

# COVID-19 Post-Disaster Needs Assessment **Bonaire** Socioeconomic Assessment

MARCH – DECEMBER 2020



This project is funded by  
the European Union

Implemented by



**WORLD BANK GROUP**  
Urban, Disaster Risk Management, Resilience & Land



**GFDRR**  
Global Facility for Disaster Reduction and Recovery

In partnership with



**PUBLIC ENTITY OF  
BONAIRE**

---

## © 2021 The World Bank

1818 H Street NW, Washington, DC 20433

Telephone: 202-473-1000;

Internet: [www.worldbank.org](http://www.worldbank.org)

## Some rights reserved

The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work.

## Rights and Permissions

The material in this work is subject to copyright. Because the World Bank encourages the dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

## Contact

Queries and comments can be addressed to Mary Boyer, Disaster Risk Management Specialist, e-mail: [mboyer@worldbank.org](mailto:mboyer@worldbank.org).

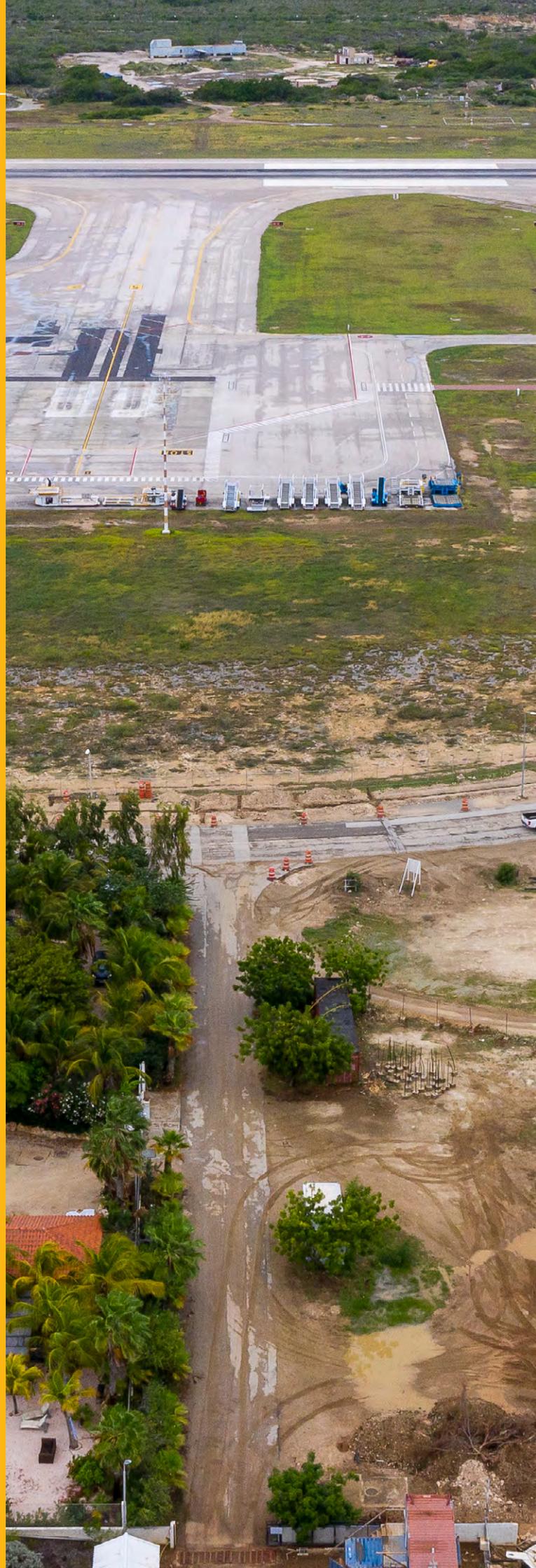
---

**Design & Layout:** Deviate Design, Bonaire

**Photography:** Skyview Bonaire

Pages: Cover, 1, 3, 5, 22, 24, 38, 50, 81, 83

---





# Table of Contents

<b>Index of Tables and Graphs</b> .....	1
<b>Acronyms</b> .....	2
<b>Acknowledgements and Preface</b> .....	3
<b>Executive Summary</b> .....	5
<b>1. Introduction</b> .....	13
<b>1.1 Methodology</b> .....	20
1.1.1 Survey Instruments .....	21
<b>2. Macroeconomic Impact</b> .....	23
<b>2.1 Introduction</b> .....	23
<b>2.2 Gross Domestic Product</b> .....	26
<b>2.3 COVID-19 Macroeconomic Assessment</b> .....	28
2.3.1 Gross Domestic Product .....	28
2.3.2 Inflation .....	31
2.3.3 Fiscal Sector .....	32
2.3.4 Needs for Recovery, Reactivation and Continuity of the Response.....	33
<b>3. Human Impact</b> .....	37
<b>3.1 Livelihoods, Income, and Inequality</b> .....	39
3.1.1 Livelihoods Related to Employment and Gender Gaps.....	39
3.1.2 Inequality .....	43
<b>3.2 Social protection: access to social services, food security and vulnerability</b> .....	43
3.2.1 Access to Social Services .....	43
3.2.2 Social Homes .....	44
3.2.3 Mental Health .....	44
3.2.4 Food Security .....	45
3.2.5 Vulnerability of the Elderly .....	45
3.2.6 Social Protection .....	46
<b>3.3 Key Challenges</b> .....	48
<b>3.4 Recovery Needs</b> .....	48
3.4.1 In the Medium Term .....	48
3.4.2 In the Long Term .....	48

<b>4. Sectoral Impact</b> .....	49
<b>4.1 Productive Sector</b> .....	49
4.1.1 Tourism .....	49
4.1.2 Commerce and Industry .....	54
<b>4.2 Infrastructure Sector</b> .....	57
4.2.1 Transport .....	57
4.2.2 Utilities .....	60
4.2.3 Logistics (Agricultural) .....	64
<b>5. Cross-cutting Themes</b> .....	71
<b>5.1 Disaster Risk Financing</b> .....	71
<b>5.2 Environment</b> .....	75
<b>References</b> .....	81
<b>Appendixes</b> .....	83
<b>A: Methodology Macroeconomic Section</b> .....	84
<b>B: Miscellaneous Livelihood Survey Results</b> .....	85
<b>C: Report Contributors</b> .....	87



# Index of Tables and Graphs

## Tables:

- 1: Timeline of response measures taken
- 2: Realized public health expenditures related to COVID-19 in 2020
- 3: Tourism Direct GDP
- 4: Economic structure of Bonaire (2018)
- 5: Classification of economic industries by degree of vulnerability
- 6: Contraction of GDP 2020 by risk profile
- 7: Distribution of wage subsidy and compensation of business expenses by risk profile
- 8: Distribution of wage subsidy and compensation of business expenses relative to impact by risk profile
- 9: Financial interventions 2020 (US\$, thousands)
- 10: Summary of income and expenses (US\$, millions)
- 11: Distribution of companies that received compensation by size
- 12: Logistic regression model to predict businesses receiving financial compensation
- 13: Wald test
- 14: Number of jobs in Bonaire, by sector and gender, 2019
- 15: Social expenditure by selected programs (US\$)
- 16: Tourism sector summary indicators
- 17: Distribution businesses by size
- 18: Average income loss in 2020 by economic activity
- 19: Commerce and industry sector summary indicators
- 20: Air transport passengers and cargo in 2019 and 2020
- 21: Seaport arrivals for 2015–2020
- 22: Summary of losses in the transport sector (US\$, millions)
- 23: Summary of losses in the utility sector (US\$, millions)
- 24: Container arrivals 2016–2020
- 25: Cost and time to import and export 2019
- 26: Buildings' exposure estimate
- 27: National park visitors
- 28: Summary of losses in the environmental sector (US\$)
- 29: Summary of losses - Mangazina di Rei Foundation (US\$)
- 6: Employee jobs in Caribbean Netherlands by economic activity share in 2018
- 7: Change in income as a result of the pandemic
- 8: Share of inhabitants by country of birth and neighborhood, 2019
- 9: Supply and demand for social housing
- 10: Inflow of mental health clients 2020 compared to 2019
- 11: Distribution of food packages by ADRA (2014-2020)
- 12: Distribution of food packages in 2020
- 13: Income change and perceived receipt of government assistance
- 14: Inbound tourism to Bonaire by air (x 1000)
- 15: Cruise passengers Bonaire (x 1000)
- 16: Cause loss of revenue in 2020 for businesses principally active in tourism
- 17: Businesses that were required to at least temporarily cease operations (by economic activity)
- 18: When do businesses expect to return to pre-COVID-19 sales levels?
- 19: When do Businesses expect to return to pre-COVID-19 sales levels? - Cumulative and by size
- 20: Top steps businesses believe the government can take to help them get back on their feet
- 21: Were you required to cease operations at least temporarily due to COVID-19 in 2020?
- 22: Businesses response relating to investments
- 23: Distribution job loss in 2020 by business size
- 24: What percentage of your employees were able to work at least in part remotely from home in 2020?
- 25: Income and subsidies in the transport sector (US\$, millions)
- 26: Electricity and water sales (2019–2020)
- 27: Income and subsidies in the utility sector (US\$, millions)
- 28: Availability of product in the market
- 29: Imports of food and live animals, quarterly (US\$, thousands)
- 30: Imports of food and live animals, annual data (US\$, thousands)
- 31: Impact of COVID-19 on the logistics of good and services in 2020
- 32: Difficulties in getting your products to markets in 2020 compared to 2019
- 33: By what type of business insurance is your business covered?
- 34: Bonaire OpenStreetMap building footprint (2021)
- 35: Income and subsidies environmental sector (US\$, millions)
- 36: Income and subsidies - Mangazina di Rei Foundation

## Figures

- 1: Distribution of COVID-19 cases - Bonaire
- 2: Real GDP growth (pre-COVID-19)
- 3: Estimated sectoral growth
- 4: Estimated real GDP contraction in 2020
- 5: Inflation drivers (percentage point contributions)

# Acronyms

ADRA	Adventist Development and Relief Agency
BCN	Belastingdienst Caribisch Nederland / Caribbean Netherlands Tax Authorities
BES	Bonaire, Sint Eustatius, and Saba
BIA	Bonaire International Airport
BNMP	Bonaire National Marine Park
BOPEC	Bonaire Petroleum Corporation
BZK	Ministry of Interior and Kingdom Relations / Ministerie van Binnenlandse Zaken en Koninkrijksrelaties
CGB	ContourGlobal Bonaire
CoPI	Commando Plaats Incident / Command Site Incident
COVID-19	Coronavirus Disease 2019
DCNA	Dutch Caribbean Nature Alliance
DRFI TA	Technical Assistance Program for Disaster Risk Financing and Insurance
EBT	Island Policy Team / Eilandelijk Beleidsteam
ESF	Emergency Support Functions
EU	European Union
EZK	Ministry of Economic Affairs and Climate / Ministerie van Economische Zaken en Klimaat
FCB	Fundashon Cas Bonairiano
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
I&W	Ministry of Infrastructure and Water Management / Ministerie van Infrastructuur en Waterstaat
MTBS	Maritime & Transport Business Solutions B.V.
NEPP-CN	Nature and Environment Policy Plan Caribbean Netherlands 2020-2030
OCTs	Overseas Countries and Territories
OCW	Ministry of Education, Culture and Science / Ministerie van Onderwijs, Cultuur en Wetenschap
OLB	Public Entity Bonaire / Openbaar Lichaam Bonaire
OMT	Outbreak Management Team
PDNA	Post-Disaster Needs Assessment
RCN	National Office for the Caribbean Netherlands / Rijksdienst Caribisch Nederland
RESEMBID	Resilience, Sustainable Energy and Marine Biodiversity Program
RIVM	National Institute for Health and Environment / Rijksinstituut voor Volksgezondheid en Milieu
STINAPA	Bonaire National Parks Foundation / Stichting Nationale Parken Bonaire
SZW	Ministry of Social Affairs and Labor / Ministerie van Sociale Zaken en Werkgelegenheid
TDGDP	Tourism Direct Gross Domestic Product
TELBO	Telefonia Bonairiano N.V.
TEU	Twenty-foot Equivalent Unit
UN	United Nations
UNWTO	World Tourism Organization
US\$	United States dollar
VWS	Ministry of Public Health and Sport / Ministerie van Volksgezondheid en Sport
WEB	Water- en Energiebedrijf Bonaire N.V.
WFP	World Food Programme
WSNP	Washington Slagbaai National Park



# Acknowledgements and Preface

In 2020, the Government of Bonaire requested a post-COVID-19 assessment focused on social and economic impacts from tourism loss. The control measures to mitigate the propagation of the pandemic and the simultaneous downturn in the global economy caused significant spillover effects on the island's economy and social conditions. In coordination with the World Food Programme (WFP), the World Bank supported the Government of Bonaire in conducting a comprehensive Post-Disaster Needs Assessment (PDNA) to assess the overall impact and needs of the social and productive sectors that have resulted from the COVID-19 pandemic shock.

This PDNA is part of the Technical Assistance Program for Disaster Risk Financing and Insurance (DRFI TA) in Caribbean Overseas Countries and Territories (OCTs) to enhance long-term financial resilience to disasters in Caribbean OCTs, to the benefit of the most vulnerable. The DRFI TA in Caribbean OCTs is a partnership between the European Union (EU), the World Bank Group, and the Global Facility for Disaster Reduction and Recovery (GFDRR). The program is part of the EU-funded Caribbean OCTs Resilience, Sustainable Energy

and Marine Biodiversity Program (RESEMBID), implemented by Expertise France, the World Bank Group, and GFDRR.

The analysis undertaken in preparing this assessment has been based on data collected through the *Caribbean COVID-19 Food Security & Livelihoods Impact Survey* supported by the WFP, a business survey supported by the Chamber of Commerce Bonaire, interviews with local stakeholders across Bonaire's social and economic sectors and publicly available data.

The World Bank team would like to thank Mrs. Bianca Peters and Mrs. Debby Rauwers for their support in data collection and technical guidance, Mrs. Cherethy Kirindongo for support with the business survey and commissioners Mr. Hennyson Thielman and Mrs. Nina den Heyer for their leadership. The World Bank team appreciates the inputs provided by World Bank peer reviewers Nancy Rocio Banegas Raudales, Ran Li, and Roy Katayama. The report also greatly benefited from the input of key stakeholders (Appendix C), who collaborated and assisted the World Bank team.

---

The analysis undertaken in preparing this document has been based upon the data made available before May 2021, complemented by virtual interviews with support by OLB. In recognition of Bonaire's status as a special Dutch municipality, recommendations included in the analysis are not suggested to a corresponding administrative body, either for execution or resolution by the municipality, or the national government of the Netherlands.



## Executive Summary

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic and called on countries to activate and expand response mechanisms. In response, the Governor of Bonaire announced the first measures on March 14. With those measures began initiatives to safeguard the population and to support their livelihoods.

Cruise ships were banned from mooring, public meetings canceled, and all schools closed. A ban on flights from Europe was implemented, and on March 17, the ban was extended to flights from the United States, Canada, Colombia, and the Dominican Republic. The measures with respect to closing the airspace were coordinated with and officially legally implemented by the Ministry of Infrastructure and Water Management (Dutch: *Ministerie van Infrastructuur en Waterstaat, I&W*) of the Netherlands.<sup>1</sup>

As a *special municipality*, the Public Entity Bonaire (Dutch: *Openbaar Lichaam Bonaire, OLB*) is part of the Netherlands' administrative structure. Therefore, the powers of governance are distributed between the local island government in Bonaire and the national government including its ministries in the Netherlands.

The preventive measures ostensibly delayed the arrival of the pandemic to April 16. It was only in September that Bonaire experienced a surge in the number of active cases, reaching a maximum of 69 COVID-19 cases. In 2020, 3,000 tests were carried out, 165 cases were reported, and three deaths were attributed to COVID-19.

Bonaire is particularly susceptible to the downturn in the global economy resulting from the pandemic and measures such as border closures. The variety of economic activities is limited and tourism-dependent, which makes Bonaire economically vulnerable. Thus, the national and local governments aimed to address the key challenges of maintaining the capacity for care, preventing a financial and economic downturn, and maintaining public order and safety. Transport connections and border controls were secured to access necessary support and to prevent virus spread through irregular crossings.<sup>2</sup>

The Macro-economic analysis in this report concluded that over the years before the COVID-19 crisis, Bonaire exhibited strong fundamentals, with real Gross Domestic Product (GDP) growth regularly outpacing the average of its Dutch Caribbean peers. In 2018, the regional average growth was negative, primarily due to the



economic contraction experienced by Sint Maarten, Saba, and Sint Eustatius following the passage of Hurricane Irma in September 2017. The analysis of Bonaire's macroeconomic performance from March to December 2020 concluded an estimated 23.1 percent contraction of the 2020 baseline GDP, which includes the effects of the financial intervention from the Netherlands estimated at US\$67.4 million. This contraction corresponds with the order of magnitude experienced by the tourism-dependent economies in the Kingdom of the Netherlands as a consequence of COVID-19. Without financial intervention, the economy would have spiraled into an estimated 36.2 percent downturn in 2020.

The Human impact analysis concluded that the impact of the pandemic would exacerbate the existing inequalities in society, and that vulnerable families, especially single-parent families, may require special measures to assist them in building resilience, both economically and socially. It further noted that the lack of coordination between the management of the various social safety-net programs might have resulted in reduced efficiency. The analysis pointed to the unmet need for programs that address food security, housing support, psychosocial care, and childcare.

The assessment concludes that the economic support provided by the national government was adequate to mitigate the direct impacts of the pandemic, but the nature of the COVID-19 crisis requires prolonged assistance to continue to support the economic recovery. In addition, the social impact may still intensify over time and will need to feature prominently on the recovery agenda.

A summary of the recommendations for recovery, prioritized for the medium to long-term, is contained in Box A. The report assumes that immediate or short-term recovery measures have been ongoing in the form of mitigation measures administered by the national Government through provisions such as wage and utility subsidies.

---

<sup>1</sup> Commonly used Dutch acronyms for ministries are used throughout the report.

<sup>2</sup> Letter to parliament, Measures Caribbean parts of the Kingdom in connection with COVID-19 and answering part of the committee's questions on corona's effects on Caribbean parts of the Kingdom, April 7, 2020.

**Box A**

Recommendation	Rationalization
<b>Macroeconomic</b>	
Continue financial assistance to businesses	The financial response in 2020 proved to be effective to counteract a deeper recession, though prolonging assistance can mitigate the risk of more permanent damage to the economy.
Improve availability of statistical data	Considering the dominance of tourism in the economy of Bonaire, it is important to compile a solid measure of the economic contribution of tourists. It is encouraging that Statistics Netherlands intends to conduct a tourism expenditure survey.
Introduce or reactivate a macroeconomic model to estimate the current and future economic performance	A consistent macro framework supports policy formulation, decision-making and would also assist in quantifying impacts of internal and external shocks.
Centralize registration of inflow of funds	The access to funds is decentralized, making it difficult for local policy makers to obtain an overview of the incoming flow of funds, assess the effectiveness of fund use, and ensure that funds are distributed equitably and with a needs-based approach.
Assess diversification opportunities	The heavy reliance on tourism exposes the economy to concentration risks and sensitivities related to tourism. Because the population and the economy of Bonaire are expanding, an economic policy could pursue investments that foster economic diversification.
<b>Human Impact</b>	
Redesign and scale-up social benefits to meet the needs of persons living on Bonaire	About 5 percent (400) households found themselves in a precarious position due to the pandemic after social benefits did not meet household needs. Social benefit recipients received a minor 0.1 percent increase, as the growth in social benefits incomes in 2017 was nearly equal to the increase in consumer prices between 2016 and 2017.
Strengthen preventive care and psychosocial support to the affected population	Survey responses and the assessment indicated that the impact of the pandemic highlighted unmet needs in access to appropriate care and support.
Increase investment in social housing	Low-income populations have unmet needs despite the current social housing development plan.
Continue and intensify vaccination rollout	The population and economic recovery through tourism can be expedited and safeguarded with vaccine rollout
Enhance coordination of social protection delivery	The assessment highlighted the gaps in the efficiency in resource allocation and coordination among the programs in place.

## Box A: Continued

Recommendation	Rationalization
<b>Human Impact</b>	
Strengthen social welfare/ protection data systems	There exist approximately 15 social programs (legal acts). Still, it is difficult to keep track of the number of benefits received per family due to the lack of integrated information systems that can register beneficiaries at the family level.
Skills development	A focus on e-skilling or up-skilling, particularly for women who work in the tourism sector and may have left the labor market, would diversify labor supply and improve employability
<b>Tourism</b>	
Boost tourism demand	Given that the COVID-19 shock is primarily a demand shock, economic recovery efforts need to concentrate on measures that can boost tourism demand. Ensuring ample vaccination has the direct effect of preventing the prevalence of active COVID-19 cases from impeding tourism demand.
Continued government support	Due to the prolonged anticipated recovery period and heavy exposure of the tourism sector to the COVID-19 shock, most businesses will require continued government financial support beyond September 2021.
Implement a tourism recovery plan	The authorities have further outlined recovery efforts through a tourism recovery plan, which includes detailed recovery/activation initiatives that are consistent with its strategic tourism masterplan 2017-2027 and can contribute to the long-term sustainability of the sector.
<b>Commerce and Industry</b>	
Facilitating internet connectivity and adaptation to digital commerce	Policy makers acted swiftly by offering subsidies for internet connection. Facilitating and encouraging the adaptation to digital commerce to boost market access to micro and small enterprises could be a logical step to further bolster the resilience of businesses.
Jobs/skills mapping	The type of available jobs also matters: Educated people tend to have high-skilled jobs conducive to working from home. A critical look at the labor market should factor in strengthening technical and digital skills through education and ultimately of structural economic transformation.
<b>Infrastructure</b>	
Implement masterplan for the airport	The increasing food security and tourism capacity needs require improvements in both the airport and seaport.
Implement masterplan for the seaport	

**Box A: Continued**

Recommendation	Rationalization
<b>Logistics (agricultural)</b>	
Improve sea connectivity	In order to lower logistics costs, (a) evaluate the acquisition of a mobile crane for local port in order to be able to bring more containers (up to 3 times) with the feeder service from Curaçao in a single trip and (b) make an economic assessment of getting a shipping line to serve the local port directly.
Foster locally produced food, in particular fresh produce, and fish	The farm to fork model consists of supplying retail stores, hotels, and restaurants with locally produced food. In order to achieve that, it is necessary to implement the agro-plan that would unlock the current challenges. Smart agriculture that uses less water and soil should be foster, such as vertical farming and hydroponics.
Use technology to improve agrologistics	Encourage and finance digitalization to match demand and supply. A logistics system that uses communication technologies could provide support to facilitate (a) collection by organizing the gathering routes; (b) aggregation by permitting markets with sufficient critical mass to serve retail, wholesalers, and tourism sector and provide timely information about the products available; and (c) delivery by coordinating with other producers and transport services providers to organize time, dates, and volumes to be provided.
Identify and promote potential export products	Identify food-based products. Test agro and aquaculture-based products, like spirulina. These products should appeal to the visitors, so after being consumed locally, they could be bought in the home country (targeting the Netherlands and United States). An example is Blue Mountain coffee from Jamaica.
<b>Environment</b>	
Develop and implement local nature and environment policy plan	Safeguard natural assets in support of sustainable tourism recovery goals.
Develop a financial resilience plan	There is a need for more financial resilience to cover staff and overhead costs in case of a disaster.
Develop alternative and sustainable financing	Overreliance on income from admission fees left the national parks foundation with no structural funding to cover staff and overhead costs. This should not depend on emergency funding when tourism falls away because emergency financing is insufficient.
<b>Disaster Risk Financing</b>	
Track post-disaster expenditures	Bolster Bonaire's ability to quantify contingent liabilities associated with disasters.
Set up a broad asset management database	A continuously maintained database of disaster-related loss and damage, if linked to a broader asset management database, can be a starting point for tracking post-disaster expenditures and closing the fiscal gap in ensuring robust post-disaster response.

The sector analysis concluded that the macro-economic shock was transmitted chiefly through the tourism industry. Both inbound tourism by air and cruise experienced an unprecedented shock from April onwards following border closures. While inbound tourism by air resumed from July 2020 onward, demand remained sluggish. The demand impact on businesses within the tourism sector was pronounced, and the outlook remains uncertain. Particular attention needs to focus on recovery measures to bolster tourism arrivals and tourism-dependent businesses, including continued efforts in vaccination and financial support beyond July 2021.

The overall contribution of the tourism sector, including the indirect effects on businesses that principally catered to tourism (e.g., restaurants, retail, and other services), was estimated to account for between 60 to 80 percent of all economic activity.<sup>3</sup> This is consistent with the business survey results, which reveal that 77 percent of businesses serve tourists.

With regard to commerce and industry, although Bonaire has relatively low physical production (e.g., manufacturing), it does have significant commerce and industry that supports domestic construction, trade, financial services, and business services. Disruption was less pronounced in non-tourism related business, which is reflected by a significantly lower reported average income loss for 2020 (13 percent less). Nevertheless, reported disruptions for these businesses included a lack of demand for a diverse set of commercial activities.

Regarding infrastructure and commerce supporting tourism, disruption to the services provided by the ports subsector was indeed severe as a result of border closure measures implemented to contain the spread of the COVID-19 pandemic. Airspace was closed on March 14, 2020, and cruise ships were also banned from berthing at the seaport.

The shipping industry was declared an essential activity in Bonaire to ensure that food imports by ship were not disrupted. Air shipments, however, were cancelled for several weeks.<sup>4</sup> As a consequence, no fresh perishable products that are brought by plane could arrive on the island. The impact was a temporary shortage of fresh dairy, cream, cheeses, and vacuum-packed milk from the Netherlands, which was resolved when air travel was restored.

The logistics of imports and exports of agricultural goods showed a number of constraints, such as i) low cargo volume, with shipping companies not having Bonaire as a stop; ii) one feeder service, that can only bring cargo on the chassis but not packing containers since there is not a crane in Bonaire's port; and iii) longer cost and time, which leads to the shorter shelf life of products at the retail stores. Using technology to improve agrologistics can prevent future interruptions.

The subsector of utilities did not suffer major disruptions. The governmental measures that closed schools and businesses did not disrupt the production or distribution of water, electricity, or wastewater management. Nor was there a strain on the supply of services due to increased demand, as fewer persons than normal were on the island during the period under review. Residential use of water and electricity increased slightly, while non-residential use (e.g., industry and large businesses) decreased. The telecommunications subsector experienced an increase in demand for their services.

Overall, the loss suffered to the infrastructure sector was significant. Its effect, however, was dampened by the subsidies provided by the central government.

---

<sup>3</sup> Croes, R. et al (2017). *Tourism: Synergizing people & nature for a better tomorrow 2017-2027*.

<sup>4</sup> From March 14, 2020, to July 1, 2020.

In the case of the environment, the COVID-19 pandemic has had a significant impact on the Bonaire National Parks Foundation (Dutch: *Stichting Nationale Parken Bonaire*, STINAPA). Tourism came to a stop towards the end of March, leaving STINAPA with revenue losses from admission and permitting fees. COVID-19 related restrictions meant that number of visitors to the national parks dropped significantly. The central government provided financial support through salary subsidies, but this required staff to only work six hours per day. The result of the limited financial and human resources included severe cost-cutting and cancelled park enhancement and development projects. Cultural heritage suffered a similar fate. As a result of the safety measures taken by the local government, cultural, educational, and fundraising activities had to be cancelled, the decrease in tourist arrivals resulted in less visitors, and contributions from local businesses decreased.

Whereas this report's focus is assessing COVID-19 impact, it was also relevant to consider the prevalence of compounding impact of climate and weather-related shocks. To address disaster risk management, the assessment examined the benefits of disaster risk financing based on building exposure estimates and the prevalence of insurance as a risk management tool. Businesses, to a large extent, were unprotected by insurance products that address business continuity, highlighting their vulnerability to the materialization of alternative compounding shocks. An estimate of building exposure, categorized by residential and non-residential buildings, show a built area of 2.1 million m<sup>2</sup> with a corresponding capital stock value of US\$3 billion, or six times the value of 2018 GDP. Given the substantial exposure, it is recommended to pursue further steps to explore these risks and assess mitigating factors related to disaster risk financing.

The post-disaster assessment of the impact of the COVID-19 pandemic on Bonaire employed the globally accepted standard methodology for the conduct of disaster assessments commonly called the Post-Disaster Needs Assessment (PDNA). The methodology estimates the value of the destruction of assets (or damage) and the change in flows of the economy (or losses) as a result of a disaster. In the case of a pandemic, no damage is expected so the focus of the assessment is on the change in flows. This assessment was undertaken at the level of the sectors of the economy during the period February to May 2021.

### **Data to support the assessment has been collected through:**

- Business survey: Executed by the World Bank in cooperation with OLB and the Chamber of Commerce between March 16 and March 26, 2021.
- Food Security and Livelihoods Impact Survey: Executed by WFP in cooperation with OLB between March 23 and April 8, 2021.
- Stakeholder consultations: Carried out by the World Bank with the cooperation of 50 local stakeholders between March 15 and April 9, 2021.



# 1

## Introduction

The purpose of this assessment was to define a comprehensive program of recovery as a result of the effects and impact of the COVID-19 pandemic on the people and economy of Bonaire.

The scope of the study entailed an examination of all sectors of the economy to capture the change in flows resulting from the disruption of production, access to goods and services, and the direct and indirect costs of management of the pandemic. Some of these costs are health-related but many are social costs to buffer households from the full effects of the pandemic.

The study required the collection of quantitative data at the sector level about the state of affairs before and during the event. Data constraints have guided the assessment towards the productive and infrastructure sectors of the economy. The cross-cutting issues of disaster risk financing, gender and the environment have also been examined.



On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic and called on countries to activate and expand response mechanisms. In response, the Governor of Bonaire announced the first measures on March 14.<sup>5</sup> Cruise ships were banned from mooring, public meetings were canceled, and all schools were closed. A ban on flights from Europe was implemented, and on March 17, the ban was extended to flights originating from the United

States, Canada, Colombia, and the Dominican Republic. The measures with respect to closing the airspace were coordinated with and officially legally implemented by I&W. Table 1 provides an overview of response measures taken in 2020.

---

<sup>5</sup> One day after the first cases are reported on Aruba and Curaçao.

**Table 1: Timeline of response measures taken**

14-Mar	<b>Airspace closed for Europe and high-risk countries</b>
19-Mar (11-May)	Schools and daycare close
20-Mar	Support package announced by central government
25-Mar	Tax office facilitates deferment of payments
27-Mar	<b>COVID-19 safety measures (gatherings, social distancing etc.)</b>
31-Mar	Introduction SZW wage subsidy (1st)
12-Apr	Medical equipment arrival for 6 ICs
14-Apr	COVID-19 drive thru operational
16-Apr	<b>First case COVID-19</b>
17-Apr	Repatriation of vital personnel
24-Apr	Introduction EZK fixed costs subsidy (1st)
24-Apr	Financial support for food packages distribution
18-May	EZK fixed costs subsidy (2nd)
1-Jun	Subsidy on utilities (US\$60) and internet (US\$25)
1-Jul	<b>Airspace partially opens with strict safety measures</b>
10-Aug	EZK fixed costs subsidy (3d)
21-Sep	<b>Travel advice to Bonaire to code orange (only emergency travel)</b>
13-Oct	SZW wage subsidy (2nd)
4-Nov	<b>Travel advice to Bonaire returns to code yellow</b>

Source: Government and nongovernment press releases

Note: EZK = Ministry of Economic Affairs and Climate (Dutch: Ministerie van Economische Zaken en Klimaat); SZW = Ministry of Social Affairs and Employment (Dutch: Ministerie van Sociale Zaken en Werkgelegenheid).

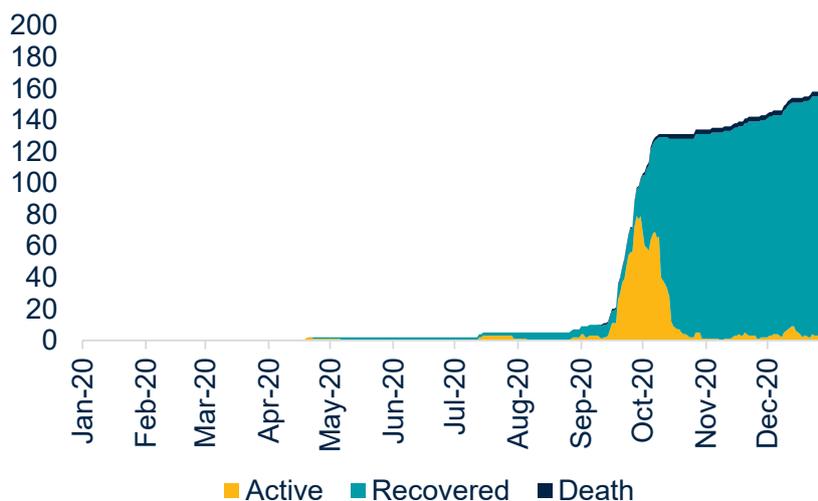
While some neighboring islands were already grappling with positive cases, the preventive measures ostensibly delayed the arrival of the pandemic to April 16. Moreover, only in September Bonaire experienced a surge in the number of active cases in 2020, reaching a maximum of 69 COVID-19 cases (Figure 1). In 2020, 3,000 tests were carried out, 165 cases were reported, and three deaths were attributed to COVID-19.

Despite the additional preparation time, as with many OCTs, the island has limited resources for responding to disasters, including health emergencies. Bonaire is particularly vulnerable to response measures, such as border closures, and the downturn in the global economy resulting from the pandemic. Economic activities are relatively concentrated around tourism, making

Bonaire's economy particularly vulnerable to external shocks. In response, the Ministry of the Interior and Kingdom Relations (*Dutch: Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, BZK*) provided assistance, including for medical care, preventing a financial and economic downturn, and maintaining public order and safety. Also, transport connections to and between the islands were secured to provide support, and there was attention for border control at sea.<sup>6</sup>

<sup>6</sup> Letter to the House of Representatives from the Minister of BZK, Measures Caribbean parts of the Kingdom in connection with COVID-19 and answering part of the committee's questions on corona's effects on Caribbean parts of the Kingdom, April 7, 2020.

**Figure 1: Distribution of COVID-19 cases - Bonaire**



Source: Government of Bonaire.

On March 30, the Caribbean Outbreak Management Team (OMT), led by the National Institute for Health and Environment (Dutch: *Rijksinstituut voor Volksgezondheid en Milieu, RIVM*), convened for the first time.<sup>7</sup> Based in part on their advice, the strategy of the Ministry of Health, Welfare, and Sport (Dutch: *Volksgezondheid Welzijn En Sport, VWS*) regarding the COVID-19 approach in the Caribbean part of the Kingdom of the Netherlands focused on two elements: providing support to the public health departments and increasing intensive care capacity in the Dutch Caribbean.<sup>8</sup>

RIVM was in daily contact with the Public Health Department of Bonaire and informed them about the epidemiological situation and the available guidelines. RIVM also advised on the measures to be taken. VWS took measures to strengthen the public health services of Bonaire.<sup>9</sup> Financial support was provided, which is summarized in Table 2.

<sup>7</sup> The OMT Caribbean is a special formation of the Dutch OMT. It is an advisory body that was convened during the COVID-19 pandemic to deliver advice for the four ministers responsible for public health of Aruba, Curaçao, Sint Maarten and the Caribbean Netherlands. In a mutual arrangement from 2005 among the four countries of the Kingdom, a minister in charge of the public health of one of these countries where there is a virus outbreak can convene the OMT Caribbean. Regulation: <https://wetten.overheid.nl/BWBR0036827/2015-07-15>

<sup>8</sup> First advice OMT Caribbean COVID-19, March 30, 2020.

<sup>9</sup> Letter to the House of Representatives from the Minister of BZK, Measures Caribbean parts of the Kingdom in connection with COVID-19 and answering part of the committee's questions on corona's effects on Caribbean parts of the Kingdom, April 7, 2020.

**Table 2: Realized public health expenditures related to COVID-19 in 2020**

Services rendered	<b>\$741,962</b>
Welfare and support for those in need	<b>\$566,210</b>
Third-party personnel	<b>\$239,376</b>
Information and promotion	<b>\$184,251</b>
Purchase materials	<b>\$130,000</b>
Legal costs	<b>\$104,539</b>
Automation costs	<b>\$79,113</b>
Grants / contributions	<b>\$29,777</b>
Representation costs	<b>\$4,338</b>
Telephone / internet / communication	<b>\$4,032</b>
Other payments not through payroll	<b>\$2,350</b>
Lab costs	—
<b>US\$</b>	<b>\$2,085,947</b>

Source: Public Health Department Bonaire.

Sufficient COVID-19 tests were available in Bonaire, but capacity for analysis was only available on Curaçao. The distribution and supply to the Caribbean Netherlands was coordinated by VWS through RIVM and the Public Health Department, on Bonaire.

Hospitals in the Caribbean part of the Kingdom had limited capacity to treat critical COVID-19 patients. Therefore, VWS worked together with the hospitals to increase the intensive care capacity with 42 additional intensive care respiratory units intended for patients across the Dutch Caribbean. Twelve were allocated to Sint Maarten, supporting Sint Eustatius and Saba, and the other 30 units were distributed between Aruba, Curaçao, and Bonaire. In addition to respirators, these units required specialized personnel, medication, and personal protective equipment, making the complex, given scarcity in these resources and competition with needs in the European Netherlands.<sup>10</sup>

An additional challenge was the limited transport options to the islands and between the islands themselves. An extra air ambulance was stationed in Bonaire to facilitate patient transport between the islands. Furthermore, efforts were made at the diplomatic level to enable access to specialized acute care in Colombia. The coordination of the administrative and logistical aspects is centralized through bilateral agreements between hospitals and health insurers on the islands.<sup>11</sup>

An additional navy vessel was deployed on April 13 to support response and care efforts in Bonaire, Aruba, and Curaçao. The additional vessel offered transport support to, for example, food security and served as an operational base to quickly deploy staff and equipment ashore. Finally, the vessel also extended medical capacity to support the local health care with non-COVID-19-related emergency care.<sup>12</sup>

### Legal status, administration, and crisis management

Bonaire is one of the three *special municipalities*, along with Sint Eustatius and Saba, which form part of the Netherlands' administrative structure known as the Caribbean Netherlands: Bonaire, Sint Eustatius, and Saba (BES Islands). The island of Bonaire is located in the Caribbean, off the coast of Venezuela and in close proximity to Aruba and Curaçao, which, together with Sint Maarten, are independent countries within the Kingdom of the Netherlands. The BES Islands are currently classified in Dutch law as public entities of the Netherlands and as OCTs of the EU. The three BES Islands gained their current legal status following the dissolution of the Netherlands Antilles on October 10, 2010. This status is legally established in the Dutch Public Entities Act Bonaire, Sint Eustatius and Saba.<sup>13</sup>

The powers of governance in the Caribbean Netherlands are distributed between local island governments and the national government. The local democratically elected representative assembly known as the Island Council is the highest administrative body in the OLB and is responsible for local legislation. The Island Council is elected by the inhabitants of Bonaire and consists of nine members. The executive power rests with the Governor (appointed by the King) and commissioners (appointed by the Island Council) who together form the Executive Council.

---

<sup>10</sup> Letter to the House of Representatives from the Minister of BZK, Measures Caribbean parts of the Kingdom in connection with COVID-19 and answering part of the committee's questions on corona's effects on Caribbean parts of the Kingdom, April 7, 2020.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Public Entities Act Bonaire, Sint Eustatius and Saba.

The Executive Council is responsible for the preparation and implementation of policy and daily management of Bonaire. They prepare and implement Island Council decisions.<sup>14</sup>

Unlike the Dutch mainland municipalities, the BES Islands do not form part of a Dutch province, and the powers normally exercised by provincial councils within municipalities are divided between the island governments themselves and the central government by means of the National Office for the Caribbean Netherlands (*Dutch: Rijksdienst Caribisch Nederland, RCN*). For this reason, they are also called special municipalities. The BES Islands carry many of the functions normally performed by Dutch municipalities; they implement national and their own policies.<sup>15</sup>

The RCN provides central support to all active ministries in Bonaire. This agency was established as the Regional Service Center in 2008 and became the RCN on September 1, 2010. Cooperation within the framework of the RCN has no consequences for ministerial responsibility. Each minister is politically responsible for the work of the respective department. To facilitate this responsibility, several ministries have a departmental liaison housed within the RCN but under the authority of the corresponding ministry in the Hague.<sup>16</sup> This implies that the RCN is responsible for taxation, policing, immigration, health, education, and social security in Bonaire and provides these services on behalf of the Government of the Netherlands and its ministries.

Tasks and responsibilities related to the crisis organization are allocated to the general organizational structures such as the police, fire, and health departments. The main structure of Bonaire's crisis organization consists of the Island Policy Team (*Dutch: Eilandelijk Beleidsteam, EBT*), the consultation coordinators of Emergency Support Functions (ESF) groups, and the Command Site Incident (*Dutch: Commando Plaats Incident, CoPI*).<sup>17</sup> The EBT is responsible for supporting the Governor in the execution of the supreme command, in the event of a disaster (or threat of its occurrence).

The EBT is chaired by the Governor and also consists of heads of department and directors of various executive organizations, such as the police, the fire brigade, the hospital (Fundashon Mariadal), the public prosecution, the acting Kingdom Representative, and the acting Island Secretary. The team members act as advisers to the Governor. Specifically for case of the COVID-19 outbreak, the health, communication, and economic departments have acted as advisors to the EBT through the COVID-19 Advisory Team. Only the Governor has decision-making authority. The EBT focuses on administrative aspects, and operational aspects are left to the ESF groups and the CoPI.



<sup>14</sup> Public Entities Act Bonaire, Sint Eustatius and Saba.

<sup>15</sup> Ibid.

<sup>16</sup> Nauta, O. 2015.

*Werking nieuwe bestuurlijke structuur Caribisch Nederland.*

<sup>17</sup> Coordination plan supra-island disasters and crisis management Bonaire, Sint Eustatius and Saba.

## 1.1 Methodology

The post-disaster assessment of the impact of the COVID-19 pandemic on Bonaire has been undertaken using the globally accepted standard methodology for the conduct of disaster assessments commonly called the Post-Disaster Needs Assessment (PDNA). The methodology estimates the value of the destruction of assets (or damage) and the change in flows of the economy (or losses) as a result of a disaster. In the case of a pandemic, no physical damage is expected, so the focus of the assessment is on the change in flows. This assessment is undertaken at the level of each sector of the economy.

### Data to support the assessment have been collected through the following:

- Business survey: Executed by the World Bank in cooperation with OLB and the Chamber of Commerce between March 16 and March 26, 2021.
- Food Security and Livelihoods Impact Survey: Executed by WFP in cooperation with OLB in March 2021.
- Stakeholder consultations: Carried out by the World Bank with the cooperation of 50 local stakeholders between March 15 and April 9, 2021.

The purpose of the assessment is to define a comprehensive program of recovery. To best achieve that outcome, an assessment of the effects and impacts of the event on the economy and the society, including the environment, needs to be undertaken.<sup>18</sup> The main questions of the research were: i) What was the impact of the COVID-19 on the economy and society of Bonaire; and ii) did the provided support mitigate the effects and impacts as intended and to what extent?

In the past, disasters were classified as being of a quick or slow onset, such as in the contrasting cases of hurricanes or drought. However, in the case of a pandemic such as COVID-19, assessors are faced with a dynamic and long-term crisis to measure. In such a case, a start date and an end date for the assessment must be agreed upon.

In a disaster of a meteorological or hydrological nature, the methodology requires the assessment of the extent of damage to physical infrastructure and assets, followed by an examination of the change in flows (or loss) arising out of the disruption caused to the production of goods and services or to the access of goods and services by the event.<sup>19</sup> The disruption to governance processes may be identified and also the initiatives taken to reduce risks and vulnerabilities. In the case of the pandemic, the methodology focuses on the disruption of production and access to goods and services and, of course, the direct and indirect costs of management of the pandemic. Some of these costs are health related but many are social costs to assist the population as a buffer against the full effects of the pandemic.

---

<sup>18</sup> Effects refer to the results of the event being assessed and are measured in physical terms or in changes to processes; impacts are the consequences of the effects on the economy and the society and are usually analysed at the economic and human level.

<sup>19</sup> The assessment uses the application of a methodology originally developed by the United Nations (UN) and the Economic Commission for Latin America and the Caribbean (2003) and further developed into the PDNA methodology by agreement of the European Union (EU), UN, and the World Bank 2006. For further details about the PDNA methodology, visit: <https://knowledge.unccd.int/drought-toolbox-action/gfdrp-post-disaster-needs-assessments>

The methodology requires the collection of quantitative data at the sector level about the state of affairs before and during the event. The convenience of the methodology is derived from the fact that it is based on the national accounting framework of the country under examination. In the case of the Bonaire assessment, data constraints have only allowed for assessment of the productive and infrastructure sectors of the economy. The cross-cutting issues of disaster risk financing and the environment have also been examined. Gender equality issues have been examined in the analysis of the human impact.

The comparative analysis of the data collected and the aggregation of the results are used to build a picture of the national effects and impacts. Through an analysis of those effects and impacts the economic and human impact can be estimated.

Finally, the needs for recovery can be identified and indicative costs applied. Because of the dynamic nature of the pandemic, many (short-term) recovery needs were already being addressed through, for example, subsidies for wages and public utilities. The assessment was therefore able, to focus more on medium- to long-term needs for recovery, which are addressed in each chapter.

### 1.1.1 Survey Instruments

Data to support the assessment have been collected through the following:

- **Food Security and Livelihoods Impact Survey.**  
Executed by the WFP in cooperation with OLB between March 23 and April 8, 2021. A comprehensive compilation of the survey results for Bonaire as well as a note on the methodology of this survey is available at <https://docs.wfp.org/api/documents/WFP-0000128075/download/>
- **Bonaire Business Survey (2021).**  
Executed by the World Bank in cooperation with OLB and the Chamber of Commerce between March 16 and March 26, 2021. The survey was launched through an online form and made accessible on mobile/smartphones and PC/desktops in English, Papiamentu, Dutch, and Spanish through a link that was circulated widely through social media by the Chamber of Commerce and OLB. The survey was completed by 416 businesses in Bonaire. The World Bank performed the data monitoring and quantitative analysis. Data validation methods were designed into the survey form to mitigate against data entry errors, while outliers were removed ex post through the interquartile range method. Particular care was taken to limit inference to analysis where representativeness could reasonably be assumed.



## 2

# Macroeconomic Impact

## 2.1 Introduction

Comparable to the different islands in the Caribbean region, the economy of Bonaire is highly dependent on tourism. The tourism direct gross domestic product (TDGDP) is a measure of the direct contribution of tourism to the economy of a country or a region. This measure excludes the indirect and induced effects that arise because of the first-order effects.<sup>20</sup> Furthermore, investment activities related to, for example, the building of hotels, are excluded from this measure. The exposure of the economy of Bonaire to tourism was measured in 2012 and amounted to 16 percent. Benchmarking against other tourism destinations that have compiled a TDGDP shows the relatively high exposure of Bonaire to tourism compared to other countries. This high degree of dependence on external demand affects the magnitude and persistence of the economic shock caused by COVID-19.

**Table 3: Tourism Direct GDP**

Bonaire	2012	16%
Aruba	2013	20%
Bermuda	2018	5%
Jamaica	2018	9%
Montenegro	2009	10%
Iceland	2017	9%
Greece	2017	7%
Netherlands	2019	4%

Sources: United Nations World Tourism Organization (UNWTO), Statistics Netherlands, Central Bureau of Statistics Aruba.





<sup>20</sup> The *direct effects* consider only the immediate effects of tourism demand on production. These effects are also referred to as first-order effects. The chain of *indirect effects* of tourism consumption on other industries is due to the link of industries serving tourism to other industries that supply the tourism industry with intermediate inputs and capital goods, and then with the linkages of these industries with others that supply them, and so on. All these effects generate additional value added, employment, compensation of employees, taxes, income, and so on. In addition, the increase of income distributed to the labor force and to the owners of productive capital resulting from incremental visitor demand generates increased demand for goods and services through a rise in household consumption. This additional demand generates a chain of induced effects on a great variety of goods and services.

Bonaire has limited data on the island's economic structure, with the latest GDP estimates available for 2018. The contribution of the different economic sectors is presented in table 4. According to a paper compiled by Statistics Netherlands in 2012, the two industries that are almost entirely dependent on tourism are "Accommodation and food service activities" and "Culture, recreation and other services". The economic sectors "Wholesale and retail trade", "Transport, information and communication", and "Real estate activities" are also directly exposed to tourism, but to a lesser extent than the aforementioned two economic industries.

The estimation process to measure the effect of COVID-19 considers the value of net losses compiled from all the sectors evaluated and uses the PDNA methodology to calculate the macroeconomic impact and the GDP. To do so, a baseline estimate of the GDP for 2020 was constructed based on several broad indicators. The results are a first approximation, because the relationship between the economy and the pandemic in the different markets will require periodic review as soon as more actual data become available.

**Table 4: Economic structure of Bonaire (2018)**

Agriculture, mining	6
Manufacturing	10
Energy, water, waste management	20
Construction	27
Wholesale and retail trade	57
Transport, information and communication	38
Accommodation and food service activities	50
Financial and insurance activities	27
Real estate activities	25
Professional and administrative support services	52
Public administration	53
Education	28
Human health and social work activities	50
Culture, recreation and other services	26
<hr/>	
GDP, basic prices	469
Taxes less subsidies	36
<hr/>	
GDP, market prices	<b>505</b>

*Source: Authors estimates based on data from Statistics Netherlands*

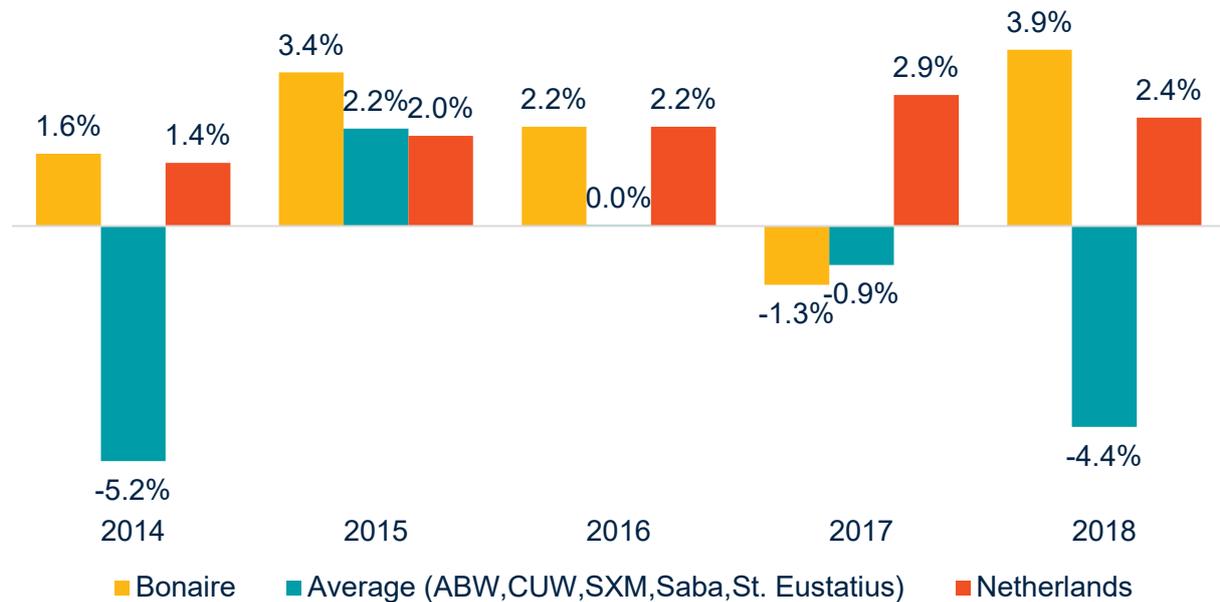
## 2.2 Gross Domestic Product

Over the years, prior to the COVID-19 crisis, Bonaire exhibited strong fundamentals, with real GDP growth mostly outpacing the average of its Dutch Caribbean peers. In 2018, the regional average growth was negative, primarily due to the economic contraction experienced by Sint Maarten, Saba, and Sint Eustatius following the passage of Hurricane Irma in September 2017.

GDP in Bonaire increased by 3.9 percent in real terms in 2018. Fueled by a combined increase

in stay-over and cruise tourists of 9.6 percent, accommodation, and food service activities' value-added increased was 19.3 percent in real terms. High demand for housing increased economic activities in the construction sector, real estate activities, and professional services. On the other hand, decreased economic activities were registered in the combined industries of transport, information and communication services, and agriculture and mining. The decreases in these industries were attributed to specific dominant companies in the respective sectors, which caused the downturn.

Figure 2: Real GDP growth (pre-COVID-19)

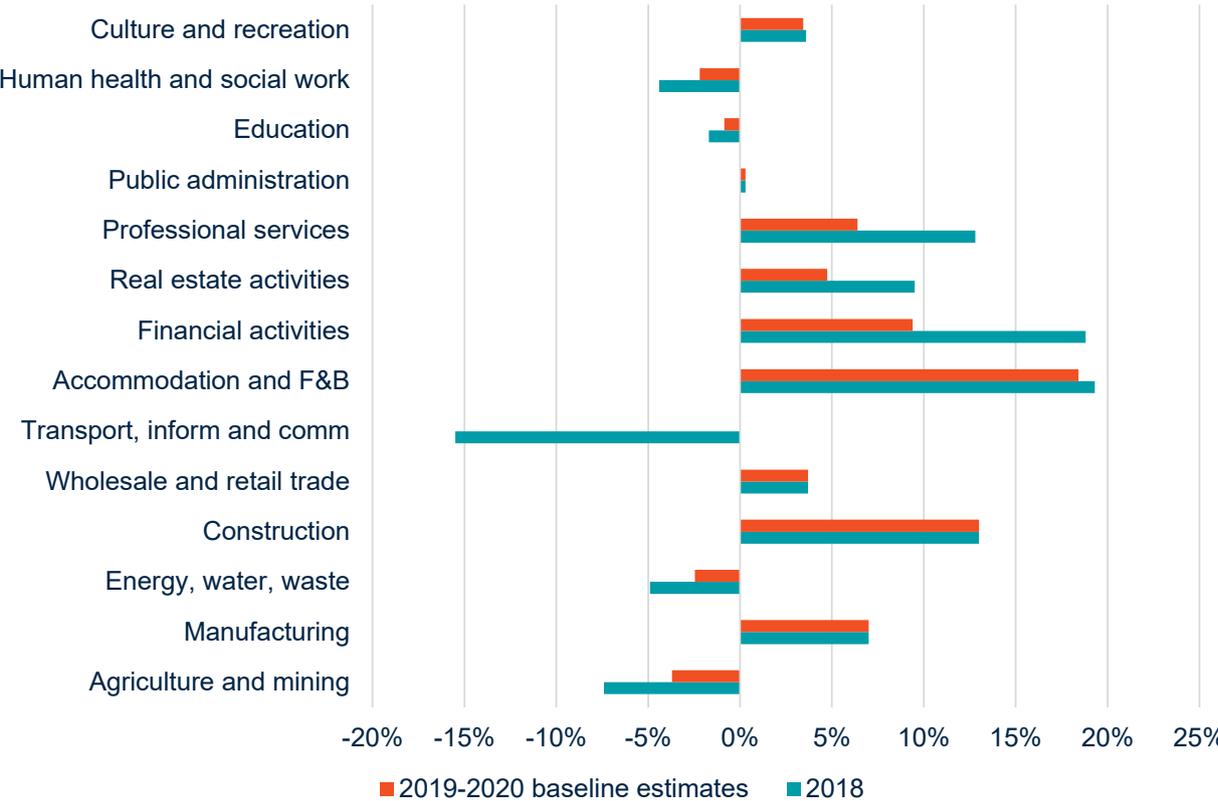


Source: Statistics Netherlands, World Bank and Central Bank of Aruba

The small scale of the economy and its inherent sensitivities to individual dominant companies only allow for high-level approximations of the economic performance for the years after 2018. Based on several assumptions, it is estimated that GDP measured in 2018 constant basic prices increased from US\$469 million in 2018 to US\$491 million in 2019 (+4.6 percent), driven by a strong

combined stay-over and cruise tourism growth in 2019 of 9.1 percent. The baseline estimated growth of the GDP at constant 2018 basic prices for 2020 amounts to 5.0 percent or US\$515 million. This baseline estimate is relevant for calculating the impact of COVID-19 on economic development in 2020 according to the PDNA methodology.

**Figure 3: Estimated sectoral growth**



Sources: Authors estimates based on data from Statistics Netherlands

## 2.3 COVID-19 Macroeconomic Assessment

### 2.3.1 Gross Domestic Product

COVID-19 affected different economic industries distinctively, depending on the industry's exposure to tourism, the number and composition of the entities within each industry, the source of income, and the financing structure of the industries.

For the PDNA, the economic industries were classified into three categories depending on the degree of vulnerability to the internal and external shocks caused by COVID-19. The assumed contraction relative to the baseline GDP estimate for 2020 is provided for each economic industry in Table 5. It should be noted that there is no actual data available on the impact suffered by the economic industries.

For modelling purposes the following assumptions were made:

- Low impacted industries are assumed to have experienced a contraction of less than 10 percent.
- Moderately impacted industries are assumed to have experienced a contraction between 10 percent and 15 percent.
- Highly impacted industries are assumed to have experienced a contraction of more than 15 percent.

**Table 5: Classification of economic industries by degree of vulnerability**

Low	Moderate	High
Agriculture, mining (0%)	Construction (-10%)	Wholesale and retail trade (-18%)
Public administration (0%)	Financial and insurance activities (-15%)	Transport, information, and communication (-50%)
Education (0%)	Real estate activities (-15%)	Accommodation and food service activities (-75%)
Human health and social work activities (+3%)	Professional and administrative support services (-15%)	Culture, recreation, and other services (-50%)
Energy, water, waste management (-6%)	Manufacturing (-15%)	

According to the feedback received from the business survey, the loss of revenue in 2020 amounted on average to 34.7 percent. Expressed in constant prices of 2018 and considering the contribution of the public sector to the total GDP, the economic contraction relative to the baseline estimate of the GDP growth for 2020 is estimated at 23.1 percent after incorporating the effects of the financial injection measures in terms of wage subsidies, compensation of business expenses and other financial compensations provided to build resilience and (partially) counteract the downturn of the economy. Compared to 2019, the GDP is estimated to have decreased by 19.3 percent.

The industries ranked as low risk show a slight increase in economic activity associated with higher spending in health care due to COVID-19. The sensitive industries classified as high risk have substantial exposure to shocks in tourism and/or changes in the internal demand and are estimated to have recorded a significant decrease in economic activity compared to the 2020 baseline estimate, thereby reducing their collective contribution to GDP by 12.9 percentage points. It is important to observe that these industries received relatively more financial assistance in terms of wage subsidies and compensation for business expenses.

**Table 6: Contraction of GDP 2020 by risk profile (a)**

Risk	Baseline		Estimate	
	US\$, millions	%	US\$, millions	%
Low	153	29.8	154	38.8
Moderate	165	31.9	142	35.8
High	197	38.3	101	25.4
<b>GDP</b>	515	100.0	396	100.0
	Contraction of baseline GDP		-23.1	

(a) In constant 2018 basic prices

**Table 7: Distribution of wage subsidy and compensation of business expenses by risk profile**

Risk	%
Low	3.6
Moderate	24.1
High	72.3
	100.0

Source: Authors estimates based on data from Statistics Netherlands

**Table 8: Distribution of wage subsidy and compensation of business expenses relative to impact by risk profile**

Risk	GDP impact (%)	Compensation in % of GDP impact (%)
Low	0.2	1.0
Moderate	-14.0	6.5
High	-48.9	16.4
	-23.1	8.7

Source: Authors estimates based on data from Statistics Netherlands

When relating the degree of the impact incurred by the industries with the financial compensation received, it can be observed that the more vulnerable industries received relatively higher compensation relative to their size (measured against the baseline GDP for 2020).

It should be observed that a higher level of compensation does not reflect a higher production level in these industries but is passed onto other industries through a subsidized increase in purchasing power of household consumption and intermediate consumption by businesses.

The estimated 23.1 percent contraction of the 2020 baseline GDP includes the effects of the financial intervention estimated at US\$67.4 million (12.9 percent of 2019 GDP). Without this financial intervention, the economy would have spiraled into an estimated 36.2 percent downturn in 2020.

The estimated contraction of the economy of Bonaire of 19.3 percent in 2020 compared to 2019 corresponds with the order of magnitude experienced by the tourism-dependent economies in the Kingdom of the Netherlands as a consequence of COVID-19.

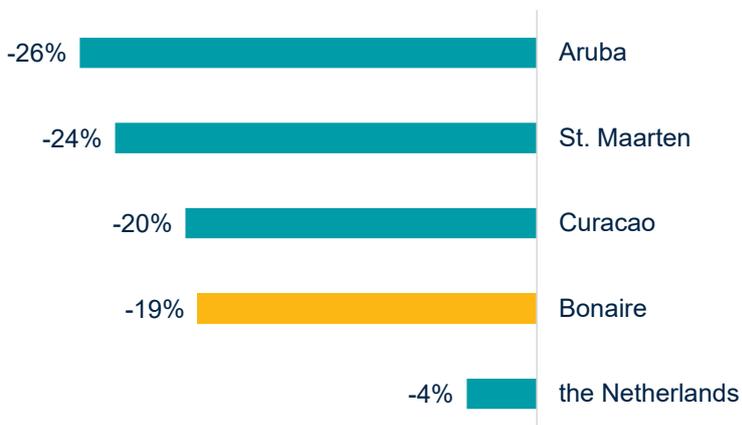
**Table 9: Financial interventions 2020 (US\$, thousands)**

Wage subsidy	28,662
Compensation for business expenses	15,977
Financial aid received by OLB (a)	2,658
Water	940
Electricity	5,030
Internet / TV	1,600
Airport	3,930
Health (COVID-19 related expenses)	8,033
Education	356
Donations (STINAPA and Red Cross)	179
	<b>67,365</b>

Sources: I&W, BZK, EZK, Dutch Caribbean Nature Alliance (DCNA), VWS, OLB, Ministry of Education, Culture and Science (Dutch: Ministerie van Onderwijs, Cultuur en Wetenschap, OCW), STINAPA, Red Cross Bonaire.

(a) Excludes US\$3.1 million free allowance compensation from European Netherlands to cover reduction in tax income.

**Figure 4: Estimated real GDP contraction in 2020**



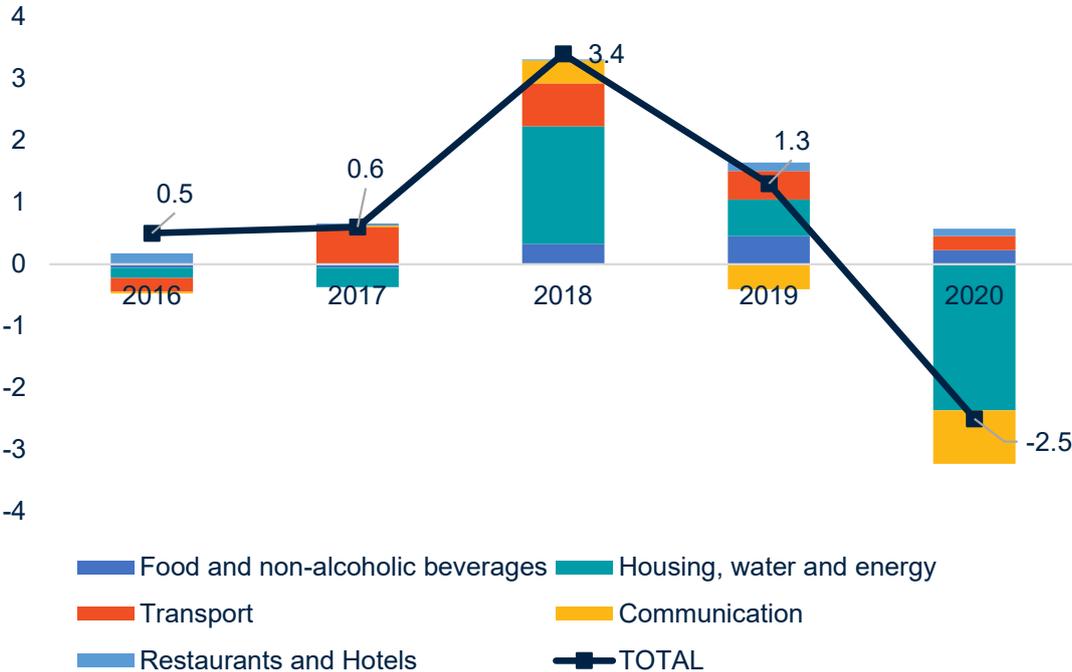
Sources: Central Bank of Aruba, presentation dated January 2021 by the Head of Economic Analysis of the Central Bank of Curaçao and St. Maarten, Statistics Netherlands, World Bank

2.3.2 Inflation

In the years preceding 2020, inflation was relatively stable and subdued. In 2020, the annual average price level in Bonaire was 2.5 percent lower than in 2019, attributed to assistance in utility bills and communication. Aimed at reducing living costs, households and companies in Bonaire on average obtained a monthly relief of US\$58.26 per month from May 1, 2020, to the end of 2020 from EZK and I&W. The relief was processed by the utility and telecom companies directly to account holders.

Excluding the previously mentioned interventions, the underlying inflation would have been minimal, namely -0.1 percent. In general, food prices remained stable despite concerns of potential shortages in the availability of food items given the reliance on imports.

Figure 5: Inflation drivers (percentage point contributions)



Source: Statistics Netherlands

### 2.3.3 Fiscal sector

The fiscal revenues of Bonaire is broken down into three categories: (a) free allowance; (b) local revenues, and (c) other revenues. The funding source of each revenue category is crucial for the assessment of the sensitivity of fiscal revenues to COVID-19.

The free allowance is funded from a budget fund held by European Netherlands from which the public entities Bonaire, Sint Eustatius and Saba are subsidized. The free allowance that the public entities receive from this fund is for being able to carry out matters that fall under the local government and public civil service, such as the salaries of public officials.

The third category (other revenues) consists mainly of special grants that are earmarked for specific policy purposes, such as infrastructure maintenance and housing. These revenues differ from year to year depending on the projects that are scheduled to be executed. The special grants received in 2019 were not applied to projects in that year and the balance was carried over to the

next year. In 2020 the special grants received were lower than in 2019. These grants are funded by the central government. The funding source of these two revenue categories thus allows for a diversification of the risk impact which external shocks, including that of COVID-19, has on the revenue generating potential of Bonaire. For 2020 these two revenue categories amounted to a combined 79 percent of all revenues (2019: 76 percent).

The local tax revenues can be broken down into two categories. First, the national taxes such as the corporate income tax, sales tax and wage tax are levied by the central government through the Caribbean Netherlands Tax Authorities (Dutch: *Belastingdienst Caribisch Nederland*, BCN), which is part of the Dutch Tax Authorities. The second category consist of island taxes and charges that are at the disposal of the Government of Bonaire. This last-mentioned category which had a share of 20.9 percent of total revenues in 2020 (2019: 24.0 percent) is susceptible to the risk impact of COVID-19.

**Table 10: Summary of income and expenses (US\$, millions)**

	2019	2020
Free allowance	28.6	32.3
Local revenues	22.0	15.3
Tourist tax	5.9	1.6
Cruise fee	1.0	0.4
Port dues	0.9	0.6
"Precariorechten"	0.5	0.5
Car lease tax	0.2	0.7
Waste charges	1.4	1.4
Motor vehicle tax	4.5	4.4
Land and real estate tax	2.5	3.6
Land long term lease	3.1	2.8
Retributions	2.0	0.6
Other local revenues (a)	0.0	-1.2
Other revenues (special grants)	41.0	25.5
<b>Total income</b>	<b>91.6</b>	<b>73.1</b>
<b>Total expenses</b>	<b>83.5</b>	<b>69.7</b>
<b>Result</b>	<b>8.2</b>	<b>3.4</b>

Sources: Financial statements OLB 2019 and 2020  
(a) 2020 includes incidental revenues after corrections

The tourist related taxes (tourist tax, cruise fees, and port dues) showed a combined decrease of 38.1 percent in 2020<sup>21</sup> compared to the previous year, clearly reflecting the effect of COVID-19. Revenues from car lease tax increased in 2020, but this is partly attributable to shifts in revenue recognition from the previous year. European Netherlands compensated an amount of US\$3.1 million for the loss of local revenues. This compensation is included in the amount of free allowance.

The additional expenses in connection with COVID-19 amounted to US\$3.0 million in 2020 and were funded by an extra contribution from European Netherlands and own reserves.

### 2.3.4 Needs for Recovery, Reactivation and Continuity of the Response

#### **Continue with the financial assistance to businesses.**

It is uncertain how long the effects of COVID-19 will continue to have an impact on the economy of Bonaire. The financial response in 2020 proved to be effective to counteract a deeper recession with the risk that this could result in more permanent damage to the economy (scarring effects).

#### **Improve availability of statistical data.**

Considering the dominance of tourism in the economy of Bonaire, it is important to compile a solid measure of the contribution of tourists to the economy of Bonaire. It is encouraging that

Statistics Netherlands intends to conduct a tourism expenditure survey. The data collected from this survey will greatly support a better understanding of the impact of tourism on the economy.

#### **Introduce or reactivate a macroeconomic model to estimate current and project future economic performance.**

A consistent macro framework supports policy formulation, decision making and would also assist in quantifying impact assessments in terms of internal and external shocks.

#### **Centralize registration of inflow of funds.**

The access to funds is decentralized, which makes it difficult for local policy makers to obtain an overview of the incoming flow of funds in the economy and to assess the effectiveness of the use of these funds. This may also foster unintended unequal application of funds to different parts of the economy.

#### **Assess diversification opportunities.**

The heavy reliance on tourism exposes the economy to concentration risks and sensitivities related to tourism. Because the population and the economy of Bonaire is expanding, economic policy could pursue investments that foster economic diversification.

---

<sup>21</sup> Incidental revenues from tourist tax in 2019 for the amount of US\$3.6 million is excluded from the comparison with the year 2020 to gauge the underlying development and sensitivities.

**Box 1: Did the financial compensation assistance reach the beneficiary firms most in need?**

A key question is whether the government assistance offered reached those businesses that were most severely affected in terms of reduced earnings due to the COVID-19 pandemic. Related is the assertion that perhaps small businesses (that were more vulnerable) were less likely to have received assistance.

**The following statistical analysis confirms that financial compensation assistance reached beneficiaries most in need, including small businesses. Furthermore, businesses that were strongly affected by income loss in 2020 were more likely to have been served by the SZW and EZK schemes.**

From the reporting by Statistics Netherlands, measured in absolute number, relatively more small companies received financial assistance compared to larger ones (Table 11). The data suggests that overall, small companies had access to and obtained financial aid.

However, it should be observed that measured in total companies per size category, relatively fewer smaller companies employing between 0-4 workers received financial assistance compared to the larger companies (Table 11). Anecdotal evidence suggest that the lack of financial capability of businesses and the burden of complying with eligibility requirement could have been experienced as disincentives that resulted in relatively lower participation by smaller companies.

**Table 11: Distribution of companies that received compensation by size**

Size of business (in number of employees)	Number of companies that received compensation	Distribution by company that received compensation (%)	Total number of active companies	The share of companies that received compensation (%)
0-4	720	56.3	1,670	43.1
5-9	160	12.5	240	66.7
10-19	60	4.7	110	54.5
20-49	30	2.3	60	50.0
>=50	20	1.6	30	66.7
Unknown	290	22.7	720	40.3
	1,280	100.0	2,830	

Source: Statistics Netherlands

*The total number of companies refers to all companies that are registered by Statistics Netherlands as being active and having economic substance relevant for economic analysis purposes. For example if a company does not file taxes and has no employees that company may not be considered an active company by CBS, even though that company is legally registered at the Chamber of Commerce as an active company.*

In support of the official statistics, the Bonaire Business Survey (2021) offers some insights into the income loss experienced by businesses (2020 revenue versus 2019 revenue) as well as a classification by business size<sup>22</sup> and the usage of various financial compensation schemes offered:

- SZW emergency scheme, 80 percent allowance for wage costs
- SZW emergency scheme, for independent entrepreneurs
- EZK compensation for fixed costs (US\$4.400 variant)
- EZK compensation for fixed costs (US\$2.200 variant)
- EZK compensation, second installment (US\$500 - US\$55.000)
- EZK compensation, third installment (US\$375 - US\$99.000)

In addition, businesses could apply for the following instruments, which due to their nature of functioning as financial relief, were excluded in the analysis:

- Qredits grace period and/or a bridging loan
- Postponement of payment by BCN for three months

The resulting variable of businesses that received SZW or EZK compensation along with an income loss allows the application of a logistic regression. This statistical model uses a logistic function to model a binary dependent variable (Did the firm receive financial compensation, yes or no?).

<sup>22</sup> To prevent the calculations being affected by outliers, the interquartile range method was applied to the income loss variable. A more detailed description of the survey methodology is available in the methodology section.

**Table 12: Logistic regression model to predict businesses receiving financial compensation**

Characteristics	OR ( $\alpha$ )	95% CI (1)	p-value
Revenue loss 2020			
0-10%	1.00	1.26, 3.17	>0.9
11-20%	3.24	1.18, 8.97	0.022
21-30%	3.44	1.49, 8.07	0.004
31-40%	6.77	2.90, 16.7	<0.001
41-50%	6.21	2.93, 13.3	<0.001
51-60%	8.90	3.58, 24.1	<0.001
61-70%	22.70	6.98, 103	<0.001
71-80%	9.39	4.06, 23.3	<0.001
81-90%	7.56	3.09, 19.8	<0.001
91-100%	10.90	4.88, 26.0	<0.001

Source: Authors calculations  
(a) OR = Odds Ratio, CI = Confidence Interval

Revenue loss in 2020 appears statistically significant due to the small p-values, suggesting a strong association of revenue loss with the probability of receiving financial compensation.

It is also possible to test for an overall effect of rank (the order of coefficients from minimal income loss to large income loss) using the Wald test (Chi-square test).

The chi-squared test statistic of 30.3 with three degrees of freedom is associated with a p-value of less than 0.001, indicating that the overall effect of rank is statistically significant.

This confirms that, indeed, financial compensation assistance reached beneficiaries most in need. Businesses that were strongly affected by income loss in 2020 were more likely to have been served by the SZW and EZK schemes.

The relatively lower participation of small businesses suggests efforts to overcome application obstacles could play an important role to ensure the assistance is inclusive to companies that have limited administrative capacity.

**Table 13: Wald test**

Chi-squared test:	
X2	30.3
df	3
P(> X2)	1.20E-6

Source: Authors calculations



# 3

## Human Impact

As part of the assessment of the effects of COVID-19 on the economy and society of Bonaire, a human impact analysis of the event on the well-being of the population was undertaken. The human impact assessment focused on an examination of the impact of the crisis on access to social services; livelihoods related to employment, income, and inequality; food security; gender and social inclusion of vulnerable groups; and the impact on social protection. The impact analysis was informed by data collected as part of the assessment, facilitated by the OLB, the Statistics Netherlands and collected through WFP, Bonaire - COVID-19 Food Security and Livelihoods Impact Survey. Issues of gender are mainstreamed throughout the discussion, where gender differentials are available.

Bonaire has a fairly dynamic population of just over 20,000 persons, fueled by migration to the island and by young people who migrate to the Netherlands to study and return, on average, after a seven-year study stint.<sup>23</sup> In 2018, with a population of some 19,549 persons, per capita income stood at US\$25,833.

The COVID-19 pandemic exposed the vulnerability of various segments of the population. Among these were a group of some 400 families, comprising 5 percent of the households, who were identified to be in significant need. Although most of the 400 families were already being supported by social or protection services, some were new cases. Despite the challenges of the pandemic, some 80 children, ages between 0 and 17, including children with disabilities, whose parents may not have been able to provide them with necessary and adequate support, were identified. Those deemed to be extra vulnerable were provided with additional day care and after-school care services.





## 3.1 Livelihoods, Income, and Inequality

### 3.1.1 Livelihoods Related to Employment and Gender Gaps

Unemployment rates are relatively low in Bonaire, but even in cases where someone is employed, there is no guarantee that his or her income is sufficient to meet basic needs. Unemployment rates are prevalent among the less educated and such rate may have increased in 2020 due to COVID-19 given the increased demand for social relief.<sup>24</sup> However the government of Bonaire may have mitigated higher unemployment by implementing coping measures such as the wage subsidies. A large proportion of the workers earn around the minimum wage and to make ends meet many people hold more than one job.<sup>25</sup>

The data from the Regioplan report on a benchmark for a social minimum<sup>26</sup> for the Caribbean Netherlands published in June 2018<sup>27</sup> reveals that 33 percent of households in Bonaire had an income at or below 75 percent of the estimated average budget needed for basic expenses.<sup>28</sup> The report noted that 43 percent of households in Bonaire had income lower than the average monthly budgets, suggesting that the assessment findings of reduced income resulting from the pandemic are a cause for concern, as more households may find themselves in a more precarious position than before.

The social minimum was set as a reference point for targeted measures to increase benefits and the legal minimum wage in the coming years so that the legal minimum wage would be above the social minimum and that financial aid would be adequate. However, the legal minimum wage on Bonaire is currently below the level of the benchmark for the social minimum for a single person. The government of Bonaire approved in January 2020 (before the pandemic) an increase to the level of benefits, however the current levels for example in the case of the base amount benefit of US\$350 per month (2021) represents 37 percent of the social minimum of a single person, or 40

percent of an average minimum wage of US\$877 per month (US\$5.48/hour times 40hrs/week, 2021).

The base amount as a percentage of the minimum wage is lower than countries with similar per capita income and part of the Kingdom of the Netherlands such as St. Maarten which base amount covers 68 percent of the minimum wage.<sup>29</sup>



<sup>24</sup> Statistics Netherlands 2020:

*Trends in the Caribbean Netherlands.*

<sup>25</sup> Dutch Human Rights Council (Dutch: *College voor de Rechten van de Mens*): Annual report 2016.

<sup>26</sup> The social minimum benchmark is the necessary minimum amount households need to provide in their own daily necessities after intended structural cost reduction on household expenses (like expenses on housing and childcare) which are strongly influenced by government (by deployed policies). Herewith, it is a reference level for targeted measures to lift minimum income and social benefits up to in the next few years. For further details, visit:

<https://opendata.cbs.nl/statline/#/CBS/en/dataset/84786ENG/table?ts=1613752394826>

<sup>27</sup> Regioplan. 2018. *Onderzoek naar een ijkpunt voor het sociaal minimum in Caribisch Nederland.*

<sup>28</sup> The issue of poverty in the Caribbean Netherlands was repeatedly raised in reports such as by UNICEF Netherlands (2013), National Institute for Budget Advice - Nibud (2014), the Human Rights Council/College van de Rechten van de Mens (2016), and the Children's Rights Ombudsman (2017).

<sup>29</sup> World Bank. 2020. *St. Maarten, Public Expenditure Review, draft*

While the government of Bonaire has made considerable efforts in increasing the amount of benefits in recent years, this analysis suggests that the benefits are still not adequate enough to help people make ends meet and this may be even lower in the current difficult economic situation. In times of economic hardship being faced during the pandemic it is recommended to top-up the benefit level of existing beneficiaries of the base amount to compensate for higher losses of income. This measure has been taken by a large number of countries across the globe as part of COVID-19 responses to income loss.

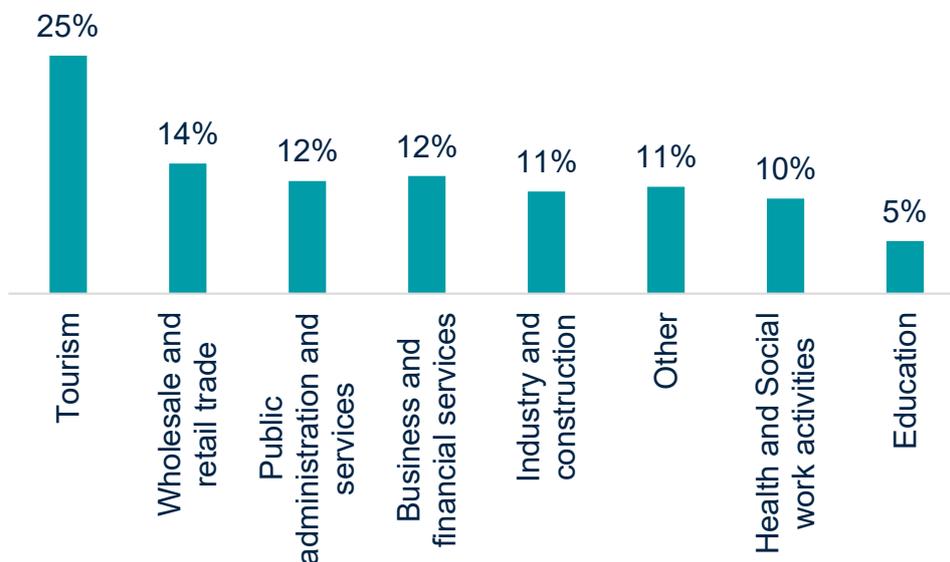
Through measures that seek to increase income and lower the cost of living, the government aims to help as many people out of poverty as possible.<sup>30</sup> In 2017, the median disposable income of households in Bonaire stood at US\$24,600.

Employment in tourism makes up the largest category of employed persons in Bonaire, as illustrated by Figure 6, where about 25 percent of the jobs are directly related to tourism.<sup>31</sup>

<sup>30</sup> Web article of the Dutch Human Rights Council, *Armoedegrens voor Caribisch Nederland vastgesteld*, August 7, 2020.

<sup>31</sup> Statistics Netherlands - StatLine Database.

**Figure 6: Employee jobs in Caribbean Netherlands by economic activity share in 2018**



Source: Statistics Netherlands 2018: "StatLine - Caribbean Netherlands"  
<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82519NED/table?fromstatweb>

Note: Tourism includes the sectors 'Accommodation and food serving' and 'Culture, recreation, other services.'

Data from Statistics Netherlands indicated that while accommodation and food service comprises the largest segment of workers on the island, more women work in this area than men. However, women in this category work for less than the average wage and receive wages far lower than their male counterparts. Actually, Table 14 also highlights the gender wage gap present in the island in almost every category, except two: electricity, water, and waste management and culture, recreation, and other services. It is important to add that the percentage of women employed is less than that of men with 71 percent compared to 75 percent respectively, despite women being more educated than men.<sup>32</sup>

Data suggest women comprise 86.7 percent of single-parent households.<sup>33</sup> These women would face challenging circumstances as they would have reduced support to share the responsibilities of caring and rearing children, while seeking to earn an income in a gender-segmented labor market, with a significant wage gap.

<sup>32</sup> Statistics Netherlands - StatLine Database.

<sup>33</sup> Estimated based on data provided by Statistics Netherlands.

**Table 14: Number of jobs in Bonaire, by sector and gender, 2019**

	Total		Males		Females	
	Jobs	Salary	Jobs	Salary	Jobs	Salary
<b>A</b> Agriculture, forestry and fishing	.	.	.	.	.	.
<b>B</b> Mining and quarrying	.	.	.	.	.	.
<b>C</b> Manufacturing	250	17,810	170	19,310	70	14,800
<b>D-E</b> Electricity, water, waste management	230	43,290	200	43,740	60	43,800
<b>F</b> Construction	860	19,960	690	20,210	80	17,250
<b>H+J</b> Transport, information and communication	690	28,360	420	30,730	220	25,420
<b>I</b> Accommodation and food service activities	1,600	17,180	620	19,310	790	16,070
<b>K</b> Financial and insurance activities	260	40,030	80	41,770	160	37,260
<b>L</b> Real estate activities	290	21,360	140	22,570	130	21,070
<b>M-N</b> Professional and technical activities	1,320	18,050	630	18,760	560	17,260
<b>O</b> Public administration and services	1,200	41,270	540	42,940	560	39,160
<b>P</b> Education	560	37,490	150	38,580	360	37,270
<b>Q</b> Human health care and social work activities	1,180	30,930	220	35,740	780	28,820
<b>R-U</b> Culture, recreation, other services	820	18,070	320	17,800	400	18,830
<b>Total / Average</b>	<b>10,650</b>	<b>25,170</b>	<b>4,790</b>	<b>26,030</b>	<b>4,800</b>	<b>24,360</b>

Source: Estimates based on data provided by Statistics Netherlands.  
 Note: For about 10 percent, gender is unknown. Salary is in US dollars.

Households with income primarily from work, had US\$27,900 to spend in 2017. The median income of social benefit recipients stood at US\$7,700 in 2017. This amount has not changed since 2015. In Bonaire, purchasing power has improved each year since 2012. The lowest median growth so far was recorded in 2017 at 1 percent. Nevertheless, 45 percent of Bonaire residents were negatively affected. Social benefit recipients received a minor 0.1 percent increase, as the growth in social benefits incomes in 2017 was nearly equal to the increase in consumer prices between 2016 and 2017.<sup>34</sup>

During the COVID-19 Food Security and Livelihoods Impact survey<sup>35</sup>, conducted in Bonaire by WFP in

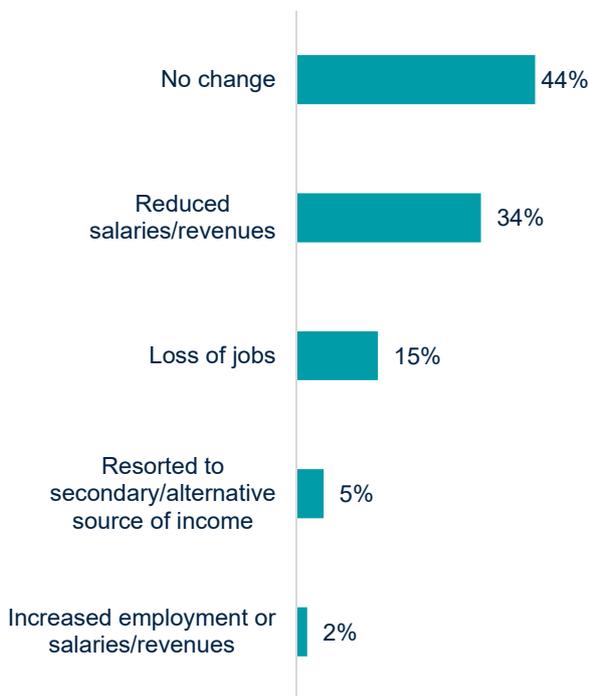
April 2021, respondents were asked, "Has your household income changed since the COVID-19 outbreak?". As illustrated in Figure 7, 54 percent indicated experiencing some change in income either through reduced salaries or revenues, loss of job or resort to alternative or secondary sources of income. Interestingly, the data suggest that a small but higher proportion of males suffered a loss of jobs than females.

<sup>34</sup> Statistics Netherlands 2019:

*Trends in the Caribbean Netherlands.*

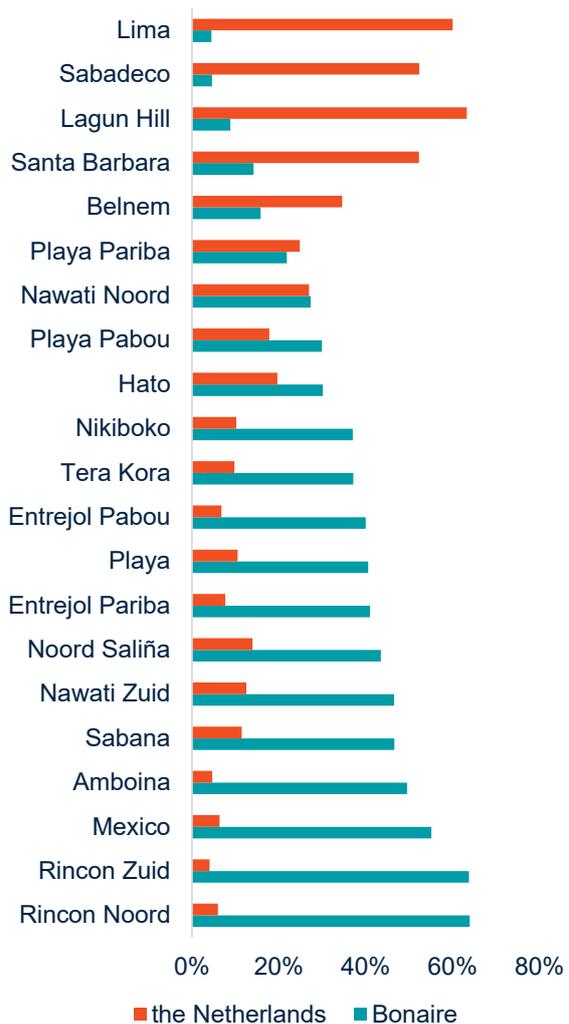
<sup>35</sup> Additional information from the Livelihoods Survey results regarding: Change in shopping behavior; Unpaid activities; Livelihood impact; Main worry or concern as a result of the Pandemic, can be found in Annex B.

**Figure 7: Change in income as a result of the pandemic**



Source: WFP Survey. Bonaire April 2021.

**Figure 8: Share of inhabitants by country of birth and neighborhood, 2019**



Source: Estimates based on data provided by Statistics Netherlands.

### 3.1.2 Inequality

Data from Statistics Netherlands suggests that there is some residential differentiation on the island between those born on the island and those who have migrated to the island (Figure 8). Rincon is the neighborhood with the highest share of residents born locally (65 percent). There are also relatively large groups of native Bonairians in Mexico (53 percent), Amboina (51 percent), and North Saliña (48 percent). Native Bonairians are found only in small numbers in Lagun Hill, Lima, and Sabadeco. European Dutch live spread across the island with concentrations in Lagun Hill (where they occupy a share of 62 percent of the local population), Lima (55 percent), Sabadeco (53 percent), and Santa Barbara (52 percent). In absolute numbers, most European Dutch (over 300) live in Nikiboko, although their share in the local population is only 10 percent.<sup>36</sup>

The Gini coefficient value was hovering between 0.39 and 0.40 between 2011-2017 for Bonaire suggests a degree of inequality, which has been made visible in the area of housing.<sup>37</sup> Complexes of luxury homes have been built in various places on the island, inhabited mainly by European Dutch. In the suburbs of Kralendijk and Rincon, small, poorly maintained homes dominate. It is a visible effect of life on the subsistence minimum that people have few resources to obtain adequate housing.<sup>38</sup>

The WFP survey allowed yet another perspective on inequality when it noted that “speakers of Papiamentu appear to be more adversely affected on several key metrics of well-being, such as access to markets and purchasing options, available household food stocks, food consumption, and food insecurity experience. They were the most likely to worry about meeting food and other essential needs, but also least likely to have reported receiving some form of COVID-19 assistance, when compared to English and Dutch speakers.”<sup>39</sup>

## 3.2 Social protection: Access to Social Services, Food Security and Vulnerability

### 3.2.1 Access to Social Services

Social services in Bonaire, similar to the other BES islands, are managed by representatives of the key Dutch ministries in the social sector, SZW, VWS, and OCW, who strive to deliver equitable and quality social services for sustainable development, particularly to the vulnerable and marginalized. Since 2010, government expenditures on social affairs, education, and health care combined for the Caribbean Netherlands more than tripled, from US\$50.2 million in 2010 to US\$163 million in 2014.<sup>40</sup> Although social affairs benefitted from the smallest increase during that period (less than 10 percent or about US\$4 million), the increase was consistent until 2018. Current services from both the national government and public entities provide social safety nets for disadvantaged households such as public housing, breakfast programs, and public assistance programs (for example, cash, food stamps, and school uniforms).<sup>41</sup>

SZW implements approximately 15 social programs (legal acts) but it is difficult to keep track on the number of benefits received per family due to the lack of integrated information systems that can register beneficiaries at the family level which may affect higher efficiency and coordination of efforts.<sup>42</sup>

---

<sup>36</sup> *Statistics Netherlands 2018: Trends in the Caribbean Netherlands.*

<sup>37</sup> *Statistics Netherlands 2019: Trends in the Caribbean Netherlands.* Expressed in terms of the Gini coefficient, 0 means total equality: everyone has the same income and 1 means total inequality: one person has all the income, and the rest have none.

<sup>38</sup> Dutch Human Rights Council (Dutch: *College voor de Rechten van de Mens*): Annual report 2016.

<sup>39</sup> WFP. 2021. *Caribbean COVID-19 Food Security and Livelihoods Impact Survey: Bonaire Summary Report*

<sup>40</sup> Bijl, R., and Pommer, E. 2015. *Vijf jaar Caribisch Nederland, SCP.*

<sup>42</sup> Based on an interview with the SZW representative.

### 3.2.2 Social Homes

With around 500 social homes available, Bonaire is facing a social housing shortage.<sup>43</sup> According to the social housing association Fundashon Cas Bonairiano (FCB), 1,200 homes are needed to solve the problem of social housing.<sup>44</sup>

Although the increase in demand for social services cannot be ascribed solely to the effects of the COVID-19 pandemic, it is to be noted that the demand for social housing continues to rise, and those new on the waiting list increased in 2020, as illustrated in Figure 9.

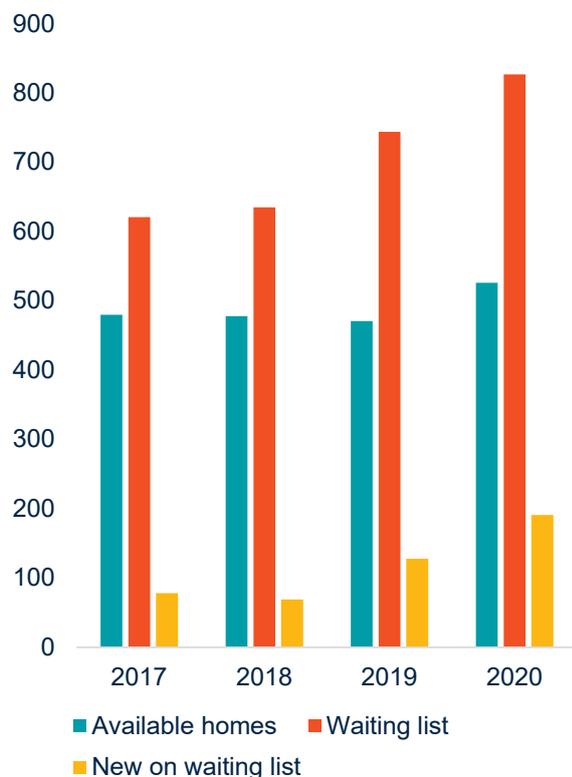
### 3.2.3 Mental Health

Demand for access to mental health services, presented quarterly, also increased from 159 incoming clients in Q2–Q4 2019 to 286 over the same period in 2020 (Figure 10). It would be fair to conclude that the demand for social services has increased steadily over the last few years, especially in 2020.

<sup>43</sup> Estimation based on data provided by Statistics Netherlands.

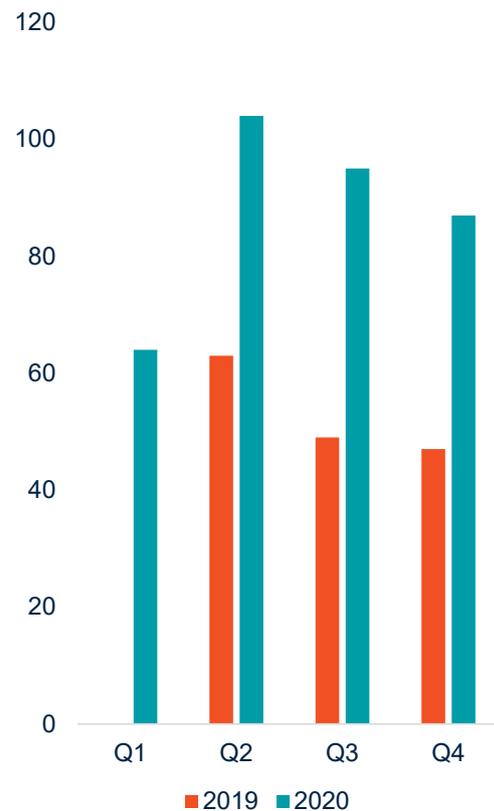
<sup>44</sup> Web article, Caribish Netwerk: Nog geen geld voor bouw van 500 sociale woningen op Bonaire, April 12, 2018.

**Figure 9: Supply and demand for social housing**



Source: Estimates based on data provided by FCB.

**Figure 10: Inflow of mental health clients 2020 compared to 2019**



Source: Estimates based on data provided by Mental Health Caribbean

### 3.2.4 Food Security

In an attempt to address hardships faced by children under SZW, the child allowance, initially introduced in the Caribbean Netherlands in 2016, increased by 50 percent, with an additional increase of US\$20 announced for January 2020.<sup>45</sup> Parents in Bonaire were expected to receive US\$82 per child per month and US\$84 in Sint Eustatius and Saba.<sup>46</sup> In January 2019, employers' social security premiums were reduced, giving them room to increase wages. The United Nations Children's Fund (UNICEF) report noted that children in vulnerable households might be at risk of inadequate nutrition. Before the COVID-19 crisis, 700 children were registered for the school breakfast program, and at the end of May 2020, 833 were accessing the school breakfast.

### 3.2.5 Vulnerability of the Elderly

Financial aid (or 'onderstand' in Dutch) for the elderly was expected to continue to increase along with the minimum wage. More people would be able to make an appeal for financial aid with the increase of the eligible income limit to 120 percent of the minimum loan. Benefits such as the old age pension and widower's pension would also have been proportionally increased with increases in the minimum wage.<sup>47</sup>

However, the report on the elderly, by the Ombudsman (2019), noted that in addition to the lack of precise data on the number of elderly, was the fact that "the cost of living on the islands was high and facilities scarce, causing vulnerable groups of people, including the elderly, to live in bitter poverty". The report described the living conditions of the elderly as being in "vulnerable circumstances".<sup>48</sup> It went further to note that the solution would not only lie "in the increase of incomes and a reduction of the cost of living,

but that more was needed to make sure that the elderly could lead a dignified life". The availability of public transportation, affordable dwellings with bathroom facilities and a place with a day center, domestic care services, or meal services were identified as some of the basic needs that were wanting. We can only conclude that the conditions brought about by the pandemic would have made matters more precarious for the elderly.

### 3.2.6 Social Protection

Additional efforts were reported to have been made to reduce living costs such as housing and childcare. BZK was taking steps toward expanding social housing and regulating rental prices. I&W is providing a subsidy to keep the price of drinking water affordable. At the time of writing, EZK was reviewing the telecoms law and regulations to improve services and reduce costs. SZW, OCW, and VWS are financially contributing to a multiyear program (€9.8 million annually from 2020) with the islands to make childcare financially accessible to all parents and improve quality through the BESt 4 Kids program.<sup>49</sup>

---

<sup>45</sup> These are predicted amounts pending inflation correction.

<sup>46</sup> The child allowance was initially introduced in the Caribbean Netherlands in January 2016.

<sup>47</sup> Letter to the House of Representatives from the State Secretary of SZW, Progress report benchmark for social security in the Caribbean Netherlands, June 27, 2019.

<sup>48</sup> National Ombudsman Report. 2019.

*Eye for the Elderly in the Caribbean Netherlands.*

<sup>49</sup> Letter to the House of Representatives from the State Secretary of SZW, Progress report benchmark for social security in the Caribbean Netherlands, June 27, 2019.

Table 15 presents selected social programs and their expenditure over a four year period. Changes in expenditure between 2019 and 2020, suggest an increase of 24 percent in the case of social relief, a decrease of 54 percent in the case of special relief and an increase of 48 percent in the case of child benefits.

Unfortunately, due to data constraints which presents this data for BES islands as a whole, without disaggregation, it is not possible to compare the distribution of social expenditure to GDP for Bonaire. If this were possible, the expectation would be, that social expenditure would compare favorably to high income countries whose expenditures in cash transfer programs (both unconditional and conditional transfers) average expenditure approximately 0.41 percent of GDP.<sup>50</sup> Alternatively, it may compare favorably

to OECD countries that transfer cash benefits (excluding pensions), which represent on average 3.7 percent of GDP (2017/19).<sup>51</sup>

However, using the data from the 2018 GDP for Bonaire (as presented in the macroeconomic section of the document) of some US\$469 million, it is possible to conclude that expenditure for the BES group for that year, would represent 0.01 percent of GDP for Bonaire alone, which is significantly below the European counterparts. This suggests that expenditure on social protection could be scaled up.

<sup>50</sup> World Bank. Aspire database.

<sup>51</sup> OECD. 2020.

*Social spending makes up 20% of OECD GDP.*

**Table 15: Social expenditure by selected programs (US\$)**

Year	Social relief	Special relief	Children benefits
2017	2,833,062	184,320	2,252,154
2018	2,987,744	255,478	2,205,798
2019	3,346,166	245,714	2,659,742

Source: Estimates based on data provided by SZW



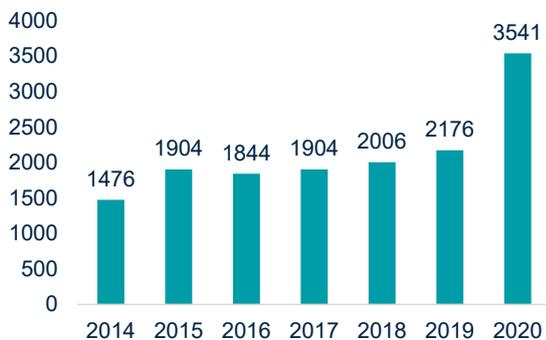
Despite these efforts at social protection, the effects of the COVID-19 pandemic appeared to have a significant impact on food security. Data collected from Food Bank Bonaire and the Adventist Development and Relief Agency (ADRA) suggest that the demand for food increased significantly from 2019 to 2020 and that there was a rise from April to December compared to the earlier months of the year, illustrated by Figures 11 and 12. It is interesting to note that the total number of distributed food packages by ADRA in 2020 was 3,541, of which 68 percent were female recipients and 32 percent were male.

In addition, according to the WFP Survey, some 77 percent of respondents reported a change in shopping behavior. Of that group, 33 percent reported buying cheaper or less preferred foods.

As illustrated in Figure 13, WFP data further suggest that 39 percent of the people who lost a job or income perceived that they had not received any assistance, while only 12 percent of those who had not experienced an adverse change perceived that they did not receive assistance. The WFP concluded that “every fifth respondent experienced difficulties in accessing markets, primarily due to a lack of financial means, and three out of four respondents changed their shopping behavior. Lower-income households were most likely to report an increase in food prices, citing the lack of financial means as market access barriers, and resort to purchasing smaller quantities and cheaper items than usual.”<sup>52</sup>

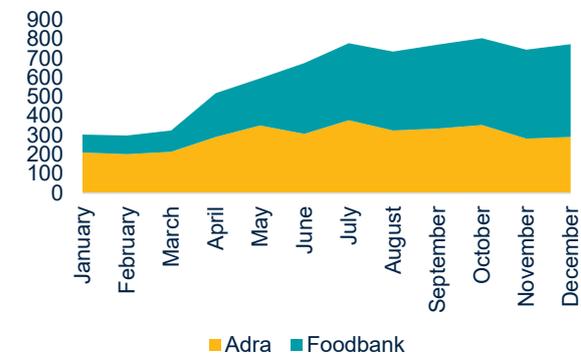
<sup>52</sup> WFP. 2021. *Caribbean COVID-19 Food Security and Livelihoods Impact Survey: Bonaire Summary Report.*

**Figure 11: Distribution of food packages by ADRA (2014-2020)**



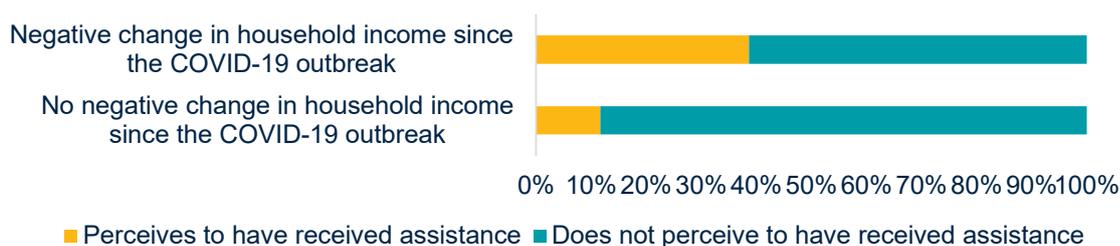
Source: Estimates based on data provided by ADRA

**Figure 12: Distribution of food packages in 2020**



Source: Estimates based on data provided by ADRA and Food Bank Bonaire

**Figure 13: Income change and perceived receipt of government assistance**



Source: Estimates based on WFP data.

### 3.3 Key Challenges

The assessment noted that the COVID-19 pandemic has affected all vulnerable groups, single-parent families, children, elderly, and Papamientu speakers who may be a marginalized group in the population. In addition, the benefit level is not adequate enough to make ends meet generally and may be even less adequate in the current economic situation derived from the pandemic. Among the key challenges facing policy makers are the following:

- Existing inequalities may be exacerbated as a result of the pandemic.
  - Vulnerable families and individuals, such as single parent families, the elderly and children, may require special measures to assist them in building resilience, both economically and socially.
  - Strengthening coordination between the management of the various social safety-net programs may assist in achieving greater efficiencies.
  - Unmet needs for programs that address food security, housing support, psychosocial care, and childcare will need to be addressed.
- of the existing beneficiaries of the social relief program to compensate for higher income losses due to the pandemic. The provision of cash will support smoothing of consumption and support dynamism of the local economy.
- Enhance skills development to upskill or reskill responsive to labor demands and strengthen employment services, particularly unemployed youth and women who work in the tourism sector while returning to employment and diversify labor supply and enhance their employability. The increased demand of the social relief puts higher pressure on SZW to provide employment mediation. The skills development program may be designed as a cash for training program (get paid to be trained).
  - Strengthen preventive and care services for the vulnerable, elderly, and children, including psychosocial support to the affected population.
  - Continue the expansion of the COVID-19 vaccination program. As of May 2021, 70 percent of the target population (aged 18 and older) have received the first COVID-19 vaccination.

### 3.4 Recovery needs

#### 3.4.1 In the medium term

- Redesign social benefits to meet the needs of persons living on Bonaire. The increased demand for social relief and the prolonged anticipated recovery period and heavy exposure of the tourism sector to the COVID-19 shock require to expand the social relief support to serve new affected vulnerable households (from the group of 400 families identified) and temporarily top up the benefit

#### 3.4.2 In the Long Term

- Enhance coordination of the social protection delivery through the development of a beneficiary information systems to track benefits at the household level. This in return will support higher efficiency in resource allocation and better coordination among the programs in place.
- Increase investment in social housing to address the unmet need in the low-income population consistent with the social housing development plan.

## 4

# Sectoral Impact

## 4.1 Productive Sector

### 4.1.1 Tourism

#### Summary

The macro-economic shock was transmitted chiefly through the tourism industry. Both inbound tourism by air and cruise experienced an unprecedented shock from April onwards following border closures. While inbound tourism by air resumed from July 2020 onward, demand remained sluggish. The demand impact on businesses within the tourism sector was pronounced, and the outlook remains uncertain. Particular attention needs to focus on recovery measures, including continued efforts in vaccination and financial support beyond July 2021.

**Table 16: Tourism sector summary indicators**

<b>Demand indicators for 2020</b>	
<b>Inbound tourism to Bonaire by air (x1000)</b>	<b>-58%</b>
<b>Cruise passengers</b>	<b>-62%</b>
<b>Business indicators</b>	
<b>Distribution of businesses according to size</b>	
<b>Small</b>	<b>74%</b>
<b>Medium</b>	<b>18%</b>
<b>Large</b>	<b>7%</b>
<b>Average income loss in 2020</b>	<b>-58%</b>
<b>Businesses that at least temporarily suspended operations</b>	<b>72%</b>

*Source: Bonaire Business Survey (2021), Statistics Netherlands*





**Pre-COVID-19 Context Analysis**

Bonaire focused its unique tourism value proposition on a well-defined nature orientation through the protection of its ecosystem and positioning itself as a blue destination. The eco-tourism niche, supported by valuable natural assets, resulted in solid pre-COVID-19 tourism demand, particularly from the Netherlands. In 2019, the combined growth in stay-over and cruise tourism reached 9.1 percent. And given the global appetite for tourism in the international environment the UNWTO estimated growth between 3 percent and 4 percent worldwide for 2020), Bonaire was well-positioned for a strong tourism industry performance in 2020.

The overall contribution of the tourism sector, including the indirect effects on businesses that principally catered to tourism (e.g., restaurants, retail, and other services), was estimated to account for between 60 to 80 percent of all economic activity.<sup>53</sup> This is consistent with the business survey results, which reveal that 77 percent of businesses deem to service the tourism industry (Table 17) principally. Furthermore, 57 percent of all businesses were categorized as tourism-related small enterprises.

**Table 17: Distribution businesses by size**

	Principally related to tourism	Not principally related to tourism
Small	57%	18%
Medium	14%	3%
Large	6%	2%
Total	77%	23%

Source: Bonaire Business Survey (2021)

Prior to COVID-19, the hotel sector was believed to have been operating at on average 68 percent occupancy, while the Caribbean benchmark for break-even occupancy stood at 65 percent, suggesting slim margins for hoteliers.<sup>54</sup>

**Effects of COVID-19 situation**

On the 14th of March 2020, the Government of Bonaire, preempting local contagion, responded to the global pandemic by halting inbound air travel from Europe and other high-risk countries. The visitors who came to Bonaire in 2020 were mainly Dutch nationals from Europe (around 43 percent) and visitors from Aruba, Curaçao, and Sint Maarten (around 23 percent). Citizens from the United States accounted for a significant part of the visitors as well (about 16 percent). Due to flight restrictions, the share of Americans decreased relative to 2019 (9 percentage points).<sup>55</sup>

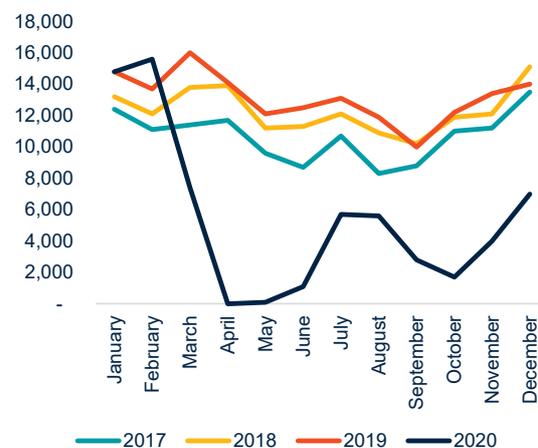
<sup>53</sup> Croes, R. et al (2017).

*Tourism: Synergizing people & nature for a better tomorrow 2017-2027.*

<sup>54</sup> Ibid.

<sup>55</sup> Web article of Statistics Netherlands, *Tourism in the Caribbean Netherlands hit hard by the coronavirus pandemic*, March 2, 2021.

**Figure 14: Inbound tourism to Bonaire by air (x 1000)**



Source: Statistics Netherlands

In July and August, following a relaxation of the COVID-19 related travel restrictions, tourism activity resumed, albeit still at significantly lower levels than the years before. In 2020 as a whole, 58 percent fewer visitors arrived by air compared to the year before. Hotel occupancy, in general, was therefore believed to have remained well below break-even levels, with the exception of some accommodations that reportedly were able to successfully transition to hosting non-residents who were on the island as part of the COVID-19 health response.

Cruise tourism was also profoundly impacted. While in January and February, the number of cruise passengers to Bonaire still grew by around 22 percent relative to the same months in 2019, after the COVID-19 measures took effect in mid-March, cruise activity ceased completely and did not resume for the rest of 2020. As a result, the

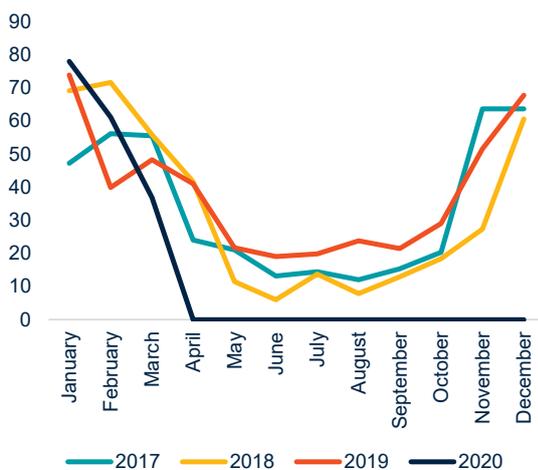
number of cruise passengers calling at Bonaire was approximately 62 percent lower for 2020 in its entirety compared to the year before.

While international air travel is expected to start its recovery in 2021, cruise operations remain suspended across most of the world, posing a bleak outlook for the industry in 2021

**Loss suffered by the sector due to the effects of the COVID-19 Pandemic**

Economic losses in 2020 due to the pandemic for businesses in Bonaire serving primarily the tourism industry appear to be largely the result of the impact on demand. While some increases in operational costs (cost of doing business) were reported, only 19 percent indicated the loss of productivity due to compliance with COVID-19 protocols to be a significant factor (Figure 16).

**Figure 15: Cruise passengers Bonaire (x 1000)**



Source: Statistics Netherlands

**Figure 16: Cause loss of revenue in 2020 for businesses principally active in tourism**



Source: Bonaire Business Survey (2021)

The loss of revenue was pronounced compared to other productive sectors when one considers that on average, businesses that primarily serviced the tourism industry reported a decrease in income during 2020 of 57.9 percent, compared to an average decrease of 12.8 percent for businesses that do not primarily focus on tourism (Table 18).

**Likely impacts**

The impact of primarily the loss of demand in tourism activity resulted in the temporary closure of a significant number of businesses. This effect

was more pronounced among businesses that primarily serviced the tourism industry compared to businesses that do not (Figure 17).

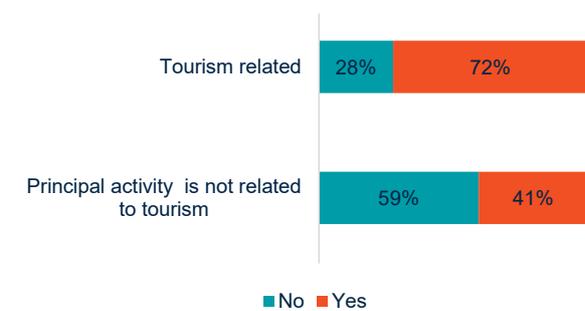
The outlook for businesses to return to pre-COVID-19 sales levels suggests that the impact of the economic shock is expected to continue to linger. Only 26 percent of businesses expect to return to pre-COVID-19 sales levels before the first quarter of 2022, while 22 percent percent foresee doing so in 2023 or later (Figure 18).

**Table 18: Average income loss in 2020 by economic activity**

Economic activity	%
Tourism related	-57.9
Not tourism related	-12.8
<b>Total average</b>	<b>-34.7</b>

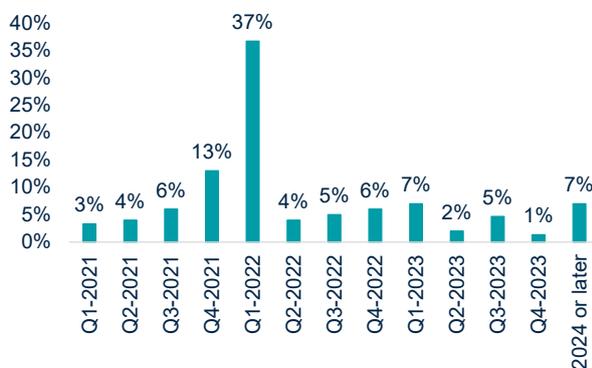
Source: Bonaire Business Survey (2021)

**Figure 17: Businesses that were required to at least temporarily cease operations (by economic activity)**



Source: Bonaire Business Survey (2021)

**Figure 18: When do businesses expect to return to pre-COVID-19 sales levels?**



Source: Bonaire Business Survey (2021)

**Figure 19: When do Businesses expect to return to pre-COVID-19 sales levels? – Cumulative and by size**

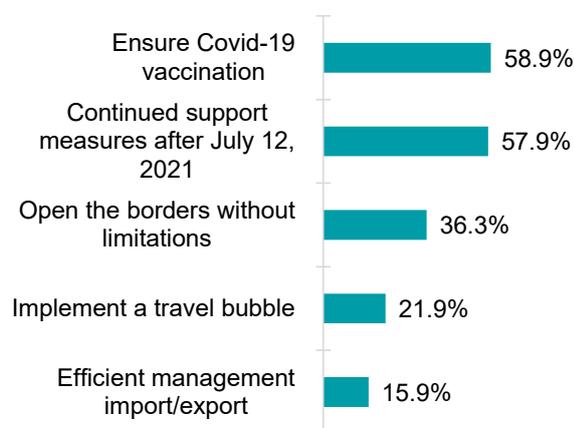


Source: Bonaire Business Survey (2021)

### Recovery needs Strategy/Plan

- Given that the shock is primarily a demand shock, economic recovery efforts need to concentrate on measures that can boost tourism demand. Ensuring ample COVID-19 vaccination has the direct effect of preventing the prevalence of active COVID-19 cases from impeding tourism demand. It is, therefore, rational that businesses have indicated that they believe it should be a top priority to help them get back on their feet (Figure 20).
- Due to the prolonged anticipated recovery period and heavy exposure of the tourism sector to the COVID-19 shock, most businesses will require continued government financial support beyond September 2021 to weather out the shock.
- The authorities have further outlined recovery efforts through a tourism recovery plan, which includes detailed recovery/activation initiatives that are consistent with its strategic tourism masterplan 2017 and can contribute to the long-term sustainability of the sector.

**Figure 20: Top steps businesses believe the government can take to help them get back on their feet**



Source: Bonaire Business Survey (2021)

### 4.1.2 Commerce and Industry

#### Summary

As previously stated, most of Bonaire's income is derived from (tourism) services. This section instead will attempt to capture some of the dynamics for commerce and industry, where tourism is not the principal activity. Although Bonaire has relatively low physical production (e.g., manufacturing), it does have significant commerce and industry activity catered to the domestic market, such as construction, trade, financial services and business services.



**Table 19: Commerce and industry sector summary indicators**

#### Demand indicators for 2020

Import of goods	-4%
Imports of machinery and transport equipment	-24%
Export of goods	-33%

#### Business indicators

Distribution of businesses according to size	
Small	78%
Medium	14%
Large	8%
Average income loss in 2020	-13%
Businesses that at least temporarily suspended operations	41%

Source: Bonaire Business Survey (2021), Statistics Netherlands

**Pre-COVID-19 Virus Context Analysis**

In 2019, construction, industry, and financial services combined accounted for 13 percent of total employment, representing 580 firms.<sup>56</sup> Though GDP figures for 2019 are not available, anecdotal information suggests these sectors were relatively well performing in 2019, in part due to healthy levels of foreign direct investments and positive net migration driven in large part by new settlers from neighboring Curacao, followed by migrants arriving from the Dominican Republic, Venezuela, Peru, European Netherlands and the United States.

**Effects of COVID-19 pandemic on the sector**

Relative to the share of businesses serving the tourism industry, less businesses in the commerce and industry sector are believed to have been subject to the temporary cessation of operation due to the lockdown (Figure 21).

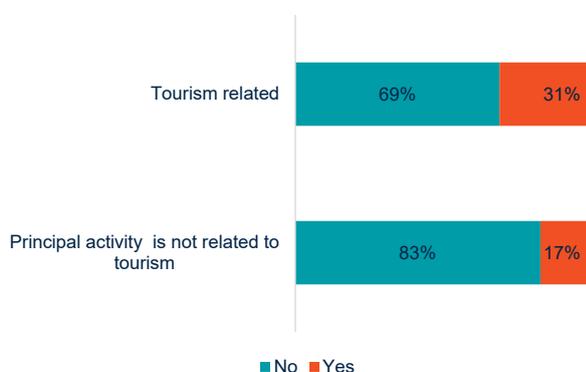
That the disruption was less pronounced is also reflected by a significantly lower reported average income loss for 2020 (-13 percent). Nevertheless, reported (tourism unrelated) disruptions included a lack of demand for a diverse set of commercial activity, such as:

- Residential and commercial construction
- Event organizers
- Media advertisement
- Household repair
- Cleaning of commercial space

Exports of goods in 2020 contracted by 33 percent compared to the year before. Investments were also impacted as businesses largely responded by postponing close to half of planned investments (Figure 22).

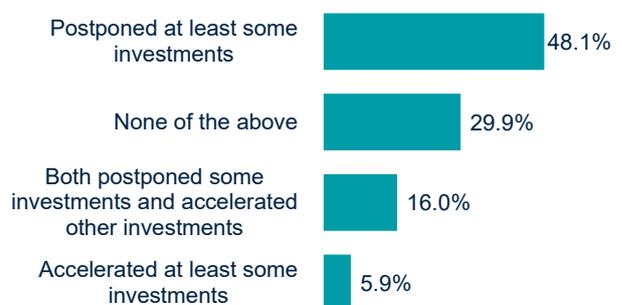
<sup>56</sup> Estimation based on data provide by Statistics Netherlands.

**Figure 21: Were you required to cease operations at least temporarily due to COVID-19 in 2020?**



Source: Bonaire Business Survey (2021)

**Figure 22: Businesses response relating to investments**



Source: Bonaire Business Survey (2021)

While on average medium and large businesses lost 25 percent of their workforce and small businesses lost 22 percent of their workforce, the distribution of employment loss reveals that medium and large businesses were less likely to lose their entire workforce. On the other hand, the distribution of employee loss for small businesses reveals a noticeable concentration at the top, suggestive of complete cessation of operations.

**Likely impacts**

While the COVID-19 pandemic inflicted severe pain in the labor market due to the government enforced lockdowns to contain the virus, the commerce and industry sector in theory holds greater potential to support jobs that can be done from home. In contrast, for the tourism industry, with its services demanding physical presence, the feasibility of significant remote work is less apparent. Businesses in Bonaire report that 31 percent of Businesses who's principal activity was not related to tourism were able to have between 75 to 100 percent of its employees work at least in part remotely from home, compared to just 12 percent for businesses catering to the tourism industry (Figure 24).

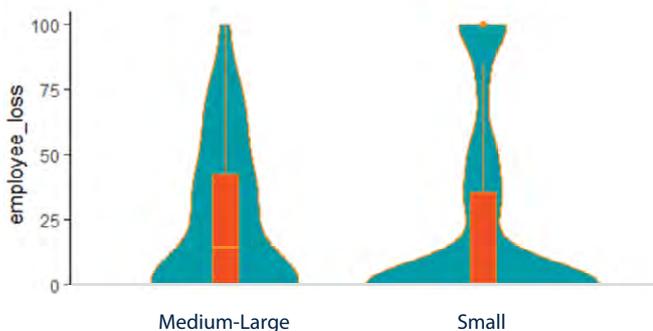
**Recovery strategy**

The COVID-19 pandemic has changed the way we think about working from home. But the situation varies widely depending on the particular business activity conducted, with commerce and industry being more agile to adapt than the average tourism focused business.

- Connection to internet is therefore deemed critical infrastructure. Policy makers acted swiftly by countering the negative effects inflicted by the shutdown by offering subsidies for internet connection. Facilitating and encouraging the adaptation to digital commerce to boost market access to micro and small enterprises could be a logical step to further bolster resilience of businesses.
- The type of available jobs also matter: Educated people tend to have high-skilled jobs that are amenable to working from home.<sup>57</sup> This means that a critical look at the labor market should factor in the consideration of strengthening technical and digital skills through education and ultimately of structural economic transformation.

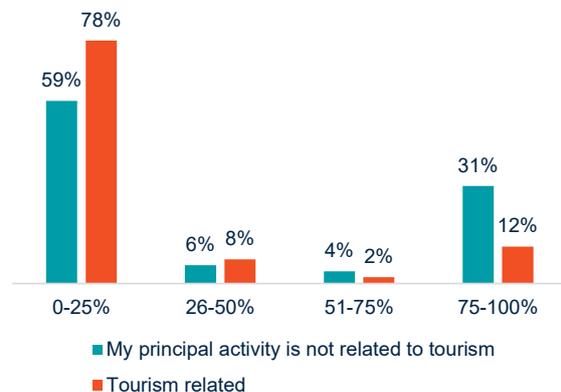
<sup>57</sup> Web article of the World Bank, Who on Earth Can Work from Home? A global comparison sheds light on the importance of ICT infrastructure, October 22, 2020

**Figure 23: Distribution job loss in 2020 by business size**



Source: Bonaire Business Survey (2021)

**Figure 24: What percentage of your employees were able to work at least in part remotely from home in 2020?**



Source: Bonaire Business Survey (2021)

## 4.2 Infrastructure Sector

The three aspects of infrastructure under review as part of this assessment were the transport subsector, including the airport and seaport, the utility subsector, which included electricity, water, and telecommunications, and the logistics subsector with a focus on agriculture.

### 4.2.1 Transport

#### Context analysis

##### *Air transport*

Due to the limited local production, there is a significant dependence on imported goods in Bonaire. The imported goods arrive at the airport and seaport. The total import value of goods was estimated at US\$244 million in 2020. Over the past five years, the import value of goods has increased significantly, averaging 4.7 percent per year.

The Flamingo International Airport or Bonaire International Airport (BIA) is the largest in the Caribbean Netherlands. The OLB is the owner of the airport. The airport can handle wide-body aircraft, including American Airlines, Delta, United, KLM, and TUI Netherlands, that operate scheduled flights to Bonaire. The airport can be operational

24 hours a day. There are either three code C aircraft (US carriers) or two code E aircraft (KLM and TUI) parked simultaneously on the platforms during peak hours.

According to the BIA records, as presented in Table 20, the airport had 472,340 air transport passengers passing through in 2019, arriving, departing, or in transit. More than 600,000 kg cargo was handled, mostly incoming, and the total number of aircraft movements in 2019 was 16,698.

##### *Sea transport*

The maritime infrastructure is also critical to Bonaire. It plays a significant role in the supply of food and nonperishable goods to the island. Bonaire has limited activity in agriculture and horticulture as the climate does not lend itself to such activities; therefore, many foodstuffs must be imported.

The port of Kralendijk is the main public port structure of the island. The Department of Port and Pilotage of the OLB is responsible for the supervision of the ports and enforcement of the Port regulations, and the OLB is the owner of port infrastructure (for example, the grounds and piers in Kralendijk).

**Table 20: Air transport passengers and cargo in 2019 and 2020**

	2019	2020
International passengers (a)	229,572	96,223
Domestic passengers (a)	152,818	61,022
Direct transits	89,950	38,714
<b>Total air passengers</b>	<b>472,340</b>	<b>195,959</b>
Cargo in (kg)	623,608	636,867
Cargo out (kg)	3,007	36,452
<b>Total cargo in/out (kg)</b>	<b>626,615</b>	<b>673,319</b>
International aircraft movements	2,834	1,280
Domestic aircraft movements	13,864	8,258
<b>Total aircraft movements</b>	<b>16,698</b>	<b>9,538</b>

Source: BIA 2020.

Note: (a) Includes both arriving and departing passengers

There are four other piers: Hato, on the site of the water and electricity company; the Oil Trading Bonaire jetty that provides the airport with its needed fuel; Cargil which has a landing site for salt operations on the southern end of the island; and Bonaire Petroleum Corporation (BOPEC) which has two jetties for loading and unloading of liquid bulk goods (petroleum and its products). Two new storage and transshipment facilities are under construction.

Most ships arrive at the port of Kralendijk. In 2019, a total of 726 freight and cruise ships visited Bonaire. Compared to 2018, this was a slight decrease. The port welcomes the Ro-Ro container and multipurpose, bulk, and cruise ships. Almost one-third of the total calls at Kralendijk consisted of cruise ships (187 ships) in 2019. The port has three piers, the North Pier, mainly used for cruise ships, yachts, fruit bars, coast guard boats, pilot boat, car carriers, and BOPEC tugs; the Middle Pier used for transshipment of goods (Ro-Ro ships); and the South Pier which handles cargo ships and larger cruise ships.

Table 21 shows the seaport arrivals. Over 2015–2019, a negative trend was seen in the number of cargo ships entering Bonaire. This decline can almost entirely be attributed to the cessation of operations at the BOPEC terminal, in the north of Bonaire. The number of tourists visiting Bonaire by cruise ship has risen sharply in the years preceding 2020.

### Effects of COVID-19

The disruption to the services provided by the subsector of the ports was indeed severe because of measures implemented to contain the spread of the COVID-19 pandemic, especially the closure of borders. Airspace was closed on March 14, 2020, and cruise ships were also banned from berthing at the seaport. This closure also affected commercial activity, which supported tourists who came on cruise ships and those who arrived by air. The 2020 cruise season lasted three months, during which more than 186,112 cruise tourists came to the island. Compared to the first three months of 2019, the number of cruise passengers in 2020 increased in two of the three first months of the year. After March 2020, cruise operations ceased due to the outbreak of the COVID-19 pandemic. Since then, no cruise ships have been in Kralendijk.

The effect of the COVID-19 pandemic on container throughput was limited. Compared to 2019, the number of imported containers showed a slight decrease (7,499 to 7,453 TEUs).<sup>58</sup> The lack of a sharp decline in container throughput in 2020 implies that the consumption of the island population mainly drives the demand for containers. As the number of tourists decreased sharply in 2020, the effect of tourism on container throughput appears to be limited.

<sup>58</sup> One TEU represents the cargo capacity of a standard 20-foot container.

**Table 21: Seaport arrivals for 2015–2020**

	2015	2016	2017	2018	2019	2020
All ships, all seaports	1,038	934	1,004	751	726	n.a.
<i>Of which cruise ships</i>	146	110	189	171	187	72
Number of passengers	232,139	215,431	422,400	423,568	476,442	186,112

Source: Estimates based on data provided by Bonaire Ports and Maritime and Transport Business Solutions B.V. (MTBS).

Note: For 2020, no detailed information is available about the number of freight ships serving Bonaire.

**Loss suffered by the sector due to the effects of the COVID-19 pandemic**

The loss to the sector was significant. Its effect, however, was dampened by the subsidies provided

by the Dutch Government. Table 22 illustrates the significant drop in income earned by the airport and the seaport, and the subsidies received by the airport.

**Table 22: Summary of losses in the transport sector (US\$, millions)**

		Average 2017-2019	2020	Difference
<b>Revenue</b>	Airport	7.10	3.54	-0.36
	<i>Airport COVID-19 subsidy</i>		3.93	
	Seaport	2.57	1.45	1.12
<b>Loss of revenue</b>				<b>0.75</b>
<b>Operating expenses</b>	Airport	6.64	6.42	0.22
	Seaport	1.40	1.24	0.16
<b>Reduced expenditures</b>				<b>0.39</b>
<b>Change in flows (loss)</b>				<b>0.36</b>

Source: Estimates based on data provided by BIA, Bonaire Ports, and MTBS.  
 Note: The 2020 figures are preliminary and unaudited.

**Figure 25: Income and subsidies in the transport sector (US\$, millions)**



Source: Estimates based on data provided by BIA, Bonaire Ports, and MTBS.  
 Note: The 2020 figures are preliminary and unaudited.

**Needs for recovery, reactivation, and continuity of the response**

Implement a master plan to develop the ports of entry (airport and seaport) aligned with food security and tourism capacity needs.



Need	Strategy	Estimated (US\$, millions)
Food security and tourism capacity needs	Implement a masterplan for the airport: Construction at the current location	~180 (€148 million)
	Implement a masterplan for the seaport: Construction of new cargo port	26

**4.2.2 Utilities****Context analysis****Water**

Water-en Energiebedrijf Bonaire N.V. (WEB), the public water and electricity company, was founded in 1963 and is owned by the OLB. As an 'exclusive' multi-utility company, WEB is responsible for the sustainable, reliable, and affordable supply of drinking water and electricity. Aspects of production and distribution of power and drinking water in Bonaire are regulated by the BES Electricity and Drinking Water Act which came into effect in July 2016. The WEB team consists of 132 staff.

The daily water consumption on the island is currently 5,400 m<sup>3</sup>, of which 80 percent is produced by General Electric Water and Process Technology and 20 percent by WEB with its reverse osmosis plants. The installed production capacity of the WEB reverse osmosis plants is 1,600 m<sup>3</sup> per day. WEB decided to invest in a new water plant with an installed capacity of 5,600 m<sup>3</sup>. At present, a new WEB water plant is in construction, and it is expected that the total installed production

capacity of 7,200 m<sup>3</sup> per day will be sufficient to supply the island with drinking water for the coming years. According to the planning, this turnkey project will be delivered in the third quarter of 2021.

The main production site at Hato hosts two production tanks with a capacity of 4,850 m<sup>3</sup> and three distribution tanks with a total capacity of 15,800 m<sup>3</sup>. WEB seeks to maintain the water storage tanks at a minimum level of 80 percent of the total tank capacity.

For the distribution of drinking water from the storage tanks, WEB utilizes the main transport line of 141 km and a service line of 284 km. At the end of 2019, WEB had 10,348 active water connections. Since March 2013, services had been extended to the collection and treatment of wastewater, the management of the wastewater treatment plant, and the distribution of irrigation water.

**Electricity**

Since 2010, Ecopower B.V., a private sector company, has been engaged in electricity production with a mixed configuration consisting of wind turbines, batteries, diesel generators, and an energy power system. This has allowed WEB to focus entirely on the distribution of electricity and water.

In 2013, ContourGlobal Bonaire (CGB) bought Ecopower B.V. and became the new electricity company in Bonaire. Last year, CGB invested in five diesel generators, a new set of containerized batteries and replaced the energy management system with a power management system. A power management system is a tool by which CGB manages frequency and voltage fluctuations.

WEB started in 2017 with a solar energy pilot of 145 KW and is still analyzing the returns. The BES Electricity and Drinking Water Act allows WEB customers to invest in sustainable energy solutions such as solar panels. These customers are allowed to push back electricity to the grid after inspection and approval of their electrical installations. It is estimated that the total solar panels of approved installations are around 1.5 MW.

**Telecommunications**

Telefonia Bonairiano N.V. (TELBO) is Bonaire's leading communications and media provider, providing services to residential and business customers. TELBO operates under the jurisdiction of its parent company the Bonaire Holding Company, which the OLB owns.

TELBO offers advanced generation technology in their complete range of services, including IPTV, high-speed internet, and the full spectrum of telephone services. TELBO has over 50 employees supervising the operation of Bonaire's largest communications network. In 2019, TELBO was the market leader for fixed network services internet (75 percent) and fixed telephony (100 percent) and had a market share of approximately 50 percent on television and approximately 15-20 percent market share on mobile services subscriptions. The company has been exempted from paying dividends from 2015 to 2019.



### Effects of COVID-19

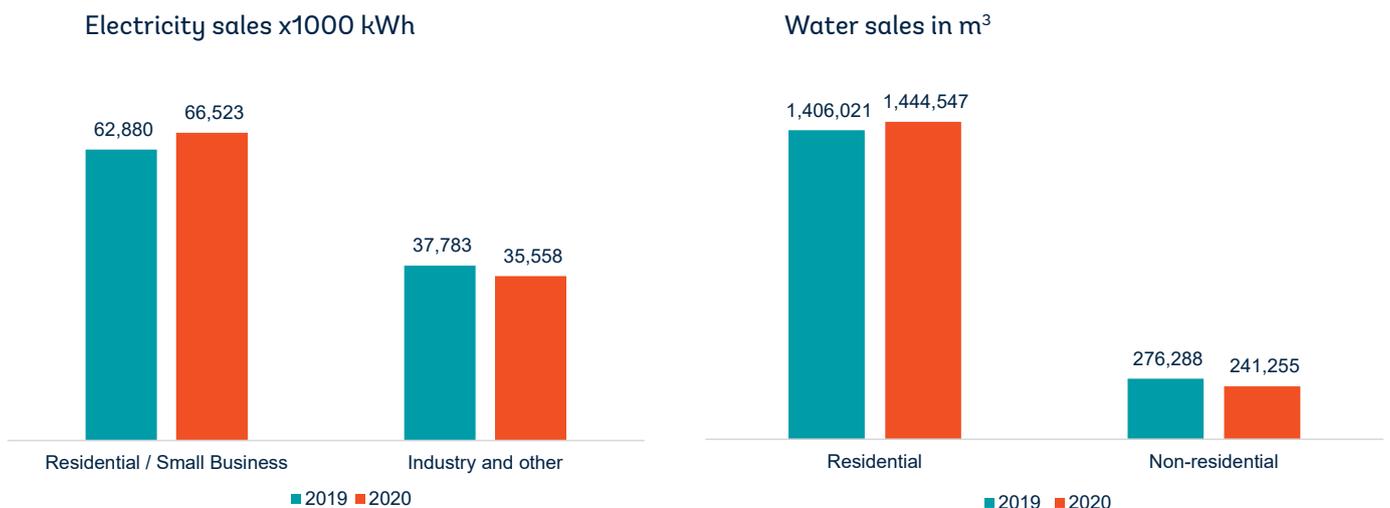
From all information received, the utility subsector did not suffer from any significant number of employees falling ill due to the COVID-19 pandemic. In addition, WEB was proud to report that there were no in-house infections, that is, from non-employees to employees; so well managed was their observation of the safety protocols put in place for the prevention of the spread of COVID-19.

The subsector of utilities did not suffer any such disruption. The governmental measures that closed schools and businesses did not disrupt the production or distribution of water, electricity, or wastewater management. Neither was there a strain on the supply of services due to increased demand as fewer persons were on the island during the period under review. Figure 26 shows a slight increase in the residential use of water and electricity, while non-residential use (for example, industry and large businesses) decreased. The telecommunications subsector experienced an increase in demand for services.

TELBO increased its customer base by 4.8 percent, including both commercial and residential customers. Mobile connectivity increased by 14.9 percent and internet connectivity improved. Fixed telephony and TV were stable despite COVID-19. During the period under review, TELBO experienced lower operational expenses (1 percent). Revenues were negatively affected by fewer tourists using the network for roaming and a shift from call minutes to online calls. The impact this had on revenues was limited. Unfortunately, no private sector data were made available.

In response to the pandemic, EZK provided WEB and TELBO with a customer-based subsidy. This subsidy was meant to reduce the water and electricity bills directly and offer fixed internet bills for households and businesses, which came into effect on May 1. For WEB, the fixed part of the water and electricity tariff of customers was covered by the subsidy. For TELBO, this was a US\$25 subsidy per customer.

**Figure 26: Electricity and water sales (2019–2020)**



Source: Estimates based on data provided by WEB and TELBO.

Note: The 2020 figures are preliminary and unaudited.

### Loss suffered by the sector due to the effects of the COVID-19 pandemic

Table 23 illustrates the loss of income suffered by WEB and the increase in subsidies received which dampened the loss.

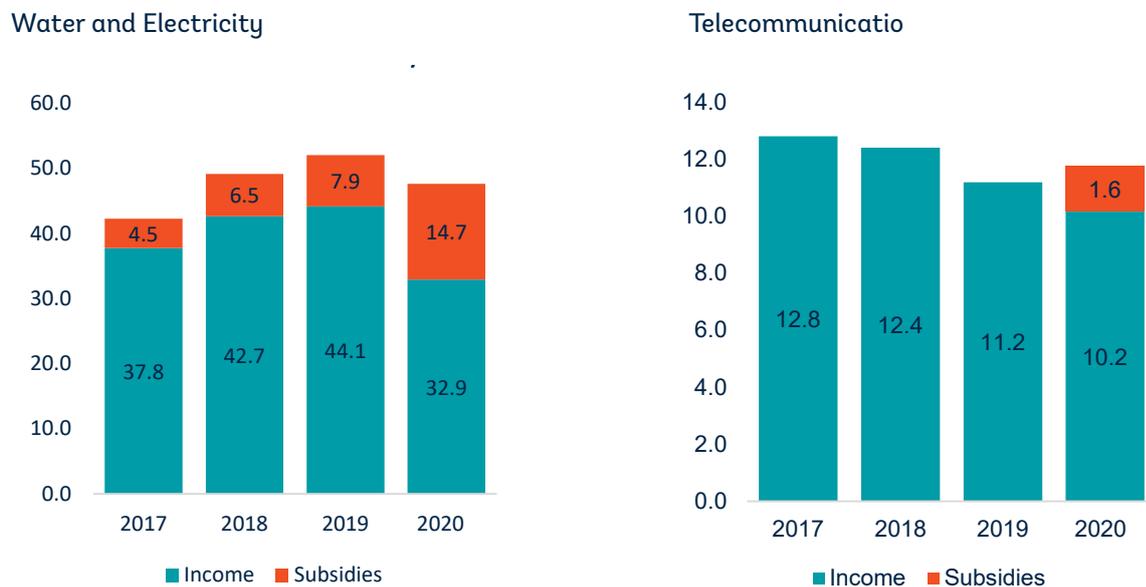


**Table 23: Summary of losses in the utility sector (US\$, millions)**

<b>Panel A</b>	<b>Average 2017–2019</b>	<b>2020</b>	<b>Difference</b>
Electricity revenue	35.08	29.88	0.17
Electricity subsidy (COVID-19)		5.03	
Water revenue	11.73	11.96	-1.17
Water subsidy (COVID-19)		0.94	
<b>Loss of revenue</b>			<b>-1.00</b>
Electricity cost of sale	24.05	25.85	-1.80
Water cost of sale	2.28	2.90	-0.62
Electricity and water operating expenses	19.39	18.90	0.40
<b>Reduced expenditures</b>			<b>-2.02</b>
<b>Change in flows (loss)</b>			<b>1.02</b>
<b>Panel B</b>	<b>2019</b>	<b>2020</b>	<b>Difference</b>
Telecommunication revenue	11.2	10.15	-0.55
Telecommunication subsidy (COVID-19)		1.60	
<b>Loss of revenue</b>			<b>-0.55</b>
Telecommunication cost of sale	3.42	3.20	0.22
Telecommunication operating expenses	5.84	5.80	0.04
<b>Reduced expenditures</b>			<b>0.26</b>
<b>Change in flows (loss)</b>			<b>-0.81</b>

Source: Estimates based on data provided by WEB and TELBO.

Note: The 2020 figures are preliminary and unaudited.

**Figure 27: Income and subsidies in the utility sector (US\$, millions)**

Source: Estimates based on data provided by WEB and TELBO.

Note: The 2020 figures are preliminary and unaudited.

### 4.2.3 Logistics (agricultural)

#### Context analysis

The flow of food imported for consumption of the local population and the visitors who arrive on the island is best understood by examining the logistics of the demand and supply of agri-food value chains. Currently, agricultural production on the island is almost nonexistent for the national accounts, even though there are a few producers. The imports come by two transport modes: (a) by sea, cargo that arrives in Curaçao and then is transported to Bonaire in a smaller feeder service, and (b) by plane, for perishable high-end products, brought by KLM passenger planes.

The connection with the international trade markets is mainly by sea, with a maritime transportation share of 97.6 percent of the total food imported.<sup>59</sup> Airplane cargo is very low, with only 2.4 percent of total tons of food imported by air.<sup>60</sup>

Food imports arrive in Bonaire by a previous transshipment in Curaçao. Sea services that link Curaçao to the rest of the world include a weekly ship sailing from Port Everglades. It takes five days to sail from the United States to Curaçao. It is a container ship serving the lines Crowley, Hamburg Sud, Alianca, and King Ocean. This ship has a capacity for 3,636 TEUs and a total reefer plug for 768 containers, and there are two ships deployed for this route.

<sup>59</sup> Estimation based on data provided by Statistics Netherlands.

<sup>60</sup> Ibid.

Furthermore, there is a service running with four ships, Cosco, Hapag Lloyd, Caribbean Feeder, Seaboard, and Zim. These ships can carry up to 4,128 TEUs and have 853 reefer plugs each. It takes five days to sail from the port of Cartagena to Willemstad in Curaçao. From Europe, the service has five ships that travel on a weekly schedule from Rotterdam to Antwerp and then Willemstad in 14 days. It is a bigger ship with a capacity of 13,050 TEUs and 3,043 reefer plugs. Also, the European service of Nirint with a multipurpose ship can carry 5,274 TEUs and plug 378 reefer containers. The ship sails from Rotterdam to Barcadera in 14 days and then takes another day to arrive in Willemstad with a frequency of 12 days. There is a local service by Hoegh Autoliners that takes 29 days to go around the Caribbean. It comes from Oranjestad to Willemstad in one day, once a month.<sup>61</sup>

The transshipment at Curaçao generates extra time and cost to bring the food to Bonaire. In Bonaire, containers arriving by the feeder service from Curaçao will be loaded as Ro-Ro and carried directly to the buyers' location, usually the supermarket's warehouse or the wholesalers. Port performance measures show that, on average, in Curaçao, it takes 1.22 days to unload a container ship.<sup>62</sup> As a reference, the median time at the port of the Netherlands for container ships is 0.8 days.<sup>63</sup>

<sup>61</sup> Shipping routes source is Cocatram, maps and services to the Caribbean. For further details: [www.cocatram.org.ni](http://www.cocatram.org.ni)

<sup>62</sup> UNCTADSTAD Port of call and performance statistics.

<sup>63</sup> United Nations Conference on Trade and Development. 2020. Handbook of Statistics - Maritime transport.

**Table 24: Container arrivals 2016–2020**

	2016	2017	2018	2019	2020
Container Imports TEUs	6,505	6,478	6,839	7,499	7,453
Container Imports in Boxes	3,976	3,918	4,095	4,463	4,500
Number of container ships	265	270	267	342	350
Average of container per week in TEUs	125	125	132	144	143
Average of boxes per working day	15	15	16	17	17
Average of container ships per week	5	5	5	7	7

Source: Based on data provided by MTBS.

**Table 25: Cost and time to import and export 2019**

Region	Cost to Import	Cost to Export	Time to Import	Time to Export
Caribbean Average	1028	699	82	68
Continental Caribbean Average	596	634	139	166
Non Caribbean Island Average	622	579	137	120

Source: Estimates based on Doing Business Data.

Note: Caribbean Average is calculated with data for the Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago. Continental Caribbean average is calculated with data from Belize, Colombia, Guyana, Suriname, and Non-Caribbean Island average, including Kiribati, Marshall Islands, Mauritius, Palau, São Tomé and Príncipe, Seychelles, Solomon Islands, Tonga, and Vanuatu.

Doing Business records the time and cost associated with the logistical process of exporting and importing goods. It measures the time and cost (excluding tariffs) associated with three sets of procedures—documentary compliance, border compliance, and domestic transport—within the overall process of exporting or importing a shipment. According to available data for the Caribbean, compared to other countries, the Caribbean islands have higher costs to import and export, but the process (custom clearance and documentary compliance) takes less time.<sup>64</sup> Cost to import is 72 percent higher for the Caribbean Island states compared to continental countries in the region, while the cost to export is 10 percent higher.

According to the interviews, the time and cost to import (and therefore to export) by sea due to low volume increases, since bringing cargo by ship to Curaçao has a similar cost as getting it from the transshipment port Bonaire.

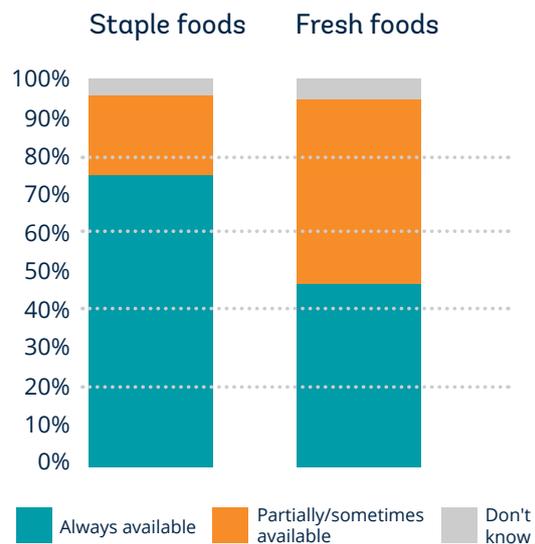
Thus, identified constraints include the following:

- (a) Low cargo volume, with shipping companies not having Bonaire as a stop. A question that arises about the feasibility of making Bonaire a port stop for the shipping companies that normally work for the market, specifically the route from the United States and the one from Europe;<sup>65</sup>
- (b) One feeder service that can only bring cargo on the chassis but not packing containers because there are no cranes in Bonaire's port. Furthermore, the service allows to get 16 to 18 containers per trip, and the ship could go up to two extra loads of containers if a mobile crane could be operated in Bonaire;
- (c) Longer cost and time leads to shorter shelf life of products at the retail stores.

### Effects of COVID-19

The shipping industry was declared essential in countries of origin as in Bonaire, so food imports by ship did not suffer any disruptions due to the pandemic. Airplanes, however, were cancelled for several weeks.<sup>66</sup> Therefore, no perishable fresh products can be brought by plane to the island. The impact was a shortage of fresh dairy, cream, cheese, and vacuum-packed milk from the Netherlands. This situation was solved when airplane trips were restored. Furthermore, the volume of incoming food by ship was not reduced due to the closure of the tourism flows.

**Figure 28: Availability of product in the market**



Source: Caribbean COVID-19 Food Security and Livelihoods Impact Survey. April 2021.

<sup>64</sup> Doing Business records the time and cost associated with the logistical process of exporting and importing goods. For further details: [www.doingbusiness.org](http://www.doingbusiness.org).

<sup>65</sup> According to the port's authorities, they have tested the interest of the shipping companies on stopping in Bonaire, and if a proper infrastructure is in place, some of the liners may consider adding a stop.

<sup>66</sup> From March 14, 2020, to July 1, 2020.

According to quarterly trade data, the value of imports shows a decrease in the second quarter of 2020 compared to the same period of the previous year, indicating some impact on inventories, probably due to the pandemic. However, the total food value imported in 2020 was 2.7 percent higher than in 2019, with a total of US\$45.2 million. As shown in Figure 29, imports of food are steady and have been growing in the last few years.

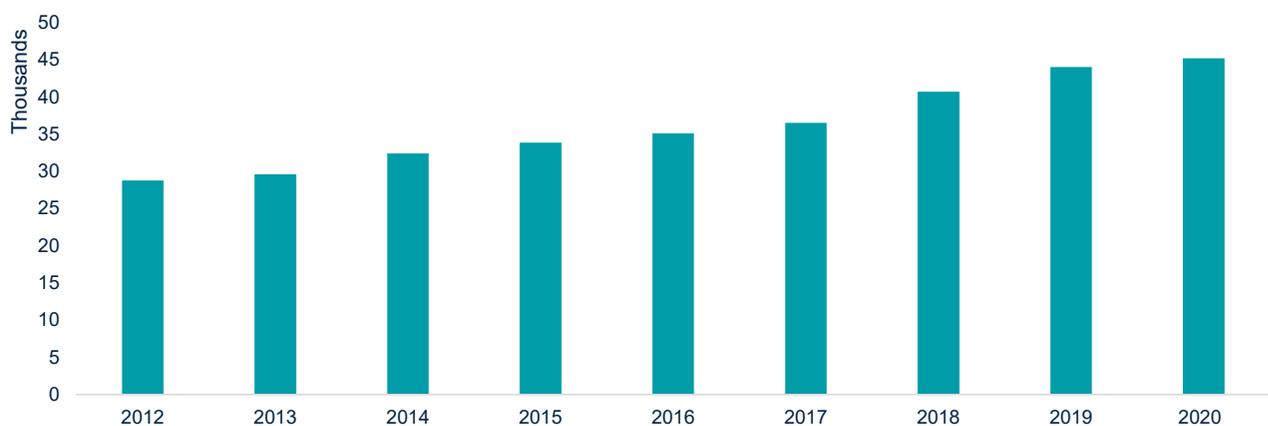
Because the Caribbean islands share a similar situation, importing most of what they consume, local internal Caribbean trade is scarce. There is low local food production to trade between Caribbean states, and transport costs are high. Even though there are links with shipping and freight connectivity, each island will prefer to directly import from either Miami, the EU, or Latin America. In Bonaire, import origin mainly includes the EU, United Kingdom, Italy, Germany, and exceptions such as Jamaica, Antigua, Barbuda, Canada, Colombia, and Brazil.

**Figure 29: Imports of food and live animals, quarterly (US\$, thousands)**



Source: Estimates based on Statistics Netherlands Official Data.

**Figure 30: Imports of food and live animals, annual data (US\$, thousands)**



Source: Estimates based on Statistics Netherlands Official Data.

Bonaire’s population had been growing at a compound annual rate of 2.8 percent in the last 10 years, and the increased imports of food reflect an additional need to feed the growing population. Stay-over visitors account for an extra 18 percent of the permanent population on average at any given time, and lack of visitors did not have an impact on food trade.<sup>67</sup>

The pandemic affects the prices of food and nonalcoholic beverages, as shown in the report's macroeconomic section.

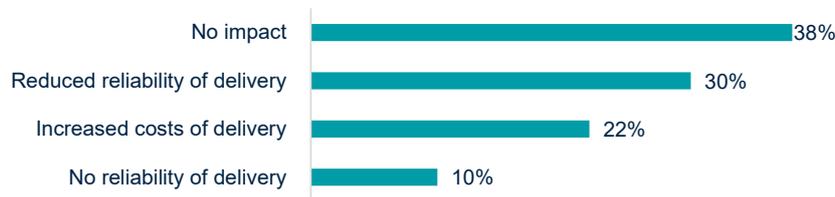
According to the business surveys, 38 percent of the businesses interviewed answer that there

was no impact due to the pandemic on the deliverability (logistics) of goods and services. However, 30 percent answered that there was reduced reliability of delivery, 22 percent said that there was an increased cost of delivery, and 10 percent reported no reliability.

In the retail stores, measures to contain the pandemic influence the concurrence of customers to the stores, as reflected by the answers to the survey.

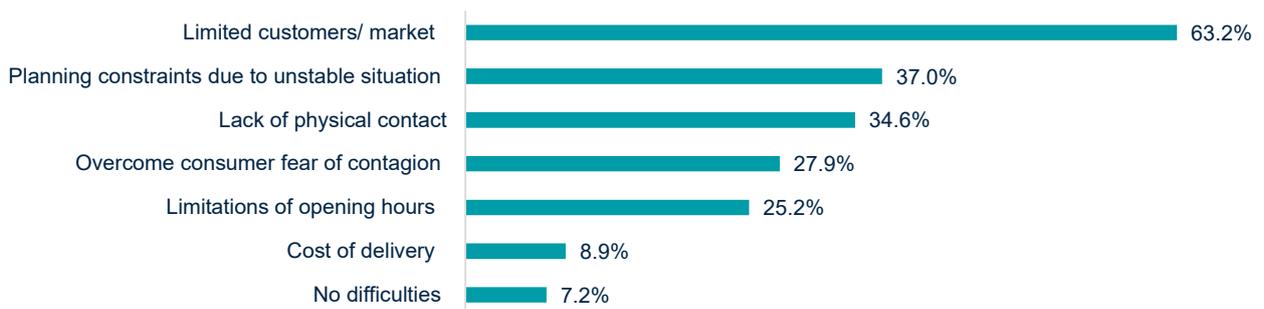
<sup>67</sup> Calculated based on visitors night stays per year (average of 8.8 nights per total of 157,800 in 2019).

**Figure 31: Impact of COVID-19 on the logistics of good and services in 2020**



Source: Bonaire Business Survey (2021).

**Figure 32: Difficulties in getting your products to markets in 2020 compared to 2019**



Source: Bonaire Business Survey (2021).

**Needs for recovery, reactivation, and continuity of the response**

- **Improve sea connectivity.** To achieve a lower cost of food imports, the need is to improve sea connectivity. One option would be to construct a new cargo port to attract shipping lines to make a direct stop, avoiding the transshipment in Curaçao. This option will require a socioeconomic analysis for the investment and understand the shipping lines' willingness to serve the port. In the short term, acquiring a mobile crane that could bring more containers from Curaçao to Bonaire in a single trip could be considered (will triple the ship capacity by stacking the containers).
- **Foster locally produced food, in particular, fresh produce and fish.** Farm-to-fork model references sourcing locally, retail stores, families, restaurants, and hotels. To achieve such an objective, there is a need to produce locally, with technologies that make rational use of water and land and are able to assure quality and consistency for the products. Due to the soil and water impediments, options such as a greenhouse or vertical farming and hydroponics could be analyzed. According to the 2017 Strategic Tourism Plan, the demand survey showed that tourists identified Bonaire's food taste as one of the attractions of visiting the island. Furthermore, one of the plan's objectives is to 'Elevate the tourist experience: Highlight Bonaire's culture, culinary arts, and the variety of land and sea adventures'.<sup>68</sup>
- **Use technology to improve agrologistics.** Communication technologies have been facilitating the connection between farmers and markets and direct sales to consumers. These enable market agents to better coordinate product supply and demand, strengthen existing trade networks, facilitate products to reach a critical mass, and allow products to be delivered cost-effectively to new markets. A logistics system that uses communication technologies could provide support to facilitate (a) collection by organizing the gathering routes; (b) aggregation by permitting markets with sufficient critical mass to serve retail, wholesalers, and tourism sector and provide timely information about the products available; and (c) delivery by coordinating with other producers and transport services providers to organize time, dates, and volumes to be provided.<sup>69</sup>
- **Finally, identify and promote potential export products.** It is challenging to identify potential export products, even though some examples are out of the food sector. One of them is natural skincare products, and the other is a distillery that has several alcohol-based beverages, such as rum, vodka, and liquors.

<sup>68</sup> OLB. 2021. *Tourism Recovery Plan*.

<sup>69</sup> World Bank. 2017. *ICT in Agriculture: Connecting Smallholders to Knowledge, Networks and Institutions*. Updated edition. Washington DC, World Bank.



Need	Strategy	Estimated (US\$, millions)
Improve sea connectivity	Evaluate acquisition of a mobile crane for local port.	0.05
	Implement masterplan for the seaport: Construction new cargo port (a).	26
Foster locally produced food (e.g., fresh produce and fish)	Develop incentives for the farm to fork model and implement the agro-plan.	Operational cost of agro-knowledge center 1 per year. Investments 1 (b)
Use technology to improve logistics	Digitalization to match demand and supply	Needs further market analysis
Identify and promote potential export products	Identify food-based products. Test agro and aquaculture-based products, like spirulina.	N.A.

Note: (a) This strategy was also presented in the infrastructure sector and continues here.

(b) Estimations of the Agro-Plan.

### Box 2: Department of Agriculture Agro-plan programs<sup>70</sup>

According to the Department of Agriculture, after losing Venezuela as a supplier of fruits and vegetables, an Agriculture, Livestock and Fishery Plan was developed, which became more significant due to the COVID-19 crisis. The initiatives are expected to be implemented through a knowledge center.



These programs include the following:

- Animal husbandry breeding
- Promotion of private companies with high technological production for aquaponics, fish, vegetables, and cactus fruits
- Amateur planting program and educational program to grow fruits and vegetables at home.
- Program water recycling for home gardening and small agriculture.
- Fisheries: a program to upscale skills of families that relies on fishing. The objective is to provide profession courses and equipment to move fishing from the reefs to deep water and generate potential export products that could be transported to the Netherlands in nine hours at the passenger planes.
- Options for processing excess production of fruits and vegetables, such as dry tomato chutney.

<sup>70</sup> Based on an interview with the Department of Agriculture, Bonaire's Public Official.

# 5

## Cross-cutting Themes

### 5.1 Disaster Risk Financing

Whereas this report's focus is on performing a socioeconomic assessment following the effects of COVID-19, it is also relevant to consider the prevalence of compounding shocks when, for instance, COVID-19 would be combined with climate or weather-related shocks. The point of entry of COVID-19 shocks into the economic system is through a decrease in demand, whereas natural hazards impact capital stock, and through a reduction of the productive assets, the supply side of the economy is affected. A combination of these shocks can cause severe and long-lasting damage to the economic system of a country or a region.

As part of an integrated disaster risk management framework, it is therefore important to estimate the impact that such an occurrence can have on the economy of Bonaire. With estimated economic impacts of natural hazards, appropriate disaster risk financing strategies can be developed that outline ex ante enabling actions or financial instruments with the ultimate objective of creating a stronger financial resilience for the people and economy of Bonaire.





In responding to the external COVID-19 shock, businesses, to a large extent, were unprotected by insurance products, highlighting their vulnerability to the materialization of alternative compounding shocks (Figure 33).

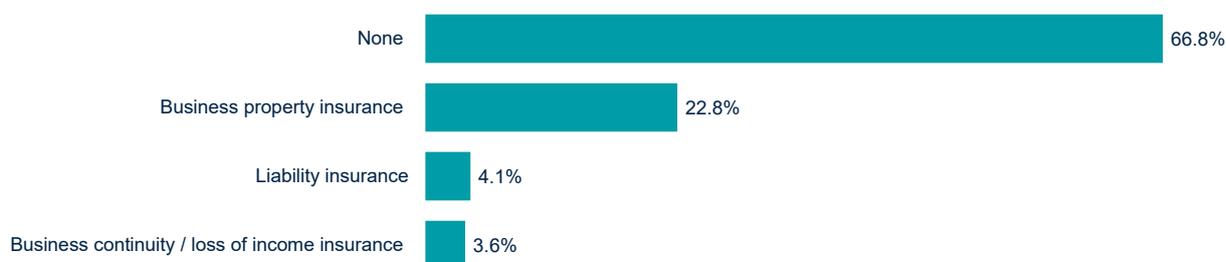
Bonaire is largely dependent on incidental funding by European Netherlands in the case of an unexpected event such as a disaster or crisis. On behalf of the Executive Council of Bonaire, the Governor can request (financial) assistance from the Dutch Government. Immediate assistance generally consists of the delivery of equipment and the deployment of certain experts or the military. The amount of financial contributions depends on the actual consequences and costs of disaster relief and reconstruction.

A lack of records of post-disaster expenditures in Bonaire limits OLB's ability to quantify contingent liabilities associated with disasters and optimize financial protection strategies. A continuously

maintained database of disaster-related loss and damage, if linked to a broader asset management database, can be a starting point for tracking post-disaster expenditures and closing the fiscal gap in ensuring robust post-disaster response. Currently, the potential damages and losses from (natural) disasters are not included when calculating the resilience capacity.

As a starting point in the assessment process of disaster risk financing, an estimate was produced of the exposure of the building of Bonaire, broken down by residential and non-residential buildings. The results show a built-up area of 2.1 million m<sup>2</sup> with a corresponding capital stock value of US\$3 billion, which is equivalent the value of GDP rounded off six times (expressed in 2018 prices). Given the substantial exposure, it is recommended to pursue further steps to explore these risks and assess mitigating factors in particular related to disaster risk financing.

**Figure 33: By what type of business insurance is your business covered?**



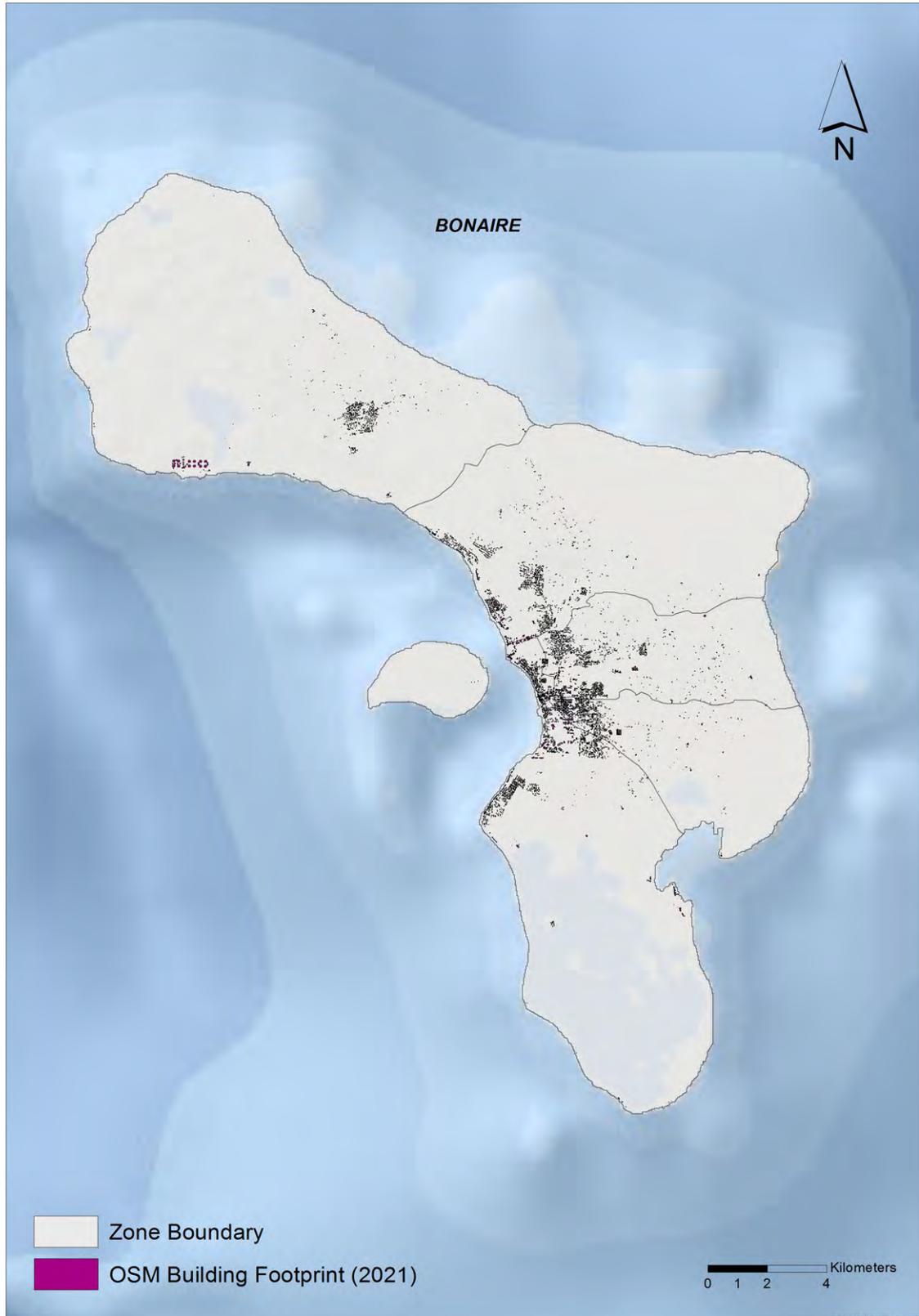
Source: Bonaire Business Survey (2021)

**Table 26: Buildings' exposure estimate**

	Built floor area (m <sup>2</sup> in 2018)	Exposure (US\$ in 2018)	US\$/m <sup>2</sup> (2018)
<b>Residential</b>	1,079,977	1,431,164,573	1,325
<b>Non-residential</b>	1,047,258	1,523,138,969	1,454
<b>Total</b>	2,127,235	2,954,303,542	1,389

Source: World Bank. Disaster Risk Resilience Analytics and Solutions. OCT Buildings Exposure Estimation

Figure 34: Bonaire OpenStreetMap building footprint (2021)



Source: OpenStreetMap, World Bank

## 5.2 Environment

Bonaire has two protected areas: the Bonaire National Marine Park (BNMP) and the Washington Slagbaai National Park (WSNP). STINAPA is a nongovernmental, not-for-profit foundation commissioned by the island government to manage both parks.

WSNP encompasses the northwest tip of Bonaire and is the oldest and one of the largest terrestrial protected areas in the Dutch Caribbean, covering approximately 17 percent of the island. The park's dry forest, cactus, scrub, and wetland habitats provide a safe habitat for the island's native terrestrial species, such as parrots, flamingos, parakeets, iguanas, and many other species of birds and reptiles. Hiking, climbing, mountain biking, birdwatching, snorkeling, and scuba diving are some of the park's most popular activities. Several shoreline access points provide access to the sea.<sup>71</sup> In the four years preceding 2020, WSNP received yearly between 41,000 and 61,000 local and international visitors (Table 27).

BNMP includes all the waters surrounding Bonaire and the uninhabited island of Klein Bonaire, from the high tide mark to 60 m (200 feet) of depth. This is an area of about 27 km<sup>2</sup> (6,672 acres) and includes the coral reef, seagrass, and mangroves. The marine park consists of various ecosystems such as coral reefs, seagrass beds, and mangrove forests. Popular dive sites can be found on the

west coast and around Klein Bonaire. The marine park offers a wide range of recreational activities on which the island's tourism-driven economy is heavily dependent. BNMP annually sold between 58,000 and 77,000 dive and other user tags from 2016 to 2019 (Table 27).

STINAPA's park management activities include patrolling; assisting users; responding to safety and enforcement issues; maintaining moorings/trails and basic monitoring; keeping field logs; and inspecting and maintaining buildings, vehicles, boats, moorings, tracks, trails, and roads as well as mooring buoys, signage, markers, and special equipment.

STINAPA's education program consists of both in-school and out-of-school activities. Classroom-based presentations and associated outdoor activity programs are age specific and focus on elementary school children. STINAPA's out-of-school activity programs include a snorkel club (*Tortuga di Boneiru*) and the Junior Ranger program.

STINAPA's most significant source of income is from admission fees for BNMP and WSNP. Additionally, STINAPA charges for private moorings as well as for the use of public yacht moorings. STINAPA also receives grants and subsidies for specific projects and programs.

<sup>71</sup> De Meyer, K., and D. MacRae. 2021. *Management Success Technical Report 2020: STINAPA Bonaire*.

**Table 27: National park visitors**

	2016	2017	2018	2019	2020
<b>BNMP tags sold</b>	58,268	58,525	68,645	76,924	32,048
<b>WSNP visitors</b>	41,205	42,171	54,315	60,642	26,622

Source: Based on data provided by STINAPA.

Note: 'BNMP tags sold' includes all paying visitors to the marine park. This is the sum of all sold dive tags, e-tags, and user tags. WSNP visitors include repeated visits. Admission to the WSNP is free for tag holders.

### Effects of COVID-19

The COVID-19 pandemic has a significant impact on STINAPA. Tourism came to a stop toward the end of March, leaving STINAPA without its main source of income, admission fees. COVID-19-related restrictions meant that the WSNP was closed in March and April and had restricted opening hours for much of the year. The number of visitors to the national parks dropped significantly. Table 27 shows that the sales of BNMP tags fell by 58 percent to 32,048 and the number of WSNP visitors was only 26,622 in 2020, a decrease of 56 percent compared to 2019.

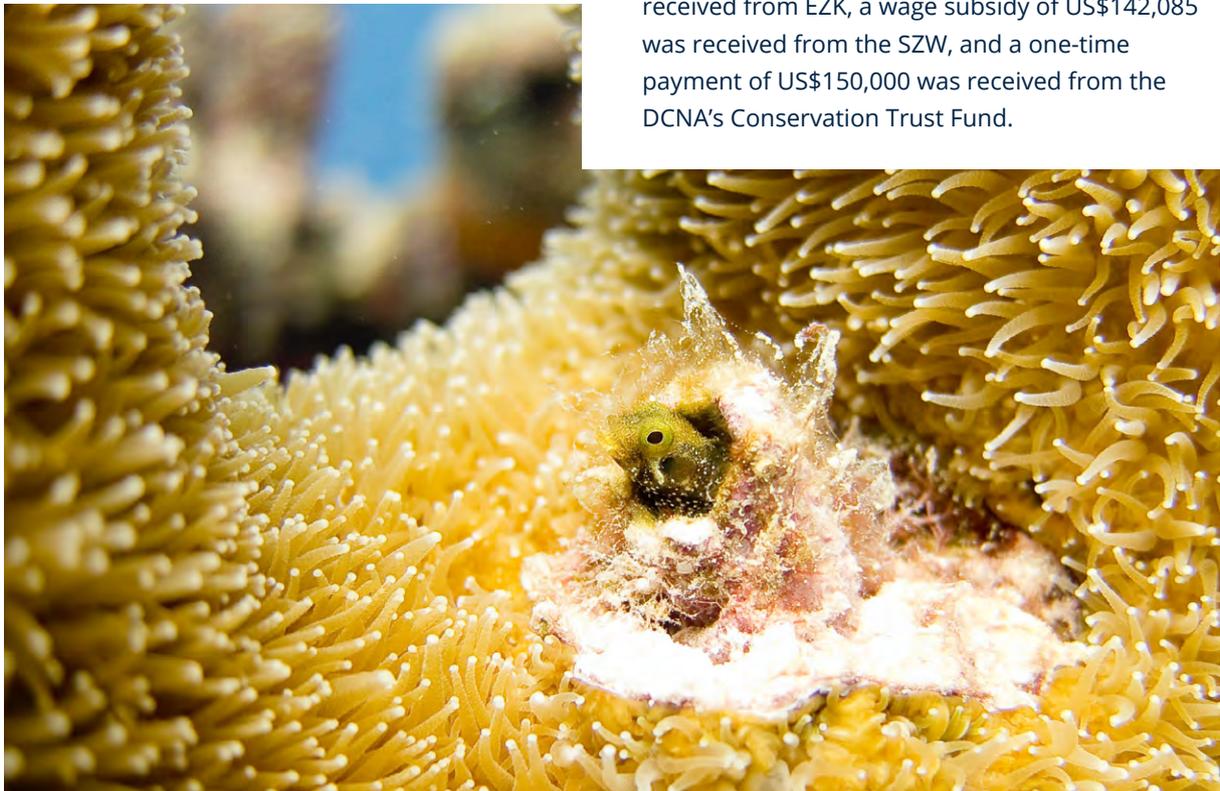
Financial support provided by the Dutch Government through salary subsidies was necessary, but this required staff to work only six hours per day. A shift system had to be established to cover the workload. Several employees left in 2020, but to cut costs, they were not replaced immediately. Finally, interns, students, and volunteers from abroad, who normally support staff activities, were no longer able to come to Bonaire.

The result of the limited financial and human resources was severe cost cutting and cancelled projects and work. Much of the work planned for the year, including recreational enhancement and development of new sites of interest, had to be cancelled or postponed.

Staff were forced to work from home for most of the year due to restricted access to STINAPA's headquarters. Meetings with rangers had to be scheduled at remote outside locations. Planned staff training courses could not be held and working with stakeholders and partners became particularly difficult. Staff were only able to undertake the bare minimum of park management activities.

The educational program completely stopped in March as elementary schools were closed. Fortunately, STINAPA started up classroom-based activities again in May, while scheduling remained complicated due to COVID-19-related restrictions.

STINAPA received three types of COVID-19 support. A loss of income subsidy of US\$158,400 was received from EZK, a wage subsidy of US\$142,085 was received from the SZW, and a one-time payment of US\$150,000 was received from the DCNA's Conservation Trust Fund.



### Loss suffered by the sector due to the effects of the COVID-19 pandemic

The estimation of losses is based on information provided by STINAPA. Due to the significant increase in the prices of admission fees and dive tags in 2019, losses are estimated using only 2019 as the baseline scenario. Table 28 presents the results. In the cross-cutting environmental sector, it is estimated that the loss of revenues totals US\$1.4 million, which fully corresponds to the reduction in

income from the operation of the national parks, in particular the sales to tourists. Cost-cutting and cancelled projects and work translated in a reduction of expenditures of US\$300,000. The total net losses are therefore US\$1.1 million.

The experience of those actors from the cultural sector have some similarity. See Box 3 on the experience of the Mangazina di Rei Foundation.

**Table 28: Summary of losses in the environmental sector (US\$)**

		2019	2020	Difference
<b>Revenues</b>	BNMP user fees	2,483,825	1,215,415	1,268,410
	WSNP user fees	291,838	104,040	187,798
	Other income	77,366	140,620	-63,254
	Subsidies and donations	153,750	124,841	28,909
	DCNA trust fund and EZK loss of income subsidies		308,400	-308,400
<b>Loss of revenues</b>				<b>1,113,463</b>
<b>Expenditures</b>	Operational costs	2,251,286	1,937,190	314,096
	Other (housing, depreciation, and provisions)	309,742	282,267	27,475
	SZW wage subsidy		-142,085	142,085
<b>Reduced expenditures</b>				<b>483,656</b>
<b>Change in flows (loss)</b>				<b>629,807</b>

Source: Estimates based on data provided by STINAPA.

Note: The 2020 figures are preliminary and unaudited.

**Figure 35: Income and subsidies environmental sector (US\$, millions)**



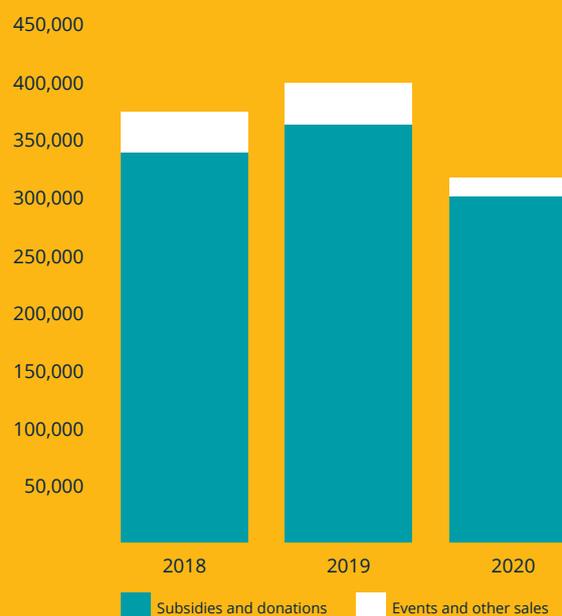
Source: Estimates based on data provided by STINAPA.

Note: The 2020 figures are preliminary and unaudited.

**Box 3: Loss suffered by the culture sector due to the effects of the COVID-19 pandemic**

The pandemic adversely affected the culture sector. A good example of this is the Mangazina di Rei Foundation. First, as a result of the safety measures taken by the local government, cultural, educational, and fundraising activities had to be cancelled. Second, the decrease in the number of tourists arriving on the island caused a significant drop in the number of visitors to the monthly exhibition event and tours. Third, several companies indicated that they could no longer make the usual contribution due to the pandemic's impact on their businesses. While the cost of sales also decreased in 2020, this did not prevent the foundation from reporting a loss. Overall, a loss of US\$26,374 is estimated.

**Figure 36: Income and subsidies Mangazina di Rei Foundation**



**Table 29: Summary of losses - Mangazina di Rei Foundation (US\$)**

		2018	2019	2020	Difference
Revenues	Subsidies and donations	340,206	363,876	301,495	50,546
	Events and other sales	34,142	36,639	15,728	19,663
<b>Loss of revenues</b>					<b>70,209</b>
Expenditures		362,708	383,583	329,311	43,835
<b>Reduced expenditures</b>					<b>43,835</b>
<b>Change in flows (loss)</b>					<b>US\$ 26 374</b>

Source: Estimates based on data provided by Mangazina di Rei Foundation.

**Needs for recovery, reactivation, and continuity of the response**

- Develop and implement local nature and environment policy plan based on the Nature and Environment Policy Plan Caribbean Netherlands 2020-2030 (NEPP-CN) to safeguard natural assets in support of sustainable tourism recovery goals. World Wildlife Fund and DCNA estimate that an additional US\$1.8 million is required annually for STINAPA to allow implementation of the NEPP-CN. In a COVID-19 scenario, this figure increases to US\$3.36 million per year.
- Develop a financial resilience plan, including an emergency reserve fund, the DCNA trust

fund, and capacity building to quickly and effectively apply for emergency funding (for example, from DCNA and local and national authorities). The admission fees can be understood as displaced tax which falls under the responsibility of the OLB, but these missing earnings are not incorporated in emergency funding discussions with national authorities.

- Overreliance on income from admission fees left STINAPA with no structural funding to cover staff and overhead costs. Sustainable financing of (marine) parks is necessary. This should not depend on emergency funding when tourism falls away because emergency financing is insufficient.

Need	Strategy	Estimated (US\$, millions)
Safeguard natural assets in support of sustainable tourism recovery goals	Develop and implement local nature and environment policy plan	1.8–3.36 annually
Financial resilience in case of a disaster	Develop a financial resilience plan	N.A.
Decrease tourism dependency	Develop alternative and sustainable financing	N.A.



**Box 4: Nature and Environment Policy Plan Caribbean Netherlands 2020–2030**

The Nature and Environment Policy Plan aims to provide an integrated framework addressing responsibilities, policy targets, and legal obligations related to managing the natural environment in the Caribbean Netherlands. Bonaire develops its specific implementation plans that function as the action plans for local nature and environmental policy on the island.

Building resilient and healthy coral reefs is a crucial topic in Bonaire. Healthy coral reefs result in the increased well-being of island residents and support their cultural identity, contributing to public health and enhancing sustainable economic development. The blue destinations concept is an example of this pathway. Erosion control is a key challenge that must be addressed to achieve this sustainable development.

**NEPP priorities in Bonaire:**

- Building of resilient and healthy coral reefs
- Erosion control
- Professionalizing of goat husbandry practices
- Inclusive, sustainable spatial development
- Efficient treatment of wastewater
- Quick and effective response to the Sargassum inflow





# References

- Bijl, R., and Pommer, E. 2015. *Vijf jaar Caribisch Nederland, SCP*.
- Cocatram, maps and services to the Caribbean. [www.cocatram.org.ni](http://www.cocatram.org.ni)
- Coordination plan supra-island disasters and crisis management Bonaire, Sint Eustatius and Saba.
- Croes, R. et al. 2017. *Tourism: Synergizing people & nature for a better tomorrow 2017-2027*.
- De Meyer, K., and D. MacRae. 2021. *Management Success Technical Report 2020: STINAPA Bonaire*.
- Dutch Human Rights Council (Dutch: *College voor de Rechten van de Mens*): Annual report 2016.
- First advice OMT Caribbean COVID-19, March 30, 2020. <https://www.rijksoverheid.nl/documenten/brieven/2020/03/30/advies-1e-advies-outbreak-management-team-cariben-covid-19>
- Letter to the House of Representatives from the Minister of BZK, Measures Caribbean parts of the Kingdom in connection with COVID-19 and answering part of the committee's questions on corona's effects on Caribbean parts of the Kingdom, April 7, 2020. [https://www.tweedekamer.nl/kamerstukken/brieven\\_regering/detail?id=2020Z06347&did=2020D13447](https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2020Z06347&did=2020D13447)
- Letter to the House of Representatives from the State Secretary of SZW, Progress report benchmark for social security in the Caribbean Netherlands, June 27, 2019. <https://www.rijksoverheid.nl/documenten/kamerstukken/2019/06/27/kamerbrief-voortgangsrapportage-ijkpunt-bestaanszekerheid-caribisch-nederland>
- National Ombudsman Report. 2019. *Eye for the Elderly in the Caribbean Netherlands*.
- Nauta, O. 2015. *Werking nieuwe bestuurlijke structuur Caribisch Nederland*.
- OECD. 2020. *Social spending makes up 20% of OECD GDP*. <https://www.oecd.org/els/soc/OECD2020-Social-Expenditure-SOCX-Update.pdf>
- OLB. 2021. *Tourism Recovery Plan*. <https://www.tourismonbaire.com/includes/tourism-recovery-plan-final.pdf>
- Public Entities Act Bonaire, Sint Eustatius and Saba. <https://wetten.overheid.nl/BWBR0028142/2018-08-01>
- Regioplan. 2018. *Onderzoek naar een ijkpunt voor het sociaal minimum in Caribisch Nederland*. [https://www.eerstekamer.nl/overig/20180629/eindrapport\\_sociaal\\_minimum/f=y.pdf](https://www.eerstekamer.nl/overig/20180629/eindrapport_sociaal_minimum/f=y.pdf)
- Statistics Netherlands - StatLine Database. <https://opendata.cbs.nl/statline/#/CBS/nl/>
- Statistics Netherlands 2018: *Trends in the Caribbean Netherlands*.
- Statistics Netherlands 2019: *Trends in the Caribbean Netherlands*.
- Statistics Netherlands 2020: *Trends in the Caribbean Netherlands*.
- UNCTADstat Port of call and performance statistics.
- United Nations Conference on Trade and Development. 2020. Handbook of Statistics - Maritime transport.
- Web article of Statistics Netherlands, Tourism in the Caribbean Netherlands hit hard by the coronavirus pandemic, March 2, 2021. <https://www.cbs.nl/en-gb/news/2021/09/tourism-in-the-caribbean-netherlands-hit-hard-by-the-coronavirus-pandemic>
- Web article of the Dutch Human Rights Council, Armoedegrens voor Caribisch Nederland vastgesteld, August 7, 2020. <https://mensenrechten.nl/nl/nieuws/armoedegrens-voor-caribisch-nederland-vastgesteld>
- Web article of the World Bank, Who on Earth Can Work from Home? A global comparison sheds light on the importance of ICT infrastructure, October 22, 2020. <https://www.worldbank.org/en/news/feature/2020/10/22/who-on-earth-can-work-from-home-a-global-comparison-sheds-light-on-the-importance-of-ict-infrastructure>
- Web article, Caribish Netwerk: Nog geen geld voor bouw van 500 sociale woningen op Bonaire, April 12, 2018. <https://caribishnetwerk.ntr.nl/2018/04/12/nog-geen-geld-voor-bouw-van-500-sociale-woningen-op-bonaire/>
- WFP. 2021. *Caribbean COVID-19 Food Security and Livelihoods Impact Survey: Bonaire Summary Report*.
- World Bank. 2017. *ICT in Agriculture: Connecting Smallholders to Knowledge, Networks and Institutions*. Updated edition. Washington DC, World Bank.
- World Bank. 2020. St. Maarten, *Public Expenditure Review*, draft
- World Bank. Aspire database. <https://www.worldbank.org/en/data/datatopics/aspire/indicator-glance>
- World Bank. Disaster Risk Resilience Analytics and Solutions. OCT Buildings Exposure Estimation.



## LOCK DOWN JIBECITY & HANGOUT BEACHBAR

We feel the urgent need to act now! Due to the COVID-19 virus we cannot guarantee your and our safety anymore. We take responsibility for our guests and staff. We strongly ask you not to come to Bonaire as we cannot handle a possible outbreak on our small island. Stay safe and please stay at home.

**Private and local storage, closing open tabs,  
please contact us!**

Windsurfschool Jibe City:

Robbin de Man +599 7827566 or Emieck de Goede +599 7823387

Hangout Beach Bar:

Gilbert van Dijk +599 7852309

**Closed till further notice!**

Check Facebook for further information

Please for any information or questions contact us on [info@jibecity.com](mailto:info@jibecity.com) or [info@hangoutbeachbar.com](mailto:info@hangoutbeachbar.com)

## Appendix A: Methodology Macroeconomic Section

Disaster impact assessment involves the estimation of the disruptions caused by the disaster on the macroeconomic performance of the affected country. This is usually made in comparison to the expected or foreseen performance of the main macroeconomic variables of the country in the absence of a disaster, by superimposing the estimated isolated effects of the disaster.

A stepwise procedure is applied to estimate the macroeconomic impact. The first step involves making a baseline estimate (of the GDP) for the year under consideration (that is, 2020) as described in the previous paragraph. The second step entails estimating the effects of the disaster in terms of changes in economic flows (and depending on the nature of the disaster also the destruction of physical assets). The third step considers the policy interventions to (partially) counteract the consequences of the disaster.

### Step 1.

The baseline estimate of the GDP for 2020 measured in constant 2018 prices was constructed by making high level assumptions on the development of the economic industries for 2019 and 2020.

### Step 2.

The primary shock entry point of COVID-19 affecting the economy of Bonaire is through a

decrease in external demand associated with reduced tourism activities. The internal demand compounds this external shock by imposing limitations on people's movements (for example, lockdown and curfew). The steps that were taken to quantify the compounded effect of these two shocks are the following:

- The TDGDP (weighted for the actual decrease in the number of tourists in a particular month) was used to estimate the direct effect on tourism on a monthly basis starting in April 2020. The indirect and induced impacts are approximated by assuming that the initial shock is translated into the rest of the economy through a geometric sequence.
- The initial value of the internal demand shock is determined as a residual value based on the measured loss of business activities in 2020 as measured by the business survey. The indirect and induced effects of the internal demand are approximated by assuming that the initial shock is translated in the rest of the economy through a geometric sequence and compounds with the external shock caused by the decrease in tourism activities.

### Step 3.

The financial interventions are subsequently added to the monthly estimates to arrive at the net GDP contraction in 2020 relative to the baseline GDP estimate for 2020.

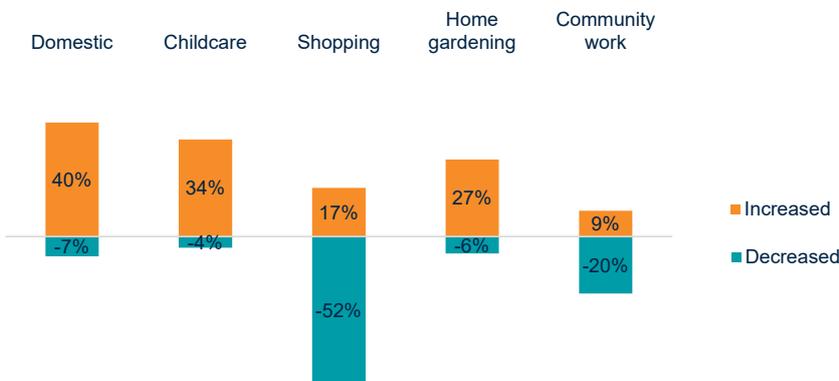
# Appendix B: Miscellaneous Livelihood Survey Results

Source: WFP Survey. Bonaire April 2021

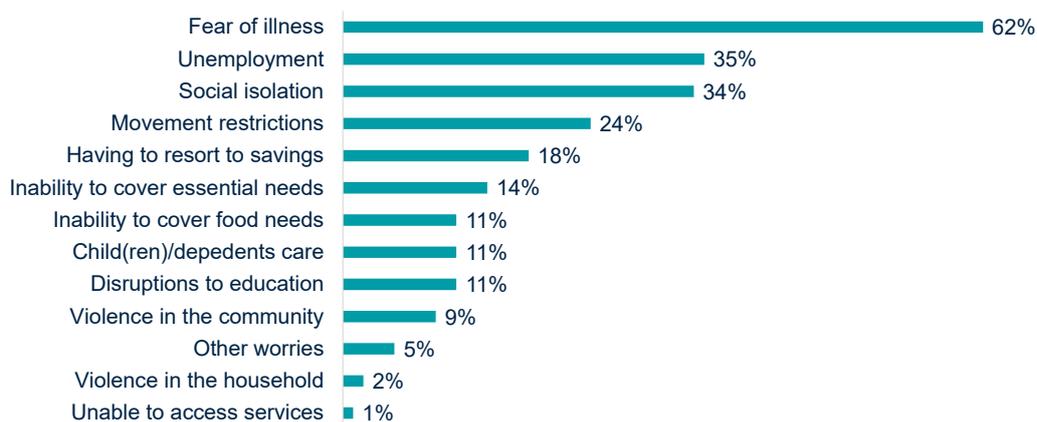
## Change in shopping behaviour



## Unpaid activities



## Main worry or main concern

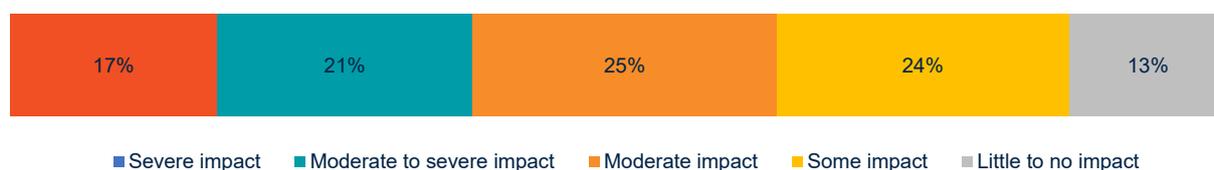


## Unpaid activities - By Gender (By sex)

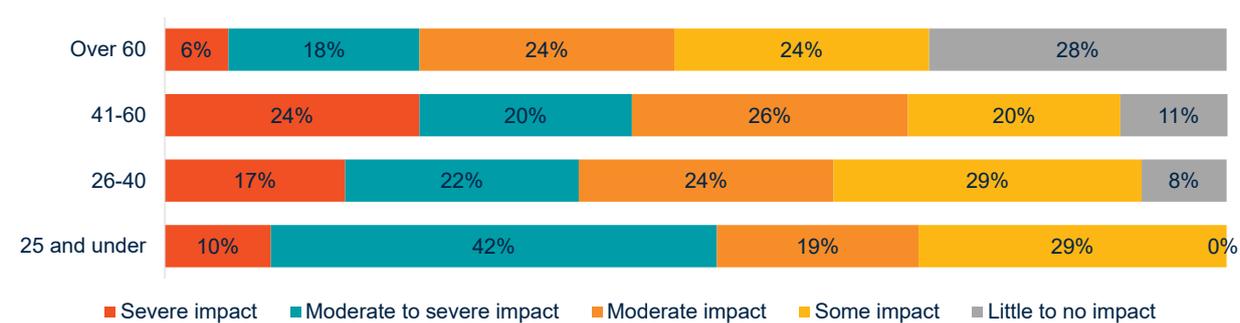
Female	Domestic	Childcare	Shopping	Home gardening	Community work
Increased	40%	37%	20%	28%	11%
No change	48%	26%	27%	48%	41%
Decreased	7%	4%	53%	6%	20%
Not applicable	5%	34%	1%	19%	27%

Male	Domestic	Childcare	Shopping	Home gardening	Community work
Increased	40%	28%	13%	26%	6%
No change	50%	28%	36%	48%	47%
Decreased	5%	4%	48%	7%	20%
Not applicable	4%	40%	3%	20%	27%

## Livelihood impact

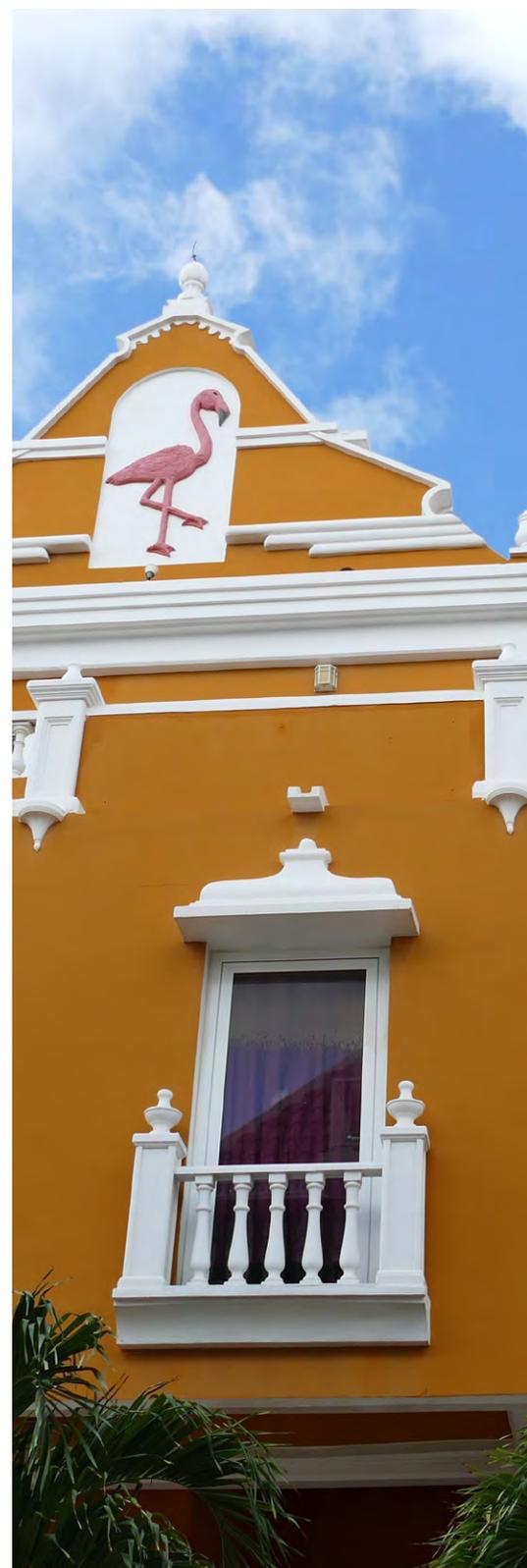


## Livelihood impact - By Age



## Appendix C: Report Contributors

Bonaire Stakeholders	
Name	Organization
Edward Sedney	ADRA Foodpantry
Anja Romeijnders	Bonaire Business & Employers Association
Ans Buijs	Bonaire Foodbank
Adely Jansen	Bonaire Holding Company
Paul Coolen	Bonaire Hospitality Group
David Rietveld	Bonaire Hotel and Tourism Association
Jos Hillen	Bonaire International Airport
Cherethy Kirindongo	Chamber of Commerce Bonaire
Dennis Aarts	Chamber of Commerce Bonaire
Roeland van der Hoeven	Digicel
Ben Oleana	Fundashon Cas Boneriano
Gilmar Krips	Fundashon Mariadal
Danilo Christiaan	Mangasina di Rey
Krista Oplaat	Mental Health Caribbean
Minke Jansen	Mental Health Caribbean
Erik Jansen	Mental Health Caribbean
Yoeri de Vries	Ministry of Agriculture, Nature and Food
Willem van der Heul	Ministry of Economic Affairs and Climate
Nolly Oleana	Ministry of Education, Culture and Science
Curvin George	Ministry of Health, Welfare and Sport
Eric Brakke	Ministry of Social Affairs and Labor
Ronald Vermeeren	Netherlands Enterprise Agency
Günter Flanegin	Port of Bonaire
Hennyson Thielman	Public Entity Bonaire
Nina den Heyer	Public Entity Bonaire
Inge Berben	Public Entity Bonaire
Margareth Drewes	Public Entity Bonaire
Marian Luinstra-Passchier	Public Entity Bonaire
Maurice Adriaens	Public Entity Bonaire
Norella Louisa	Public finance department
Suhaidi Hanse	Public finance department
Nadine Emerencia	Punta Blanco Farm
Asha Pourier	Red Cross Bonaire





### Bonaire Stakeholders (continued)

Name	Organization
Asha Pourier	Red Cross Bonaire
Robert Croes	Rocargo Services
Rudsel Leito	SELIBON
Henk van de Velden	Statistics Netherlands
Jan van der Ploeg	STINAPA Bonaire
Kerenza Rannou	STINAPA Bonaire
Gilbert de Bree	TELBO
Marjolein Oleana	Tourism Corporation Bonaire
Derchlien Vrolijk	Tourism Corporation Bonaire
Norwin Willem	USIBO
Gerold Bernabela	USIBO
Mavis Abrahams	USIBO
Robert Sances	USIBO
Eefje van Rassel	Van den Tweel supermarket Bonaire
Joanne Balentien	WEB Bonaire
Marlon Manuela	WEB Bonaire
Arno van Scheijndel	WEB Bonaire
Arjan de Groene	World Wildlife Fund

### Technical assistance team

Mary Elinor Boyer	World Bank
Asha Kambon	
Ivelisse Justiniano	
Stefan Leeffers	
Rendell de Kort	
Herry Koolman	
Maria Florencia Millan Placci	
Arxen Alders	World Food Programme
Sarah Bailey	
Regis Chapman	
Amy Chong	
Elisaveta Gouretskaia	



This project is funded by the European Union

Implemented by



**WORLD BANK GROUP**  
Urban, Disaster Risk Management, Resilience & Land



**GFDRR**  
Global Facility for Disaster Reduction and Recovery

In partnership with



**PUBLIC ENTITY OF BONAIRE**