

Greening Curaçao

A BASELINE STUDY COMMISSIONED BY STICHTING ONTWIKKELING PROJECTEN
LOGISTIEKE SECTOR

Contents

Glossary.....	1
1. Executive Summary.....	2
2. Background.....	3
3. Objectives.....	3
4. Findings.....	4
4.1. Results Baseline study sustainability of Curaçao organizations.....	4
4.2. Potential Positive Economic Impact.....	6
4.3. Impact of Climate Actions on Logistics Sector.....	8
4.4. Mitigating and adaptation initiatives by the logistics sector in Curaçao.....	10
4.5. Climate Action in the Region.....	11
4.6. Innovative Business Opportunities Created by Climate Action.....	13
4.7. Local organizations in the ‘green space’.....	15
5. Recommendations.....	16
5.1. Knowledge and information.....	16
5.2. Incentives to take action.....	16
5.3. Collaboration.....	16
6. Next Steps for SLS.....	17
7. Acknowledgements.....	18
8. About the authors.....	18
Annex.....	19
References.....	19

Glossary

BES	Bonaire, St. Eustatius and Saba
BPS	Business Platform Sustainability
CAP	Curaçao Airport Partners
CHATA	Curaçao Hospitality and Tourism Association
CITI	Curaçao Information and Technology Institute
CMC	Curaçao Medical Center
CPA	Curaçao Ports Authority
COCT	Caribbean Overseas Countries and Territories
CTO	Caribbean Tourism Organization
CURINDE	Curaçao Industrial & International Trade Development Company
DMO	Downtown Management Organization
ESG	Environmental, Social, and Governance
ITC	International Trade Center
MEO	Ministry of Economic Development
MICE	Meetings, Incentives, Conventions and Exhibitions
NDC	National Determined Contributions
NES	National Export Strategy
SDG	Sustainable Development Goals
SIDS	Small Island Development States
SLS	Stichting Ontwikkeling Projecten Logistieke Sector
SME	Small and Medium Enterprises
TNO	Netherlands Organisation for Applied Scientific Research



1. Executive Summary

As an open economy, Curaçao is directly impacted by what happens in the world. Over the past years, sustainability and green have become more important as we try to combat climate change. In fact, in 2015, 192 of the 197 parties signed nationally determined contributions (NDCs) to the reduction of emissions in the Paris Agreement, and are working to achieve these goals.

Climate actions have also been incorporated into the seventeen Sustainable Development Goals (SDG), the blueprint developed by the United Nations to achieve a better and more sustainable future for all. They address the global challenges we face, including poverty, inequality, climate change, environmental degradation, and peace and justice.

Efforts towards greening an economy are basically based on goals 13 and 7. SDG 13 focusses on Climate Action: combat climate change and its impacts in line with the Paris Agreement of 2015. SDG 7 focusses on Clean Energy: enhance access to electricity, improve energy efficiency, and increase the use of renewable energy.

This report presents the results of the project and provides insight into the extent to which the Curaçao business community is taking action related to sustainability, what the impact thereof can be on the Curaçao economy, and what new opportunities and threats these create for Curaçao and its businesses.

2. Background

In 2015, the countries of the world agreed to set goals to combat climate change. As a result, companies must also adapt. To reach the goals set for them, many international companies are increasingly looking to work with customers, suppliers and countries that are more sustainable and 'green'. For local companies to maintain (or improve) their competitiveness, they must also adapt. To see where local companies are in this journey and see where help can be offered, Stichting Ontwikkeling Projecten Logistieke Sector (SLS) has granted a project to MarkStra Caribbean and van der Veur Advies a grant to do a baseline study about 'Greening Curaçao' business.

'Greening an economy' is essentially based on SDG 13 Climate Action (Take urgent action to combat climate change and its impacts) and SDG 7 Clean Energy (Ensure access to affordable, reliable, sustainable, and modern energy) and includes the following topics:

- Renewable Energy and Energy Efficiency (Paris Agreement)
- Waste Management and Water Management
- Electric Mobility
- Reforestation
- Buying Local
- Offsetting carbon-footprint

Besides the environmental/green aspect, organizations are also increasingly measured or evaluated based on their ESG (Environmental, Social and Governance) strategies. These include 'environment' as stated above, but also social strategies (like the conduct with regard to human resources and corporate social responsibility) and governance (including aspects such as

formality, fiscal responsibilities, good governance, ethics, etc.). This study focuses on the 'Environmental' aspect.

3. Objectives

The objective of this project is to produce a high-level report, covering the following topics:

1. The results of an online quantitative survey (n=100-150) among local businesses showing how far they are in the transition towards a greener economy.
2. A quantitative overview of the potential positive economic impact of Climate Actions on GDP.
3. An overview of the impact of Climate Actions on the logistics sector, including sea and airports, storage and transport facilities.
4. A comparison of the state of Climate Actions in Curaçao compared to the leading countries in the region. This in order to determine the 'distance-to-frontier'.
5. New innovative (additional) businesses created by Climate Actions.
6. Recommendations as to how to create awareness among, reach and benefit a larger part of the business community.

4. Findings

4.1. Results Baseline study sustainability of Curaçao organizations

In an effort to get a baseline measurement of where firms in Curaçao are with regard to sustainability in general and ‘greening’ (climate action) in particular, an online survey was conducted between December 2021 and March 2022. The questionnaire was based on the International Trade Center’s model with regard to Enterprise Sustainability, was (and still is) available [online](#) and gives respondents a ‘sustainability score’. The invitation to take the survey was sent out to thousands of companies in the data base of CHATA, CPA, CAP, DMO, MEO and the consultants’ database. It is suspected that the results are probably skewed towards firms that are already involved with the topic. In this section only the highlights are presented. The complete set of graphs are shown in the appendix.

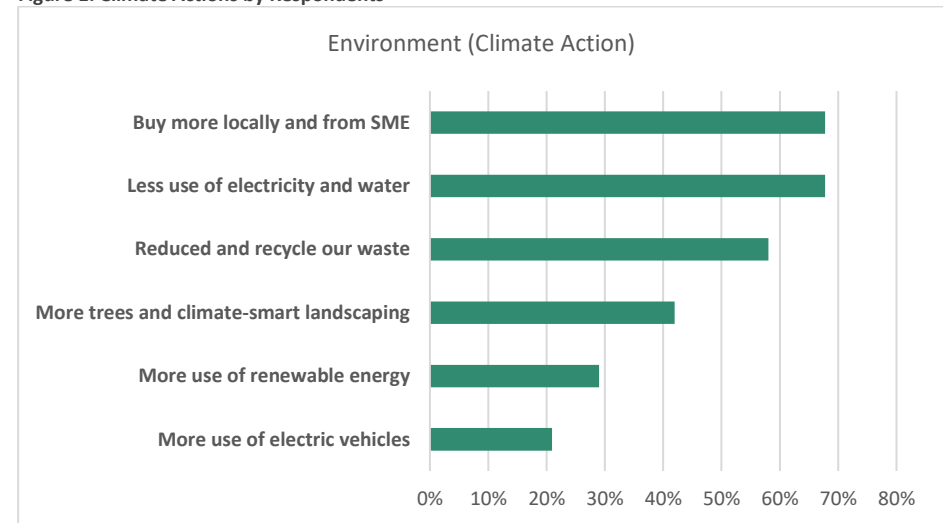
Average overall sustainability

The average overall sustainability score was 55%, slightly above ‘passing’. This includes both the score with regard to ‘climate action’ (environment) and the score with regard to Social, Governance and Productivity.

Score on Green

During the 12-18 months ending March 2022, companies had increased their efficiency with regard to the energy, waste and water management. However, **only a small percentage of companies had made investments in renewable energy (30%) or electric mobility (21%) and only 43% had planted trees and landscape with native plants and/or less use of (grass) lawns**. This, while heat is considered to be most important silent killer¹. Trees reduce heat and the use of energy for cooling and are not necessarily a big investment.

Figure 1: Climate Actions by Respondents



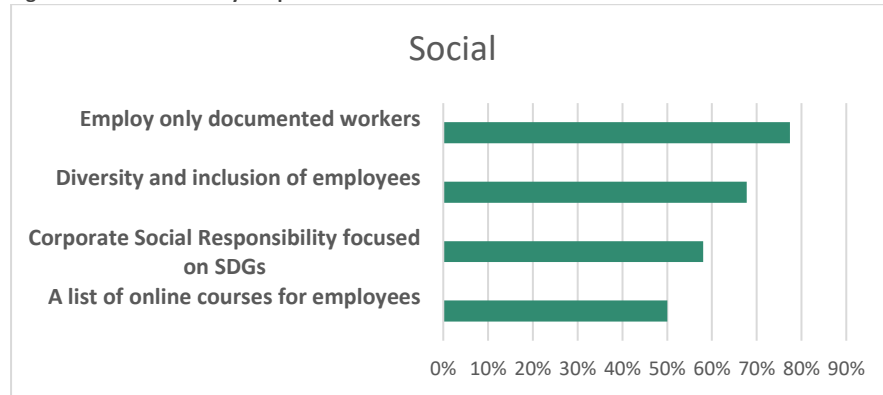
Source: Baseline Survey

¹ Adrienne Arsht-Rockefeller Foundation Resilience Center

Score on Social

Participating companies scored relatively well on some aspects of ‘social’ responsibilities.

Figure 2: Social Actions by Respondents



Source: Baseline Survey

Score on Governance

On the aspect of Governance, the participating companies did quite well, as can be expected. There is, however, a need to develop and publish sustainability statements.

Only 31% of companies have a sustainability statement. This shows that the subject is not have their attention. Having a visible sustainability statement, no matter how brief,

Only 31% of companies have a sustainability statement. This shows that the subject does not have their attention.

benefits the overall image of business in Curaçao. Companies can also do better at developing codes of conduct for themselves, their clients, and their suppliers. This creates awareness with regard to proper and ethical business, which is sustainable, locally and benefits the country’s international image.

Figure 3: Governance Actions by Respondents



Source: Baseline Survey

Score on Productivity/Competitiveness

The score on productivity (or competitiveness) is important because it is tied to the efficient use of resources (resource-efficiency). Participants scored rather well on increasing efficiency through digital options and better collaboration in the value chain, perhaps as a result of the pandemic.

However, the responses also reflected:

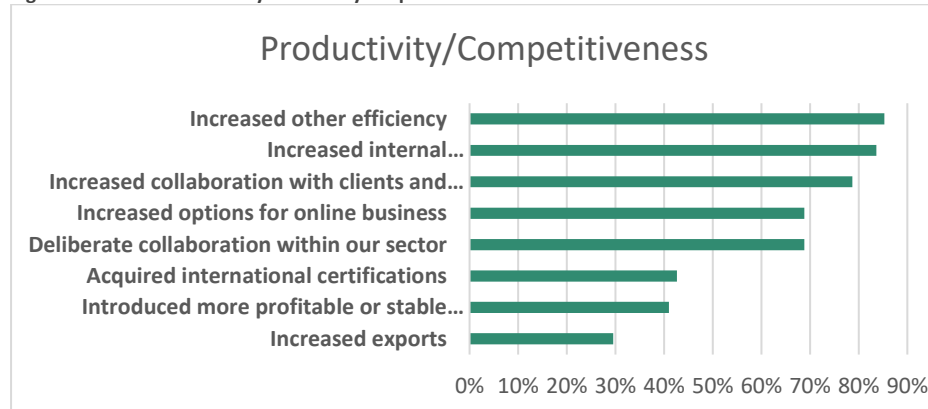
- The need to increase exports and to introduce more profitable or less risky revenue streams. Only 30% and 41% respectively had done so over the previous 12-18 months. Exports, more profitable and less risky

revenue streams increase the productivity and competitiveness of a company because generally, the fixed costs remain the same, markets are diversified, and revenue streams are less volatile.

The score on productivity (or competitiveness) is important because it is tied to the efficient use of resources (resource-efficiency).

- The need to acquire international certifications. Only 43% had any. Certifications, such as ISO, Lean Sigma, etc. lead to improved business processes and competitiveness. They also indirectly lead to more exports because the product or service will seem of a higher quality and more trustworthy to foreign buyers.

Figure 4: Resource-efficiency Actions by Respondents



Source: Baseline Survey

4.2 Potential Positive Economic Impact

It takes both actions by government and actions by the private sector to green an economy. In many countries the actions by government are the result of the NDC (quotas for emissions) discussed above. But, even in the absence of NDCs' for Curaçao or government policy, business must still take action to remain globally competitive. This is especially true for the sectors that are directly part of global value chains. These can take the lead in 'greening' the local links in the value chain that are not directly part of global value chains, such as, e.g., small construction, waste, agriculture firms as well as education and health-care related organizations.

When applied to Curaçao, this model can yield a positive impact of close to 20% of GDP, even when no multiplier is applied (MarkStra, 2020).

The 'greening strategy' of the Panama Canal, a leader in the maritime value chain in Panama, rests on four pillars: 1. Efficiency/productivity within the firm, 2. Energy, waste and water management, 3. Offsetting its carbon footprint by contributing to other SDGs and 4. Incentivizing and fostering collaboration within the value chain to green the chain. When applied to Curaçao, this model can yield a positive impact of close to 20% of GDP, even when no multiplier is applied (La Cruz T. , 2020).

Firm-level productivity

Productivity at the firm-level in Curaçao can be improved by 12.5% by climate actions. Firm-level productivity is reflected by the ROI. It is influenced, on the one hand, by cost-efficiency and, on the other hand, by the price level

or the total revenue that an investment brings in. Cost efficiency often reflects the amount of waste (through rework, defects, theft, etc.) within the business processes². These also reflect a waste of, among others, human resources. E.g. when food is wasted in restaurants or supermarkets without being sold, this also means that scarce such as land, water, human resources and equipment were unnecessarily wasted and the environment unnecessarily affected.

Figure 5: Potential GDP Impact through Resource-Efficiency

Resource-efficiency		
Better efficiency (7.5%) due to digitalization		+6.0%
Higher ROI due to business processes improvements	Certifications can lead to this	p.m.
Higher spending by cruise passengers	The Caribbean average is USD 100, while in Curaçao the spending is USD 70 per passenger. Figure based on 1 million cruise passengers	+ 1.0%
Higher spending by stay-over visitors	A week at the beach in Curaçao is one of the least expensive in the Caribbean (IMF, 2019)	+2-5%
Export of medical services to BES islands via CMC	'Medische uitzendingen' by BES, mostly not to Curaçao, was around USD 26million in 2017	+1%
Total		+12.5%

Source: MarkStra, 2020

Energy, water, and waste management

Greening this quadrant can have a positive impact of 7% on GDP. This category includes the efficient use and, where applicable, the reuse of energy, water and waste, as well as the transition to renewable resources. The Curaçao Energy Policy sets targets for the transition to renewable energy and improved

² It is generally assumed that organizations have 30% waste, if they have not gone through a conscious effort to reduce this

energy efficiency. The impact on GDP if these targets are reached is 6% (La Cruz T. , 2019). The impact of the transition to electric mobility at 25% of passenger cars is estimated at 1% (Dynaf, 2020). The impact of better waste and water management cannot be quantified at this time. But, there are waste recycling options for 65% of all waste tipped at the Malpais landfill, while only 8% is being recycled (Selikor, 2018). Noted is the that recycling often entails export (of the collected waste items) or substitution of imports, as is the case for agricultural material (mulch, compost, etc.). Only 14% of wastewater is treated and recycled (UNOPS, 2017), while anecdotal evidence suggests that rainwater harvesting is low because this was discouraged.

Figure 6: Potential GDP Impact through Energy, Waste and Water Management

Energy, Waste and Water Management		
Renewable Energy	25% more from 30%-37.5% of total energy use	+3.0%
Energy Efficiency	25% increased efficiency	+3.0%
Electric Mobility	25% of passenger cars	+1.0%
Better waste and water management	Export of waste and import substitution of gardening input; wastewater treatment and rainwater harvesting	p.m.
Total		+7.0%

Source: MarkStra, 2020, Dynaf 2019

Offsetting Carbon Footprint

A firm, sector or economy cannot completely eliminate its CO² emissions (carbon footprint). It can choose to off-set it by contributing to other SDG's. The Panama Canal chose to do so by helping farmers in its immediate vicinity

and by contributing to education. **Applying the same thinking to Curaçao can result in a positive impact to GDP of 1.5%, as shown in Figure 7 below.**

Figure 7: Potential GDP Impact through Offsetting Carbon Footprint

Offsetting Carbon Footprint		
Agriculture	Local production of 50% of produce that is now imported but that can be produced in Curaçao	+0.5%
Reduction of medische uitzendingen	Medische uitzendingen stood at ANG 40 million pre-Covid and pre-CMC. Allegedly there is a plan to reduce this to ANG 25 million	0.5%
Other	Included in this item would be the output of the creative sector, the 'orange economy', which is slated as a potential export sector in the NES (Curaçao National Export Strategy, 2021)	0.5%
Total		+1.5%

Source: MarkStra, 2020, Dynaf 2019

Collaboration to green the value chain

The impact of collaboration across the value chain cannot easily be quantified. The Panama Canal has sought to incentivize its value chain by giving priority to vessels going through the Canal according to their 'efficiency rating'. This 'greens' both the logistics value chain in Panama and contributes to greening the global maritime value chain, since the Canal is an important player in this space. Airlines, cruise, and tour operators are applying the same principles to the airports and destinations that they visit, including Curaçao, effectively forcing organizations lower in the value chain to 'green up', according to local players. Local organizations at the top of value chains can incentivize their

partners to 'green up': banks can offer better terms for business loans with regard to 'green' and real estate owners can do the same with their tenants. However, the biggest added value for organizations in small economies, SIDS, is probably collaboration to increase the scale of investments and research needed for green investments, in order to make these more affordable, faster and more effective (because of better decisions based on better data). In the Caribbean, the Caribbean Climate Smart Accelerator, backed by a USD 1 billion loan and USD 3 billion start-up funding from the Inter-American Development Bank, and additional funding by the UN Green Climate Fund, the World Bank and private investors (including Richard Branson) brings together investors, suppliers, consultants, etc. serving 40 million people in 26 countries, with the aim of transforming the economies and lives of these populations through a platform (Business Green, 2018).

4.3 Impact of Climate Actions on Logistics Sector

This chapter provides an overview of the potential positive and negative impact of Climate Actions on the logistics sector, including sea and airports, storage, and transport facilities, based on desk research and findings from a focus group with the biggest players within the sector in Curaçao.

The logistics sector is not only directly affected by climate change. It also makes a significant contribution to it. In addition, it is part of global value chains that are calling upon the links further down in the chain to become

more sustainable. Since climate change results in changes of weather systems and local conditions, it can force established business patterns and trading routes to be altered or changed altogether. In 2016 in the US, 28.5% of greenhouse gas emissions came from transportation, with road transportation being the most environmentally harmful, followed by transportation by airplanes, large ships, and rail (Miles, J., 2019).



Positive Impacts

Climate Actions will positively impact the logistics sector, among others, in the following ways:

1. The requirement to reduce CO² emissions will result in more efficient business processes, which in turn reduce the cost of doing business and boost competitiveness (Commission, 2022). Carbon emissions of large ships will have to be reduced by 50% by 2050, and ship efficiency will have to be improved by 40% by 2030 (compared to 2008 figures) and 50-70% by 2050. The move towards larger vessels, both for cargo and for cruise tourism, is a sign thereof, as are actions to use less energy and monitor its use.
2. The need to reduce emissions will also result in more expensive air travel, which will in turn attract travelers with higher disposable income. This can also result in more spending at the (tourist) destination, which can in turn increase the Return on Investment/productivity from tourism. For this reason, Caribbean countries are moving from being destinations that are affordable 'Sun, Sea and Sand', to destinations that are 'Smart, Sustainable and Safe', which generally have a higher price tag.
3. The need to increase resilience and resource-efficiency will lead to collaboration with new markets and innovative low-carbon services (Egloff, C. et al, 2020). When it comes to SIDS, there is room for logistics

providers to develop tailored innovative products and services either for local use or export. These may include modern ways of building infrastructure (e.g. using waste plastic for roads), of managing storage (to prepare for disruptions in supply), of deploying 'emergency' air and sea terminals, etc.

4. The new products and services to adapt to or mitigate climate change will lead to a new category of products, which will be traded internationally, favoring the logistics sector. These include items such as wind turbines, solar panels and equipment for innovative climate-smart building, agriculture, etc.
5. Increase in online shopping will result in more international goods being shipped.
6. Increased revenues for transportation as customers are willing to pay higher price for low-carbon transportation (Egloff, C. et al, 2020).
7. Scenarios indicate that GDP per capita will decrease by 30% by 2100 if global warming continues on the current trajectory. In contrast, if countries follow through on the Paris Agreement by reducing the projected temperature increase to 2°C, GDP per capita will drop by 13% by 2100 — a much more manageable burden. Transportation and logistics (T&L) companies that are pursuing tangible plans to reduce emissions have generated superior total shareholder return (TSR), according to our analysis. From 2017 to 2020, the average annual TSR of T&L companies that demonstrated a high commitment to environmental, social, and corporate governance (ESG) standards was 10 percentage points higher than that of industry peers. Although it is difficult to prove causality between ESG commitments and TSR, the correlation is striking (Egloff, C. et al, 2020). In most supply chains, the costs of getting to net zero (the state in which as much carbon is absorbed as is released into the atmosphere) are surprisingly low. Even full decarbonization would result in end- consumer price increases of only 1% to 4% in the medium term — less than \$1 on a \$40 pair of jeans. (Burchardt, J. et al, 2021)

Negative impacts

Climate Actions will negatively impact the logistics sector, among others in the following ways:

1. Business and leisure travel will decrease, both to comply with climate goals and because of increased digitalization. According to the report ‘Technical Assistance to Identify Climate Compatible Business Opportunities in the COCTs’, transportation accounts for 75% of all emissions from tourism. In 2022, the Dutch Ministries of Economics and Climate and Ministries of Agriculture, Nature and Food Quality launched an initiative to reduce the ministries’ air travel emissions by 25% compared to 2019.³
2. It is expected that countries will levy taxes on carbon emissions, increasing the cost of doing business, and potentially lowering international trade. These include, e.g., a tax on fuel for air travel will be introduced, reversing the exemption, which was introduced by the Chicago Convention in 1944, making air travel more expensive.
3. Buying more locally produced products will result in less international cargo/ship movements, affecting the transportation and storage sides of the logistics value chain.
4. Additional investments in renewable energy, energy efficiency and electric mobility, waste, and water management, for climate-smart building and for required (or ideal) climate-related certifications, policies to support and enforce them, etc. are needed, increasing the need for immediate investments. Many countries and companies do not have the space to do so, especially post-Covid. This poses an immediate challenge for developing countries (Brenton, 2021) and SIDS, due to the small scale of their economies.
5. The expected elevated occurrence of natural and other hazards is likely to cause more business disruptions for logistics companies or increase

operational costs to accommodate new safety and sustainability standards.

4.4 Mitigating and adaptation initiatives by the logistics sector in Curaçao

The organizations at the top of the local logistics value chains have been taken measure to mitigate or adapt to climate change. In a focus group, they welcomed being able to share knowledge and their plans. On the whole it seems that there is room for more collaborative platforms to increase scale, lower the relative cost of the investment and create more impact. The table below provides an overview of said initiatives and collaborations.

Figure 8: Green Initiatives by Curaçao Logistics Value Chains

	Initiatives	Collaboration
CAP	<ul style="list-style-type: none"> • 1MW Solar Park • Green shore-power for aircrafts • Separation of waste • Transition vehicles to hybrid • OWAC/SWAC feasibility 	<ul style="list-style-type: none"> • Collaboration with ABC Busbedrijf to maintain buses • Pending to support tenants to transition
CPA	<ul style="list-style-type: none"> • Electrify Emma Bridge • Electrify Ferries • Green shore-power for cruise ships • Hydroponics farms on Isla terrain 	

³ https://www.linkedin.com/posts/benkubbinga_ezk-en-lnv-zetten-in-op-structureel-minder-activity-6887136616113070080-tyYT/

Initiatives	Collaboration	
	<ul style="list-style-type: none"> The 2nd cruise terminal was built with climate change in mind 	
CURINDE	<ul style="list-style-type: none"> Use Zeelandia warehouses for modern agricultural farms 	<ul style="list-style-type: none"> Collaboration to select and buy electric vehicles
Horizonte Nobo/RdK	<ul style="list-style-type: none"> Experiment with electric buses Smart buildings Solar Park Alternative fuels Agri farms 	<ul style="list-style-type: none"> TNO

Source: Panelists and authors' elaboration

4.5 Climate Action in the Region

Small Island Developing States (SIDS), while at the forefront of international climate action, face a number of developmental challenges linked to their historic, geographic and socio-economic characteristics. Small populations and limited energy demand cap the penetration of renewable energy technologies. Electric vehicles (EVs) offer solutions for electricity storage, grid services, reduced fuel imports, and reduced pollution with associated health benefits (Gay, 2018). Despite these limitations, many Caribbean islands have implemented actions to combat climate change.



Increase the use of renewable energy



The Bequia Water System (St Vincent & the Grenadines)

A pilot project to demonstrate the economic feasibility and scalability of using a Saltwater Reverse Osmosis (SWRO) plant powered by a renewable photo voltaic system in a water scarce island.

<https://www.caribbeanclimate.bz/blog/2017/12/01/the-bequia-water-system/>



Hybrid Energy System (Sint Eustatius)

Customized hybrid system for a fossil-fuel-free electricity supply, consisting of a 4.15 MWp PV system and 5.9 MWh storage capacity covering 46% of Sint Eustatius' total electricity need.

<https://www.statiagovernment.com/key-topics/water-management-stuco/stuco-solar-park>



Reduce the use of electricity and water



Water Project (Jamaica)

The project zooms in on the important role that householders and developers should play to improve efficient water use in the housing sector and will work with project beneficiaries under 3 main banners- Efficient. Resilient. Secure.

<https://www.waterprojectja.com/>



Reduce and recycling waste



Solid Waste Reduction Project (Jamaica)
The project introduced the separation of waste through the implementation of recycling and compost bins in order to divert waste from the landfill and reduce pollution.

<https://www.unep.org/cep/trash-free-waters-initiative-caribbean>



Recycling initiative (St Kitts)
A recycling program in some of the island's schools to encourage students to begin learning to separate waste and recycle.

<https://www.stkittsswmc.com/swmc-program-seen-as-good-recycling-example-in-the-caribbean/>



Increase the use of electric vehicles



Electronic mobility project (Antigua & Barbuda)
Starting in 2021, select bus and taxi drivers were given the opportunity to operate an electric vehicle.

<https://antiguaobserver.com/public-transportation-operators-to-be-introduced-to-electric-vehicles-as-part-of-a-new-pilot/>



Electric Busses (Barbados)
The Barbados Transport Board has a fleet of 49 electric buses, saving money.

<https://www.nationnews.com/2021/08/10/14-electric-buses-arrive-barbados/>

<https://blogs.iadb.org/sostenibilidad/en/government-electromobility-investments-in-barbados-are-paying-off/>



Electric Rentals (The Bahamas)
100% EV rental fleet.
<https://drivegreenrentals.com/>



Plant trees and landscape with native plants and/or less use of (grass) lawns



National Tree Planting Project (Barbados)
Plant one million trees across Barbados, which will contribute to food security; environmental sustainability; as well as enhancing the landscape and beauty.

<https://www.wepplantin.org/>



The Plant Nuff Tree initiative (Jamaica)
The initiative aims to plant three million trees, roughly to match the population of Jamaica. Four nurseries of the Forestry Department provide the seedlings and the Department offers the technical expertise to assist people who are planting trees. The private and non-profit sectors have both come on board with promises to plant hundreds of thousands of trees, and partnerships with schools and community groups are in place to fortify the efforts. The trees are mainly ornamental and timber species and are being planted in a wide range of areas, including schools, communities, and parks.

<https://www.ipsnews.net/2021/06/three-million-three-years-jamaicas-tree-planting-tackle-climate-change/>



Native tree planting (Bonaire)

Around 20 000 trees are being planted in various locations on the island. Most of them are indigenous trees, although several non-indigenous trees which are able to grow in the dry local weather conditions and do not grow at the expense of native trees, are also being included. The reforestation efforts partly restore the original vegetation of the island and help prevent erosion.

<https://www.dcbd.nl/document/raw-data-native-tree-planting-bonaire>



Buy more local and from small and medium enterprises



The Durga Farm (Jamaica)

Agro-tourism and volunteerism farm for vacationers. The farm uses a range of alternative technology systems, including solar heating, simple drying technology, and compost toilets, uses waste from local farms and hotels, and experiments with natural building materials.

<https://www.oneforjamaica.org/organic-farms-volunteering/durga-s-farm/>



Giving farmers a secure market in hotels (Nevis)

In 1992 a new resort revised its purchasing approach, discussing production and marketing opportunities with crop farmers. Farmers with preference for target crops were identified and dates assigned for the planting of crops. Planting schedules were developed with target quantities to match quantities required.



Farmers Programme (Jamaica)

Over 80 farmers are supplying hotels across the island. Key elements are visits by chefs and management teams to farms and of farmers to hotels to see how their products are used and why specifications are important, assistance to farmers with production, regular communication about what crops, and volumes are available, and special attention to local food by hotels.

<https://www.sandals.com/blog/farm-to-table/>



Eeden Farms (The Bahamas)

Hydroponic container farming using repurposed shipping containers to create the ideal environment to nurture the farming process from beginning to end, allowing maximum control over crops at every stage, from germination to harvest, which translates to optimum yield with minimum loss.

<https://bit.ly/3HSBD0d>

4.6 Innovative Business Opportunities Created by Climate Action

By definition, a more efficient use of resources lowers the cost of doing business and increases ROI. One challenge in a small economy, may be the cost of introducing more efficient systems, a challenge that can partially be overcome by increasing scale. In Curaçao, the case for transitioning to renewable energy and electric mobility has been proven to be a positive one by users and suppliers. While the initial investment may be still be high, this is compensated for by the lower cost of the inputs in the long run. This is especially true now, during the Ukraine war, with skyrocketing fuel prices,

influencing the cost of local transportation, air travel and shipping, and therefore all items in this import-dependent country,

Given both the business case for a greener Curaçao and the competitive pressure to do so, what might be the innovative business opportunities that arise for local investors and businesses?

General

- Campaign to increase awareness and engagement
- Platforms to exchange solutions and ideas
- Support organizations to apply for international (green) funds
- Increase collaboration within and between sectors

Business efficiency

- Certifications and training to improve efficiency
- Auditing of sustainability certificates
- Capacity building for ESG, export, professional marketing, etc.
- Shared tools and services (including digital)

Digitalization

- Help SMEs digitalize and increase online presence e-commerce (sales, service, and marketing)
- Software development and sales for digitalization of health care, education, justice, and other public services



- Offering virtual MICE-events. There is no more cost of travel, so global MICE events can be organized in Curaçao at the same cost as elsewhere
- Encourage virtual classrooms that include pupils and students from across the Kingdom and elsewhere to ensure the best education for all and to transfer knowledge and skills between teachers
- Intentionally upgrade the workforce and SMEs through online courses, albeit with a local instructor present.
- Intentionally establish linkages between local and foreign companies through international webinars

Energy

- Energy audits and advice
- Trade in equipment
- Installation and maintenance

Water

- Rainwater harvesting Management of run-off/storm water (maintain and expand dams and reinstate water collection areas)
- Wastewater treatment plants of all sizes

Waste

- Pulverize glass to be used as aggregate and mulch
- Re-use of garden waste
- Increase usage of existing recycling options
- Repair electronics and appliances
- Thrift stores and exchange platforms
- Recycling of plastic and create new products

Transportation

- Owning EV charging stations
- Promote the use of all electric modes of transportation including bikes, scooters, autopedes, etc.
- Promote car pooling

Construction

Adaptation (dealing with existing climate risks)

- Hurricane proofing
- Building for shade and natural cooling
- Paints and insulation
- Adapting landscape

Mitigation (preventing new climate risks)

- Retrofit public areas to manage run-off/storm water
- Retrofit private areas to manage run-off/storm water
- Require new homes to have a greywater recycling system and cisterns

Buying Local

- Platforms to assist local artisans and farmers in selling their products
- Capacity building for agriculture and import-substituting products

Agriculture and planting trees

- Smart agriculture
- More organic and productive (traditional) agriculture
- Climate-smart landscaping
- Tree planting, reforestation and landscaping companies

4.7 Local organizations in the ‘green space’

Curaçao has a rather extensive landscape of associations and foundations that are active in the sustainability space. Some of the active players are listed in table 9 below.

Figure 9: organizations in the ‘Green space’

Name	Description
<u>Business Platform for Sustainability (BedrijvenPlatform Milieu)</u> info@bpmcuracao.com	Business association established in 2007, providing knowledge exchange on sustainability; now developing knowledge platform with regard to sustainability in collaboration with other partners.
<u>CleanUp Curaçao</u> worldcleanupdaycuracao@gmail.com	Foundation, established in 2014, part of World CleanUp Day, now also focusing on recycling
<u>CHATA Sustainability Task Force</u> info@chata.org	Sub-Committee of CHATA, the private sector association of the hospitality sector.
Curaçao Sustainability Coalition Ministry of Economic Development	Public-private coalition with monthly digital summits on sustainability.
<u>GreenKidz</u> maya@greenkidz.org	Foundation, established in 2015, with the aim of 'Changing the mindset of generations'. In recent years, it has reached thousands of students and hundreds of teachers with modern, multilingual environmental education.
<u>Korpodeko</u> customerservice@korpodeko.cw	Tri-partite foundation established in 1985 to stimulate sustainable development of Curaçao and its people.

Name	Description
<u>Vereniging Hende-i-Medio-Ambiente (HiMa)</u>	The foundation Hende-i-Medio-Ambiente (HiMA) brings together people who want a greener, fairer, and more democratic world.
Curaçao Climate Change Platform info@meteo.cw	Governmental advisory body on climate change.

Source: Authors' Elaboration

Care should be exercised that the space does not become too fragmented, putting a strain on scarce human and financial resources. Many foundations currently have vacancies in their boards and have trouble filling those. Seeing the danger, several players have joined forces to avoid duplication and apply for international grants together.

5. Recommendations

Given the baseline findings, the recommendations and next steps fall into three categories: 1. Knowledge and information, 2. Incentives for action, 3. Collaboration. The activities under each category, the ongoing or possible initiatives and partners are further outlines below.

5.1 Knowledge and information

- Capacity building
 - Capacity building at all levels of business owners, managers, and employees of the elements of and business case for sustainability, using material developed, among others by international organizations like the International Trade Center and Caribbean Tourism Organization. Several private sector organizations, CHATA and MEO have started submitting proposals for funding.

- Organize information sessions per sector on PV, Electric Mobility, waste recycling, etc. so that each company does not have to do all the research themselves.
- Further promote and support digitalization. CITI could perhaps take the lead.
- Organize (cross) sectoral sessions to increase awareness, facilitate collaboration, and enable collective problem solving in the areas of sustainability.
- Knowledge center
 - Develop an online resource platform for sustainability, including online courses. CHATA, CleanUp Curaçao and Business Platform for Sustainability have agreed that the website of BPS will be that platform and have started submitted proposals for funding hereof. CHATA members have agreed to share their experience on the platform.
- Increase visibility
 - There is a fair number of actions and initiatives with regard to climate change. However, they are too fragmented to be noticed or achieve maximum impact. A visibility campaign as well as participation in international programs can increase this.

5.2 Incentives to take action

- Develop actions in the areas where Curaçao companies are weak, as per the baseline study, and where the impact can be measured (SMART).
- Develop incentives that benefit businesses with appropriate ESG Strategies or help them transition towards ESG.
- Study, develop, and implement possible additional fiscal incentives.

5.3 Collaboration

- Support lead companies in value chains to incentivize the organizations further down in their value chains.
- Connect potential users with providers through regular sessions.

- Support the livelihood and effectiveness of sustainability associations by clustering and participation in similar international platforms.
- Align with initiatives and organizations like the Caribbean Community Climate Change Centre, European Islands, etc. to increase scale and affordability.

Output	Activities	Possible collaborative partners
1. Knowledge and Information		
1.1 Capacity building	1.1.1 General Capacity building	MKB Stichting
	1.1.2 Thematic capacity building	MKB Stichting/ BPS, CleanUp Curaçao, CHATA
	1.1.3 Support Digitalization	CITI, Institute for Professional Excellence?
1.2 Digital knowledge Platform		MKB Stichting/BPS
2. Incentives for action		
2.1 Develop a comprehensive overview of local green incentives, financing, and grants		MKB Stichting BPS platform
2.2 Develop additional incentives		pm
3. Collaboration		
3.1 Green value chains	3.1.1 Support 'lead' companies to green their value chains	SLS?
	3.1.2 Connect users and providers	SLS?

Output	Activities	Possible collaborative partners
	3.1.3 Bring players in each sector together (cluster)	SLS for logistics sector
	3.1.4 align with regional or international organizations to increase scale	
3.2 Support associations/foundations in the sustainability space		

6. Next Steps for SLS

1. Share findings of this study and recommendations with business associations, through 6-8 sessions and sharing of the report digitally.
2. Develop an action plan to support the lead (CAP, CPA, Curinde) in the logistics subsectors to green their value chain.
3. Fund thematic sessions for players in the logistics subsectors to share the business cases (with measurable impact) for renewable energy, energy efficiency, electric mobility, planting trees, etc.

7. Acknowledgements

The authors would like to acknowledge the input of Shanto Quirindongo (CAP), Albert Zweste from (CPA) and Jacqueline Jansen (Curinde) and Vanessa Tore (MEO), and thank CHATA, DMO and MEO for sharing the survey among their network, and Dulce Koopman (Caribisch Netwerk and Dutch Caribbean TV) for dedicating a news item to the survey. We thank Stichting Ontwikkeling Projecten Logistieke Sector for awarding us this grant and are grateful for the support of Kirsten Römer.



8. About the authors



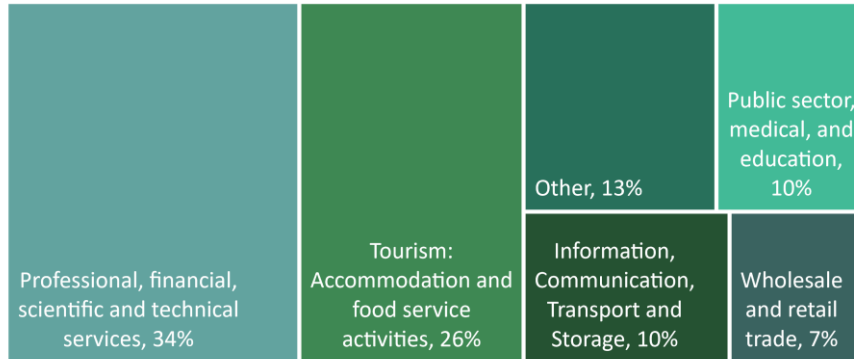
[Tamira La Cruz](#), MBA, (The Wharton School, 1990), owner of MarkStra Caribbean advises domestic and global firms operating in the Caribbean on how to increase their profitability. Over the past 10 years she has been providing technical assistance to increase sustainability, competitiveness and innovation and improve the business enabling environment in Big Ocean States in programs funded by, among others, the European Union, and the Inter-American Development Bank. Residing in Curaçao, she is presently the chair of the Curaçao Business Platform for Sustainability. She can be reached at tlacruz@markstra.com.



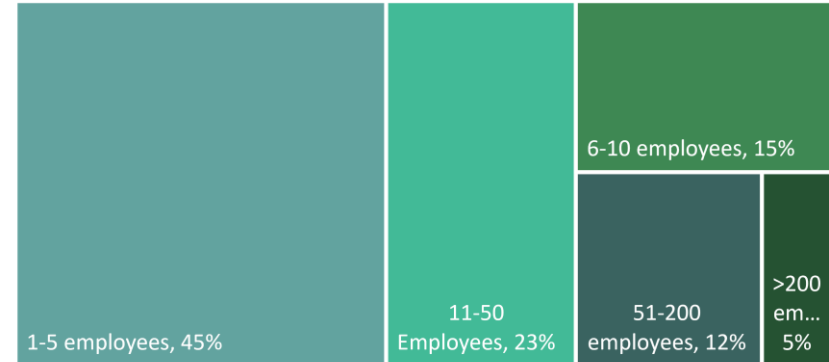
Michiel van der Veur, MA, (Utrecht University, 1998), owner of Van der Veur Advies advises Caribbean organizations in both the public and private sector by supporting and implementing various strategy and change management projects and performing operational and business management audits. He is fascinated to serve and to strengthen and shape a society by collecting data, connecting dots, and creating strategies. Residing in Curaçao, he is currently the chair of the GreenKidz Foundation and involved in creating awareness about the Sustainable Development Goals via the 2030 SDG Game. He can be reached at michiel@vanderveur.net.

About the Survey Respondents

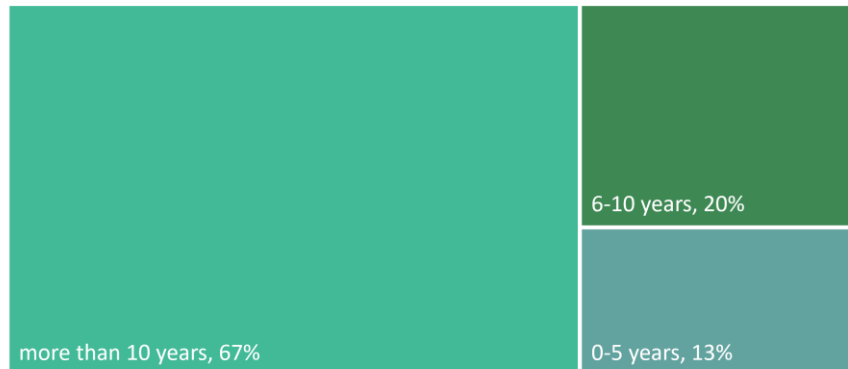
Sector



Number of Employees



Years in Business



References

Brenton, P. a. (2021). *The Trade and Climate Change Nexus : The Urgency and Opportunities for Developing Countries*. Washington, DC: The World Bank.

Burchardt, J. et al. (2021, January 21). Supply Chains as a Game-Changer in the Fight Against Climate Change. *Boston Consulting Group*, pp. <https://www.bcg.com/publications/2021/fighting-climate-change-with-supply-chain-decarbonization>.

Business Green. (2018, August 14). The Caribbean Climate Smart Accelerator. *Renewable Energy Caribbean*.

Commission, E. (2022, April 12). Benefits of Climate Action. *European Commission*, pp. https://ec.europa.eu/clima/citizens/benefits-climate-action_en.

Dynaf. (2020). *CHATA Sustainability Seminar*. CHATA.

Egloff, C. et al. (2020, July 21). Climate Action Pays Off in Transportation and Logistics. *Boston Consulting Group*, pp. <https://www.bcg.com/publications/2020/climate-action-pays-off-in-transportation-and-logistics>.

Gay, D. e. (2018, December). Small island developing states and their suitability for electric vehicles and vehicle-to-grid services. *Elsevier*, p. <https://www.sciencedirect.com/science/article/abs/pii/S0957178718300730?via%3Dihub>.

La Cruz, T. (2019). An overview of Renewable Energy in the World, the Caribbean and Curaçao. (pp. [https://economenclub.com/wp-](https://economenclub.com/wp-content/uploads/2019/05/Presentatie-Solar-Energy-door-Tamira-la-Cruz-25-mei-2019.pdf)

[content/uploads/2019/05/Presentatie-Solar-Energy-door-Tamira-la-Cruz-25-mei-2019.pdf](https://economenclub.com/wp-content/uploads/2019/05/Presentatie-Solar-Energy-door-Tamira-la-Cruz-25-mei-2019.pdf)). Curaçao: Dutch Caribbean Economists.

La Cruz, T. (2020). Covid19 Recovery. *Rotary Club Curaçao*. Curaçao: MarkStra Caribbean.

Miles, J. (2019, January 23). How is the logistics industry responding to climate change? *Open Access Government*.

Selikor. (2018). *Jaarverslag 2017*. Curaçao: Selikor.

All pictures: Tamira La Cruz

