

# Governing from the Future – Leading with Impact

**Prospects, policies, and pathways for Aruba 2040**

A white report by the Centrale Bank van Aruba

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## Governing from the future - Leading with Impact Prospects, policies, and pathways for Aruba 2040.

*The views expressed in this report are those of the respective author(s) and do not represent necessarily the perspective of the Centrale Bank van Aruba.*

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***...our collective responsibility to govern from the future, lead with impact, and safeguard the future for current and next generations.***

Jeanette R. Semeleer



CENTRALE BANK VAN ARUBA

## Foreword

**It is no secret that Aruba has experienced significant economic growth and prosperity over the past century.** What was once a small rural community, gradually evolved into a dense and prime tourism economy in the Caribbean. However, notwithstanding this tremendous change, the island has also faced its share of various economic shocks and crises over the past decades, thus, underscoring the increasing vulnerability of the Aruban economy. More importantly, as previously outlined by the Centrale Bank van Aruba (CBA) in the policy study on Fostering Economic Resilience (2019), this economic vulnerability requires economic resilience to not only bounce back from adverse events, but more importantly, to bounce forward on new productive and prosperous pathways. It is therefore no surprise that the recent hyper quest for economic resilience endures as a prime directive for sustainable development and realizing our Sustainable Development Goals (SDGs), especially when considering the rise of *Black Swans* (Taleb, 2007) and the disruptive impacts and existential risks of *unknowable unknowns*.

**However, beyond economic shocks, we encounter evolutionary economic processes that smolder.** These developments gradually evolve over time, usually accelerating with complexity, interconnectivity, and intensity, as well as escalating beyond direct control. In addition to the *Black Swan* events of, e.g., 911 (2001), the global financial crisis (2009), and the COVID-19 pandemic (2020) that affected Aruba – note the 10-year pattern –, the island has also experienced profound, albeit gradual, changes and the effects of certain *knowables*. Demographic changes, including population aging and fiscal challenges such as, unsustainable government debt, are by no means new or unknown. Likewise, the rising costs of fossil fuel

energy, health care services, and housing are well recognized, as are the risks of overtourism, irresponsible waste management, and the complimentary risks of ocean acidification, mangrove deforestation, beach erosion, and climate change.

**Unlike Black Swans, these so-called *Gray Rhinos* are systemic by nature and endure over time.** Gray Rhinos are generally more subtle, less shocking – albeit not less disruptive in the long run –, and define a trend that’s slow moving and seemingly obvious (Wucker, 2016). Nonetheless, *Gray Rhinos* are oftentimes ignored and disregarded. Consequently, these inconvenient and unravelling realities remain largely unaddressed and unresolved, while the situation endures and deteriorates. Thus, *Gray Rhinos* are not random events, but occur after a series of early signals and increasingly visible evidence come to fore, yet are not prudently and responsibly addressed nor are they structurally resolved. In fact, Gray Rhinos are detrimental to realizing SDGs.

**Whereas we have experienced several of these developments for decades, nonetheless, two striking observations endure: our collective habits of thought and the policy actions that produce, and reproduce an unsustainable state of affairs.** While there is little doubt that the Aruban economy and community have grown – in terms of, e.g., gross domestic production and population –, the search for *economic development and the wellbeing of Arubans* continues amidst an increasingly volatile, uncertain, complex, and ambiguous environment.

**Notwithstanding the importance of economic growth, the impact of economic development is fundamental to economic and financial wellbeing.** Governing from the future and leading with impact emphasize the need to develop our fragile economy into one that is

inclusive, resilient, and sustainable. The key hereto is a deep understanding of the intended and unintended consequences of our past and present policy choices and decisions. It requires a profound commitment to the next generation to deliver shared wealth and prosperity, to safeguard security, as well as to provide equal and equitable opportunities, and to restore and regenerate our natural habitats and the environment.

### How then do we manage the economy as if the future really matters?

This report addresses our Aruban *Gray Rhinos* and how policy makers (still) have a chance to – and should – make responsible evidence-based policy choices to safeguard inclusive economic opportunities for future generations and lead with impact. In utilizing a policy framework for measuring economic wellbeing and applying the concept of Futures Thinking, this report **presents three (3) policy scenarios for Aruba in 2040** (see Chapter 1).

The alternative futures describe a **(i) policy as usual scenario** in which traditional ways of governance and policy making persist at the cost of the environment and increased poverty. Thus, there is limited adaptation and innovation in policy decisions and implementation.

In the second policy scenario, **(ii) structural policy reforms** are introduced to remediate long-standing institutional failures and boost market-driven economic growth. Yet, the subsequent risks of market failures and the externalization of costs, including persistent intergenerational inequity, endure.

The third policy scenario emphasizes a **(iii) fundamental policy shift** towards strengthening productivity, innovation, and institutional capabilities, as well as fostering inclusion, healthy social ecologies, and

intergenerational equity. Rather than reform the present, a policy shift emphasizes transforming from the future in an impactful manner.

**The remainder of this report is structured as follows.** In Chapter 1, we lay the **policy framework of this study**, underscoring the importance of sustainable economic development – emphasizing the Sustainable Development Goals (SDGs) – for safeguarding economic wellbeing.

Based on an extensive study of Aruba's **social and economic demographics** (linked to SDGs 11 and 12), profound and structural changes, including population growth, immigration trends, and accelerated aging, are identified and discussed in Chapter 2. These demographic trends and developments provide the foundation for the remainder of this report.

The historical and anticipated **economic growth and development of Aruba** are reviewed in Chapter 3, in which the fundamental differences between growth and development are discussed. Based on the alternative future scenarios, different pathways are projected for 2040. The limits and vulnerability of Aruba's economic growth model are discussed and several recommendations – in line with SDGs 5, 8, and 10 – are provided for strengthening inclusion, equality, and intergenerational equity, as well as fostering an educated 21<sup>st</sup> century work force.

Chapter 4 addresses the **future of our social security system** and concludes that our current policies are unsustainable. Consistent with SDGs 1, 3, and 10, the need for shifting social security policies and practices is highlighted by emphasizing a citizen-centric model of health and social security.

Along similar lines, the relevance of *climate and energy security* are presented in Chapter 5. The urgency of mitigating and adapting to adverse climate risks are underscored (SDG 13), as well as the required policies and programs for nature conservation and restoration (SDGs 14 and 15), in addition to financing an inclusive renewable energy transition (SDG 7) toward climate change readiness and resilience in order to safeguard financial stability.

There to, *strengthening financial capabilities* – in line with SDGs 4, 8, and 9 – is axiomatic and hence the need to foster financial literacy, financial inclusion, and financial wellbeing (see Chapter 6).

Considering the systemic challenges and changes required to govern from the future, this report concludes in Chapter 7 with a discussion on the *requisite innovation capabilities in public sector governance*, in particular, the fundamental role and responsibility of government and regulatory innovation for realizing SDGs 9, 16, and 17. It is indeed our collective responsibility to govern from the future, lead with impact, and safeguard the future for current and next generations.

Jeanette R. Semeleer  
President  
Aruba, December 2021





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## List of key terms and definitions

**Carbon intensity:** the amount of carbon by weight emitted per unit of energy consumed (CO<sub>2</sub>/energy or CO<sub>2</sub>/Btu). A common measure of carbon intensity is weight of carbon per Btu of energy (Source: [www.eia.gov](http://www.eia.gov)).

**Climate change adaptation:** deliberate adjustments in ecological, social, and economic systems to moderate adverse impacts of climate change and harness any beneficial opportunities (Agrawala and others, 2011). Adaptation consists of “hard” policy measures (e.g., adapting infrastructure) and “soft” measures (e.g., building codes, insurance).

**Climate change mitigation:** efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behavior (Source: United Nations Environment Programme).

**Economic growth:** defined as an increase in aggregate output over a period of time (Feldman et al., 2014).

**Economic development:** the sustained and inclusive economic gains that lead to the achievement of higher quality of life, increased standards of living, provision of adequate shelter, and secure employment for all (including elimination of income inequality), preservation of the integrity of the environment, and the empowerment and full participation of women in all spheres of society (United Nations, 1997).

**Economic prosperity:** the joy of everyday life and the prospect of being able to build an even better life in the future (Legatum, 2015).

**Economic wellbeing:** a virtuous circle in which a society’s wellbeing is strengthened by resilience and productive development, (ii) social inclusion and equality, and intergenerational equity and sustainability (OECD, 2019).

**Feebates:** explicit fees imposed or rebates provided if firms or products fall short or exceed the energy efficiency or emission rate standard (Source: IMF discussion note: After Paris: Fiscal, Macroeconomic, and Financial Implications of Climate Change (2016)).

**Financial capabilities:** the knowledge, attitudes, skills, and behaviors of consumers with regard to managing their financial resources and understanding, selecting, and making use of financial services in a responsible manner that fit their needs (World Bank).

**Financial development:** a combination of depth (size and liquidity of markets), access (ability of individuals and companies to access financial services), efficiency (ability of institutions to provide financial services at low cost and with sustainable revenues, and the level of activity of capital markets) (Svirydzenka, 2016).

**Financial inclusion:** access to and use of formal financial services by individuals, based upon the definition used by Sahay et al., 2015.

**Financial literacy:** a combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and, ultimately, achieve individual financial wellbeing (OECD, 2011).

**Financial Development Index:** a number of indices that summarize how developed financial institutions and financial markets are in terms of their depth, access, and efficiency, culminating in the final index of financial development (Svirydzenka, 2016).

**Financial deepening:** The increased provision of financial services with a wider choice of services geared to all levels of society (UNSCWA, n.d.).

**Financial sustainability:** The ability of current policies to continue now and in the future without causing the debt level to rise continuously (Rodríguez Bolívar, 2016).

**Innovation:** The ability to use knowledge to develop and apply new ideas that result in changes in the production and structure of an organization. As such, innovation is not only about invention, it also about absorption (Cirera & Maloney, 2017).

**Innovation complementarities:** The set of institutions, laws, incentives and customs needed for innovation (Mohnen, 2005).

**Institutions:** institutions establish and enforce the ‘rules of the game’ in society (North, 1990), and embody generally accepted ways of thinking and behaving – dominant belief systems – that are developed and reinforced over time (Nelson & Winter, 1982).

**Managerial capabilities:** The set of skills needed to create, extend and modify the ways in which organization operate (Helfat & Martin, 2015).

**Social security:** The protection that a society provides to individuals and households to ensure access to health care and to guarantee income security, particularly in cases of old age, unemployment, sickness, invalidity, work injury, maternity or loss of a breadwinner (ILO, n.d.).

**Sustainable development (a):** meeting current needs without compromising the ability of future generations to meet their own needs (Brundtland Commission, 1987)

**Sustainable development (b):** meeting the needs of future generations while adapting responsibly to current requirements and conditions.

**United Nations Sustainable Development Goals (UNSDGs):** The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The SDGs recognize that action in one area will affect outcomes in others, and that development must balance social, economic, and environmental sustainability.

***The quality of our thinking will determine  
the quality of our future.***

**Edward de Bono**



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# 1. Governing from the future, leading with impact

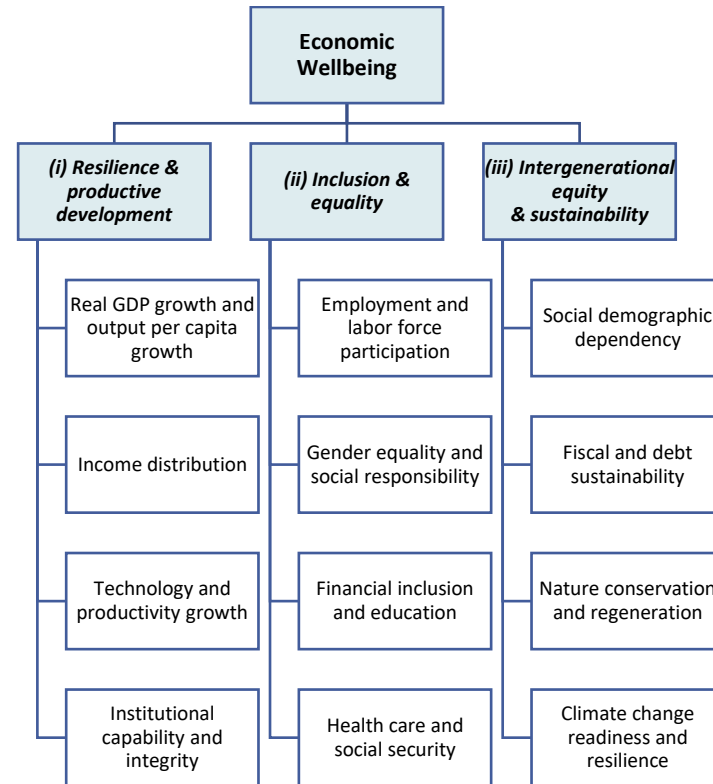
By Ryan R. Peterson

## 1.1 Introduction

**Governing from the future or alternatively governing with foresight requires policy (decision) makers to sharpen their focus, unlearn from the past, and dare to lean into the future.** Metaphorically, a deeper awareness and conscious choice to foster economic wellbeing by looking ahead, rather than steering from the rear. The ability to shift from reacting to the present and reproducing the past – oftentimes with unintended consequences –, to leading from an emerging future is probably the single most important institutional capability (Scharmer & Kaufer, 2013). The more profound and enduring the changes in our society, the less our social, political and economic institutions need to rely on past paradigms and policies, and consequently, the more we tap into emerging future opportunities to safeguard future economic wellbeing.

**In general, economic wellbeing is defined as a virtuous circle in which a society’s wellbeing is strengthened by (i) resilience and productive development, (ii) social inclusion and equality, and (iii) intergenerational equity and sustainability** (OECD, 2019). According to the World Economic Forum (2017), these elements are the main policy domains that represent an ecosystem for fostering economic wellbeing. The resulting policy framework underpins different policy measures, indicators, and impacts that underscore a multifaceted model for governing from the future in an impactful manner (see Figure 1.1).

Figure 1.1. Economic wellbeing impact policy framework (adapted from the WEF, 2017; OECD, 2019).



More specifically, **(i) resilience and productive development** describes and measures the real GDP growth per capita, the distribution of income, technology adoption and productivity growth, and the requisite institutional capabilities. **(ii) Inclusion and equality emphasize** the importance of human capital by delineating employment and labor force participation, gender equality, corporate social responsibility, financial inclusion and education, the quality of

health care, and the sustainability of social security. Underscoring the importance of our collective responsibility toward future generations, **(iii) intergenerational equity and sustainability** underpin social demographic changes, intergenerational (age) dependency, fiscal and debt sustainability, as well as the conservation and regeneration of nature and natural (land and sea) habitats, in addition to the requisite public and private investments in the mitigation of and adaptation to climate change.

### 1.2 In pursuit of economic wellbeing: the role of institutions

**Economic wellbeing is at the heart of sustainable development.** In line with the United Nation Sustainable Development Goals (SDGs), economic wellbeing is driven by resilient, inclusive and sustainable economic development, equitable and productive employment, and nurtured by a healthy social ecology (UNSDG, 2018). According to ‘doughnut economics’ (Raworth, 2017), when social foundations and ecological ceilings are respected and regenerated, economic wellbeing flourishes. Thus, beyond economic growth, the wellbeing of an economy constitutes the synergy of multiple dimensions and conditions that shape a society’s quality of life, prosperity, as well as aspirations and future opportunities, which collectively and holistically, describe a society’s economic wellbeing (Fox, 2012; OECD, 2019; Peterson, 2020).

**The pursuit for economic wellbeing and prosperity has generally relied on the fundamental rules that shape the functioning of societies (Acemoglu & Robinson, 2012; North, 1990).** These rules and codes of political economic behavior that serve to nurture society are known as institutions (Beuermann & Schwartz, 2018). It is well recognized that political economic institutions are pivotal to fostering economic resilience and nurturing social development, as well as

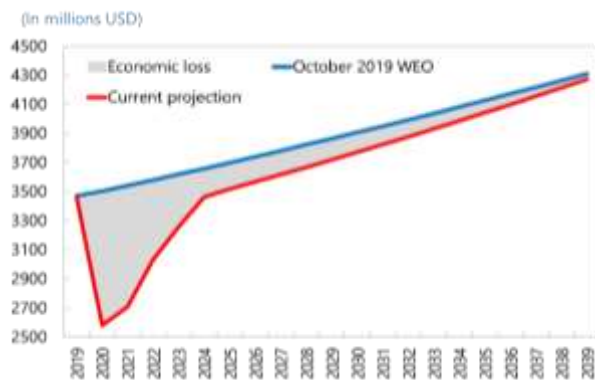
strengthening natural ecosystems against the adverse effects of natural disasters and environmental decay (Acemoglu & Robinson, 2012; Clague et al., 1997; Knack & Keefer, 1995; North, 1990; Peterson, 2020).

**Generally, institutions reflect a society’s dominant belief systems.** Beyond establishing and enforcing the ‘rules of the game’ in society (North, 1990), institutions also embody generally accepted – oftentimes traditional – ways of thinking and behaving that are developed and reinforced over time (Nelson & Winter, 1982). Institutions entail structural patterns of internal norms, values, and behaviors that influence present actions and mold future preferences. Hence, unless structural reforms address these institutional belief systems and informal rules, they are unlikely to produce the desired results and business as usual endures (Acemoglu & Robinson, 2012; North, 1990). In the absence of institutional capabilities, economies often stagnate resulting in diminished capacity for the economy to foster and sustain economic development in the longer term (Beuermann & Schwartz, 2018; Rodrik, 2013; Rodrik et al., 2004).

**Why do these institutional habits matter for economic development?** Scharmer & Kaufer (2013) contend that institutional habits of thought, and the resulting policy (in)actions, too often produce and reproduce unsustainable growth, especially in the aftermath of economic crises when economies run the risk of economic hysteresis, i.e., getting locked into a lower and diminished growth path after experiencing a significant shock, without the capacity to respond and recover appropriately (CBA, 2019). The case in point is illustrated by the projections of the International Monetary Fund (IMF, 2021) for the real output losses in Aruba from the COVID-19 pandemic (see Figure 2.1). In assuming no significant shocks in the long-run – which is highly improbable –, the IMF (2021) estimates that under a business as usual scenario, the net present value of output

losses would amount to at least 135 percent of 2019 real GDP, thereby closing the output gap not until after 2039. Likewise, the IMF (2021) projects government debt levels won't reach sustainable levels – below a debt-to-GDP ratio of 70 percent – until after 2039. The IMF (2021) concludes that the real output losses and debt unsustainability are largely attributed to the low level of productivity, in addition to structural impediments to growth, as well as Aruba's specific economic model.

Figure 1.2 Projected real output losses in Aruba from the COVID-19 pandemic (IMF, 2021).



In sum, societies that experience economic stagnation – low productivity growth, high inequality, and low intergenerational equity – generally are the result of institutional beliefs and behaviors that fail to acknowledge, confront, and resolve enduring problems of social complexity (Acemoglu & Robinson, 2012; North, 1990). While an in-depth discussion of belief systems and cognitive dissonance is beyond the scope of this study, the importance of mental models and

mindsets in policy procrastination, and hence propelling an unsustainable status quo, is well recognized (Kahneman, 2012). However, and more importantly, it does pivot the requisite institutional capabilities toward the future.

### 1.3 Futures thinking for Aruba 2040

To expand and enrich institutional mental models and encourage a breakthrough mind shift, Futures Thinking is used as a policy tool for rethinking, reframing and redesigning institutional modus operandi and policy alternatives. The principle notion of Futures Thinking is based on divergent modelling and evaluating what alternative futures are possible and preferable (Miller, 2018; Schreiber & Berge, 2019). Futures Thinking is an approach to consider potential futures through the exploration of long-term trends and structural drivers for change that may lead to different future scenarios. Futures Thinking is not about predicting the future, but rather critically considering alternative future states, in order to rethinking institutional policies and actions in the present. The emphasis isn't on what will happen, but on what could happen, given various observed drivers and impactful policy choices.

Following Futures Thinking and based on previous policy studies, three (3) scenarios are developed for Aruba in 2040. Based on the IMF's (2021) long-run economic projections for 2040, as well as the Aruba SDG 2030 and Net Zero 2050 ambitions, a long-term time horizon – focusing on the next Generation Beta (2025-2040) – is adopted to develop breakthrough policies for systemic challenges that span multiple political economic cycles and mitigate the risks of

institutional inertia, short-term decision making, and policy shortsightedness.

Figure 1.3 Main policy themes and SDGs addressed in this policy scenario study.



The three scenarios emphasize relative differences in (see Table 1.1):

- (i) **the extent of policy innovation**, describing the breadth and depth of innovative policy actions that range from limited (i.e., a continuation of existing policies) to structural reforms, in addition to a systemic transformation and policy shift to new fundamentals;
- (ii) **the role of institutions and policy actors**, including the role of government, the private sector, and the community, as well as the centrality of institutions, markets, and community networks;

- (iii) **the key design principles**, setting out the extent of (technological) innovation (industrial revolution) and the dominant economic paradigm;
- (iv) **the associated policy risks** depicting the nature of risks, potential failures, and (indirect) costs.

Table 1.1. Stylized elements of three policy scenarios for Aruba 2040.

	Policy as usual	Policy reform	Policy shift
<b>Policy innovation</b>	Limited	Structural	Systemic
<b>Main actor(s)</b>	State based, Big government	Market driven, Private sector	Citizen centric, Citizen platforms and community networks
<b>Design principle(s)</b>	Third industrial revolution, Neo-Keynesian	Fourth industrial revolution, Neo-liberal	Fifth industrial revolution, Neo-ecological
<b>Risk(s)</b>	Institutional failures, Path dependency	Market failures, Cost externalization	Transition failures, Path breakthrough
<b>Example of information and evidence base</b>	Previous government and public sector department policy reports (prior to 2020)	IMF technical assistance and consultation mission reports, Dutch Landspakket, Masterplan 2020	UNSDGs, Doughnut economics, Future of Government 3.0

Whereas policy reform and policy shift contrast significantly from a policy as usual scenario (see Box 1.1), there are several degrees of deviation between the policy reform scenario and the policy shift scenario. A policy reform scenario (see Box 1.2) is generally concerned with the present and what is known. It takes the present as a starting



point and structural reforms expand and extend on existing institutional (belief) systems. From an economic perspective, structural reforms tackle obstacles to the drivers of economic growth by, e.g., liberalizing labor markets, diversifying product markets, and deepening (financial) service markets, thereby encouraging job creation and (private) investment, as well as improving economic productivity (Beuermann & Schwartz, 2018).

Box 1.1. Synopsis and stylized facts of the policy as usual scenario.

<b>Imagine it's 2040 – Policy as usual</b>
<p><i>The Aruban economy recovered with double-digit economic growth in the years following the great covid pandemic (GCP) of 2020. The phenomenal rebound of tourism spilled over into exuberance and tourism boon. Foreign direct investments in tourism and real-estate investments surged between 2022 and 2029. The country expanded its accommodation capacity (+5,000 rooms), with an estimated 3.5 million visitors by 2040.</i></p> <p><i>Due to crowding and encroachment - partially due to the loss of land resulting from sea level rise and coastal erosion, in addition to the global oil crisis of 2033 - the Government decided to re-allocate almost 40% of the national park for windmill energy generation - after depending on fossil fuels in the past decade - and residential construction for at least 143,000 residents. It was a tough choice to make, but in a human-centered economy we needed to build forward with nature.</i></p> <p><i>Real GDP growth has averaged 0.1 percent since 2027, and the poverty gap has expanded substantially. Government spending on social services, health, education, and infrastructure is limited, largely due to a significant debt burden (inherited from the GCP). By financing parts of the government and infrastructure (e.g., energy and waste management), select private companies receive preferential regulatory and fiscal treatment. Wealth is largely concentrated in a select few monopolies.</i></p>

**Policy reforms are mainly designed to boost an economy's competitiveness, growth potential, and adjustment capacity.** Thus, the policy reform scenario

describes the domestic policies and institutions that affect the operation of markets, and the capacity of (international) businesses to access those markets and operate efficiently.

Box 1.2. Synopsis and stylized factors of a policy reform scenario.

<b>Imagine it's 2040 – Policy reform</b>
<p><i>After the great covid pandemic (GCP) of 2020, several tax and labor reforms were introduced between 2023 and 2030, leading to significant real economic growth over the past decade. Labor market and tax reforms were introduced in 2023, followed by the dollarization of the economy. On the heels of the oil crisis in 2031, the economy experienced double-digit inflation in the subsequent years.</i></p> <p><i>Aruba's ports as well as health care services are now mainly privatized and managed by foreign (multi)nationals. Likewise, several educational institutions were privatized (funded by the EU), although some public schools are still available for those who can't afford private education. English is the main instruction language.</i></p> <p><i>Several high-end, energy self-sufficient residential areas were established across the island, although mostly concentrated in the residential colony located on the outskirts of Santa Cruz, the new capital and the new center of government. Energy generation is largely produced through wind and wave power. The latter is integrated in the coastal reinforcement of so-called 'energy dikes'.</i></p> <p><i>Largely digitized and augmented with AI, today a lean government focuses on providing essential public services. Although some bureaucracy still exists, efficiency has improved significantly. Strict EU fiscal rules are followed, after a substantial part of the government debt was forgiven in 2023. In 2034, what was previously known as Oranjestad and San Nicolas became privatized as trade districts. Niche tourism led to an expansion of specialized tourism marine services. Today, the island attracts an estimated 3.1 million visitors annually.</i></p> <p><i>Since 2033, real GDP growth averages 2.7%, yet most of the wealth and income are concentrated in an estimated 17% of the population (counting approx. 141,000 residents). More than 60% of the population earns less than half of the median monthly income (\$8,000), usually working as 'click, cloud, and crowd' workers in a freelance contractual fashion. Social capital is low, and there is scarcely any sense of national identity, especially since 2031 when residentship could be bought.</i></p>

**Alternatively, a policy shift scenario (see Box 1.3) takes the future as a starting point.** Policy shift views sustainability not as meeting current needs without compromising the ability of future generations to meet their own needs (Brundtland Commission, 1987), but as fulfilling the needs of future generations while adapting responsibly to current needs and conditions. Hence, the reference point is fundamentally different between the policy reform and the policy shift scenarios.

*...fulfilling the needs of future generations while adapting responsibly to current needs and conditions.*

**A policy shift describes foresighted action and looks to the future and what is presently unknown.** In the Kuhnian sense and akin to transformation, a policy shift represents a systemic change in a fundamental model or perception of events, usually arising when the dominant paradigm under which existing policy frameworks (and mindsets) operate is rendered incompatible with new phenomena or unsustainable, thereby fostering the adoption of a new policy paradigm, framework, and modus operandi. Hence, a policy shift aims to innovate in impactful and systemic ways. In economic terms, multiple forms of impactful economic development by means of productivity, inclusion, and intergenerational equity takes center stage. Consequently, citizen responsibility and community platforms are a driving force, in addition to an agile government and fully

ingrained corporate social responsibility. Whereas policy reform focuses on bolstering economic growth, policy shifts foster economic sustainability.

Box 1.3. Synopsis and stylized factors of the policy shift scenario.

Imagine it's 2040 – Policy shift
<i>Reflecting on past developments and future risks, the country reset its structural policy foundations in 2023. Working with the international community, Aruba reconsidered many of its previous policy assumptions and decisions. We set sail for a different future. A future, which today we know as, financially sustainable and climate resilient, producing our own energy, and many of our agricultural services in eco-sustainable communities across the island. Through innovative climate mitigation and adaptation policies and sound environmental restoration programs, the island was able to strengthen climate resilience against global warming.</i>
<i>Back in 2022, we realized that we couldn't continue on the existing path. We focused on how tourism could co-shape and improve our community wellbeing. Rather than the economy working for tourism, we shifted our policies so that tourism would enable wellbeing for all. By redesigning our supply chains with circular systems, we were able to distribute the economic benefits across society.</i>
<i>Strong governance and citizenship responsibility, underscoring an open, innovative and accountable government, are the new fundamentals. Public and utility services are partly co-produced with residents, and an AI-enabled DLT network allows predictive and customized provision of secure, reliable, and efficient public services. Government is fully attuned to the needs of the community and puts it at the center of its policies and decisions. Food security and climate resilience, in addition to preventive care and continuous education are essential in safeguarding strong institutions and public finances.</i>
<i>Over the past decade, real GDP growth averaged 2.4%. Although unemployment lingers at 4.1%, the income poverty gap narrowed substantially by strengthening inclusive and equitable fiscal policies and programs. Social services are targeted at the most vulnerable people in society, in which citizen platforms play an active role. All residents and businesses have full access to basic financial services, largely spurred by developments in digital financial infrastructures, regulatory technologies, and the use of a digital florin.</i>

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## 2. The changing economic demography of Aruba

By Rendolf (Andy) Lee

### 2.1 Introduction

**Aruba’s population is changing at an escalating pace.** Given the small size of Aruba, the aging of our population, as well as the population growth, these accelerating demographic changes have an immediate impact on the Aruban economy, as well as society and its individual residents.

**It is well acknowledged that gradual demographic changes have long-lasting and structural impacts on economic development and the wellbeing of an economy.** As discussed in the subsequent chapters, gradual alterations in the socioeconomic demography of a country impact, for instance, the expansion of the economy, structural productivity growth, the long-run unemployment rate, living standards, savings rates, housing market trends, and social costs (Mester, 2018).

**This chapter discusses the challenges of the changing economic demography in Aruba.** The main questions to be addressed in this chapter are:

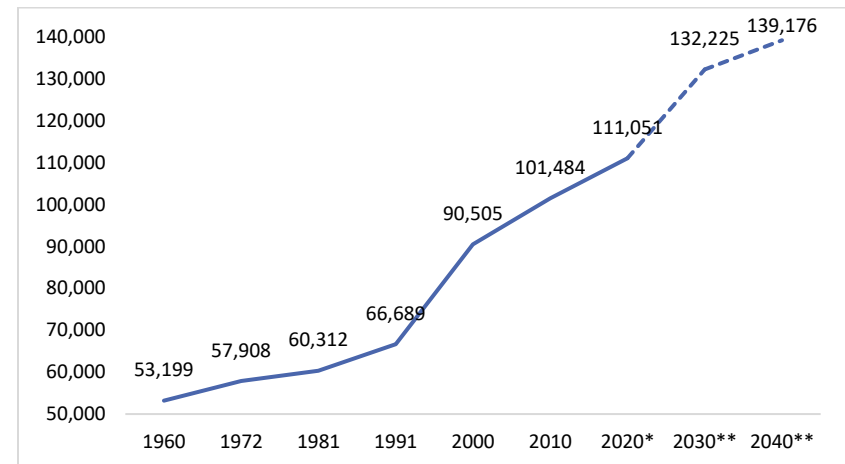
- i. What demographic changes occurred between 1960 and 2020, and what demographic shifts are likely to take place in the next 20 years?*
- ii. How have these transformations affected Aruba? And more importantly, how can we effectively address the challenges and*

*harness the opportunities of population dynamics to promote sustainable development in Aruba?*

### 2.2 Key trends, facts, and figures

**One of the most impressive demographic changes was the growth in the size of the population of Aruba: more than doubling from 53,199 persons during the Census 1960 to 111,051 persons in 2020.** A growth of 108.7 percent in 60 years. More strikingly, the Central Bureau of Statistics projects the population to further grow by approximately 28,000 persons between 2020 and 2040, to a total of an estimated 139,000 persons (see Figure 2.1), representing a double-digit hike.

Figure 2.1. Realized and projected population growth between 1960 and 2040 in Aruba (CBS, 2021).



Moreover, a rapid decline in fertility, combined with a drop in mortality rates resulted in important shifts in the age composition of the population. These structural shifts led to several developments and brought about significant challenges, including:

- i. **Rapid aging of the population between 1960 and 2020.** The proportion of the age group of 65 years and over grew from 3.1 percent in 1960 to 15.4 percent in 2020. It is projected to continue growing in the next two decades. The fastest growing group – proportionally and in absolute terms – is the age group of 80 years and over. From a proportion of 0.5 percent in 1960, it is expected to grow to 9.0 percent of the total population. By 2040, the proportion of the age category of 65 years and over will be around 23 percent of the total population.
- ii. **The working age population as a group peaked as a proportion of the total population in 2000 at 69.5 percent.** It has been gradually declining ever since, standing at 67.5 percent in 2020. The working age population is projected to continue declining during the next two decades, reaching a proportion of 60.6 percent in 2040.
- iii. **As a group, the youthful population in Aruba has shrunk from 41.4 percent of the total population to the current level of 17.1 percent in 2020.** This trend is projected to continue. In 2040, it is expected to reach 16.6 percent of the total population. Analysis indicates that the contraction in the youth dependency ratio is partially responsible for explaining the diminished labor force participation rate.

- iv. **Migration is an important element in the population growth of Aruba.** The proportion of migrants in our society increased between the Census 2010 and Census 2020, i.e., from 33 percent to respectively 37 percent of the total population of Aruba. This represents some 40.000 inhabitants out of a total population of 108.166.

**Like many countries, Aruba faces the demographic challenges of an ageing population and low birth rates.** Unlike many countries, the size of Aruba and the size of its population make these challenges more pressing and consequential for our economy and society. This makes it important to find ways to achieve a sustainable population development to ensure a healthy living environment for the next generation (2025-2040).

### 3.3 Main conclusion and recommendations

**Demographic changes like population growth, rapid aging, migration, and urbanization affect development objectives on national agendas.** Population dynamics place pressures on the environment, including the management of waste and wastewater, as well as that of management of resources like water, energy, and land.

**A continuation of the current policy towards changes in the size and changes in the age structure of the population is not a viable option considering the already high-density levels, the diminishing structural productivity, as well as the increasing social costs.** The expected rapid growth of the population of Aruba between 2020 and 2040 will deeply challenge the sustainable development in Aruba.

**Structural policy reforms are urgently called for if we are to resolve these structural challenges.** Hereto, it is important to recognize that populations are not static; they are dynamic and continuously changing. Demographic shifts are thus integral to economic development. The question is, however, how can policy makers anticipate and manage these changes effectively and impactfully, in order to adequately meet the needs of future generations.

**Rather than let the past lead, we should be driven by the future.** In essence, our public sector needs to learn to work smartly, effectively, and collaboratively. The real issue at hand is how to quickly recognize and identify important changes that will be impactful, as well as managing and mitigating risks, in addition to maximizing the benefits and opportunities that new population demographics and dynamics offer.

**Through decision making and effective policy execution, the Government of Aruba (GOA) affects life and opportunity of its residents.** To continuously improve the quality of their life, the and the policy process and the decision-making process have to be fundamentally redesigned. This starts with the availability and accessibility of reliable, regular, and timely data and statistics to support the aforementioned processes based upon evidence. Data and research should be policy driven to help improve our quality of life.

**Structural demographic changes beget new institutional capabilities.** Although changes in our socioeconomic demography are already having a profound impact on our quality of life, nonetheless, within the public service sector there is no ministry in charge of designing and implementing policy regarding demographic changes and their impact on society. It is crucial that population developments and changes,

and their effect on society, be structurally integrated in our future economic development. Given their structural ramifications for sustainable development, prosperity and wellbeing, in addition to demographic changes and population growth, should be elevated as a key policy area assigned to a ministry. Thereto, it is imperative that we re-tool and re-skill and professionalize our civil service to work towards improving life and conditions for residents and for businesses. This will require the necessary focus and attention to ultimately effectively improving the quality of life.

**Beyond necessary structural policy reforms, new institutional capabilities require a transformative policy shift.** This shift in (political economic) belief systems and policy decisions, incorporates normative analysis – also known as Political Theory – as an integral part of the policy analysis process. This fosters a more sustainable and ethical governance and builds a more solid base for consensus regarding decision making and for implementation of policy to the benefit of all (see also Chapter 7).

*...the fair distribution of public goods  
and public services matters.*

**To conclude, it is no secret that we are facing enormous challenges.**

Given the times we live in and the many tribulations that Aruba is, and will be, confronting in the near future, both prudence and diligence are called for. Forethought and fairness are fundamental to resolving our demographic challenges in order to meet the needs of future generations. For most of us, a fairer distribution of public goods and public services matters.

**This requires, however, that policy formulation and implementation are transparent, just, and equitable to the future, while making responsible choices today.** In making these choices, normative analysis of the outcome of social processes and goals of public policy is highly recommended. As a principle, fairness is considered essential as it reflects the value society adheres to every one of its members. This implies that we, as a society, need to urgently and seriously consider, as well as determine the values that we deem important for our country, especially our next generations.

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***The only limit to your impact is your  
imagination and commitment.***

**Tony Robbins**



### 3. Safeguarding economic development and prosperity

By Stephanie Werleman

#### 3.1 Introduction

Since the late 80's, the Aruban economy has depended on the tourism sector as its main source for economic growth (Peterson et al., 2020). However, despite an expansion in the number of tourists visiting the island in the past twenty years, i.e., 55.1 percent increase in total stay-over visitors from 2000 to 2019, output in terms of real Gross Domestic Product (GDP) lingers. Specifically, between 1987 and 1999, real GDP gains averaged 7.2 percent, whereas the average real GDP expansion between 2001 and 2019 was 1.2 percent. This pattern is indicative of a sluggish economy, also known as economic stagnation (Hutchison, et al., 2005).

Moreover, Aruba faces another major challenge, i.e., the observed diminished output is not mirrored in the level of economic prosperity. Thus, the economic gains in real GDP are not equitably distributed and benefiting the Aruba community. We define economic development as the sustained and inclusive economic gains that lead to the achievement of higher quality of life, increased standards of living, provision of adequate shelter, and secure employment for all (including elimination of income inequality), preservation of the integrity of the environment, and the empowerment and full participation of women in all spheres of society (United Nations, 1997). Thus, while economic growth measures only the value of goods and services produced within an economy, it does not capture

morality concepts such as human development, depletion of natural resources, gender equality, and income inequality (Feldman et al., 2014). Taking this broader perspective, implies that sustained increases in GDP do not automatically translate into equal proliferation in economic development and shared economic well-being; an economy can grow without actual development (Kane, 2004). To sum, economic growth does not imply economic development; economic growth is a necessary but not a sufficient condition to achieve economic development.

In this chapter, we go beyond the traditional concept and measurement of economic growth for Aruba. We contend that economic development, not economic growth, is the sustainable end-goal to achieve domestic economic prosperity. Throughout this chapter, we maintain that economic growth can stimulate economic development only if it is inclusive and sustainable. Hence, beyond meeting the needs of the current generation without compromising the ability of future generations to fulfill their own necessities (United Nations, 1987), economic development emphasizes that we must answer to the needs of future generations while taking responsible policy actions today.

*Economic growth is a necessary but not a sufficient condition to achieve economic development.*

The main questions of this chapter are:

- i. What are the pathways towards unleashing the real development potential of the Aruban economy without compromising the ability of future generations to meet their needs?***
- ii. What are the opportunities for safeguarding economic development by means of inclusive economic growth for Aruba?***

### 3.2 Key trends, facts, and figures

**Economic growth and economic development are multidimensional concepts that are measured by different – complimentary – indicators.** Table 3.1 provides a summary of the main indicators used in this study. Economic growth is measured by the real output growth and the growth rate in real GDP per capita. Alternatively, and consistent with the economic wellbeing policy framework (see Chapter 1), economic development is measured by examining dimensions of average living standards, employment, income equality, gender equality, and intergenerational equity and sustainability. The indicators<sup>1</sup> used for each concept are based on the goals, targets, and indicators of the SDGs of the United Nations and the National Key Performance Indicators (KPIs) of the World Economic Forum (2017).

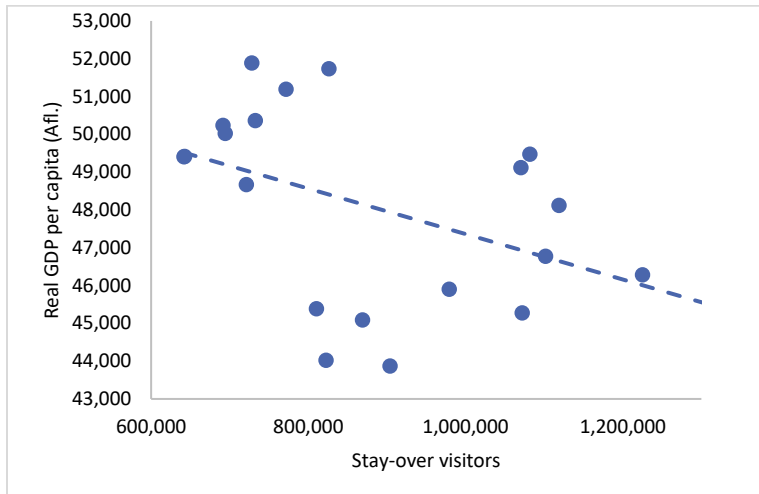
*Table 3.1 Dimensions and indicators for economic growth and economic development.*

<b>Economic growth indicators</b>	<b>Economic development indicators</b>
Real GDP growth	<i>Average living standards:</i> real GDP per capita growth
Real GDP per capita growth	<i>Employment:</i> unemployment rate
	<i>Income equality:</i> Gini-index
	<i>Gender equality:</i> gender gap in labor force, proportion of seats held by women in the national parliament
	<i>Intergenerational equity and sustainability:</i> adjusted net savings, public debt to GDP

**An analysis of past trends reveals that the Aruban economy is stagnant with no substantial improvement in economic development (Table 3.2).** Despite continued tourism growth over the past two decades, the average real GDP growth for Aruba for the period between 2001 and 2019 diminished to 1.2 percent, while the expansion in real GDP per capita resulted in a mean of 0.0 percent (see Figure 3.1). These findings corroborate previous studies that Aruba has reached a tourism maturity phase, in which tourism has attained a tipping point after which expansions herein, particularly in terms of additional accommodations and visitors, are no longer conducive to economic development and wellbeing.

<sup>1</sup> Not all indicators of the SDGs of the United Nations and the KPIs of the World Economic Forum (2017) are included due to lack of data for Aruba. In addition, indicators analyzed in the other chapters in this report are excluded from this chapter.

Figure 3.1. Relationship between tourism arrivals and real GDP per capita (Aruba, 2000 – 2019).

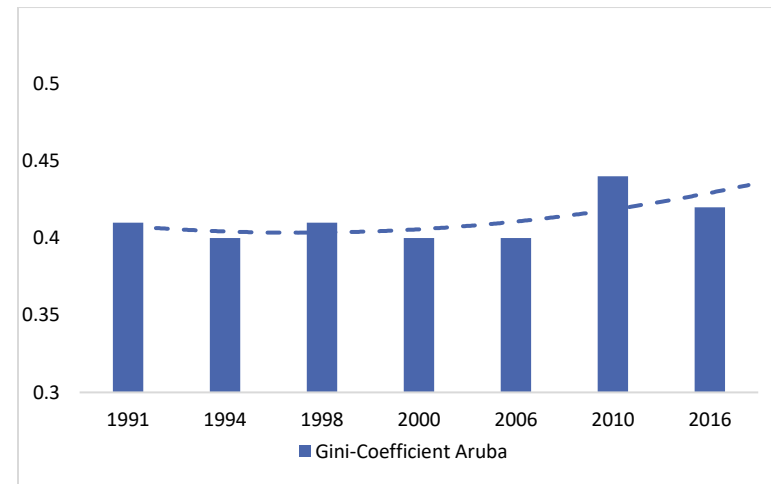


These aforementioned observations are strongly indicative of a sluggish economy paired with deteriorating standards of living as measured by the contractions in real GDP per capita (see Table 3.2). We further observe that the unemployment rate of Aruba is, on average, below that of Caribbean Small States (CSS). Nevertheless, Aruba remains more sensitive to tourism-related shocks than its Caribbean peers.

Aruba is also categorized as one of the countries in the region with the worst income equality, while no significant progress is observed since 1991 in the Gini index. In fact, over the past 20 years, this index rose from .39 to .45, reflecting a deterioration in income equality and wealth distribution in the Aruban community. With regard to gender equality, it should be noted that Aruba’s gender gap in the labor force

remains significantly smaller when compared to its peers, with the share of seats held by women in the parliament greatly improving since the Status Aparte. Nevertheless, the gender gap experienced recent increases in 2018 and 2019, while the proportion of seats in the parliament is still not equally divided among men and women. In addition, women are overrepresented in lower income categories, and earning, on average, 30.0 percent less than their male counterparts.

Figure 3.2. Gini-index for Aruba 1991 – 2016 (CBS, DAS, 2020).



On the subject of intergenerational equity and sustainability, Aruba has experienced several episodes of negative adjusted net savings since the year 2000. This is indicative of unsustainable economic growth. Likewise, public-debt-to-GDP ratio has followed a steady upward trend since 2009, indicating an economy that is not affordable

in the long-run for future generations. Therefore, the analysis of past trends reveals that policy as usual is not an option and underscores the need for the GoA to rethink and redesign the current economic model and economic development policies with an emphasis on economic wellbeing.

Table 3.2 Main findings based on past trends in the Aruban Economy.

Economic growth		Economic development	
i.	Past trends indicate a structural stagnation of the Aruban economy	i.	Heightened performance in tourism did not result in equal improvements in or better standards of living
ii.	Heightened performance in tourism did not convert into equal improvements in economic growth	ii.	Unemployment increased despite noted economic growth
		iii.	Income inequality follows an upward trend. Moreover, real GDP growth did not reduce income inequality
		iv.	The gender gap follows a long-term decreasing trend. However, there are some recent upturns (2018 and 2019)
		v.	Women are still not equally included in political and economic decision-making
		vi.	Unsustainable development for future generations and the environment's well-being

### Main conclusion and recommendations

**Without discarding the important role of the private sector and civic society, it is recommended that the GoA adopt the recommendations presented in the *policy shift* scenario (see Table 3.3).** Under this scenario, the government goes beyond economic growth by proactively and effectively targeting impactful economic development. In this framework, it takes the necessary actions to stimulate the Aruban economy by, e.g., labor market and tax reforms, promoting economic diversification, regulating tourism development, and by acting on policies that increase Total Factor Productivity (TFP). At the same time, the government focuses on economic development and aims to improve the average standards of living, reducing unemployment, promoting income equality, progressing the equality between men and women, encouraging intergenerational equity, as well as sustainable economy. The actions needed under this framework include – but are not limited to – the creation of impactful policies that deter brain-drain, actively boost labor force participation and productivity, strengthen the government's responsiveness and reliability in adapting to next-gen. needs, and foster trust in its public institutions by promoting high levels of integrity.

**In conclusion, the recommendations under the policy shift scenario are considered as the main pathways for creating an inclusive and sustainable economy to fulfill the needs of future generations, while taking responsible policy actions today.**

Table 3.3. Policy shift recommendations.

Dimension	Recommendation
<i>Average living standards (real GDP per capita)</i>	i. Fortify skill-based immigration policies.
	ii. Promote the existing District297 platform (or create new platforms), which aims to bring back (high-skilled) Arubans living abroad. Additionally, create policies that deter brain-drain by promoting youth and young professional development opportunities.
	iii. Adopt the policy recommendations related to demographic trends (discussed in Chapter 2) and social safety nets (discussed in Chapter 4).
	iv. Execute the policy recommendations regarding (youth) unemployment, income equality, gender equality, and intergenerational equity and sustainability.
<i>Employment (unemployment rate)</i>	v. Promote the reduction of youth unemployment through education and vocational training by investing in programs such as the National Action Plan for Youth Unemployment. This should include the promotion of youth entrepreneurship (i.e., self-employment) and the inclusion of the youth in social dialogue.
	vi. Stimulate innovative job creation in renewable energy, high-tech, logistics, and creative industries.
	vii. Privatize Enseñansa pa Empleo.
	viii. Promote the inclusive reach of education, including investing in retraining and reskilling, to support the labor reallocation to new sectors and improve

	long-term employability. In addition, encourage entrepreneurship by embedding entrepreneurship competencies and financial education in the national educational system.
ix.	Review the current education curriculum with the aim to foster 21 <sup>st</sup> century skills development, social responsibility, and integrity.
x.	Promote and strengthen labor force participation programs. Develop new categories of labor market policies, such as incentive to promote employment (i.e., as a result of social benefits) by encouraging better matching of jobs with skills, and by providing continued support and monitoring.
xi.	Mitigate informal labor by promoting and enhancing labor market regulatory compliance and enforcement.
xii.	Act on the policy recommendations given under the employment and the gender equality dimensions.
xiii.	Increase trust in public institutions by promoting high levels of integrity, fairness, and openness. In addition, boost the Government’s responsiveness and reliability in delivering public services and in effectively adapting to new needs. Moreover, hold political decision-makers and public servants responsible for their legal duties.
xiv.	Execute policy recommendations given under Chapter 6 (Financial Development and Inclusion). These include the structural embedding of financial

*Income equality (Gini-index)*

	education in the national educational curriculum.	<i>(adjusted net savings and public debt to GDP)</i>	reduced and sustainable public-debt-to-GDP ratio.
xv.	Implement policy recommendations described in Chapter 7 (i.e., Innovation within the public sector)		xxiii. Strengthen tax revenue and compliance. Identify additional revenue sources such as a broader base for excises on alcohol, tobacco, and petroleum products.
xvi.	Foster women’s labor force participation through dedicated funding and micro loans and IT training. Moreover, increase funding for improving the availability and quality of formal care for children.		xxiv. Increase trust in Aruban public institutions by promoting high levels of integrity, fairness, and openness. In addition, boost the government’s responsiveness and reliability in delivering public services and in adapting to new needs. Moreover, hold political decision-makers and public servants responsible for their legal duties.
xvii.	Change existing laws that currently reinforce gender inequality by treating women differently from men. A suggestion would be the provision of equal and adequate paid parental leave for both mothers and fathers.		xxv. Act on the proposed reduction of the public wage bill.
xviii.	Address the legal and policy shortcomings that matter to women, including, tackling the disparity between wages of men and women by enabling a law for equal pay for equal work.		xxvi. Finalize the planned debt management strategies as suggested by CARTAC and IMF, to reduce expenditures in a controlled manner. In addition, adopt an integrated asset-liability management strategy with the aim to guide financing decisions, including the assessment of alternative financing options.
xix.	Promote (e.g. through media exposure) the mentorship of women in order to boost the proportion of women in managerial positions and positions of political leadership.		xxvii. Make the transition towards digital government services (e.g., platform for data sharing and a one-stop-shop for entrepreneurs).
xx.	Confront the gender stereotyping in media by, for example, strengthening codes of conduct to combat sexist imagery, language, and practices.		xxviii. Create and foster programs and policies on the development of the (innovative) agriculture sector. This can include the establishment of a National Food Security Platform where local entrepreneurship for cultivation and production is stimulated to enhance food security and resilience to
xxi.	Enforce existing laws against gender-based employment discrimination and sexual harassment.		
<i>Intergenerational equity and sustainability</i>	xxii. Execute existing fiscal consolidation plan and tax reform shift that leads to a		



- 
- climate change (by reducing import dependency on food products).
- xxix. Implement policy recommendations described in Chapter 5 (i.e., the impacts of climate change), including the transition to a green economy by expanding inclusive renewable energy capacities and climate-resilient infrastructures (both through private and public investments).
- xxx. Execute policy recommendations described in Chapter 7 (i.e., Innovation within the public sector).
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***You cannot escape the responsibility of  
tomorrow by evading it today.***

**Abraham Lincoln**

## 4. The future of social security

by Lorraine E. M. Tromp

### 4.1 Introduction

Aruba’s public pension and general health insurance schemes are under pressure due to, among other factors, lower fertility rates, aging of the population, medical service prices and utilization intensity, as well as the COVID-19 pandemic. In order to meet the emerging and future needs of the Aruban society, it is thus necessary to look into impactful solutions that reduce the pressures on the schemes in a systemic manner.

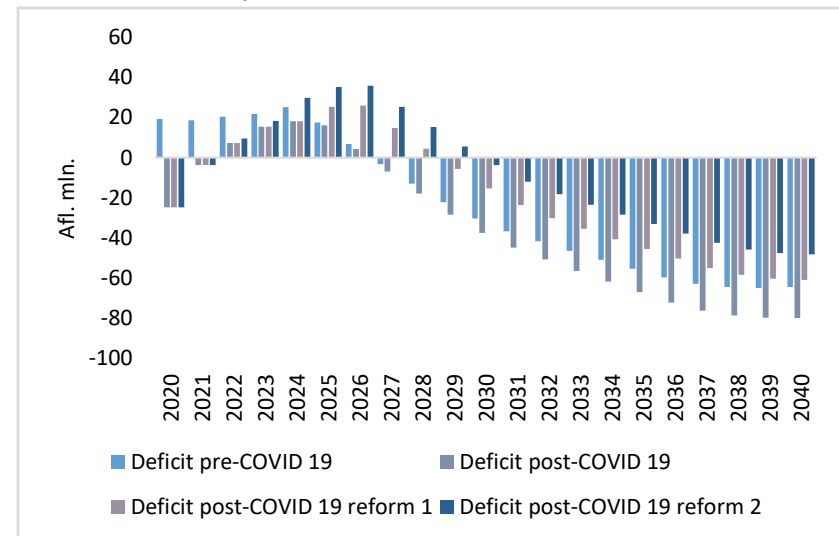
The current chapter focuses on financial sustainability of social security and addresses the following questions:

- i. *How financially (un)sustainable are the pension insurance scheme (AOV) and the general health insurance scheme (AZV)?*
- ii. *Which reform options can be implemented to strengthen the financial sustainability of the pension insurance scheme and the general health insurance scheme?*
- iii. *How do we shift policies and pathways to meet the needs of the next generation?*

### 4.2 Key trends, facts, and figures

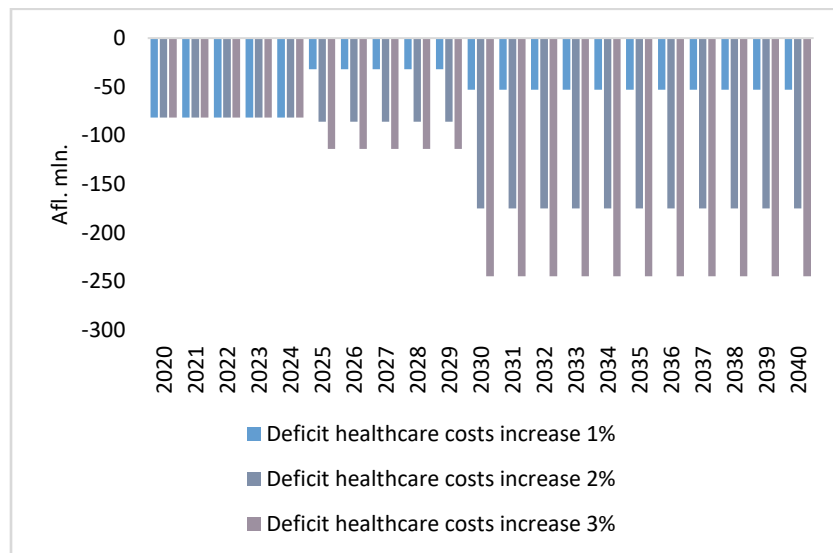
Under a policy as usual scenario, both the AOV and AZV funds are projected to incur recurring shortfalls in the near future, in order to implement the current insurance schemes (See Figures 4.1 and 4.2). Under unchanged policy scenarios, the government may be called upon for liquidity support to finance the respective deficits, thus, weighting on its expenditures. This would lead to a continuous increase in the level of government debt, for as long as the revenues it collects are insufficient to cover its operational costs. As such, policy as usual is unsustainable and would result in an increasing burden in the form of future debt repayments.

Figure 4.1. Projected deficits of the AOV fund (SVB, September 2021; Author’s calculations).



Projections show that notwithstanding the transitional benefits of AOV reforms (Reform 1: Pension age increases to 66 years in 2025; Reform 2: Pension age increases to 66 years in 2025 and various benefits pertaining to both the AOV and AWW ordinances are reduced), deficits accrue in the long run, thereby rendering these funds unsustainable.

Figure 4.2. Projected deficits of the AZV fund (AZV, January 2021; Author's calculations).



In terms of policy reform, a higher premium could be required to maintain the insurance schemes' current benefits. In the case of AZV, the maximum annual wage, on which the premium is levied, can also

be increased. While this solution may seem financially sustainable at first, it fails to uphold the principle of intergenerational equity, as the decision to maintain the current level of benefits requires future generations to face increasing costs in the form of higher contribution rates.

**A higher premium would also jeopardize the competitiveness of the economy, as this would entail increases in labor costs** (Liaropoulos & Goranitis, 2015). Alternatively, an earmarked general tax could be introduced to complement the premium contributions, similar to the BAZV. This approach helps raise revenues by broadening the contribution base, thereby reducing the relatively heavy reliance on employer and employee contributions. It should be taken into account, however, that simply introducing an additional tax, without reforming the current tax system, would further increase the domestic tax burden, which already outpaces several regional countries based on the tax<sup>2</sup>-to-GDP ratio (Croes & Ashby, 2018).

**Policy reform would include changes to the conditions of eligibility.** In the case of the AOV fund, a hike in the retirement age, or a reduction in the benefits provided by the AOV fund can be considered. With regard to the latter, options may include lowering the Christmas bonus, the funeral expenses covered, and/or even the monthly income to retirees. However, particularly with reference to the latter, it should be noted that the current monthly income received per retiree (Afl. 1.157 or Afl. 974) is **already lower than the subsistence level for a single adult** (July 2021: Afl. 2.293) (Central Bureau of Statistics Aruba, 2021). This means that the level of income currently

<sup>2</sup> Including social contributions.

received is significantly less than what is necessary for an adequate standard of living in Aruba.

**Moreover, stricter eligibility requirements go against the concept of a universal healthcare system.** Stricter AZV eligibility breaches the principles of accessibility and nondiscrimination in provisions that are stated in the right to the enjoyment of the highest attainable standard of physical and mental health. Another policy reform option to consider is the introduction of copayments. Cost-sharing aims to make patients more aware of the costs of medical care in an effort to prevent overuse, and is practiced to various extents in several countries (OECD, 2021). Various studies show that cost-sharing indeed reduces the demand for healthcare services (Manning et al., 1987; Paul & Nilsson, 2014; Chandra, Flack & Obermeyer, 2021). However, cost-sharing can negatively impact health outcomes (Chandra, Flack & Obermeyer, 2021; Laba et al. 2014) and long-term health costs, increase the financial burden on households (Laba et al., 2014), as well as undermine the basic principle of accessibility (OECD, 2019; Laba et al. 2014). Policy reform could, alternatively, involve an adjustment to the composition of the standard package of benefits provided by the AZV.

#### 4.3 Main conclusion and recommendations

**Aruba's public pension and general health insurance schemes are under pressure and are deemed financially unsustainable under current policies.** While policy reforms are required, these are insufficient for resolving and safeguarding social security, especially when considering intergenerational equity, accessibility, and the principles of sustainability. Hence, in order to meet the emerging and

future needs of the Aruban society, the government must transform and shift the current public pension and general health insurance arrangements towards more sustainable, inclusive, and equitable policy models.

With regard to the provision of medical care and retirement income, a range of possibilities exists. On one end of the spectrum, while more responsibility is shifted towards individuals, the government still plays a role in defining the rules of the system. On the other end, one could imagine a scenario in which individuals are fully responsible and free to decide whether and how they take care of their medical needs, as well as generate income past the productive phase of their lives.

*In order to meet the emerging and future needs of the Aruban society, the government must transform and shift the current public pension and general health insurance arrangements towards more sustainable, inclusive, and equitable policy models.*

**Shifting social security policies with foresight requires the following actions:**

##### ***1. Review and reform the role of government***

**The government needs to scrutinize its purpose and identify the services it is truly required to provide to achieve its purpose most**

**effectively.** In doing so, it should take into account the various tools at its disposal that enable it to provide the required services in an indirect manner, including among other means, regulation, the tax code, and sourcing options (Gansler, 2006). Hereto, it is pivotal that our social institutions, including health and social security governance, are strengthened by developing the requisite management and innovation capabilities (see also Chapter 7).

## ***II. Make an inventory of transition costs***

Policy shift doesn't happen overnight. In addition, it doesn't entail starting off with a clean slate. In moving from the current to the desired future state, the government should take into account all claims for which it is responsible, and explore ways to spread the burden of transition as fairly as possible over different segments of the population, as well as between the current and future generations. It is, thus, important to have insights into the costs of a potential transition, as well as on the factors that determine how much and which generations stand to gain or lose. Leading up to a transition, an inventory of costs aids in preparing for a smoother transition as well as in informing and preparing the public for the changes to come.

## ***III. Include private sector participation***

**Increased participation of the private sector would help to spread the financial burden, as well as differentiate and expand the supply of goods and services. This would increase access and (particularly in the case of healthcare) reduce waiting times for patients.** In this regard, the government should assess whether policies, fiscal

measures or regulations act as unnecessary barriers to (potential) providers. It could also introduce incentives to increase private sector participation, particularly in areas where a lack of supply, as well as a willingness to pay by residents has been identified.

**More importantly, an integrated health and social security ecosystem should be pursued.** This would entail a digital ecosystem of interconnected stakeholders in the social and healthcare system through the use of mHealth, i.e., the use of mobile phones and other wireless technologies to educate and empower residents about their health and social security. By means of secured and distributed ledger technologies (DLT), the resulting economies of scale and scope would also allow to realize a more holistic (less fragmented), equitable, and efficient (less costly) social security system.

## ***IV. Deepen the financial market***

**A broader supply of financial products and services, as well as improved access to these products and services can help residents be better able to provide for their retirement.** An example would be the design of a Social Impact Policy Framework and the issuance of Social Impact Bonds, which proceeds would fund new and existing social health projects with impactful and measurable social outcomes, including targeted social security, essential health care, and lifestyle learning. Furthermore, a deeper capital market can aid in the financing of private (healthcare) sector initiatives.

**The government should focus on shaping the regulatory and supervisory framework with transparent rules and predictable enforcement, as well as embedding Artificial Intelligence (AI) in its**

**monitoring and surveyance.** In addition, it should strengthen and/or establish additional cornerstone institutions, define taxation policies that are in line with its market development objectives, and promote the use of technology to develop a state-of-the-art health infrastructure (Jain et al., 2017).

#### V. Transform citizens into citizens of the future

**Preconditions exist for shifting more responsibility towards individuals.** Such a shift requires fostering critical thinking and making sure that information is accurate, available, and accessible at all times. A future entailing a smaller government role furthermore necessitates the nurturing of individual and societal resilience, as well as policy literacy (Vesnic-Alujevic et al., 2019).

**Hereto, the impact of health citizenship, health education, and lifestyle learning are quintessential.** Health citizenship refers to health knowledge and health literacy that is integrated and contributes to the planning of health care, programs, and policy. Rather than be merely consumers of health and social services, nurturing responsible citizenship for the future would strengthen the individual rights, as well as the collective responsibilities for safeguarding the future social security. In the 'Citizens-4-Future' (C4F) program, residents would own their data, reinforced by comprehensive privacy laws and data regulation. They would also take responsibility for self-care and positive health behaviors, thereby actively contributing to a more equitable, fair and inclusive society.

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***You can't build a long-term future  
on short-term thinking.***

**Billy Cox**



CENTRALE BANK VAN ARUBA



## 5. The implications of climate change for Aruba

by Giantcarlo Croes

### 5.1 Introduction

Climate change is expected to have significant macroeconomic impact, especially on small developing states (SDS) that are more exposed to the whims of the weather.<sup>3</sup> This is even more the case in countries in warmer climates and those in coastal zones. Therefore, building resilience to climate change and natural disasters is a key priority for many SDS.

*...building resilience to climate change and natural disasters is a key priority.*

The IMF considers climate change one of the fundamental challenges of the 21st century. However, the right climate policies can address these risks and also bring great opportunities for transformative investments, economic growth, and green jobs. Given that Aruba is a small country with a warm climate and surrounded by the ocean, it is affected by climate change.<sup>4</sup> This gives rise to the question 'How can

*and should Aruba cope with the impact of climate change in the coming decades?'*

This chapter will address the risks of unmitigated climate change and the potential impacts for Aruba. We will also assess the current state of preparedness of Aruba and the plans currently in place. Next, we will seek answers to the following questions:

- i. *What measures can Aruba take to mitigate climate change?*
- ii. *What can Aruba do to adapt to climate change?*
- iii. *How can these measures be financed?*

### 5.2 Key trends, facts, and figures

For Aruba, similar to the Caribbean region, the main climate change vulnerability is the warming and acidifying of the ocean, and the bleaching and diebacks of coral reefs. These reefs provide protection against storm surges and are also important for the tourism industry as they are a key source of tourism activity. In addition, according to Peterson (2020), 46 percent of households reside in areas susceptible to storm surges and flooding. Moreover, the majority of tourist accommodations on the island are located near the coast as is a large part of Aruba's primary infrastructure (see Figure 5.1).

<sup>3</sup> Small developing states are defined as developing countries with populations below 1.5 million.

<sup>4</sup> Burke, Hsiang, and Miguel (2015a) provide evidence that productivity peaks at 13 degrees Celsius and strongly declines at higher temperatures.

Figure 5.1. Projected impact of sea level rise on coastal communities and tourism infrastructure (SLR +1m, 2040).



Apart from sea level rise, increasing temperatures also can have potential negative impacts on the Aruban economy and the hospitality of the island. IMF research shows that for the median emerging market economy, a 1°C increase from a temperature of 22°C lowers growth in the same year by 0.9 percentage point. Additionally, higher temperatures also could lead to higher energy costs related to cooling of homes and businesses. Studies have shown that energy consumption could increase by as much as 6.7 percent for a 1°C temperature rise for countries with an average temperature over 24°C. (Yao, 2021).

As temperatures rise, Aruba may also be exposed to more frequent severe weather and natural disasters such as hurricanes. This is also likely to increase insurance costs, impact savings, and raise the vulnerability of the financial sector as households and businesses are more frequently affected. Moreover, extreme weather events, such as droughts, can lead to failed crops in food exporting countries. These failed crops can cause food scarcity, which is a problem for Aruba that needs to import most of its food, which is already becoming ever more expensive. Another impact of climate change is that countries considered vulnerable to climate change may also see changes reflected in their sovereign rating. A drop in credit ratings for Aruba would make borrowing on the international capital market more costly for the government and for businesses, which subsequently could cause a potential reduction in investment and, thus, in economic development.

Several studies have attempted to quantify the potential impacts of climate change for the Aruban economy. ECLAC (2011) estimated that the value of land loss in an unmitigated scenario until 2050 could amount to US\$ 252 million, while the annual hotel room replacement cost could reach approximately US\$ 20 million. Based on a study by Gill (2010), who estimated that about 22 percent of tourist expenditures can be attributed to reef-related activities, the economic value of coral reefs for Aruba can be put at US\$ 94 million per year. Bueno et al. (2008) estimated the cost of hurricane damages, the loss to the tourism sector, and sea level rise if no action is taken to counteract the effects of climate change. In a business as usual scenario, the estimated loss of GDP for Aruba would amount to at least 20 percent of GDP in 2050. Meanwhile, ECLAC (2011) found that

the potential loss for Aruba due to climate change ranges from 1.5 - 2 percent of Aruba’s GDP each year.

Table 5.1. Summary of potential macroeconomic impacts of climate change.

Short-run	Long-run
Negative impact on output due to increased occurrence of extreme weather events such as hurricanes, floods, droughts, and heat waves.	Loss of environmental assets, including biodiversity, beaches, mangroves and coral reefs, related to a combination of sea level rise and warming sea temperatures.
Increased occurrence of extreme weather events raises insurance costs, impacts savings and increases vulnerability of the financial sector.	Damage to Aruba’s primary infrastructure located near the coast.
Higher import prices for food due to scarcity resulting from failed crops in food exporting countries.	Declining productivity due to rising temperatures, especially in sectors exposed to the heat.
Deterioration of sovereign rating due to climate change vulnerability.	Higher energy costs related to cooling of homes and businesses, leading to increased outflows of foreign exchange reserves.

### 5.3 Main conclusions and recommendations

**Like the rest of the world, Aruba already feels the impact of climate change.** Its main vulnerability is the warming and acidifying of the ocean, the bleaching of coral reefs, and rising sea levels. The impact of flooding risk is substantial as 46 percent of households reside in areas that are susceptible to storm surges and flooding. Furthermore, the majority of tourist accommodations on the island are located along the coast. In addition to tourism, a large part of Aruba’s primary infrastructure (port, airport, water and power plant, sewerage) is located near the coast, adding further to its vulnerability.

**Aruba has taken some initial steps to address climate change.** These policy actions include, e.g., reducing the carbon intensity of its power production, expanding the share of renewable energy, and adopting an energy resolution that serves as the base for a national energy policy. While these are encouraging steps, they are not sufficient. In this chapter, we have put forward the following recommendations in response to climate change.

#### I. Mitigation policy recommendations

**Implement a carbon pricing scheme as the primary policy tool, whereby the price of carbon will be raised significantly by 2030.** This scheme should include all sources of emission, i.e., power generation as well as road fuels. An extensive decarbonization of the economy will require both energy efficiency and the share of low-carbon sources in the energy supply to increase significantly. These changes will require carbon-intensive energy to become much more expensive relative to both low-carbon energy and other goods and services than it is currently.

**In addition to a carbon pricing scheme, introduce so-called feebates that raise the implicit price of carbon.** Also, the government should remove existing distortions to support better carbon pricing.

**Use part of the revenues from the carbon tax to compensate vulnerable households through targeted financial transfers to compensate for the potential loss of purchasing power, as well promote inclusive energy transition.** This would ensure inclusion in the transition to a low-carbon economy. Also, some of the revenue can be used to finance higher public spending in low-carbon sectors,

which will create jobs and offset employment losses in carbon-intensive sectors. These actions should help overcome short-term focus and fear of lost jobs and livelihoods, and instead enable a longer-term vision toward slowing down the pace of climate change.

## II. Adaptation policy recommendations

**Long-term energy planning with consideration of climate change also should include reconsideration of the business model of the utility companies going forward.** The current business model is not likely to be sustainable nor in the general interest of Aruba in transitioning inclusively toward a low-carbon economy. Hence, preparations should be made for these companies to realize the government's goal of carbon neutrality.

**Create financial resilience ahead of disasters.** The government should create fiscal buffers and utilize pre-arranged financial instruments to protect fiscal sustainability and manage recovery costs, and thereby avoid a similar financial disaster as occurred due to the outbreak of Covid-19. To this end, it is recommended that a contingency fund be created that can provide sufficient financial funds in the event of a disaster.

**The government should also explore the possibility of arranging standby financing for catastrophes in the form of credit lines at international institutions.** Another option is to arrange disaster insurance through various risk transfer mechanisms, such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF), and market-based instruments like catastrophe bonds.

## III. Financing of mitigation and adaptation policy actions

**Phase out fossil fuel subsidies by introducing a carbon tax.** While there may be no explicit subsidies, the fact that the externalities caused by fossil fuel emissions are not priced represents an implicit subsidy. A carbon tax will reduce carbon emissions and produce additional environmental and health benefits.

**Redistribute revenues from carbon tax to fund other initiatives.** These targeted policy initiatives include, for example, retrofitting houses, supporting low-income households, workers, and communities that are most impacted by the transition to a low-carbon economy or the physical effects of climate change. In this way, the transition to a low-carbon economy will be inclusive with no extra costs to the government.

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## 6. Advancing financial development and inclusion in Aruba

by Elmelynn Croes

### 6.1 Introduction

**Achieving economic growth has long been a key macroeconomic goal of Aruban policy makers to raise living standards and increase economic wellbeing.** However, economic growth does not necessarily mean that the increased living standards and wellbeing generated apply to everyone, or are shared equally across different groups of society. Additionally, the COVID-19 pandemic has exacerbated inequality trends, and has created an even more urgent call for policy makers to actively pursue inclusive policies on their agendas. Implementing policy actions that enhance financial development and financial inclusion in Aruba can lead to sustainable economic development that raises living standards across all socioeconomic groups and increases the wellbeing of all its people.

**Studies have shown that both financial development and financial inclusion are conducive to inclusive economic development, as they can positively shape a fair distribution of economic opportunities.** Furthermore, past research confirms that financial development has a positive impact on economic growth and income equality (Beck et al., 2007). Moreover, recent studies on the impact of financial inclusion conclude that inclusion is beneficial to reduce inequality and poverty, as well as bolster economic growth (Loukoianova & Yongzheng, 2018). Nonetheless, in order to actively participate in the financial system, people need to be financially literate to make effective financial

decisions and engage in financial activities, such as financial planning. The literature reveals that the cost of low financial literacy is significant. Consequently, financial literacy and financial education are pivotal.

**This chapter takes stock of financial development and financial inclusion in Aruba, and identifies areas of opportunity for advancing financial development and strengthening financial inclusion.** Additionally, it will look at the role of financial education to stimulate financial inclusion and wealth creation. This chapter will address and answer the following questions:

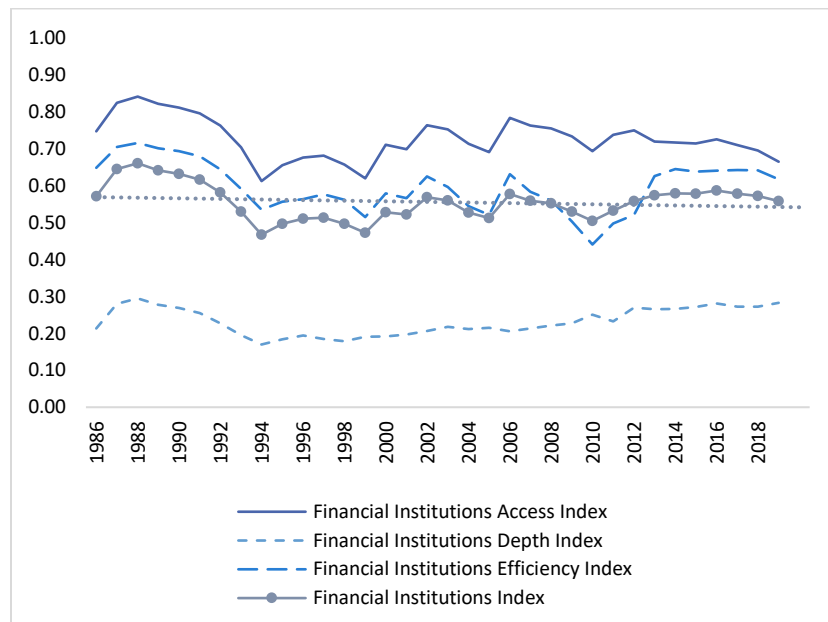
- i. What are the levels of financial development and financial inclusion?*
- ii. How can financial development contribute to inclusive economic development?*
- iii. What are the opportunities to increase financial inclusion?*

### 6.2 Key trends, facts, and figures

Considering the level of financial development, it is noteworthy that there is ample room for improvement, especially as it is below the point of diminishing returns of financial development (Sahay et al., 2015). Aruba has a higher level of financial development, as denoted by the IMF Financial Development Index (FDI), compared to most selected regional peers. The comparative higher level of financial development of Aruba is largely attributed to more developed financial institutions' access and efficiency. The latter suggests that our financial institutions are relatively more efficient at intermediating

savings to investments, have relatively higher operational efficiency, and are relatively more profitable. However, there is a substantial gap compared to advanced economies, especially with regard to the depth of financial institutions and capital markets (see Figure 6.1). This suggests that an increase in financial development would still contribute positively to growth in Aruba, especially if concerted policy actions are focused on strengthening the business, regulatory, and supervisory environment.

Figure 6.1. Trends in the access, efficiency, and depth of financial institutions in Aruba 1986-2018 (IMF).



**With regard to financial inclusion, Aruba has high levels of financial access and usage based on the amount of bank branches and ATMs per 100,000 adults, in addition to relatively high levels of account ownership at a financial institution, yet under-saving and shrinking consumer credit at commercial banks prevail.** When looking at the different types of account ownership among Aruban adults, it is evident that the account ownership beyond that of a checking/current account drops substantially (CBA, 2018). Furthermore, only about one-third of households save on a regular basis. The latter could leave a significant amount of the population in a vulnerable position if they are faced with an emergency or difficult times, and are unable to obtain financing. CBA survey data shows that at least 2 out of 3 households report that the COVID-19 pandemic negatively affected their household finances (CBA, 2021). Consequently, the urgency to advance financial inclusion is greater than ever.

*We must reimagine the future. We cannot go back to what was considered normal before the pandemic, because that normal was not good enough. We must reinvent policies and programs that help ensure an inclusive financial recovery for all.*

Annamaria Lusardi



**What is more, the financial literacy level of Aruban adults is low, and most adults are unaware of their lack of financial literacy.** CBA survey data on the Big Three, as set forth by Lusardi and Mitchell (2006), show that about two-thirds of respondents answered the compound interest question correctly, slightly less than half answered the inflation question accurately, and less than one-third got the stock risk question right (CBA, 2018). When looking at the number of questions respondents answered correctly, less than one-fifth answered all three questions correctly. Furthermore, the results show that 85.0 percent of respondents assessed their overall financial knowledge as fair or better, yet only 17.8 percent could answer all three questions rightly. As such, although actual financial literacy levels are low, most people are unaware of their lack of financial knowledge. The latter could partially explain the low levels of types of savings among adults in Aruba. Consequently, increasing financial literacy levels could provide a significant opportunity in raising financial development and financial inclusion, especially regarding savings depth.

### 6.3 Main conclusion and recommendations

**Policy reforms are urgently required to strengthen financial development and foster financial inclusion.** The former is achieved by the deepening of capital markets through increased savings and investments by 2040, and is bolstered by effective programs to raise financial literacy awareness. In order to accomplish the former, it is recommended that the government:

- i. **Adopt a national vision and strategy on financial development and financial inclusion.** Developed in close collaboration with the financial sector, financial development vision should have a clear

link to a national strategy and clearly articulate the role of the financial sector for economic development (Todoroki & Strobbe, 2015). The financial inclusion strategy should include a multi-year framework with short- to medium-term targets and a multi-pronged strategy (CBA, 2019). Also, it should address access, usage, and quality of financial products and services, and emphasize financial education.

- ii. **Develop policies that aim to relax regulatory constraints and entry barriers into the financial services.** A risk-based approach that limits regulation and financial system entry requirements to transactions and firms above a certain threshold can be useful. The use of regulatory technologies, including AI-supported risk-management, should be pursued. Furthermore, as suggested by the IMF (2021), reforms geared towards removing current obstacles to the private sector, as identified by the Master Plan, could spur business profitability, investment, and growth. Moreover, introducing the right to a basic bank account could help to further lower barriers to financial access (EU Directive 2014/92/EU).
- iii. **Improve the information environment through the adoption of international accounting and auditing standards, as well as the introduction of credit registries and bureaus.** The extent to which shareholders and creditors can effectively monitor firms and induce managers to maximize firm value will improve the efficiency with which firms allocate resources, and, thus, make savers more willing to finance production and innovation. The use of distributed ledger technologies (DLT) platforms should be

actively piloted, in order to develop an integrated and secured digital credit network.

- iv. **Improve financial and digital literacy.** As noted by Tiwari et al., (2020), establishing online tools to impart financial literacy, coupled with digital literacy amongst individuals, have led to an increased and targeted use of subscription to financial services by consumer around the world.
- v. **Design saving products that are affordable and meet the liquidity needs of individuals and households.** Financial institutions could use hyper-personalization to respond to customers' manifest and latent needs (Deloitte, 2020).
- vi. **Provide consumer education and protection to build and ensure trust in the formal financial system, and promote financial stability.** The government should consider reforms to current laws that would strengthen consumer protection, such as the CBA draft state ordinance to regulate consumer credit (CBA, 2020). Moreover, the introduction of the deposit insurance scheme will help protect (small) depositors as well as help preserve trust in the banking system, thereby contributing to financial stability and consumer protection (CBA, 2020).
- vii. **Implement financial data collection efforts for financial development and inclusion.** Main indicators should cover financial access, usage, and quality. Moreover, both demand-side and supply-side data collection should be used for better policy making.

**Whereas the above-mentioned policy reforms are urgently required, they are insufficient for strengthening and safeguarding sustainable financial development.** Thereto, the following policy recommendations are fundamental to nurturing the financial capabilities and economic wellbeing of current and future generations:

- i. **Stimulate a secondary bond market, as well as improve market infrastructure and investor base.** The ease of selling government bond markets affects investors' willingness to buy government bonds in the first place (World Bank, 2001).
- ii. **Develop the corporate bond market.** The government should promote the corporate bond market by stimulating the issuance of green and blue bonds by state companies, in addition to exploring the issuance of social bonds (see Chapter 4).
- iii. **Develop an equity market.** Building forth on previous financial reforms, the government should promote firm listings by having Initial Public Offerings (IPO's) of credible state-owned enterprises. Furthermore, incentives should be introduced that encourage firms to go public, and stimulate venture capital and private equity, as well as develop small and medium enterprise (SME) exchanges.
- iv. **Increase stock investment demand.** The government could expand on the LAP to include pension plan provisions at commercial banks. Also, the government should extend regional relationships and link up with regional markets for efficiency gains and lower costs.

- v. **Anchor financial education in legislation.** According to the OECD/INFE Policy Handbook (2015), governments should establish clear mandates with earmarked funds to conduct financial education policies, and separate executive and supervisory roles. Build in reporting mechanisms and feedback loops, as well as collaborating with the private sector under appropriate guidelines.
- vi. **Embed a national financial education program into the school curriculum throughout all educational levels.** Firstly, an assessment and analysis of the current level of financial literacy of children and youth should be performed. Furthermore, the involvement and support of the Ministry of Education are essential. The financial education program should have appropriate, tailored and quantifiable goals, and should start as early as possible (kindergarten and primary school). Moreover, appropriate information and training of teachers and school staff are critical to the success of the program.

To conclude, in order to advance financial development and financial inclusion in Aruba, it is highly recommended to leverage the synergistic effects of both policy reform and policy shift recommendations, in order to strengthen financial capabilities. Both the public as well as the private sector have important roles and responsibilities in governing from the future.

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***We cannot be mere consumers of good governance,  
we must be participants; we must be co-creators.***

**Rohini Nilekani**



## 7. Innovation within the public sector

by Rynall Kock

### 7.1 Introduction

While there is considerable research on how the government can spur innovation in the private sector, less is written about innovation within the public sector (Bugge & Bloch, 2016), especially in the context of a Small Island Developing State (SIDS). The aim of this chapter is then to shed light on how innovation within the public sector can be fomented, especially in the case of Aruba. Hence, this chapter addresses two main questions:

- i. *How do we foster public sector innovation?*
- ii. *What are the requisite innovation capabilities?*

### 7.2 Key trends, facts, and figures

**Impactful innovation requires an enabling institutional environment.** Thereto, fomenting managerial capabilities and providing innovation complementarities are pivotal (Cirera & Maloney, 2017). The question remains how developed these are in Aruba. Following Kaufmann et al. (2010), while managerial capabilities and innovation complementarities are difficult to measure, they are reflected by the following six **governance indicators**: (i) *Government Effectiveness*, (ii) *Regulatory Quality*, (iii) *Voice & Accountability*, (iv) *Political Stability & Absence of Violence/Terrorism*, (v) *Rule of Law*, and (vi) *Control of Corruption*.

**Benchmarking these governance indicators against neighboring countries reveals that Aruba historically outranked its Latin American and Caribbean peers in all six Worldwide Governance Indicators** (World Bank, 2020). In general, Aruba never ranks below the top 75 percent of the world for any of the six indicators throughout the period 2004-2019. In contrast, the Latin American and Caribbean region never reaches the top 60 percent throughout the period under review. Nevertheless, Government Effectiveness being this high in Aruba is at odds with the findings by de Vries (2013). Furthermore, while the same World Bank data would indicate that Regulatory Quality is better in Aruba compared to its Latin American and Caribbean peers, the Cost of Doing Business Report (CBA, 2019) would prove otherwise. Moreover, Aruba outperforming its peers in Control of Corruption may possibly contradict the findings by the Corruption Survey Report (CBA, 2020).

**Analysis on the impact of governance on innovation (measured by patent applications) shows that Rule of Law is a significant contributor.** More specifically, if the *Rule of Law* index – measured by the perceptions to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence – increases by half a unit (roughly the amount it would take to reach the level of the Netherlands in 2020), then everything else being equal, the number of patent applications grows by  $(69.01/2) \approx 35$ , or roughly 1.5 times the number of patent applications in 2019 (see Table 7.1). Thus, there is empirical evidence that governance has a positive effect on innovation in Aruba. Interestingly enough, the negative relationship between political stability and innovation could be indicative of an adverse effect of

institutional inertia, i.e., maintaining the ‘status quo’, on economic innovation (Acemoglu & Robinson, 2012).

Table 7.1. Regression between the number of patent applications and governance indicators in Aruba (2004 – 2019).

Intercept	259.4* (105.05)
Government Effectiveness index	25.74 (17.7)
Regulatory Quality index	2.53 (17.67)
Voice and Accountability index	61.58 (46.59)
Political Stability index	-70.38 (47.95)
Rule of Law index	69.01* (26.21)
Control of Corruption index	26.05 (46.25)
Secondary school enrollment	-0.03 (0.01)

Estimated partial effects are reported along with standard errors in parenthesis. \*p-value<0.05, n=16.

**Alternatively, in terms of Regulatory Quality, previous studies suggest that there are several impediments.** The *Regulatory Quality index* measures the perceptions of the formulation and implementation ability of the government to (a) formulate and (b) implement sound policies and regulations that permit and promote private sector development. The reported deficiencies in Regulatory Quality include, the burden of government administration (82 percent), the tax system (78 percent), informal competition (33

percent), as well as difficulties in starting a new business (71 percent) (see Table 7.2).

Table 7.2. The main challenges for doing business (percentage of affirmative responses in total responses) (CBA, 2018).

i.	How burdensome is government administration?	82%
ii.	How much does the level of taxes limit incentives to invest?	78%
iii.	How difficult is it to access and acquire financial capital?	78%
iv.	How difficult is it to start a new business?	71%

### 7.3 Main conclusion and recommendations

**To realize an impactful policy shift, managerial capabilities and innovation complementarities are quintessential.** Innovation complementarities can be fomented by lowering cost of doing business, broaden financial markets, and mitigate macroeconomic volatility. In addition, remedies for the market failures specific to knowledge capital are R&D subsidies, tax incentives, and the creation of non-market institutions such as public universities. Furthermore, there needs to be an integrated approach between the universities, governments, and firms. Specifically, the government’s task is to cultivate ‘good institutions’ (political stability, property rights protection, control of corruption, among others), overseeing the interactive process, and intervening when necessary.



Managerial capabilities can be strengthened by instilling (pro-) active policies for:

- i. *Monitoring and using data to improve service delivery;*
- ii. *Employment opportunities on a just-in-time basis;*
- iii. *Internal feedback mechanisms;*
- iv. *Long-run planning, and;*
- v. *Human resource policies.*

**Impairments on managerial capabilities, such as low education level and limits on competition, need to be also addressed in a structural manner.** Limits on competition can weaken managerial capabilities, either by enabling inefficient firms to survive or by failing to provide adequate incentives for firms to upgrade. If managerial capabilities and innovation complementarities are developed, more complex innovation initiatives can materialize (Cirera & Maloney, 2017). Therefore, across the five domains of public service, this chapter assumes complex innovation initiatives crystalizing before 2040 under the policy shift scenario (see Table 7.3).

*Managerial capabilities and innovation complementarities are foundational for strengthening public sector innovation.*

Table 7.3. Overview of the three policy scenarios.

	Policy as usual scenario	Policy reform scenario	Policy shift scenario
Service delivery	Standardized	Customer-centered	Personal services
	Multistep	Streamlined	Once-only
	Limited digital service delivery	Digital service delivery	Anytime, anywhere service delivery
Policy & decision making	Citizen-initiated	Government initiated, but input needed from citizen	No-touch, life events
	Largely in-house	Competitive outsourcing	Do-it-yourself society
	Often not evidence-based	Evidence-based	Government by simulation, AI-based scenario analysis
Operations	Stakeholder consultations but limited follow-through	Stakeholder consultations (Council of Economic Advisors) and concrete action afterwards	Crowdsourcing and distributive policy making
	Slow and reactionary	Agile but reactionary	Anticipatory and preventive
	Back-office services somewhat decentralized	More centralized back-office services	Integrated center office, public sector digital factories
Regulation & enforcement	Labor intensive	Automation	Cognitive automation
	Limited regulation capacity	Increased regulation capacity	Risk-based-regulation development, self-regulation
	Often not evidence-based	Evidence-based	AI-based scenario analysis
Workforce	Lack of enforcement	Enforcement	Positive enforcement strategy, touchless compliance
	Lifetime civil service, one-dimensional workforce	Lifelong learning workforce, on-the-job training	Consulting staffing model, widen talent network

### ***i. Service delivery***

**Under a policy shift scenario, an anytime, anywhere no-touch service delivery based on life events can be expected.** The confluence of all these features has not been highlighted in reviewed Aruban government documents. However, when a child is born in Austria, for example, citizens do not have to complete a form or perform any other action to receive a family allowance, i.e., the no-touch aspect of service delivery. The birth triggers data transfers from the hospital to the central civil registry, to the Ministry of Finance, and to the local tax office, which disburses the allowance. A significant feature of public service delivery under a policy shift scenario is a **do-it-yourself (DIY)** society in which empowered citizens supply public services, instead of the government (Vesnic-Alujevic et al., 2019). No local government document has been found which sets out a plan for a DIY society. Nonetheless, a DIY society is especially relevant against the background of high debt burden and limited fiscal space of the government (IMF, 2021) to improve service delivery.

### ***ii. Policy & decision making***

**A policy shift advocates policy and decision making that are supported and augmented by Artificial Intelligence (AI) simulation and scenario analysis.** This entails AI enabling government to test policies for real-life scenarios before implementing them. This can aid decision making for urban planning and disaster management (Canning et al., 2020). For instance, AI was used at the onset of the COVID-19 pandemic to understand drivers of spreading and develop contingency plans (Rao & Firth-Butterfield, 2020). It seems that Aruba is also heading in that direction, with plans to develop a broad AI

strategy according to the e-Government Roadmap. **Crowdsourcing and distributive policy making** also typify the kind of policy and decision making under a policy shift scenario. A recent example was DIY communities designing open-source COVID-19 testing kits (Weinberger, 2020).

### ***iii. Operations***

**Cognitive automation in essence automates machine learning and thus essentially mimics human behavior** (Lacity & Willcocks, 2018). Powered by advanced technologies such as natural language processing, text analytics, and data mining, cognitive automation enables government to reduce costs and manual labor. For instance, the US Veteran Benefits Administration (VBA) used those same technologies to sort claims from mail, fax and electronic submissions. As a result, the VBA cut the time spent on sorting claims from 10 days to 4 hours (Barnett, 2020).

### ***iv. Regulation & enforcement***

**A key feature of the policy shift scenario is that regulators identify firms and individuals that pose a risk to unwanted outcomes and minimize the burden for low-risk firms and individuals, i.e., risk-based regulation.** The identification process utilizes various data sources, such as compliance history, and information from other sources (Canning et al., 2020). The City of Cascais, for example, uses a prediction system to identify individuals at risk of long-term unemployment, in partnership with Data Science for Social Good (Perricos & Kapur 2019). Pursuant to the e-Government Roadmap,

there is also intention to shift to risk-based regulation framework. *Positive enforcement strategies* that reward good behavior can contribute to better compliance, and is a pillar of the policy shift scenario. It has been shown in for instance in Bornman & Stack (2015) that rewarding compliance can improve future tax compliance attitude in the South African metropolitan area of Ekurhuleni. Similarly, gentle nudging programs are considered in the Recovery Master Plan.

#### v. Workforce

**A policy shift scenario revolves around reimagining the way of working and who works in the public sector.** A *consulting staffing model* would mean that employees will jump (virtually) from one department to another department on a project-by-project basis. Scarce top-talents in the government are then better utilized.

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