)



The tendency towards the export of goods and services that are more technology and knowledge-intensive reflects what some have described as a 'new economy'[5] (*nueva economía*) (PEN, 2014). Mirroring Costa Rica's gradual transition toward an innovation-driven economy (WEF, 2014)[6], strong growth in new-economy sectors has increased demand for a better-qualified workforce, with rising salary expectations (Lücke, 2014). In 2012, the vast majority of new service-sector jobs were within the new economy (Rosales, 2013).

5 The 'new economy' includes: 'new services' such as financial and professional services, manufacturing and processing activities located in the FTZs and non-traditional agricultural exports.

6 The World Economic Forum describes an innovation-driven economy as one where companies 'must compete by producing new and different goods using the most sophisticated production processes and by innovating new ones' in order to maintain the country's increasingly higher standard of living (WEF, 2014: p.10).

2.2.3 Competitiveness founded on investment in human and natural capital and political stability

Three areas underpin Costa Rica's competitiveness:

- investment in human capital
- investment in natural capital
- political stability.

Investment in human capital

Strong and long-term social investments, particularly in education and health care, have strengthened Costa Rica's human capital and built the foundation for a productive labour force (Briceño et al., 2003). As of 2013, Costa Rica had a 90% literacy rate (Cullell and Pujol, 2013). In the health sector, increased provision of primary healthcare (Robles, 2007) and universal social security (Lizano, 1999) led to a 28% increase in life expectancy between 1950 and 1980.

The World Economic Forum's *Human Capital Report* ranks Costa Rica above the regional average, scoring particularly high on participation, talent and the training of its workforce. This is due, amongst other things, to the country's capacity to retain talent, its private sector staff training and the training services that are offered (WEF, 2013a). The availability of a technically skilled workforce attracts foreign investors in business services, medical devices, advanced manufacturing and life sciences that require engineers and English-speaking information and communications technology (ICT) specialists. Indeed, it has been a key factor in the rise of service-sector related FDI, consistent with the rise of goods exports that have higher human-capital input (Alonso, 2013).

Investment in natural capital

Costa Rica made strong investments in biodiversity and forest protection in the 1980s (discussed in section 3). The protection of natural capital created a market for biodiversity and ecosystem services (de Camino et al., 2000) and consolidated Costa Rica's transformation into a services-based economy, exporting tourism related service to visitors (Brown and Bird, 2011). The number of international tourists increased from some 800,000 in 1995 to 2.2 million in 2011, by which time the sector accounted for 12.5% of Costa Rica's GDP (WEF, 2013b).

Political stability

Political stability has also been a crucial factor in Costa Rica's competitiveness and attractiveness for foreign investment. The country has had free, open and fair elections and smooth political transitions since its independence in 1821 (The CIA World Factbook, 2014). This stability has been reinforced by high levels of voter participation (an average of 70% since the 1950s) (Lehoucq, 2014), and institutional arrangements that encourage participation (Brown and Bird, 2011; Ramirez and Villalobos, 2013).

Costa Rica's peaceful history has also made it more attractive to tourists and international investors, while generating a 'peace dividend', with fiscal resources that are no longer spent on defence used to fund sustainable development (de Camino et al., 2000).

2.3 Economic weaknesses

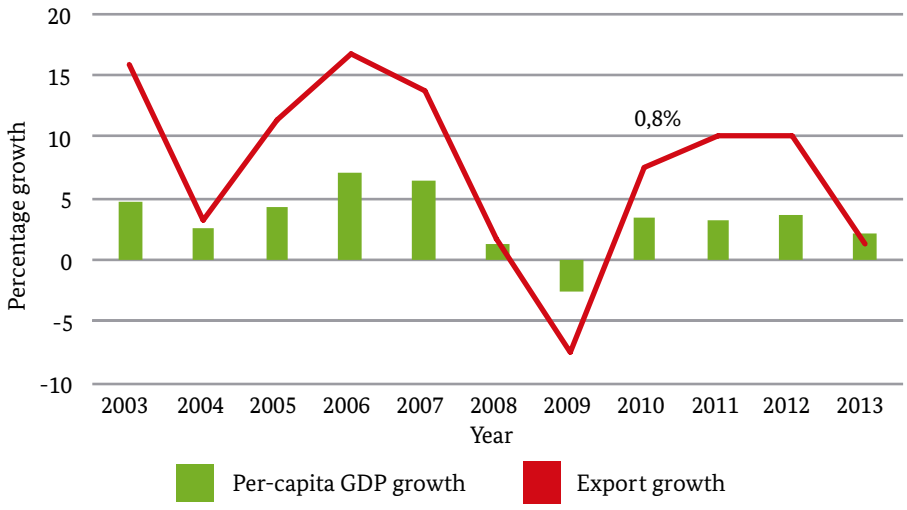
Despite its strengths, Costa Rica's economy is vulnerable, as shown by:

- the increasing vulnerability the GDP growth rate to external shocks
- the persistently high rate of unemployment
- the rising fiscal deficit
- the gap in infrastructure.

2.3.1 Economic vulnerability to external shocks

Costa Rica's GDP has grown continuously in absolute terms since 1990, yet that growth has been volatile. The decline in the growth rate, from 5.1% in 2012 to 3.7% in 2014 (World Bank Group, 2014) confirms the slow-down since the 2008 global financial crisis (Figure 5). The main causes are lower net exports, from 8.9% in 2012 to 1.4% in 2013, and internal demand that shrank by 2.5% in 2014 (Arguedas et al., 2014; IMF, 2014). Given the correlation between exports and per-capita GDP growth, volatility or contractions in international markets appear as volatility or contractions in the Costa Rican economy, as shown in Figure 5.

Figure 5: GDP and export growth rates (BCCR, 2015)

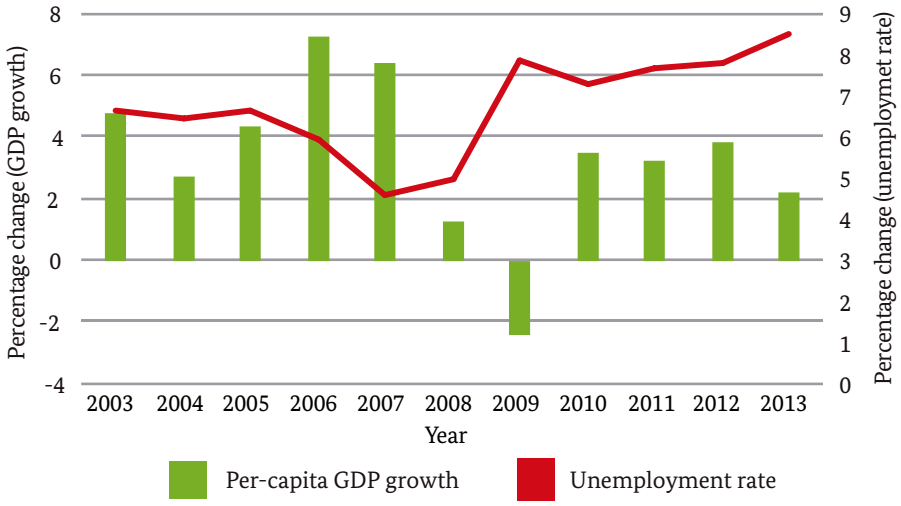


Costa Rica's increased vulnerability to external shocks is undermining its medium-term economic outlook (Lücke, 2013). A review of export trends in recent years highlights the particular vulnerability of the country's export-led growth model. It has been able to use increased export demand from the US to drive its recovery since the 2008 global financial crisis. However, growing export revenues between 2000 and 2012 were driven largely by the exports of microelectronic goods, which accounted for 20.6% of total exports. The vast majority were produced by just one company, Intel, and future growth is uncertain, given Intel's partial closure of its operations in Costa Rica (IMF, 2014; *The Economist*, 2014).

The dependence on one single goods category – micro-electronics – has also increased opportunity costs for Costa Rica, and limits its ability to develop export competitiveness in other markets. Intel's closure will diminish the country's export competitiveness signifi-cantly because, without microelectronics, export goods that lost their market share between 2007 and 2012 (largely agricultural exports) will increase their share of the export portfolio (CEPAL, 2014a).

Although Costa Rica has had positive growth rates, the volatility of that growth has had a negative impact on employment. Lower-skilled workers are the first to be laid off in a crisis and the last to be re-employed (PEN, 2014). The demand for a lower-skilled workforce, therefore, reacts more quickly to downturns than it does to periods of growth, which explains the persistence of relatively high unemployment during ever-shorter economic cycles. Figure 6 shows the correlation between long-term unemployment and downturns in GDP, even after GDP has recovered.

Figure 6: Higher frequency of short economic cycles and high unemployment rates (Lücke, 2013; PEN, 2014)



2.3.2 Skills mismatch and persistent unemployment

Costa Rica's high unemployment over the past decade hampers domestic consumer spending, reduces internal demand and has a negative impact on long-term sustainability and resilience of growth (PEN, 2014).

The country has made relatively large investments in human capital, and its workforce has a higher percentage of those who have completed primary education compared to its peer countries. Paradoxically, however, its workforce has suffered from two skill mismatches.

First, although Costa Rica has an adequate supply of industrial labour, especially in the export/FDI-based sectors, its industries lack skilled workers who can develop innovation through research and development (R&D) (CICR, 2013) or perform higher-skilled tasks such as business-process outsourcing (Trejos, 2013).[7] Therefore, although the country has a workforce with technical and vocational skills, it lacks the more advanced technical, creative and 'soft' skills (CICR, 2013) that are needed to make the shift to an economy based on innovation.

Second, the workforce is dominated by low-qualified workers without a complete secondary education (Rosales, 2013), as shown in Figure 7. However, the sectors that need lower skills are in decline, such as traditional agricultural exports and semi-skilled manufacturing jobs, and there is not yet enough demand from the new economy to offset the loss of employment in the old economy (Lücke 2013; Rosales 2013). Indeed, job creation in the new-economy sectors is low, with an increase in employment of just 1% in 2013 (PEN 2014). This is compounded by low 'inter-sector mobility', as lower-skilled workers do not have the secondary education they need to move to more dynamic and better-paid sectors (PEN, 2014).

Figure 7: Composition of the Costa Rican workforce (%), 1987-2012 (Rosales, 2013)

7 One specific example is the shortage of human capital in Costa Rica's offshore services, especially IT professionals and individuals with management skills (Fernandez-Stark et al., 2013).

2.3.3 Costa Rica's rising fiscal deficit

Costa Rica's fiscal deficit has increased in recent years (Figure 8) and reached its highest level in 12 years in 2010 (PEN, 2014). Public debt has also risen continuously since 2008 (IMF, 2015; PEN, 2014). The current fiscal situation is risky because government income is stagnating, while expenditure has continued to increase since 2011 (Figure 9). Government expenditure is expected to stay high as a result of recently introduced mandates, such as the commitment to spend a minimum of 8% of GDP on education, that have not, in many cases, been matched with the corollary mobilisation of revenue.

Figure 8: Budget deficit/surplus (% of GDP) (PEN, 2014)

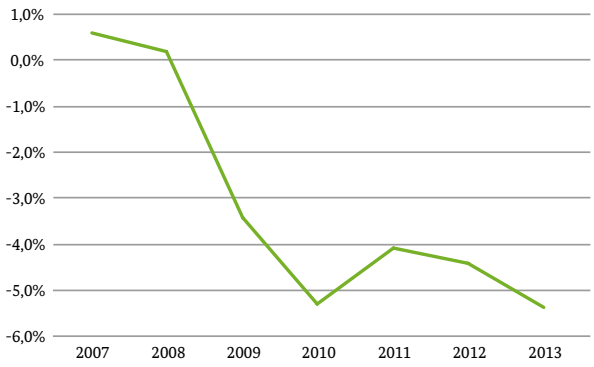
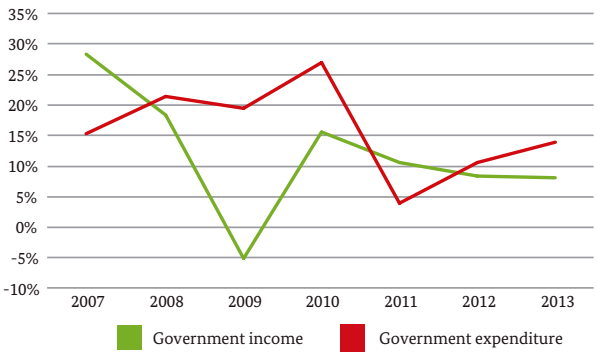


Figure 9: Annual growth rate of government income and expenditure (PEN, 2014)



2.3.4 Lack of infrastructure investment

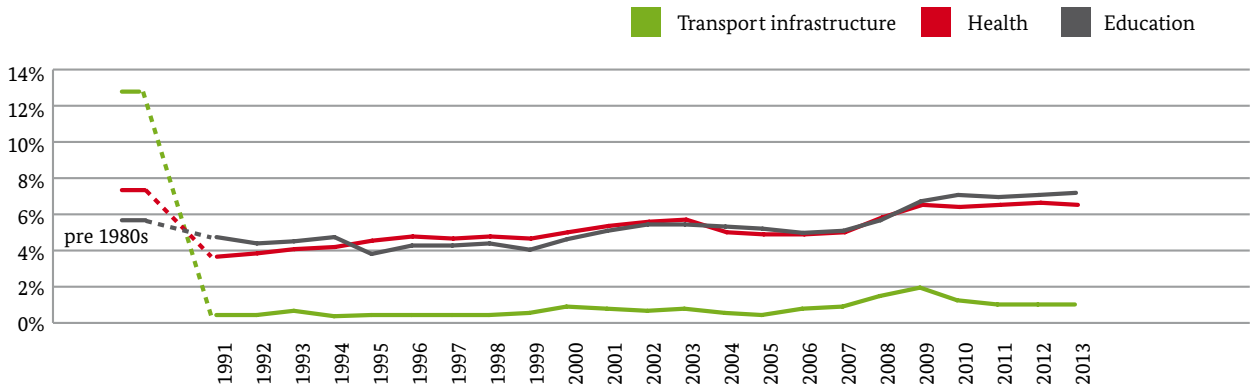
In contrast to the investment in social services discussed in section 2.2.3 above, Costa Rica has suffered from a large and growing gap in infrastructure investment and now ranks below its Central American neighbours in terms of infrastructure performance in general.

While the 1980s crisis reduced social-investment expenditure, that trend quickly reversed in the 1990s and the country was soon making pre-1980 levels of investments in health and education once again (Trejos, 2014; Rivera and Rojas-Romagosa, 2010).[8] The bounce-back effect in public investment in the 1990s did not, however, translate into higher spending on infrastructure. Figure 10 shows the gradual climb of social investments alongside the stagnation of investments in transportation infrastructure. According to the former Ministry of Public Works and Transport (Ministerio de Obras Públicas y Transportes or MOPT) Minister Rodolfo Méndez, investment levels in transportation infrastructure were 'not below 13%' of GDP before the 1980s (Castro and Porras, 2009). However, while Costa Rica's current transport investment is in line with the Latin American average, it has barely exceeded 1% since the recovery.

The inadequacy of Costa Rica's transport infrastructure and its related public services is a core obstacle for business (WEF, 2014; IADB, 2011), with the poor quality of its transport infrastructure harming both the economy and the country's productivity (IADB, 2011; González, 2013; PEN, 2014). Moreover, without public and private investment in these areas, the country's climate targets will be difficult to achieve.

8 Social expenditure even remained at a comparatively high level, proportionally to GDP, throughout the late 1980s and 1990s.

Figure 10: Public investment (% of GDP) (PEN, 2014)



There are signs that Costa Rica's electricity infrastructure also needs investment, with debate on whether prices are in line with its peer countries (CEPAL, 2014 in Sancho, 2015) or too high for competitiveness (Vargas, 2015 in *La Republica*, 24 February, 2015; *El Financiero* 26 February, 2015). In either case, current prices are shaped by an inefficient rate-setting model rather than low generation capacity (Capón, 2014; Cañas, 2014). However, electricity supply and corollary prices are likely to be vulnerable to droughts and a slow expansion of generation capacity in the future (CEPAL and Latin American Center for Sustainable Development cited in Gutiérrez, 2014).

The lack of investment in water infrastructure – another major challenge – is discussed in section 3.3.5.

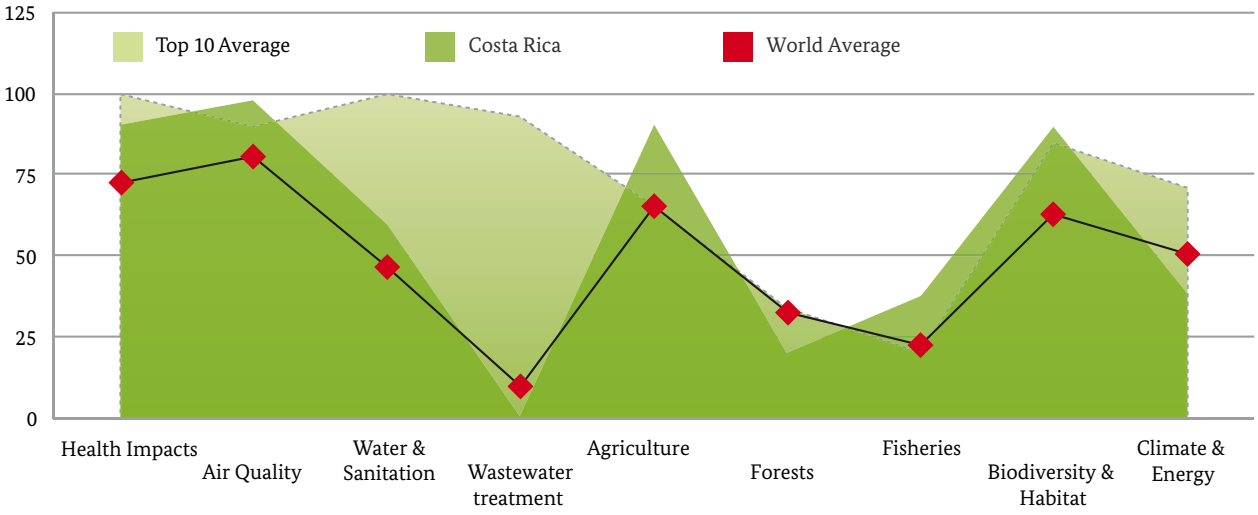
3. Environmental performance

3.1 Overview

Costa Rica is seen as a leader in environmental performance, and has staked its international reputation on the sustainability of its development model. Environmental and natural resource management are integral parts of its economy and its social and political identity. However, the recent devaluation of its Environmental Performance Index (EPI)[9] score raises concerns that this reputation is at risk. There is now growing debate on whether Costa Rica is one of the world's greenest economies (Tamanini, 2014) or just an average performer compared to its peers (PEN, 2014). How Costa Rica resolves this debate has important implications for the entire economy, across all sectors, which are discussed in this paper. We note, however, that even on reputation alone this question matters from an economic perspective, considering the importance of Costa Rica's environmental credentials for the nation's eco-tourism industry.

The overall EPI scores are the starting point for the analysis.[10] As Figure 11 shows, Costa Rica performs similarly to the top-10 countries for many of the indicators measured.

Figure 11: EPI sector scores for Costa Rica, the global top-10 performing countries and the global average (EPI, 2014)



9 The EPI ranks countries according to the performance of their environmental policies. It provides a country ranking on two indicators: the protection of human health from environmental harm and the protection of ecosystems. It has been chosen because Costa Rica's environment performance has political relevance for the country (it is mentioned in *State of the Nation* reports). The EPI indicators and Costa Rica's most recent performance illustrate the issues the country faces.

10 While the EPI is useful in providing a high-level comparison, like any multidimensional index, it requires subjective decisions and simplified assumptions to arrive at a score for each country that is easily comparable. Specifically, the data are normalised on a 'distance to target' scale with varying politically- or scientifically-set goals. In some areas, the EPI also uses trends in data, which inadvertently punishes Costa Rica in areas where it already has a relatively strong background (e.g. CO_2 intensity and forest cover). We do not see these factors as weaknesses within the EPI, but caution against extrapolating the findings beyond their intended use. Instead, we follow the aspirations of the EPI team who: 'hope the 2014 EPI results are a useful conversation starter for countries to begin understanding how they perform on a range of high-priority environmental issues' and use the EPI framework as the basis for our analysis of the underlying data.

This section analyses the strengths and weaknesses of Costa Rica's environmental performance from different dimensions, using the EPI as a framework. A study of the range of environmental indicators shows mixed results. In some areas Costa Rica has strong environmental performance reflecting both current and forecasted environmental quality. The country appears to give a high intrinsic value to its natural resource wealth, and there is strong management of air quality, water supply, biodiversity and natural habitats. Other areas, like the management of agriculture and fisheries remain strong by global standards, even if those standards leave much room for improvement. More importantly, however, the analysis also shows another dimension of Costa Rica: several weaknesses or 'gaps' where environmental impacts are not well-managed, such as crucial elements of energy and climate and the treatment of wastewater. These gaps are also reflected in Figure 11 (page 21).

3.2 Environmental strengths

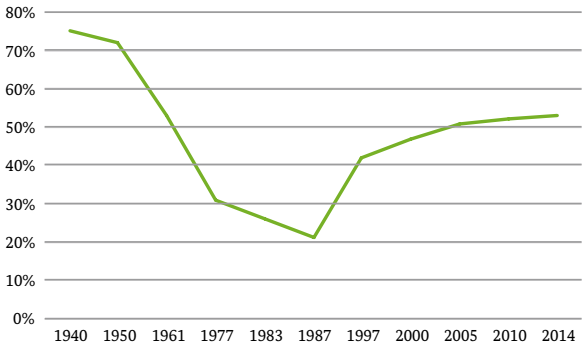
Costa Rica has some clear environmental strengths:

- a global leader on land use, forest cover, biodiversity and habitat
- a good track record to date on clean power and clean air
- strong management of water supply

3.2.1 A global leader on land use, forest cover, biodiversity and habitat

Costa Rica has managed its forests effectively, particularly through its promotion of reforestation and establishment of protected areas. This is the result, in large part, of land-use regulations that prohibit the change of land use (Ley Forestal 7575), promote the recovery of secondary forest and introduced payment for ecosystem services (PES) in 1996. The country's land mass covered by forest increased from some 40% in 1996 to around 53% in 2014, as seen in Figure 12 (Rojas, 2014). A recent analysis of forestry cover confirms the positive impact of Costa Rica's reforestation programme: the coverage of the country's PES scheme grew to over 19% of the total land mass between 1997 and 2013 (*Sinac-Minae y Fonafifo*, 2014 in *Estado de la Nación*, 2014).

Figure 12: Forest cover (% of land mass) between 1940 and 2014 (MINAE, 2010; Rojas, 2014)



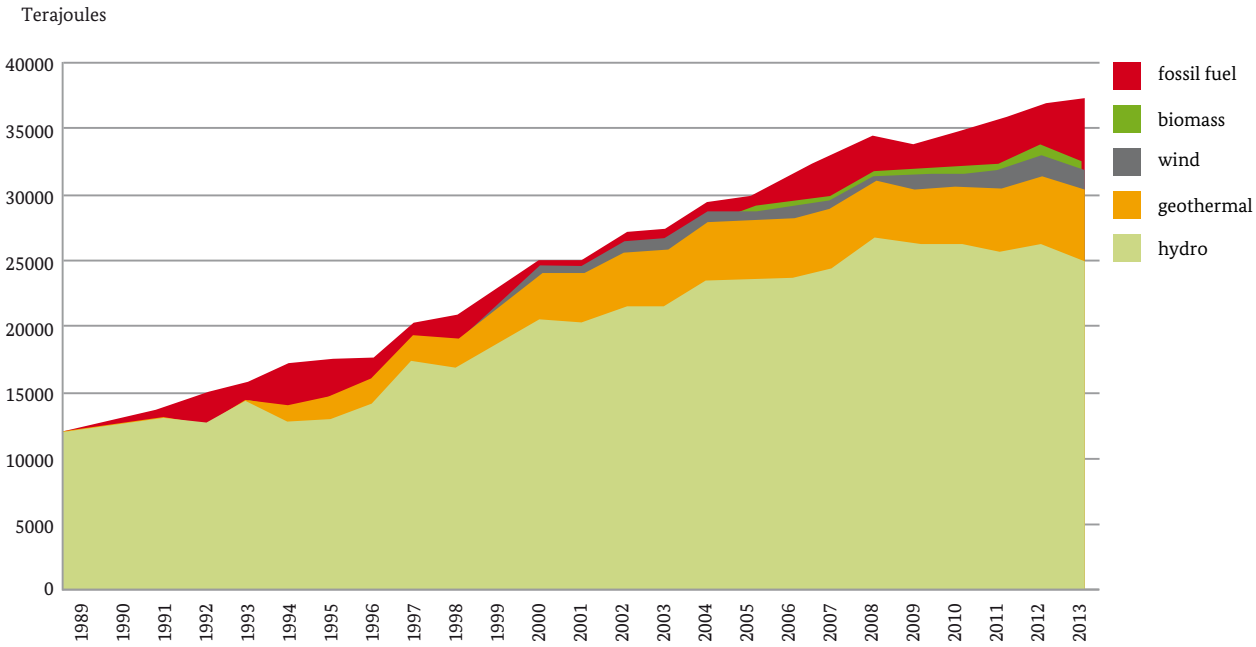
Looking beyond the PES scheme, Costa Rica's protected areas (Áreas Silvestres Protegidas) expanded by 188% between 2009 and 2013, especially in coastal regions. Private ownership of some protected areas, high levels of public knowledge about biodiversity and an awareness of the value of natural wealth has resulted in a strong commitment from public (civil society) and private (industry) entities to protect natural habitats (UNDP, 2014). However, recent studies of climate vulnerability highlight the threats posed by decreased rainfall and increased desertification to forests and other habitats (DARA International, 2015).

3.2.2 Clean power and clean air

Costa Rica has had relatively low GHG emissions, because between 80% and 90% of its electricity comes from renewable sources (including hydropower), well above the Central American average of 53%. Most of Costa Rica's electricity comes from hydropower (67%) (Figure 13). Geothermal energy is also a significant source (15%). Wind and solar provide smaller amounts of power, although wind generation is rapidly growing, from 194 MW in 2014 to a projected 393 by 2017 (prensalibre.cr, 2015).

This sets the nation apart from many economies whose power sectors constitute the biggest source of GHG emissions. Indeed, between 2005 and 2010, Costa Rica's emissions per unit of electricity produced averaged approximately one-fifth of the emissions seen in Panama (EPI, 2014).

Figure 13: Sources of electricity 1990-2013 (Molina, 2014)



The country has also identified significant further renewable energy sources (an estimated 9GW) amounting to approximately four times the capacity installed as of 2012 (*Estado de la Nación*, 2014). The country's latest development plan aims to source 97% of electricity from renewable sources by 2018 (Government of Costa Rica, 2014). As of March 2015, the country produced electricity for nearly 80 days without using fossil fuels, to great international acclaim.[11]

Overall, Costa Rica scores highly on air quality measures. From 2001 to 2010, none of Costa Rica's people were exposed to air pollution that exceeded the WHO's guidelines. This could be the result of two factors: first, the use of hydropower and other clean energy sources to generate electricity instead of fossil fuels (e.g. coal), and second, a decrease in indoor air pollution as households have switched from solid primary cooking fuel to electricity (from 23% to 6% between 1990 and 2010) (EPI, 2014).

3.2.3 Strong management of water supply

In terms of managing its population's water supply, Costa Rica performs better in the EPI than all of its peer countries. Government figures suggest that it provided 93.5% of its people with access to drinking water in 2013 (Government of Costa Rica, 2014), while World Bank data suggest that 96.6% had access to improved water sources and 93.9% had access to improved sanitation services in 2012. Both trends have been improving (from 93.1% and 88.5%, respectively, since 1990), (World Bank data, 2015: http://data.worldbank.org).

In terms of water resource availability, Costa Rica enjoys more than 23,000 m^3 of freshwater per person at a national level, placing it comfortably within the world's top 25% of countries (FAO, 2015). The nation's water supply is also being improved through the PES scheme, with water supply one of the main services monetised under the scheme.

Costa Rica's diverse landscapes and levels of development mean that access to water resources is not, however, evenly spread. Indeed, there are pockets of scarcity in areas such as Guanacaste, though current development planning has recognised the need to address the risks to water resources from development and climate change (Government of Costa Rica, 2014; DARA International, 2015). The National Climate Change Strategy Action Plan (NCCSAP) aims to improve the ecosystem resilience surrounding aquifers and the implementation of water security plans at municipal level (MINAE, 2012).

11 See, for example, Wade (2015).

3.3 Environmental weaknesses

Despite Costa Rica's many environmental strengths, it has major weaknesses in its:

- growing GHG and air pollution emissions from the transport sector
- lack of public treatment for wastewater

Further, Costa Rica's relatively strong performance in the following three areas hides some underlying vulnerabilities:

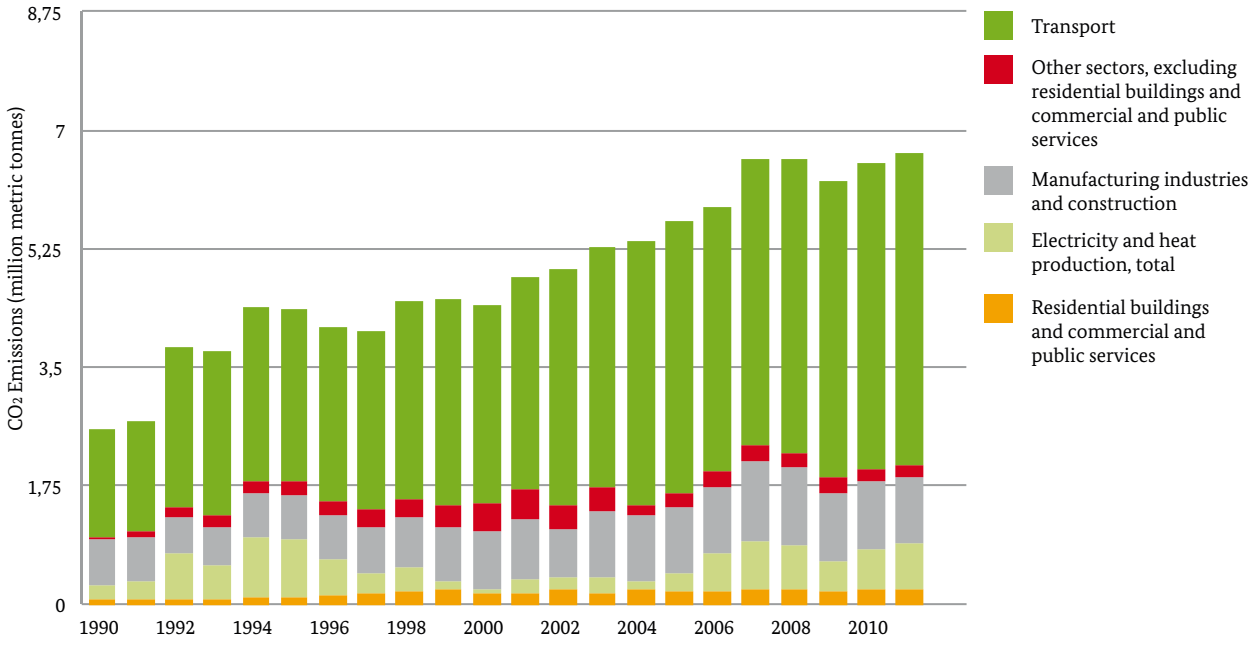
- agriculture's heavy inputs and growing GHG emissions
- a power system vulnerable to climate impacts and slow to add new renewable generation capacity
- fisheries are managed better than most, but still overexploited

3.3.1 Growing GHG emissions and air pollution from the transport sector

Three-quarters of the total energy consumed in the country comes from fossil fuels (Government of Costa Rica, 2014), mostly by the transport sector (59%). As a result, oil has become the country's main source of carbon emissions and transport the largest emitting sector (PEN, 2014), accounting for 80% of Costa Rica´s internationally-reported GHG net emissions in 2010 (Figure 14).[12] Its emissions increased 5.25% between 2011 and 2012 (PEN, 2014).

Private cars are driving the growth in emissions from the transport sector. Between 2000 and 2011, the number of private cars rose from 87 to 145 per 1,000 people, which compares with 137 per 1,000 in Chile in 2011, 102 in Panama and 38 in Guatemala (World Bank, 2014). As discussed in section 4, this growth is the direct result of lack of investments in public transport.

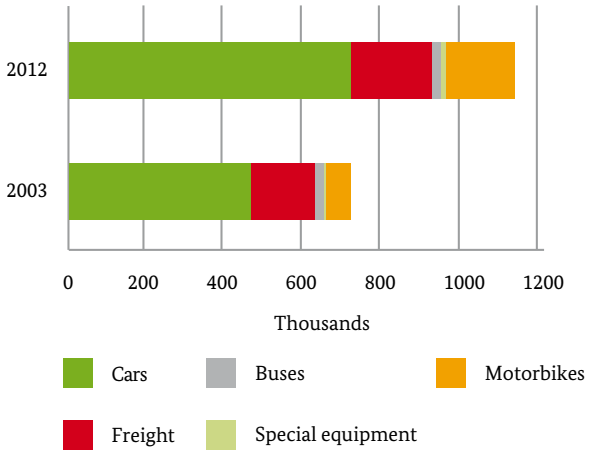
Figure 14: Sector CO_2 emissions 1990-2011 (PEN, 2014)



12 This figure excludes emissions from international aviation and shipping (which represent a further 8% of the total transport emissions that year) (PEN, 2014).

Population growth has accelerated the growth of the car fleet, which has expanded by 5% every year for the past decade, as shown in Figure 15 (Hess, 2014). The 4.45% growth in vehicle ownership in 2013 far out-paced population growth of 1.3% (PEN, 2014). Other sectors of the vehicle fleet, such as privately-operated buses, have also grown and represent a 'privatisation' of the transport sector (PEN, 2014). Private vehicles were responsible for 44.5% of the consumption of fuel in 2012, while freight and public transport (almost entirely privately-operated buses) consumed 32.9% and 11.5% respectively (MINAE, 2010; Hess, 2014).

Figure 15: Costa Rica's vehicle fleet 2003 and 2012 (Hess, 2014)



A number of pilot initiatives have begun to be tested in recent years, including the reduction of import taxes on low- and zero-emission vehicles, dedicated bus lanes and improvements to cycle networks (MINAE, 2010). However, these initiatives remain small-scale.

No administration has yet developed a strategy to reduce oil imports, with continuing increases driven by internal demand for petrol. As demand rises in the transport sector, Costa Rica has sent mixed signals on its climate strategy: it is virtually impossible to become carbon neutral by 2021 without reducing oil consumption. To date, the main step taken to avoid the use of fossil fuels is the moratorium on oil extraction and exploration, which is, to the best of our knowledge, unique.[13]

Meanwhile, Costa Rica's record on clean air could be eroded by the growing problem of ambient urban air pollution in the Greater Metropolitan Area, Costa Rica (GAM), home to almost two-thirds of the population. Here, location-specific measures have found air pollution that exceeds WHO targets (for example see PEN, 2005 and *La Nación*, 2013). These emissions are generally attributed to the transport sector and are compounded by an expanding and ageing vehicle fleet as well as growing traffic congestion, and may explain the slight rise in air pollution in 2011 and 2012 seen in the data that underpin the EPI.

3.3.2 Lack of public treatment for wastewater

The lack of wastewater treatment represents the starkest difference between Costa Rica and the top-10 environmental performers in the EPI. Wastewater receives almost no treatment. At present, 76% of the nation's residential wastewater is diverted to septic tanks, 25.6% is captured by sewage pipes and only 4.2% of that fraction undergoes remedial treatment (Government of Costa Rica, 2014). In the EPI rankings, Costa Rica ranks 125th of the 145 countries assessed.

Successive governments have recognised this challenge. The previous administration started to fund a large project at Los Tajos (Barrantes, 2014) that is now underway, seeking to treat 52.7% of residential wastewater from the San José metropolitan area by 2018 (Government of Costa Rica, 2014). According to interviews with the water authority (AyA), the project is likely to begin to provide some coverage of the initial stages of wastewater treatment (so- called 'Phase 1' treatment) in 2016, and will then expand both its coverage and the stages of treatment.

13 The moratorium was first agreed in the Pacheco Administration (2002-2006), revoked in the Arias Administration (2006-2010) and extended in 2011 by the Chichilla Administration. In 2014 the Solis Administration extended the moratorium until 2021 (Ruiz, 2014).

3.3.3 Agriculture: above average performance hides risks from heavy inputs and growing GHG emissions

While Costa Rica's protection of its forests and biodiversity protection has been strong, the record of the agriculture sector is more mixed. On the one hand, the country scores above its peers because of its relatively low levels of agricultural subsidies, and its strong regulation of some of the more significant global pesticides. In 2013, for example, Costa Rica agreed to address its remaining distorting agricultural subsidies (WTO, 2013) and has also banned or restricted the use of 11 of the 'dirty dozen' – the most persistent organic pollutants (POPS) (Johnson, 2014).

On the other hand, the use of fertilizers in the agricultural sector is remarkably high (Government of Costa Rica, 2014). In 2011, the country's fertilizer intensity was more than five-times greater than in neighbouring Panama and Nicaragua (PEN, 2014). Several high-profile and academic studies have revealed significant ecosystem risks as a result of the run-off and leakage of these fertilizers (see, for example, Araya, 2014a and its references). However, the impact is rarely reflected in global performance measures because of poor data collection on agricultural run-off.

The Government recognises that fertilizers and agrochemicals pollute rivers (and then other water resources) (MINAE, 2010), but measures have not been put in place to reduce pollution, in absolute or relative terms (e.g. per km^2). This raises questions about a scenario in which the country intensifies agricultural production as part of the Trans Pacific Partnership (Government of Costa Rica, 2014).

Some initiatives, such as Reducing Pesticide Runoff to the Caribbean Sea (REPCAR) have tried to reduce the environmental impact of the agriculture sector (UNEP, 2012), but it is unclear to what extent the sector has integrated these greener practices.

Agriculture also remains a major source of GHG emissions (primarily methane from livestock and nitrous oxide from fertilizers). Agriculture ranked second in terms of GHG emissions in 2010, producing an amount that was equivalent to around two-thirds of the emissions from the transport sector in 2010 (up from just over one-third of the total in 2005). Costa Rica's forests are major carbon sinks, absorbing around 5 million tonnes of carbon dioxide each year (MINAE, 2010), almost as much as emitted by agriculture (PEN, 2014[14]). The stark impact of agriculture on the environment is rarely seen because the government reports the sector's emissions alongside forests and other land-use. However, the NCCSAP (MINAE, 2012) does emphasise the importance of reducing GHGs in the agricultural sector. It aims to encourage GHG-reducing agricultural technologies, such as replacements of nitrogen-based fertilisers and better agricultural waste management, and reducing or even abolishing tax exemptions for the most polluting agricultural supplies (GIZ, 2013; Ministerio de Hacienda, 2013).[15] A number of Nationally Appropriate Mitigation Actions (NAMAs) aim to address significant proportions of land-based emission sources in the coming years (PEN, 2014).

3.3.4 A vulnerable power system slow to add new capacity

Costa Rica's reliance on hydropower for electricity has kept its power sector GHG emissions low. Reliance on hydropower may, however, make Costa Rica vulnerable to water stresses brought by climate change (DARA International, 2015) even if its overall climate vulnerability is by some measures only moderate (ND-GAIN, 2015). Fossil-fuel combustion for electricity rose by more than 44% between 2012 and 2013. This is because the country is using more of its existing thermal-generation capacity to provide back-up power during peak demand, and that use is expected to rise without the development of new generation capacity.

The expansion of further new renewable energy capacity has been slow, especially in non-hydropower energy projects. This poses a risk because the country is vulnerable to water stresses caused by climate change (DARA International, 2015) and rapid development. A pilot project that has been running since 2010 has allowed companies and households to produce electricity from solar photovoltaic (PV) panels for self-generation (Fornaguera, 2015).

14 Latest data available (PEN, 2014)

15 A tax on polluting supplies and production inputs may be relevant for all sectors. Only some 40% of companies are replacing contaminants with greener alternatives (MEIC, 2012).

The project has generated 10 MW in total and has proved to be very popular, but a lack of continuity has contributed to the slow expansion of capacity. A standstill on the extraction of geothermal energy from national parks also suggests that the diversification of renewable energy sources remains a challenge (see, for example, Oviedo, 2013; Quesada, 2013).

3.3.5 Fisheries: better than the global standard, but still over-exploited

The 'global commons' nature of the oceans hampers analysis of the sustainability of the world's fishing industries, but it is known that fisheries are, in general, being managed unsustainably worldwide (EPI, 2014 cites for example, WOR, 2014 and OHI, 2015).

Costa Rica fares slightly better than the average, according to the EPI, with official estimates of 57% of its fish production coming from aquaculture in 2012 (FAO 2015; INCOPESCA 2013). However, the 'Sea Around Us' Project (the original data used by the EPI) shows that over 80% of Costa Rica's fish stocks are judged to be 'over-exploited' or 'collapsed'. Anecdotal evidence also suggests that illegal fishing practices continue (Carrington, 2014).[16] However, the government has tried to implement policies to reduce these practices and to raise the awareness of fishermen for responsible fishing methods.

The country seems to be getting to grips with this problem. Overall, there has been a 40% decline in wild fish caught between 2001 and 2011 (MEIC, 2012) and a 175% increase in fish produced from aquaculture (PEN, 2014). In a positive political move, Costa Rica is one of 13 countries to have committed to phase out unsustainable subsidies to the fishing industry (WTO, 2013). Similarly, proposals for sustainable-fishing initiatives are starting to emerge (Olsen, 2012), together with the development of sport fishing within the tourism industry.

16 In March 2015, the Environment Ministry issued a decree suspending the issuance of permits to export hammerhead shark fins for six months following a controversy over the decision to re-grant permits for their exports even though regulations outlawed the practice. The ongoing debate has revealed a conflict between the application of laws to protect fisheries and the interests of fish exporters (AFP, 2015).

4. Closing the gaps in Costa Rica's green growth

4.1 Long-term green growth is about structural transformation

Costa Rica's green growth is the result of historical choices made in the pursuit of economic development.

As mentioned in section 2, the government's response to the 1980s debt crisis has determined Costa Rica's economic framework, characterised by a focus on trade liberalisation, the export of goods and services and the inflow of foreign direct investment (FDI).[17] This has had significant and salutary effects on the economy, providing the basis for much of its recovery in the 1990s.

Costa Rica's ability to make the transition from an agricultural to an industrial economy was underpinned by social investments in education and health care from 1950 to 1979 (Lizano, 1999). Costa Ricans had the skills required for a rapidly-expanding manufacturing sector, and for the even more sustained and rapid growth of the services sector. Natural capital investment, through the protection of forests and biodiversity, also paid off, as eco-tourism became the backbone of the service sector.

In recent years, however, the economic model that has driven Costa Rica's development for decades has also contributed to the increasing volatility of its economic performance. The country's long-term green growth will depend on the promotion of sectors and activities that reduce this volatility and that make a positive contribution to its resource efficiency.

One area that needs adjustment is social investment. Although social public expenditure has weathered the market liberalisation process,[18] Costa Rica now needs to re-tool the skills mix of its workforce as its latent comparative advantage shifts toward more advanced technologies and innovation. The country has channelled major portions of its fiscal resources to education and innovation, but must now choose how to allocate them more effectively (see section 4.5).

Unlike social investment, public infrastructure has had no powerful constituency to protect it from the austerity associated with liberalisation. This has had a particular impact on investment in public transportation infrastructure (which was slashed after the 1980s), wastewater treatment (virtually non-existent until recently), water supply and investment in power-generation capacity (both of which rely on tariffs collected by state-run enterprises).

Turning to environmental performance, the country's biggest successes – biodiversity and tourism services – have been engines of economic growth. The biggest gaps in environmental performance – wastewater management and rising GHG emissions – stem from a lack of investments in infrastructure. This was the result of a macroeconomic model that did not prioritise the domestic market or the sustainability of Costa Rica's urbanisation. As a result of inadequate expenditure on public transportation, the country has seen a rapid expansion of private transport and, in turn, a rise in GHG emissions. Failure to invest in wastewater management is an equally important infrastructure gap. This may be addressed temporarily by installing a major treatment plant, but the country still lacks a solid strategy for the long-term finance of further public works to meet growing demands. Even energy, of which there is a reasonable supply, faces rising emissions because of the sector's slow development of renewable energy projects beyond drought-prone (and therefore climate-prone) hydropower.

17 The green aspects of Costa Rica's new economic model in the 1980s and 1990s were the result of a comparative advantage and market conditions. The debt crisis, together with a fall in commodity prices and the country's economic diversification, brought about extensive legal reforms for natural-resource management, bans on land-use changes for forest areas and the introduction of payment for ecosystem services (PES) in 1996. While the economic importance of activities associated with deforestation decreased further, by the mid-1990s Costa Rica had developed a strong reputation for environmental innovation and biodiversity protection and had made this an integral part of its tourism and economic development strategy (Brown and Bird, 2011).

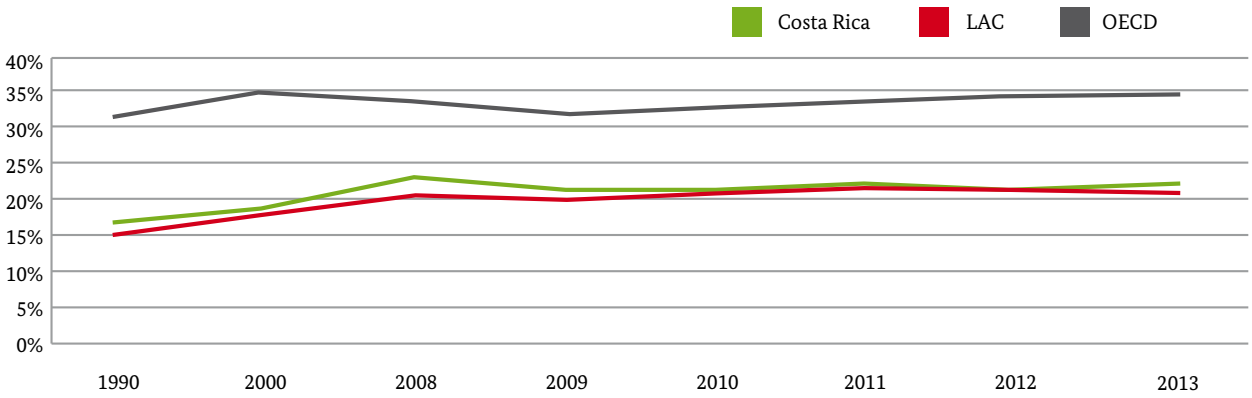
18 A plausible hypothesis that explains this rebound is the existence of well-organised constituencies around health and education (e.g. teacher unions) to which the political system responded favourably.

Some of these infrastructure gaps hurt the economy and environment now. They also jeopardise the prospects for green growth in the medium and long term and might even undo some of the progress that Costa Rica has made to date. The country would be wise to identify the interventions that serve both economic and environmental domains and, therefore, further green its pathway to growth.

Costa Rica's ability to address its core macroeconomic and environmental vulnerabilities will depend fundamentally on whether it can deliver higher levels of public goods via public investment. Higher levels of public spending, and therefore of public revenue, are vital to provide the public infrastructure, planning and governance that are needed to manage economic and environmental performance. Compared to the average across the countries in the OECD – an organisation to which Costa Rica is in the process of acceding – the country mobilises less than two-thirds of its GDP (Figure 16). If it is to succeed in its accession bid, this will have to improve (Barquero, 2015). Likewise, it is crucial for the financing that is needed to close Costa Rica's green growth gap.

Whether and how this gap is closed matters. The structural shifts that are needed will take time and must begin with the kind of near-term actions described in the sections that follow.

Figure 16: Government tax revenue as a proportion of GDP (OECD, 2015b)



4.2 Closing the infrastructure gap sustainably

4.2.1 The current infrastructure is failing the economy and the environment

The bottlenecks and inefficiency of Costa Rica's infrastructure have affected its productivity and competitiveness. Adequate infrastructure not only reduces transaction costs and the time-to-market for the private sector, it also provides the physical proximity required for complex innovation processes (Storper, 2004). A functional transport infrastructure, for example, is one of the most basic requirements for further development. Matching Costa Rica's high level of human capital with a high level of infrastructure is, therefore, critical for a country that aims to build a knowledge-based, innovation-driven economy (MICITT, 2015; WEF, 2014).

Put simply, foreign investors may leave Costa Rica if its infrastructure does not improve. The country's business community already sees its inadequate infrastructure as one of the biggest problems they face (WEF, 2014), and Costa Rica registered a 21% decline in FDI in 2014 (Arias, 2015a). Any further falls in FDI would cause serious macroeconomic problems, given that FDI covers 80% of Costa Rica's balance of payments deficit[19] (PEN, 2014).

There are some clear warning signs. According to WEF's Tourism Competitiveness Report Index (WEF, 2013b), Costa Rica's competitiveness as a tourism destination has dropped from 44 to 47. Specific issues include health and hygiene[20] and ground-transport infrastructure. As noted in section 3.1, the lack of wastewater treatment has meant Costa Rica's demotion from the world's top-10 performers in the 2014 Yale EPI.

Costa Rica's economy is becoming more carbon heavy as a result of low investments in clean public transport infrastructure, limited corollary planning, and a lack of promotion for cleaner modes of private transport[21] combined with rising car use. This gap in transport is a major obstacle to green growth. First, it weakens the national balance of payments and heightens exposure to the volatility of oil prices (as it increases demand for oil imports). Second, it hurts air quality, especially in the GAM. And third, it increases GHG emissions. Without new investment in transport infrastructure, and a strategy for its finance, spiralling oil imports, car use and GHG emissions will make it very difficult — if not impossible — for Costa Rica to achieve its goal of becoming the first carbon neutral country in the world by 2021.

This situation is harming the quality of life for Costa Ricans. There are more cars on the road — around 1.3 million in 2013 (PEN, 2014), up from around 797,500 in 2010 (Hess, 2014) — and increasingly congested roads negate the benefits of driving private cars (Hess, 2014).

4.3 How the infrastructure gap is bridged is key

The choice of infrastructure will either allow Costa Rica to bridge the green growth gap, or reinforce the existing diseconomies and environmental poor performance. Box 2 sets out one key example: the impact of the lack of investment in public transport.

19 There is a balance of payments deficit if sources of funds (such as export goods sold and bonds sold) amount to less than the spending of those funds (such as paying for imported goods and paying for foreign bonds purchased).

20 We suspect that this issue served as a proxy for wastewater management failures given that it was the only water-quality related measure in the survey.

21 The NCCSAP (MINAE, 2015) represents one of the few current proposals which encourage climate compatible fleet upgrading for taxis and buses, relying on preferential tariffs for users of low-emission 'green' taxis.

Box 2: How the transport infrastructure gap threatens progress in Costa Rica

Costa Rica's underinvestment in public transport infrastructure is undermining the country's economic, social and environmental performance. As Figure 17 shows, this lack of investment creates a vicious circle of multiple and self-reinforcing problems.

It has been estimated that the total economic costs of traffic congestion amounted to 1.7% of Costa Rica's GDP as far back as 2005 (Otoya, 2009).[22] The direct economic costs of road congestion include lost time, more fuel consumption, more accidents and more air pollution (Otoya, 2009), while the indirect costs include lost work opportunities (Rojas et al., 2006). Congestion hampers the development of the local private sector and urban economic growth in general, the development of the freight industry (and the industries it serves) and, potentially, tourism. Inadequate investment in public transport also has a social impact, with poorer households unable to afford private transport.

The problem has been exacerbated by a lack of clarity on land-use planning mandates (Astorga, 2011; MIDEPLAN, 2014)[23], which has encouraged the use of private transport. This is seen most clearly in the Greater Metropolitan Area, Costa Rica (GAM), where there is a disconnect between an area with many economic hubs and a transport system that only serves downtown San José (Pujol-Mesalles and Peréz, 2013).

The growing use of private transport is linked to the lack of an efficient, good-quality and interconnected public bus network, with people having to rely on the privately-operated buses that dominate the public transport system (CEPAL, 2014b; MOPT, 2011; MIVAH, 2013). Passenger trains, meanwhile, are almost non-existent.

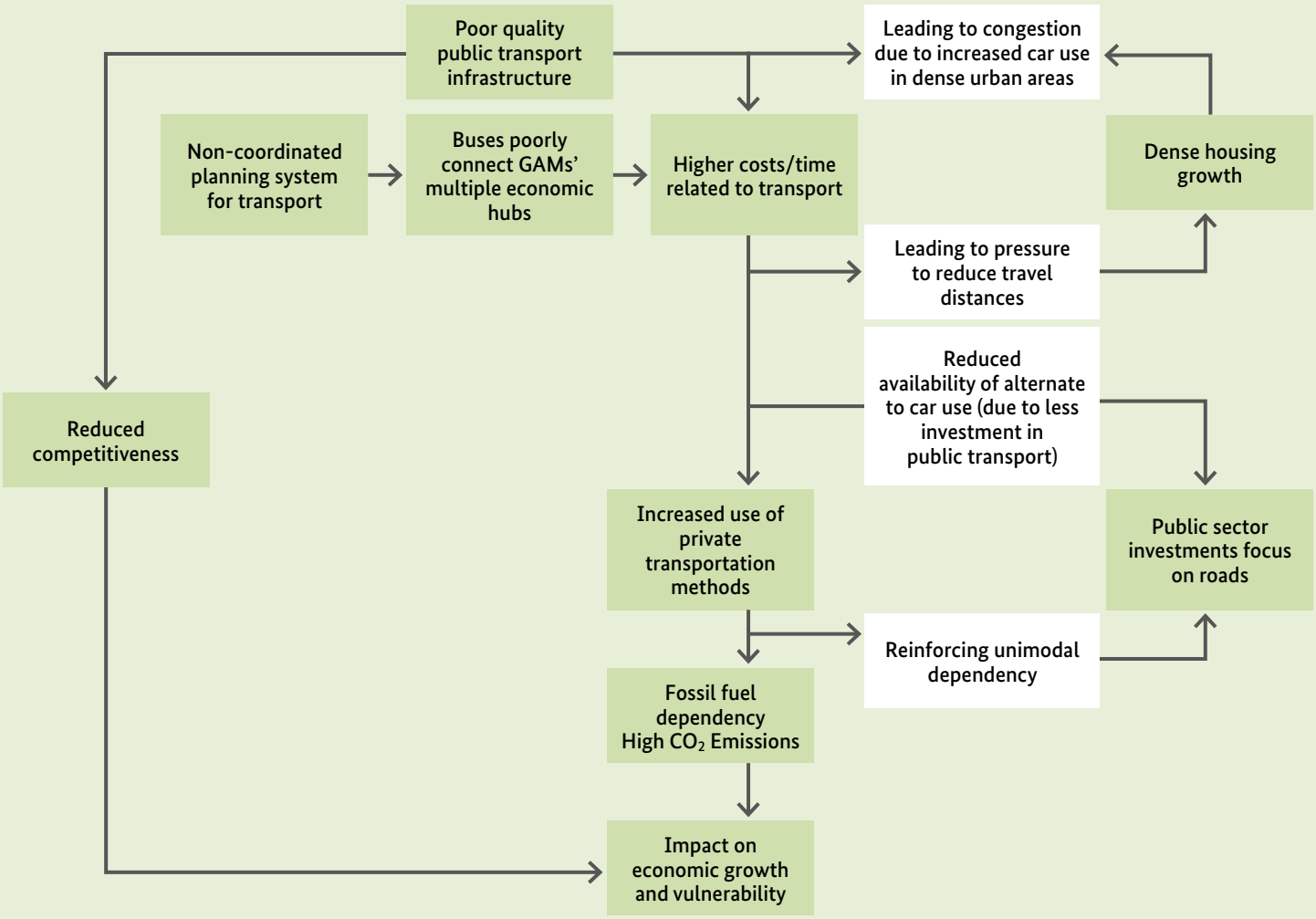
The Government aims to combine overlapping bus services (MIDEPLAN, 2012; MIVAH, 2013) and cut the number of buses driving into central San José. However, this will need the agreement of the private bus operators and depends, therefore, on the strong governance of the Ministry of Public Works and Transport (MOPT) and the Public Transport Council (CTP).

Finally, decades of underinvestment in integrated public transport means that successive governments are constantly racing to catch-up, often focusing on the most immediate symptoms of the infrastructure problem. Studies indicate that, in 2012, 80% of transport-sector expenditure was spent on roads (CEPAL, 2014b). This has only deepened and reinforced the sector's reliance on cars and has increased transport-related CO_2 emissions. It is clear that a focus on the road system alone will not solve the problems. What is needed is major investment in a modern, fully-integrated and effective public transport system.

22 There are initial discussions (GIZ, 2013) to reform the vehicle tax, which currently in some aspects even represents a 'negative incentive' in the case of used cars, which tend to have higher emissions but are taxed at a lower rate.

23 A National Land Use Policy was approved in 2012.

Figure 17: The impact of lack of investment in public transport



4.3.1 Institutional barriers to investment in public transport infrastructure

Two governance factors underpin the Government's tendency to reinforce the transport investment problems outlined in Box 2.

First, several institutional barriers reduce the ability of the government to plan and execute integrated infrastructure projects. Institutional delays can be enormous, caused in part by fragmented lines of authority among the entities involved (Hess, 2014). For example, the MOPT and the *National Roadway Council (Consejo Nacional de Vialidad, CONAVI)* have overlapping responsibilities for road planning. Delays are also caused by complex procurement processes, which vary from institution to institution rather than being standardised (Straface, 2008; González, 2013).

One particular stumbling block is the public's ability to challenge decisions on infrastructure tenders (González, 2013; OECD, 2015a). While the opportunity for 'notice and comment' on public works is crucial for participatory governance, the inability to settle expectations about project delivery drives up costs. This open process means that a single procurement may take up to 10 years (OECD, 2015a).

Institutional barriers also include low technical capacity and the lack of a planning system, which prevents an integrated approach (MOPT, 2011; González, 2013). Poorly planned and unclear projects only increase the potential for public challenge. At a strategic level, the lack of transport statistics (e.g. on demand/supply or energy efficiency; Hess, 2014) complicates the evaluation and consideration of public-transport alternatives.

Costa Rica has received nearly $2 billion in loans from development banks for infrastructure projects but, as a result of these slow and uncoordinated internal processes for tender and approval, this capital has not yet been channelled to project implementation. Meanwhile, the country is paying interest on these loans, even though the projects are not being executed (*La Nación*, 2013).

This matters if the country is looking for additional international finance, including through the Green Climate Fund. Costa Rica is eligible to receive climate finance to fund green growth investments, which would be particularly useful in the context of its fiscal deficit (section 2.3.3). However, if Costa Rica is to make good use of this climate finance and achieve measurable progress on climate action, it must improve its internal policies to implement this funding. In addition, climate finance should be only one element of broader economic reform: Costa Rica needs more than climate finance to address its fiscal deficit, founded in improvements to its domestic economy.

The second governance factor is institutional inertia. The Public Transport Council (CTP) is responsible for regulating and planning public land transport. CTP has been reprimanded for only achieving 50% of its planned results while spending over 95% of its budget (Office of the Comptroller cited in Quirós, 2014). It also has little quality control of the private transport operations that dominate public transportation (Ombudsman cited in Recio, 2014). This weak performance may be the result of limited accountability or political pressure from the bus sector through efforts to influence price setting or the withholding of fees owed to CTP (Hess, 2014). Although both industry and passengers sit on the CTP's leadership group, the narrow and focused interests of the industry may outweigh the more dispersed interests of user groups. Such unresolved issues are covered by the media and confirmed by senior MOPT officials (Minister of Public Works and Transport quoted in Noguera, 2014; MOPT senior official, personal communication).

4.3.2 Investing in transit-oriented development

Balanced investment that encourages and facilitates the use of public transport, especially within the GAM, could break the vicious cycle and make growth more sustainable. Initial discussions show senior-level support for this approach, recognising that the expansion of public transport would improve market integration in San José.

The priorities for short- to medium-term action include interventions to develop transit-oriented development (TOD), defined as a 'mixed use community that is … planned around public transit' (Bernick and Cervero 1997, p. 5 in: Cervero et al., 2002). Such development encourages the use of alternatives to cars by integrating transport and land-use planning. TOD could address, in particular, the structural gap between the GAM's multiple economic hubs and the public transport system's 'monocentric' form, covering only transport in and out of downtown San José (as outlined in Box 2) (Pujol-Mesalles and Pérez, 2013). An initial approach could be the development of Sustainable Mobility Plans in the GAM, combined with the provision of alternatives (e.g. car-pooling, flexible working hours) as part of an integrated public-transport system as outlined in the NCCSAP (MINAE, 2012).

As a first step, integrated public transport (cf. NCCSAP) could be backed by a modern passenger rail line in the GAM. The Ministry of National Planning and Economic Policy (Ministerio de Planificación Nacional y Política Económica or MIDEPLAN) (2014) proposes the construction of the San José to Cartago high-speed, high-capacity rail connection that would link Alajuela, Heredia, San José and Cartago. In all, $700 million has been allocated to the first stage between 2015 and 2018. Although this ambitious plan constitutes 35% of the total proposed budget for infrastructure, it is not yet reflected in the national budget, and responsibility for it would rest with INCOFER, whose small staff of 47 would have to expand to ensure effective implementation.

Current proposals for the inter-municipal rail link also include intermodal aspects, such as the division of the GAM into sectors and plans for connections with the local bus networks at selected stations along the route (MINAE, 2012). Costa Rica also continues to explore Bus Rapid Transit (BRT) as a way of rapidly expanding mass transit services (La Republica, 2015) The 2013 Urban Development Plan for the San José GAM (MIVAH, 2013) also proposes a single tariff regime that would allow users to travel anywhere in the GAM, once implemented.

The President has expressed his backing this project: in September 2014, he announced his commitment to build a new urban train system to a local audience, and later that month he told the world during the UN Climate Summit in New York. In fact, he told other Heads of States that the train was a pillar of Costa Rica's commitment to achieve carbon neutrality by 2021.

Transport institutions

Ultimately, transport planning requires cross-ministerial (as well as national-municipal and inter-municipal) coordination within the GAM, if it is to tackle multiple policy issues, such as land-use planning, housing and transport. These issues must be coherently addressed if the country is to take the more integrated, public transit and low- carbon-orientated planning approach proposed by the NCCSAP (MINAE, 2012). This may require a single urban-transport entity to oversee the planning process. In principle, MOPT has this role although it may have suffered from institutional challenges as a coordinating entity, to the detriment of forms of transport other than road/bus (MOPT, 2011), perhaps as a result of its broad national mandate.

An entity such as an 'Urban Transportation Authority' with specific authority and responsibility for public transport in the GAM could plan, coordinate and streamline the implementation process in this specific region. As long as MOPT retains overall responsibility for national transport infrastructure, such an agency would be in charge of regulation, planning, fares/revenue and procurement/provision of transport services exclusively for the GAM. The creation of an Urban Transport Authority would be in line with World Bank recommendations that propose 'a regional transportation coordination commission' capable of delivering and implementing 'a strategy for integrated land use, urban transportation, and air quality' (Suzuki, 2010). Successful examples of such entities can be seen in other parts of the world, including Transport for London, Consorcio de Madrid, STIF (Paris), Singapore's Land Transport Authority and Vancouver's TransLink.

Alternative institutional structures are also being considered, including the re-establishment of MOPT's authority as single entity for public-transport regulation with enforcement powers to ensure adequate service delivery (MOPT 2011). The NCCSAP (MINAE, 2012) refers to a reform of CTP to facilitate integrated planning and drive the climate-change agenda within MOPT. There is also discussion on the integration of the National Roadway Council (*Consejo Nacional de Vialidad*, CONAVI), which is responsible for road construction and maintenance, with the National Concessions Council (*Consejo Nacional de Concesiones*, which is in charge of infrastructure-commissioning projects, into one MOPT-related entity, the *Instituto Nacional de Infraestructura* (INI; Academia de Centroamérica, 2014). One concern about this proposal, however, is the implication that national infrastructure concessions are largely for road development, rather than the delivery of alternative forms of infrastructure. In addition, the Bill (Ley para el Fortalecimiento del INCOFER) that aims to provide INCOFER with additional funds from the fuel tax (Díaz, 2014) is being discussed in the Legislative Assembly (Herrera, 2015).[24]

The first national congress on mobility (2-4 July 2015) received institutional support from a wide variety of stakeholders from government, congress, private sector and civil society, a reflection of the importance of finding new transportation solutions. The strong focus of the congress was on the opening of bike lines (*ciclovias*) in Costa Rica. A deeper approach to other elements of mobility will, therefore, be needed in future national conferences on this subject, such as the links between mobility and competitiveness and what to do about the transport of both people and merchandise.

4.4 Improving the resilience of the economy

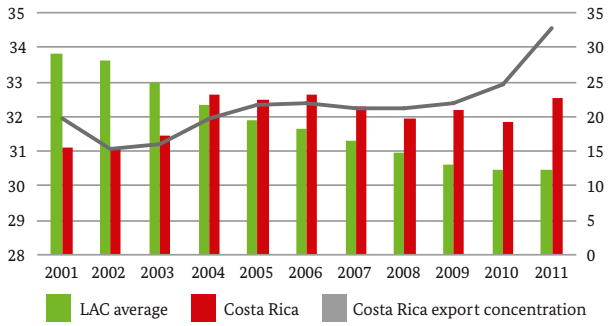
4.4.1 Vulnerabilities and resilience

Costa Rica's economic growth is vulnerable to external shocks that are beyond its control. A quick glance at the Economic Vulnerability Index suggests that in comparison to the rest of the Latin American region, Costa Rica's vulnerability increased between 2008 and 2011 (the latest

24 The identification of a more effective institutional strategy would need to emerge from close dialogue with, and ultimately, a political settlement among, relevant stakeholders. This is obviously beyond the scope of this study, although we highlight it as a recommended action in the final section.

year for which data were available) (Ferdi.fr, 2015). Its growing economic vulnerability correlates broadly with its degree of export concentration,[25] as shown in Figure 18. Furthermore, the Climate Vulnerability Index classifies Costa Rica as a country at high risk of climate change, with hydroelectric power generation mentioned as a particularly vulnerable sector (DARA International, 2015).

Figure 18: Economic Vulnerability Index (ODI, 2015, drawn from Ferdi.fr, 2015)



4.4.2 Forecasting and planning

Economic resilience is rooted in the ability to forecast and plan for economic shocks. And yet economic forecasting in Costa Rica provides little consideration of climate change in its approach (see, e.g., BCCR, 2015). The integration of climate-change forecasting within economic planning is new for the country, with the NCCSAP the first document to propose a more specific and cross-institutional approach (MINAE, 2012). It contains a route map for climate-change adaption and mitigation for several climate-vulnerable sectors identified in the National Development Plan, 2015-2018: energy, transport infrastructure, agriculture and water (MIDEPLAN, 2014).[26]

This is a promising start. To increase resilience, however, it is crucial to expand climate-resilience considerations across all sectors of economic planning, beyond those specified in the National Development Plan. In particular, Costa Rica would benefit from a more rigorous and bolder approach to the integration of climate-change considerations into public-transport planning; energy-sector planning, industrial policy-making and macroeconomic forecasting.

4.4.3 Building energy resilience

Costa Rica's reliance on existing thermal capacity during peak periods highlights the need for more diversification in renewable electricity generation. This can be a 'win win' situation for the country, with actions that create a sustainable energy supply also generating greater resilience to climate change.

Large hydropower plants dominate Costa Rica's current electricity generation. While this has resulted in a low-carbon power matrix, dependence on hydropower has left the country vulnerable to climate challenges. Droughts are a particular threat, and Costa Rica is expected to be acutely vulnerable to desertification and reduced water supply. The country is one of only seven countries (out of 184) that may be acutely affected by reduced river discharge by 2030. The economic impact of this impending and acute water shortage is estimated to amount to $1 billion, at current prices (DARA International, 2015).

Costa Rica is already considering alternative renewable energy sources, and the inclusion of climate-change risks in the scenarios for energy capacity and infrastructure is crucial to planning. For example, because hydropower represents a long-term investment and is expected to be vulnerable to climate change, a holistic assessment of the proposed Diquís hydro plant should consider the economic risks of increasing the country's reliance on this energy source. An alternative option could be the expansion of geothermal production (ICE, 2014). Together, hydro and geothermal power account for over 83% of Costa Rica's energy supply. Tapping into new geothermal energy sources means extraction in national parks – a contentious issue that requires the careful weighing up of the impact on both climate and energy (including the possible effects on biodiversity) and the impact on the country's protected areas policy.

25 Export concentration measures 'the sectoral concentration of a country's exports, indicating to which extent exports are dispersed across different economic activities.' (Source: http://www.un.org/en/development/desa/policy/cdp/ldc/ldc_definitions.shtml)

26 The Action Plan's proposals for these sectors are mentioned in the relevant sections (e.g. regarding energy – section 4.4, transport infrastructure – section 4.3, agriculture – 3.3.1 and water – 3.3.5).

Costa Rica has made recent and promising progress on diversifying and improving the resilience of its energy supply. Part of this has been through the expansion of wind powered generation. It expects to increase from its current 194MW of generation capacity to 393MW by 2017 through a combination of public and private projects (prensalibre.cr 2015). Small scale, distributed electricity generation (such as solar, wind and biomass) also has real potential to increase climate resilience, given its flexibility, variety and proximity to the consumer. However, as mentioned in section 3.3.2, the pilot project that allowed households and businesses to generate PV electricity for their own use was terminated in March 2015 and its future scale-up is uncertain. The extent to which ICE, the Ministry of Environment and Energy (Ministerio de Ambiente y Energía or MINAE) and the Public Service Regulating Authority (Autoridad Reguladora de los Servicios Públicos or ARESEP) have agreed to wind up the pilot project is unclear, as are the concrete steps they may take to ensure that solar power generation is scaled up over time. This is unfortunate as the pilot programme succeeded in establishing a positive precedent and gained support from businesses and households (Lara, 2015).

Progress on regulatory arrangements for distributed generation is important to increase Costa Rica's energy climate resilience. This could include stronger regulations to support distributed-generation projects and reduce bureaucratic hurdles. This would be in line with the NCCSAP, which proposes an increase in the use of renewable energy generation in areas where distributed-generation projects would not require environmental or ethnical trade-offs (MINAE, 2012).

Nonetheless, the National Comptroller Office published an assessment in 2014 of the implementation of the NCCSAP and concluded that the Climate Change Office has done little to implement the strategy. The assessment found that the Office lacks the tracking and management systems it needs to meet the objectives of the NCCSAP (Contraloría General de la República, 2014).

The diversification of electricity sources should be complemented by efforts to minimise demand. Energy efficiency is an important aspect of MINAE's policy agenda. The Ministry aims to reform Bill 7447 for the Rational Use of Energy to encourage energy efficiency across all sectors, develop and manufacture energy-efficient goods, and establish an energy-efficiency certification programme (*programa de plaqueo energético*)[27] (MINAE, 2012). The Bill also includes demand-management initiatives, such as hourly tariff schemes for the residential sector.

4.4.4 Building economic resilience

Economic risks arising from external shocks require a more diversified export strategy, balanced by stronger domestic demand. The high export concentration in microelectronics has left Costa Rica's economy vulnerable, with exports falling by 17.5% in January/February 2015 (Arias, 2015b) after the partial closure of Intel's manufacturing plant. [28] The strong focus on this single area has also reduced Costa Rica's export competitiveness in other markets.

Because the economy produces for both the domestic and international markets, growth in domestic demand could reduce the economy's vulnerability to falling exports. Ultimately, a more diversified export structure, coupled with stronger domestic demand, could increase stability and reduce volatility in the export sector (PEN, 2014). Increased domestic demand would result in a reduction of the percentage of GDP from export of goods and services from its current high level of 35.1% (World Bank Group, 2015). Growing internal demand relies, however, on revitalising Costa Rica's urban environment, which will depend, in turn, on the planning and infrastructure issues discussed above, and on greening Costa Rica's industrial policy, which we discuss in the next section.

4.5 Toward a green industrial policy

At the core of Costa Rica's further transformation toward a green economy is its ability to shape future growth and employment through its industrial policy.

First, Costa Rica's industrial policy needs to encourage more resilient, diversified trade combined with stronger domestic demand, while building on both the country's

27 The uptake of environmental certifications is still a challenge. Only 14% of businesses adopted some kind of green certificate (MEIC, 2012).

28 Notably, this decision had little to do with Costa Rica, according to all accounts (Cordero and Brenes, 2014).

economic legacy and its emerging technological expertise. To do so, industrial policy needs to identify latent comparative advantages amenable to green growth. This section picks out two specific areas: (1) taking advantage of Costa Rica's existing comparative advantages, including its strong IT and technology manufacturing skills and its eco-tourism sector, and (2) building a business climate for green investment and innovation that will attract private sector players.

Second, Costa Rica will need to ensure that its strategy for industrial policy addresses its key employment gaps. These include the decline of Costa Rica's 'old economy' sectors, such as agriculture and traditional manufacturing (and the associated job losses), and the rise of the 'new economy', including professional services and technology and their needs for new skills. Section 4.5.2 discusses the ability of green jobs to support a green industrial policy and steps to better match education and training to the new needs of the market. Initial discussions on industrial policy and green jobs are beginning to take these aspects into account (cf. Coloma, 2014 and MICITT, 2015).

4.5.1 Greening industrial policy and differentiation

Building on a comparative advantage: a skilled workforce
Costa Rica's strong investment in its human capital has become an important comparative advantage. The country's workforce is skilled in the manufacturing of electronics, IT technologies and medical equipment and the country is able, therefore, to offer value-added to global value chains. These skills could be an important strength as it seeks to expand and diversify its domestic industry into new industrial sectors.

A green industrial policy that expands and diversifies the sectors within which Costa Rica can provide technical manufacturing services could increase its export and FDI competitiveness. Greater diversification of domestic industry will also reduce the current over-dependence on exports of microelectronics that leaves the economy vulnerable to external decisions, such as Intel's closure. Industrial policy analysis should, therefore, identify opportunities for vertical (e.g. moving up the supply chain – e.g. through R&D) and horizontal diversification, especially into green sectors. The country could, for example, focus on the development of domestic biotechnology and biochemistry industries, as proposed by the Ministerio de Ciencia, Tecnología y Telecomunicaciones (Ministry of Science, Technology and Telecommunications or MICITT) (2015).[29] If applied to the agricultural sector, biotechnology and biochemistry industries could expand to focus on agro-industrial waste recovery or plant breeding to raise yields or to improve resilience to pests, diseases and climate change. These agricultural technologies could reduce the agricultural sector's negative environmental impact (e.g. by reducing chemical fertilizer use) and could turn an environmental weakness into an opportunity for economic growth (Columbia Business School, 2011).

In addition, the internal and foreign markets for renewable-energy technologies and energy-efficient goods are expected to grow, presenting an opportunity for new private sector development.[30] Through the adoption of policies such as the NCCSAP and the carbon-neutrality target,[31] the Government of Costa Rica has begun the transition towards clean energy and energy efficiency (section 3.2). If Costa Rica could promote domestic innovation in production of and services for, for example, energy-efficient white goods and renewable-energy technology materials, a domestic industry could be grown to supply this emerging clean-energy market.[32] Expansion and support of domestically-focused goods and services will improve the resilience of the economy. Likewise, growth in these sectors may present new trade opportunities that diversify the country's exports.

Additional industrial policy tools can stimulate the interest of the private sector in the domestic market in clean-energy technologies, goods and services. Costa Rica may, for example, consider introducing environmental

29 The chemical sector is a sector identified as key opportunity sector with potential for Acción Clima's green jobs development strategy (Coloma, 2014).
30 This category includes eco-efficient construction, proposed by Acción Clima (Coloma, 2014).
31 The NCCSAP seeks to develop a national renewable energy cluster by strengthening institutional and financial support for start-ups in that sector. In addition, zones, clusters or incubators are proposed as tools to diffuse environmental technologies.
32 Even where cleantech goods are imported, it may provide opportunities for the service sector, as efficiency retrofits and distributed renewable energy technologies require active service sectors and create jobs.

regulations such as labelling programmes and building standards that identify energy-efficient products or renewable-energy technologies and require their adoption. Sustainable public-procurement practices, which would also be applicable to state-owned enterprises, could also be part of the policy toolkit.[33]

Such an industry policy needs to be accompanied by appropriate education and skills-training programmes (section 4.5.2). Capacity building is particularly important to re-skill and re-employ workers from traditional agricultural and manufacturing sectors that are in decline.

Building on a comparative advantage: eco-tourism

Costa Rica's second comparative advantage is its appeal for eco-tourism, (Esencialcostarica.com, 2015; Fernandez-Stark et al., 2013). Tourism remains a core economic-growth sector (section 2) and there is ample opportunity for further growth, for two reasons in particular: (1) Costa Ricans have the skills to support the sustained and rapid growth of the services sector; and (2) Costa Rica could diversify and expand eco-tourism as a source of national income.

Because most Costa Ricans have completed a primary-level education, the door is open for service-sector employment. At the same time, lower-level jobs in traditional agricultural exports are declining and rural unemployment is increasing. Expansion of the tourism industry could bridge this employment gap, while also expanding Costa Rica's economy.

What Costa Rica offers in terms of tourism is already based on its environmental and cultural characteristics, rather than price (Rojas, 2009). Equally, tourists are increasingly environmentally conscious and prepared to spend more to visit green and socially responsible destinations (Pratt, 2011). Costa Rica could, therefore, explore the possibility of expanding its tourism offer into the premium segment of the market. It could also diversify eco-tourism to include other activities, such as sports camps (Columbia Business School, 2011). Government incentives, such as co-financing, favourable loans or fast-track land acquisition, may encourage growth in premium eco-tourism investment.

33 Public procurement accounted for over 14% of Costa Rica's GDP in 2011 (GIZ, 2013; OECD: 12%).

Despite the importance of tourism to Costa Rica's economy, 'the value of ecosystems for tourism is undervalued in many cases' (Pratt, 2011: 421). The implementation of Natural Capital Accounting with the World Bank Wealth Accounting and the Valuation of Ecosystem Services project (WAVES) is, therefore, important for a better understanding of the true potential of Costa Rica's natural assets for tourism (and the adaptation of its eco-tourism business models to reflect the value of its ecosystem). UNDP's BIOFIN initiative is also contributing to efforts to quantify the investment and finance needed to protect the country's biodiversity and implement its national biodiversity strategy. The pressing need to put a formal economic value on Costa Rica's natural capital and its contribution to the economy – such as through eco-tourism – will be more feasible when the current system of environmental indicators is actually operational (Araya, 2014a).[34] This would also support the specification of a tourism tax that reflects the sector's negative impacts on the environment (GIZ, 2013).

As part of an integrated strategy, it is important to match the positioning of Costa Rica as a premium destination with enhanced overall business competitiveness. The absence of sustainable infrastructure development will affect the tourism industry's competitiveness (WEF, 2013a), and its continued growth depends on infrastructure upgrading, as discussed in section 4.2. What's more, any realistic economic planning needs to factor in the significant climate vulnerabilities (discussed in section 4.4) associated with the sector.

Green private sector development

Costa Rica has nearly 49,000 companies, 95% of which are small and medium enterprises (SMEs). Some 77% of these SMEs are in industry, services, commerce or IT. As yet,

34 WAVES aims to develop environmental accounts for water resources and forests. A law to incorporate the value of natural capital in development planning was introduced in the Costa Rica legislature in 2013. BIOFIN is focused on the mobilisation of resources for investment to offset biodiversity losses. Both initiatives are underway (BIOFIN was scheduled to have developed a Resource Mobilisation Strategy in 2013 and to have started the implementation of the Resource Mobilisation Strategy in 2015). (Sources: WAVES Partnership: http://www.wavespartnership.org/en/costa-rica; BIOFIN: http://www.biodiversityfinance.net/countries/costa-rica)

however, there appear to be no economy-wide interventions to promote green investment or innovation as part of Costa Rica's private sector development initiatives. This absence is reflected by the Global Green Economy Index (Tamanini, 2014), which indicates that although Costa Rica performs well overall,[35] it lags behind in terms of the business climate for green investment and innovation. The Ministry of Economy, Industry and Commerce (Ministerio de Economia, Industria y Comercio or MEIC) is, however, developing a new industrial policy approach, supported by the CICR, which presents an opportunity to mainstream green-growth objectives into national plans.[36]

One key topic is the access of SMEs and entrepreneurs to credit and financing. Specific measures for the private sector include more favourable loan conditions[37], which may be targeted specifically at businesses that provide green goods or services (CICR, 2014). Private sector development could, therefore, include the provision of finance by Costa Rica's Development Bank System[38] (SBD; MIDEPLAN, 2014) and seed funding for green SMEs and start-ups. In addition, co-financing for SME expansion and diversification into green activities could increase public returns and reduce fiscal exposure, in contrast to non-refundable grants.[39]

On the commercial side, financial services can stimulate internal private sector investment in greener goods and services. Some green loan schemes are already operational. Since 2013, a Costa Rican state-owned retail bank has provided $40 million in loans for small-scale (families and SMEs) investments related to water and energy efficiency (Rodríguez, 2013). Cross-institutional cooperative initiatives between MINAE, MEIC, CICR and Asociación Empresarial para el Desarrollo (AED) should propose such commercial credit projects for financing with green loans. The BCCR also provides specific loan arrangements for eco-efficient cars and the provision of green loans could be expanded to apply to GHG emission-reduction goods and services in the agricultural sector, given the sector's vulnerability in Costa Rica.

Indirect private sector development support may also consist of fiscal incentives. These could be in the form of tax reductions for green-goods categories to incentivise green purchases (corporate and private).[40] Such incentives could play a crucial role in both horizontal and vertical private sector development. This could be in the form of tax credits[41] for corporate investment in green R&D (such as energy efficiency technology). A reduction in the cost of a company's R&D investment in green technology would be an incentive for international investors in these sectors to locate their research activities in Costa Rica. One policy example from abroad is South Korea, which provides 30% tax credits for R&D activities in low-carbon vehicles and renewable energy (KPMG, 2013).

The CICR also proposes the development of a policy framework to improve local supply chains and increase their contribution to global value chains (CICR, 2014). Again, this could target linkages between Costa Rican and international companies in the green economy.[42] Fiscal incentives for international investment could be achieved by reorienting and restructuring tax incentives from FTZs to FDI, which uses local inputs in the higher value-added stages of green technology, management or design (Pike et al., 2006). In this way, the adoption of a green industrial policy could improve both the quality of FDI and the long-term commitment of investors to Costa Rica.

35 The country's overall strong performance in this index is a result of its low-carbon power system, eco-tourism, and strong natural capital protection.

36 CICR has already developed an industrial policy proposal that could pave the way for a green transformation and feed into MEIC's forthcoming economic policy (CICR, 2014).

37 such as less rigid instalment schedules that reflect the project cycle of a start-up and internationally competitive interest rates.

38 The SBD provides financial support for SMEs with, for example, cleaner production methods.

39 A similar approach is the Co-Investment Fund administered by the government-owned Scottish Investment Bank (part of Scottish Enterprise, Scotland's Development Agency), which invests in renewables innovation (Scottish Enterprise, 2015).

40 such as a tax structure that incentivises the use of fuel-efficient and low-emissions cars – e.g. by imposing a tax on a per carbon unit basis, as proposed by the Treasury (Ministerio de Hacienda, 2013).

41 This contrasts with tax deductions or exemptions, as in the FTZs. These are applied on the company's taxable income as a whole and, therefore, have a negative impact on the Government's fiscal revenue.

42 These linkages could also be fostered by co-locating them and encouraging transactions in zones and clusters.

Complementing private sector development, targeted human capital measures, such as the improvement of technical and vocational training schemes (CICR, 2014) and the provision of training facilities in growing sectors are essential to align the country's education and skills with the needs of industry. This is discussed in the following section.

4.5.2 Green jobs

A broad definition of green jobs is that adopted by GIZ for Costa Rica (GIZ, 2014): 'Green jobs are decent jobs which apply good environmental practice to reduce the consumption of energy, the use of raw materials, greenhouse gas emissions and waste, and contribute to the protection and re-establishment of environmental ecosystems.' Green jobs are enabled by industrial policy (and other economic policy and planning), with green companies demanding workers with relevant abilities. Green industrial policy, therefore, triggers the 'creation of … new green jobs and the progressive scrapping of old occupations' (Martinez-Fernandez et al., 2013, p.45). This dynamic is already in place in Costa Rica, with declining employment in the 'old economy' and the gradual growth of employment in the 'new economy' (PEN, 2014)[43]. The process depends, therefore, on finding green comparative advantages that have the potential for high employment.

Taking advantage of industrial transformation to create green jobs will require closure of the skills gap discussed in section 2.3.2, especially in areas that require higher education and technical backgrounds. Although there is high demand for technical education, there are simply not enough courses in science-related disciplines (e.g. engineering, computing, and life sciences) in high schools or higher education (Trejos, 2013).[44]

One step towards closing the skills gap may, therefore, be an evaluation of Costa Rica's educational structure. It is important to forecast industry requirements and align education provision accordingly, as proposed by MICITT with the planned Institute for Exploration and National Education for Productivity, Creativity and Wellbeing (*Instituto de Prospección y Formación Nacional para la Productividad, la Creatividad y el Bienestar*). This Institute would identify the needs of the private sector and steer the educational sector to meet those needs (MICITT, 2015).

More active cooperation between educational institutions and industry is also needed. Current proposals include the Dual Education System, equivalent to a co-op scheme (*formación dual*; CICR, 2014), which is being discussed in the Legislative Assembly (Arrieta, 2015). This would allow companies to contract young people as apprentices who receive vocational education provided on the job and in vocational training schools. In addition, existing government initiatives for employability (Empleate plus) and re-employment (PRONAE) could be extended to reduce the cost to lower-skilled workers making the switch from sectors in decline to more dynamic sectors.

Together with the Ministry for Education and the National Apprenticeship Institute (INA), the CICR has explored the development of an inter-institutional commission that aims to develop the skills needed for green jobs (CICR, 2014) and, ultimately, a Green Jobs Policy.[45] It is essential to link this inter-institutional dialogue with Costa Rica's industrial policy, to align the planning and policy-making for green jobs with growth in new sectors.

Any industrial policy that aims to develop high technical proficiencies needs to link skills development to the green growth agenda to ensure that skills development reflects new sectors of growth. In existing high-tech sectors, such as medical device manufacturing, it is also important to explore potential skills 'spillovers' between these activities and green innovation. Mora (2014) has highlighted the opportunity to develop biodiversity

43 The recent closure of Intel's manufacturing operations and opening of an Intel R&D facility (Mata, 2014) provides anecdotal evidence for this process.

44 For example, for every 10 university graduates, there are only 1.7 technical graduates (Fernandez-Stark et al., 2013).

45 The CICR is also part of the GIZ-led Acción Clima, which has developed a plan for the development of a green jobs strategy (Cóloma, 2013). Acción Clima is a GIZ-led initiative, in cooperation with MINAE's Climate Change Direction, which aims to support the implementation of the National Climate Change Strategy (http://cambioclimaticocr.com/2012-05-22-19-47-24/programas/programa-accion-clima#).

research, bio-technology and clean energy[46] but this will require a more systematic approach to identifying spillovers from Costa Rica's new economy.

There may be a chance to address the challenge of employing the workforce from declining labour-intensive sectors through skills development in the growing services economy, particularly in areas that are more sustainable, such as eco-tourism. This could provide opportunities in the rural economy and, less explored, in the GAM. Acción Clima (Cóloma, 2013) proposes to equip less-qualified workers with green skills (e.g. electro mechanical engineering, insulation engineering, etc.). This approach of extending the existing skills of lower skilled workers may improve their inter-sector mobility, which is particularly low (as discussed in section 2.3.2).

4.6 Greening fiscal policy

Prudent fiscal management is a key element of green growth (OECD, 2011), with public spending paying for many of the public goods needed for a sustainable economy. Fiscal policy tools are also an important way to align economic and environmental incentives.

Improving overall taxation capacity and efficiency, and increasing Costa Rica's tax-to-GDP ratio, are important foundations for the achievement of many of Costa Rica's economic, environmental and social objectives (World Bank Group, 2014). This may be true across all public policy objectives.

Current reform initiatives may provide an opportunity to include green fiscal policy measures as part of the efforts to close the gap in Costa Rica's public finances. For example, the Legislative Assembly is debating bills on tax fraud, contraband and tax exemptions (Cambronero, 2015). Removing these tax exemptions could increase overall government revenues or open up space for tax exemptions as a green policy tool. The government also proposes a rise in VAT from 13% to 15% (Rodríguez, 2013) and a rise in income tax for higher salaries (Gutiérrez, 2014). Together, these measures are expected to increase revenue to 3.4% of GDP.

Fiscal policy tools can also incentivise green growth through innovative tax tools, but Costa Rica's current fiscal framework has few tax tools to provide such incentives.[47] The most notable are the tax on gasoline that pays for ecosystem services, the tax exemption for selling land in protected areas to increase forest cover and the tax exemption for energy-efficient goods (Law 7447: Uso Racional de Energía Electrica) (Cabrera, 2010).[48] By mainstreaming green taxes into national economic reports (e.g. the WAVES project, discussed in section 4.5.1), the country aims to make sustainable use of – and account for – its natural resources. Such efforts are still nascent in most other countries, proving that Costa Rica offers some lessons in this area. The expansion of these initial measures may include, for example, an increase in fuel taxes to finance public transport infrastructure projects. It may even be worth exploring a true national carbon tax, as an alternative to traditional fiscal policies tools, for its revenue mobilization benefits rather than its climate implications (Faye et al, 2015).

FTZs might also offer immediate tax-reform opportunities. A re-assessment of tax exemptions by activity could increase tax revenue while incentivising local growth. For example, tax exemptions could be based on environmental impacts and value added to the economy, favouring activities with high environmental and economic performance. Green growth criteria could be used to select the companies allowed to operate in the FTZs. Such a fiscal approach would redistribute resources to favour more efficient, lower-pollution activities.

46 Specific preliminary proposals for skills development for green jobs at the higher-end of the educational spectrum proposed by Acción Clima refer to roles such as environmental engineers, environmental civil engineers, nano-technology experts, industrial designers, food technologists, software developers and industrial engineers (Cóloma, 2013).

47 Environmental-related taxes account for 18% of the total tax receipts (MEIC, 2012).

48 Several non-fiscal regulations incentivise green good practice (e.g. green public procurement – compras verdes – favouring suppliers with green credentials).

The difficulties in reforming taxation and fiscal policy often stem from organised opposition to such reforms — green or not. Public awareness of budgetary and fiscal issues in Costa Rica is low (Open Budget Index, 2010) and public budget transparency is middling, according to international assessments (e.g. it scored 50 out of 100 points in public budget openness, in 2012).[49] In practice, the public does not yet grasp the link between public budgets and tax collection, on the one hand, and investments in social, economic and environmental infrastructure on the other. This leads to unrealistic public demands for infrastructure and public works at times of severe fiscal constraints. Paradoxically, the very public that demands better infrastructure and higher public spending often opposes any governmental attempts to increase taxation.

Transparency, accountability and legitimacy are crucial for any government's ability to increase its tax revenues and win support for tax reforms. Efforts are needed, therefore, to increase the legitimacy of tax reform, starting with ensuring that the public understands why the tax regime needs to be adjusted and sees a credible plan to turn revenues into public services. Steps have been taken in this direction, with the OECD praising Costa Rica for recent reforms on banking secrecy and information exchange (Leitón, 2015).

49 The range 0-100 means 0=not transparent 100=totally transparent (International Budget Partnership, 2010).

5. Recommendations for immediate action

The final section of this report provides eight recommendations to support Costa Rica's transition to a green economy. It is based on our analysis of Costa Rica's economic and environmental underperformance and opportunities to align its economic and environmental policy objectives.

The recommendations focus primarily on 'quick wins' that could help to secure the longer-term structural changes that the country needs for a solid approach to green growth. They aim to:

- bridge the infrastructure gap: building capacity and stakeholder engagement and streamlining regulatory processes for public-works projects
- strengthen economic and environmental resilience
- operationalise a green industrial policy that spurs innovation, incorporates green jobs, and boosts domestic private sector development for green goods and services, and
- reduce the fiscal deficit, through targeted taxation and fiscal policy reforms.

5.1 Bridge the infrastructure gap

RECOMMENDATION 1:
Build and enhance capacity for project evaluation and planning within key ministries with an emphasis on infrastructure-development projects

Complex procurement processes are blocking the successful development of much-needed infrastructure projects in Costa Rica. This is compounded by the limited capacity of officials in project evaluation and planning. [50] There are also challenges related to fragmented authority, overlapping planning responsibilities and other institutional barriers.

This report provides three immediate recommendations. Taken together, these may not result in more *sustainable* public procurement, but they are essential for the enabling conditions for green growth, which depends upon the delivery of public works.

- *Standardise and streamline public procurement processes across ministries:* Relevant ministries, such as MOPT and Ministry of Housing and Human Settlements (Ministerio de Vivienda y Asentamientos Humanos or MIVAH), could develop recommendations to standardise regulations and practices for the procurement of public works. The treasury inspector's office of Costa Rica (Contraloría General de la República) could also be included in this process. Costa Rica urgently needs to improve and standardise such processes (OECD 2015a). Without such improvements, Costa Rica will continue to struggle with a non-uniform approach to public procurement that is widening its infrastructure gaps.
- *Capacity building in project evaluation and planning:* Training modules and capacity-building programmes could be created to enhance the ability of officials across ministries to manage and deliver complex infrastructure projects effectively. Building the capacity of staff will enable an integrated and streamlined approach to public procurement and reduce public challenges to decisions that are more transparent and better planned from the outset. Without such training programmes, public servants are unlikely to implement new procurement processes successfully.
- *Inter-ministerial collaboration on public works' priorities:* the Government of Costa Rica could create incentives for inter-ministerial collaboration. Greater coordination will reduce the overlapping authority that slows down infrastructure projects. Clear responsibilities will make processes more efficient, with each agency mandated to undertake separate, but complementary tasks.

The Government could develop a unit within MIDEPLAN to institutionalise inter-ministerial collaboration within the transport sector, made up of representatives from relevant ministries and focusing on infrastructure planning, transport statistics and the design of feasibility studies.

50 A recent illustration is the electricity utility CFNL's $64 million loss, and bankruptcy risk, in connection with a hydroelectric power project – a loss that has been largely attributed to poor planning (Fornaguera and Rodríguez, 2015; Mesalles, 2015)

RECOMMENDATION 2:
Align stakeholders' interests for urban infrastructure development and planning

Many of the barriers to new public works' solutions, such as public transport infrastructure, are the result of an inability to overcome organised resistance to change. Institutional inertia also limits the achievements of infrastructure projects in Costa Rica, because, in part, of unresolved political economy issues.

Technical policies for improved public works or urban planning are unlikely to succeed without a deliberate strategy to tackle the political economy issues that block reform. At present, there is no strategy for the engagement or management of key stakeholders and there has been no analysis of who they are, or what they want.

This report recommends three immediate actions.

- *Analyse the political economy that underpins public works and urban planning:* A political economy analysis could be performed for each relevant sector where major gaps have been identified – transport, water and energy. Each analysis should include stakeholder mapping to encourage a more systematic approach to stakeholder engagement within the planning of public works and infrastructure.

- *Develop a communications strategy on infrastructure planning:* The government could identify ways to engage and coordinate key stakeholders for a more inclusive and dynamic infrastructure planning process. Transparent and extensive communication and consultation with stakeholders on proposals for infrastructure projects are critical to smooth out information asymmetries and build coalitions of support. Communication should include information on infrastructure projects' costs and impacts, their purpose and their likely benefits, as well as complementary measures to reduce any impact on particular stakeholder groups. This may reduce the public challenges to infrastructure tenders, speeding up procurement processes. There is a need to manage public and private expectations proactively, because the infrastructure projects that are needed most urgently will take time to implement.

- *Reform the CTP:* the CTP has been identified as a particularly inefficient institution in the transport sector, unable to overcome lobbying from interest groups. The Government of Costa Rica could reform and revitalise the CTP as a technical body, rather than a regulatory body, for the transport sector (La Nación, 2015). Reforming the CTP as a technical body would allow its independence from the interests of key stakeholders and would provide the space to enhance the country's institutional capacity to improve public transportation.

RECOMMENDATION 3:
Accelerate the train project and transit-oriented development

There is high-level political commitment to the urban train proposal, including a recent official proposal by the head of INCOFER for a rapid transit system, combining the train and buses (Santana, 2015). However, the most concrete step taken to date has been the drafting of a bill (*'proyecto de ley'*) to support INCOFER. As it stands, this institution´s limited budget and team of only 47 employees cannot carry out the urban train project, threatening the prospects of maximising the transport and urban development benefits of a train system.

Furthermore, the train alone will not solve the country's congestion problem unless it is part of a broader plan to integrate future bus transport into the train-planning architecture, as well as the wider urban structure. An integrated system is needed to increase support from bus owners that are reluctant to support the new train (or any other changes to the current system). Without such integration, the lobbying power of incumbent interests and institutional inertia may prevent approval of the train project.

This report recommends two immediate actions.

- *Conduct a feasibility study for the urban mass transit:* one concrete action would be to provide financial and technical support for a new feasibility study of the train and related mass-transit options, such as bus rapid transit. This would upgrade feasibility studies carried out under previous administrations. Ideally this would evaluate complementary measures, such as bus-rapid transit and integrated transport links.

- *Establish an inter-ministerial strategy on an integrated transport system:* a national transport plan has been designed, but will not be enough to achieve an effective integrated transport network. A strategy is needed to clarify how the Government will carry out the plan, and this will require evaluation approaches and even new governance arrangements within MOPT and other key ministries. Such a strategy would also benefit from exploring innovations in three areas:
  - *transport evaluation indicators* – a systematic assessment of the pros and cons of different approaches (e.g. connectivity vs. density)
  - *transport governance* – assessing the pros and cons of having different models of transport authorities based on the experiences in other countries. The establishment of a single transport authority for the GAM may be considered
  - *transport and urban planning integration* – tools to facilitate the integration and implementation of planning objectives in the area of transport and urban development.

5.2 Strengthen economic and environmental resilience

RECOMMENDATION 4:
Integrate a resilience-building framework by including climate and environmental risks in macroeconomic planning
This report has demonstrated that aspects of Costa Rica's economy are vulnerable to the impacts of climate change. It has also shown that the country's climate-resilience agenda is underdeveloped in comparison with the agenda to tackle carbon neutrality. Building climate resilience into infrastructure planning is, therefore, vital to protect new public works and other construction projects from the anticipated impact of climate change. If this policy conversation does not start quickly, Costa Rica may lock itself into inappropriate infrastructure projects that are vulnerable to early destruction or that need to be retrofitted within decades.

This report recommends the following initial steps to initiate the strengthening of climate resilience planning.

- *Undertake forecasting of climate and environment risks:* the BCCR could undertake preliminary forecasting of how climate and other environmental risks are expected to affect the economy. The BCCR could build upon a precedent in Central America: the Inter-American Development Bank has completed forecasts for Honduras that estimate the impact of climate on the fiscal deficit (Araya, 2014b).

- *Produce an assessment framework to strengthen the climate resilience of particularly vulnerable sectors:* the Government of Costa Rica could identify sectors that are both vital to the economy and particularly vulnerable to climate change. This report sees the energy sector as one such sector. Tourism is another: the areas of Puntarenas, Limon and Guanacaste where much of the tourist industry is based are vulnerable to climate change. Once these sectors have been identified, an assessment of the linkages between climate-change risk and their growth could be carried out. The existing efforts of the National Emergency Commission, the Ministry of Agriculture and the National Meteorological Institute to map climate risks and their costs should be connected to sectoral governance and planning systems.

- *Identify areas of climate risk within land use planning:* linked to the assessment framework described above, Costa Rica could strengthen its land-use planning and zoning codes. Zoning ensures that land use is planned effectively for different activities: residential, commercial, natural, etc. However, Costa Rica's current zoning approach is weak. Improving this important national planning tool, by using scenarios that incorporate climate impacts to zone land appropriately, could accelerate the inclusion of climate resilience in economy-wide planning. The Ministry of Planning could develop a relationship with the organisations that are mapping climate risk and use this information to map areas of high and low risk. Once the data are understood, the Ministry of Planning could identify the zones that are most appropriate for transport, housing and tourism infrastructure in the medium and longer term and – more importantly – the zones that are most vulnerable to the impacts of climate change, in order to factor such impacts into national planning.

5.3 Operationalise a green industrial policy

RECOMMENDATION 5:
Further define and operationalise green industrial policy
This report has shown that Costa Rica's economy is vulnerable to volatile international markets and prices, and the decisions of foreign investors who are beyond the influence of Costa Rican economic interests. The Government is exploring strategies for economic resilience based on the diversification of exports, and investment in domestic markets and local companies.

However, limited government policies to provide incentives for the growth of key green-growth industries have caused delays. This report proposes four actions.

- *Finalise a national industrial policy to achieve horizontal and vertical industrial diversification:* the CICR could ensure that that green industrial policy is mainstreamed as a core element of MEIC's forthcoming industrial policy. Ensuring the horizontal as well as vertical industrial diversification of Costa Rica's current economic model towards specific areas of green growth will build greater resilience into the economy and may also improve the country's green credentials. In addition, a green industrial policy will increase private sector confidence in the commitment of the Government to new green sectors.

- *Assess growth opportunities in industrial sectors of green comparative advantage:* the Government, including the CICR, could identify Costa Rica's areas of green comparative advantage. A study could then be developed to identify government interventions to help these industries expand and diversify. Greater domestic demand across new industrial sectors will shift the economy from over-reliance on microelectronics and support greater economic resilience.

- *Identify areas of vulnerability for private sector growth:* identifying Costa Rica's environmental vulnerability in certain sectors, such as its clean energy/water nexus and climate impacts in agriculture, and building these into new domestic industrial sectors, such as energy-efficient goods and agricultural technologies, could reduce environmental vulnerabilities and diversify the economy. The CICR could design and introduce sector-specific incentives to generate internal demand for these products, creating a market for this new industry.

- *Create stimulus for green-growth oriented companies:* the Government should design and implement economy-wide mechanisms to promote private sector development in sectors providing green goods and services. Well-designed incentives can attract private sector actors and improve the long-term commitment of 'green' investors to Costa Rica. This would achieve economic diversification and enhance the country's green growth. This effort could also engage the Costa Rican Investment Promotion Agency (Coalición Costarricense de Iniciativas de Desarrollo or CINDE), given their role in attracting foreign investors.

RECOMMENDATION 6:
Strengthen social investment by incorporating a green growth dimension in employment and R&D policies
To achieve its goal of becoming an innovation-driven economy, Costa Rica must continue its strong social investment by closing its current skills gaps. The first skills gap is in innovation and R&D activities, as well as in higher value-added services like technology outsourcing, which are increasingly important for the country's transformation to an innovation-driven economy. The second gap is seen in the lower-skilled end of the workforce, where there is high unemployment as a result of limited mobility across sectors.

In the context of social investments and policies to close both skills gaps, linking skills development to emerging areas of green growth will be crucial to support a green industrial policy and to reduce unemployment.

The Ministry of Labour and the CICR are already discussing 'green jobs' (through Acción Clima). The 'green job' dimension is, however, missing in the formulation of formal policies to boost employment and achieve the Government's goal of creating 217,000 jobs. Making this link explicit in formal strategies would be a positive step forward.

This report, therefore, provides four recommendations to strengthen Costa Rica's institutional framework for the integration of green growth into job strategies.

- *Pass legislation to create PROEMPRESA as a green employment promotion agency:* the Government of Costa Rica should establish PROEMPRESA as a whole-of-government promotion agency mandated to support local businesses and boost the domestic market. In coordination with efforts to 'green' MEIC's industrial policy (Recommendation 4), PROEMPRESA could be equipped to work with the new Institute for Exploration, National Education for Productivity, Creativity and Wellbeing. The aim would be to identify and promote green employment opportunities that would fill any new skills and roles created by the implementation of a green industrial policy.

  PROEMPRESA is expected to work hand-in-hand with companies and business chambers. There may be an opportunity to leverage the work of the CICR (supported by GIZ) to develop an industrial policy proposal that prepares the ground for a green transformation by engaging PROEMPRESA in the development and implementation of a complementary green jobs policy. CICR would work with MEIC to align a green jobs policy with a green industrial policy.

- *Operationalise the Institute for Exploration, National Education for Productivity, Creativity and Wellbeing:* the Institute would be a national body responsible for well-being. It could play an important role in the identification of skills that are relevant for Costa Rica's emerging economic model and industrial policy. As part of possible cooperation between MICITT and MEIC (and if possible, with input by Acción Clima), the Institute would identify and develop skills for green jobs as a core element of its mandate.

- *Expand MICITT's skill creation policy:* there is an important opportunity to link the efforts of MICITT and MEIC to increase the R&D capability of the country and promote technical training in key areas of the green economy.

  MICITT has a National Science, Technology and Innovation Plan 2015-2021 that includes green growth. Within this plan, MICITT seeks to create market solutions and strengthen capabilities by supporting R&D among entrepreneurs and companies. In addition, MICITT offers grants for companies, entrepreneurs and Masters and PhD students in these fields.

  As well as creating an enabling environment for R&D, MICITT and MEIC could work together to explore ways to promote skills and green job creation in technical schools and the INA. This collaboration is important given the Government's goal to promote a bill to regulate training and technical education as part of a new 'dual' modality for education (outlined in the next bullet point).

  Improved technical education in services industries can help agricultural workers with primary and some secondary education make the leap from a static sector to a dynamic one, such as eco-tourism. Failing to do so will mean continued unemployment for agricultural workers as they are unable to make the transition to a growing sector with better paying jobs, and conflict between tourism and other land uses.

- *Introduce dual education in Costa Rica:* The Dual Education System could be implemented, once the bill is finalised by the Legislative Assembly. This system is important for the achievement of a closer alignment between industry and education, and for more skills in emerging green industries. Capacity building for lower-skilled workers, including continuing education for existing workers, will enhance their mobility between sectors and help to reduce their susceptibility to higher unemployment.

5.4 Reduce the fiscal deficit

RECOMMENDATION 7:
Develop a strategy to raise citizens' awareness of the fiscal problem and the linkage to public budgets
Costa Rica needs to open up space for a long-term and structural change to its economy. As a first step, this means building much broader support for a tax system that is closer to OECD standards, including better and higher levels of collection, reduced tax evasion and transparency in the use of public funds (see e.g. Barquero, 2015). With increased public taxation rates, the Government of Costa Rica will increase its revenue base, reduce the fiscal deficit and have the ability to redistribute public expenditure on vital infrastructure projects.

Tax reform does not happen overnight. However, some short-term activities could create more favourable conditions and public support for an OECD-like taxation system.

- *Develop a communications strategy on taxation system changes:* a lack of transparency is a primary barrier to the creation of the political momentum needed to transform Costa Rica's taxation system. To improve the public's acceptance of higher taxes (and acknowledging the political sensitivity of this recommendation) (GIZ, 2013), the Ministry of Finance could develop a communications strategy on how and why taxation should increase to allow higher public spending. The Ministry of Finance is exploring this option and analysing materials from at least one Latin American country. The strategy should also highlight the parts of the economy that are exempt from taxation, with an emphasis on green-growth sectors.

Examples for international guidelines include:

- IMF: 'How a citizens guide to the public budget can strengthen fiscal transparency and increase public participation'
- OECD: 'Producing a citizens' guide to the budget: why, what and how?'
- IMF, OECD, UN and World Bank: 'Supporting the development of more effective tax systems. A report to the G20 development working group by the IMF, OECD, UN and World Bank'.

- *Undertake research into opportunities to re-direct taxation exemptions and other fiscal policy tools towards green growth investments:* The Ministry of Finance could analyse where fiscal policy tools could best be adopted to incentivise green growth investments. The results of this research should form the basis of a communications strategy for the public that identifies the improvements in green growth flowing from increased taxes (see also recommendation 8).

- *Explore a national carbon tax alternative to conventional fiscal tools of revenue mobilisation:* in the context of the fiscal deficit, it may be worth considering the introduction of a national carbon tax. Compared to an increase in income tax or VAT, a general carbon tax may be a better tool for resource mobilisation as it is comparatively easier to tax, more difficult to evade and may be more feasible politically. A national carbon tax would also have the double benefit of raising additional public revenue while further reducing GHG emissions (Faye et al, 2015). It will be necessary to complement such a tax with increased fiscal transparency and communication around what the additional public revenue would be used for. One option may be to use the revenue to finance 'green' investments.

RECOMMENDATION 8:
Integrate 'green growth' into a clean-up of the tax exemption regime
Given the need to reduce the fiscal deficit, Costa Rica would benefit from reviewing its tax exemptions, especially when they have perverse effects (cf. GIZ, 2013). Costa Rica has started informal conversations about bringing a green dimension to this assessment (in the previous and current administration; see, for example GIZ, 2013). To continue this work, this report has two recommendations.

- *Integrate green-growth criteria into a review of the tax exemption regime:* based on the research undertaken in recommendation 7, the Government could integrate green-growth criteria into the decision-making process for the country's tax exemptions. The aim would be to redirect these fiscal incentives towards green growth.

For example, reducing the tax burden of agrochemicals might reduce their price and lead to their over-use. The replacement of such ineffective tax exemptions with incentives that are aligned with a green industrial policy could include reducing the tax burden on cleaner agricultural practices, such as the use of organic fertilisers and agricultural waste management. Taxation exemptions for green industries could also stimulate investment in higher value-added activities, such as agricultural biotechnologies, by foreign investors.

This review could also consider tax holidays for cleaner cars (e.g. hybrid and electric vehicles). The Ministry of Finance, MPOT and MIVAH could create guidelines to classify cars and trucks into different tax categories in the future, based on experiences in other countries.

- *Build the capacity of Costa Rican officials to undertake a green economy assessment of the taxation system:* the main constraint to the integration of green-growth considerations in taxation decisions is the lack of expertise in internal teams, according to the Ministry of Finance. Based on its own assessment of need, the Ministry of Finance might benefit from training, methodological guidance and capacity building on green fiscal policy.

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