The Future of an Aruban Circular Economy

4th Annual Conference *Future of Innovation*

Centrale Bank van Aruba November 1, 2019



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SAFEGUARDING OUR FUTURE Strategies for an Aruban Circular Economy

Jeanette R. Semeleer President



 Responsible Consumption and Sustainable Production

Doughnuts of Development

Exploring New Frontiers

Leading from a Circular Future





Strengthen resilience and adaptive capacity to climaterelated hazards and natural disasters

Integrate climate change measures into national policies and strategies

(UNSDG, 2017)





LOSS OF BIODIVERSITY LIFE & WELL-BEING

Sustainable management of and efficient use of natural resources

Reduce waste generation through Refusing, Reducing, Recycling, and Reusing (4 R's)

Strengthen the technological capacity for responsible consumption and sustainable production

RESPONSIBLE

CONSUMPTION

AND PRODUCTION

By 2025, Aruba will produce an estimated 150.000 tons of waste

17 PARTNERSHIPS

×

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

15 LIFE ON LAND

14 LIFE BELOW WATER

13 CLIMATE ACTION

RESPONSIBLE CONSUMPTION

SUSTAINABLE CITIES

10 REDUCED INEQUALITIES

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1 NO POVERTY

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2 ZERO HUNGER

Government of Aruba, 2019

INDUSTRY, INNOVATION

8 DECENT WORK AND ECONOMIC GROWTH

5 GENDER EQUALITY

3 GOOD HEALTH AND WELL-BEIN

4 QUALITY EDUCATION

AFFORDABLE AND CLEAN ENERGY

(UNSDG, 2017)

Ecological impact (services**) Afl. 517 million

Resource impact (footprint*) Afl. 685 million

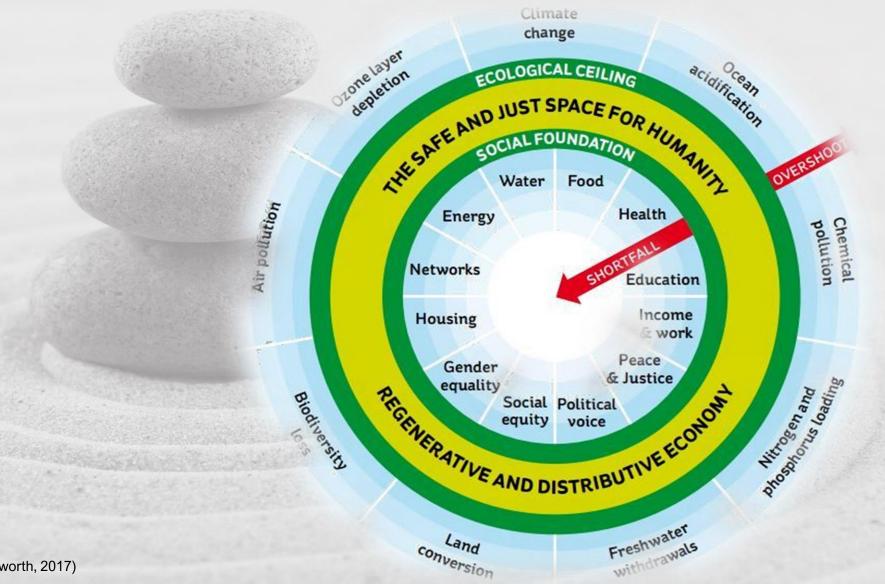
> Our ecological footprint is larger than the value of our natural resources. Aruba is "overconsuming" its fragile environment

(CBS, 2019; Wolfs Company, 2018) *Footprint of Utilities, Construction, Tourism, and Real-Estate sectors based on National Accounts 2017 ** Services based on Natural Capital Accounting

DOUGHNUTS OF DEVELOPMENT



BROKEN ECOLOGICAL CEILING?



(Kate Raworth, 2017)

A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. It is a source of opportunity for government and business to improve quality of life and tackle global challenges like climate change.

A circular economy aims to decouple economic growth from the use of natural resources and ecosystems by using those resources more effectively.

The Ellen McArthur Foundation

A CIRCULAR ECONOMY

Circular economy	Smarter product use	R0 Refuse	Make a product redundant: abandon function or use different product	Most sustainable
1	and manufacture	R1 Rethink	Make product use more intensive: sharing or multi-functional products	Significant benefits
		R2 Reduce	Consume less through efficient manufacturing or use	
1	Extend lifespan of	R3 Re-use	Re-use of functioning discarded products by another use	
	products and its parts	R4 Repair	Repair and maintenance of defects to keep original function	
1		R5 Refurbish	Restore and update	
		R6 Remanufacture	Use parts in a new product with the same function	
		R7 Repurpose	Use products or parts in a new product with a different function	
	Useful application	R8 Recycle	Process materials to obtain the same (high grade) or lower (low grade) quality	
Linear economy	of materials	R9 Recover	Incineration of materials with energy recovery	Least sustainable Limited benefits

Circular economy monitoring framework

1 EU self-sufficiency for raw materials

The share of a selection of key materials (including critical raw materials) used in the EU that are produced within the EU

2 Green public procurement

The share of major public procurements in the EU that include environmental requirements

3a-c Waste generation

Generation of municipal waste per capita; total waste generation (excluding major mineral waste) per GDP unit and in relation to domestic material consumption

4 Food waste

Amount of food waste generated

7a-b Contribution of recycled materials to raw materials demand Secondary raw materials' share of overall materials demand - for specific materials and for the whole economy

8 Trade in recyclable raw materials Imports and exports of selected recyclable raw materials

5a-b Overall recycling rates

Recycling rate of municipal waste and of all waste except major mineral waste

6a-f Recycling rates for specific waste streams

Recycling rate of overall packaging waste, plastic packaging, wood packaging, waste electrical and electronic equipment, recycled biowaste per capita and recovery rate of construction and demolition waste

9a-c Private investments, jobs and gross value added

Private investments, number of persons employed and gross value added in the circular economy sectors

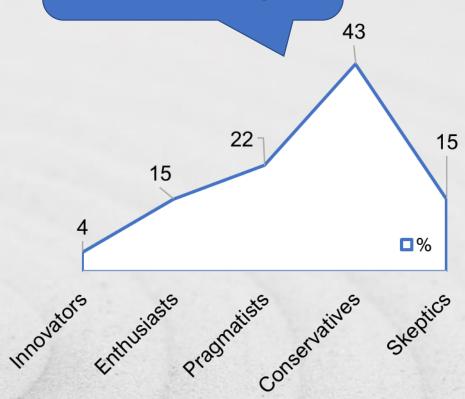
10 Patents

Number of patents related to waste management and recycling



Circular economy	Smarter product use	R0 Refuse	12%
\uparrow	and manufacture	R1 Rethink	34%
		R2 Reduce	30%
	Extend lifespan of products and its parts	R3 Re-use	45%
		R4 Repair	18%
1		R5 Refurbish	12%
		R6 Remanufacture	42%
		R7 Repurpose	32%
	Useful application of materials	R8 Recycle	60%
Linear economy		R9 Recover	15%

At least 80% of business believe in the value of a circular economy...



Stages of circular business model innovation

Enablers

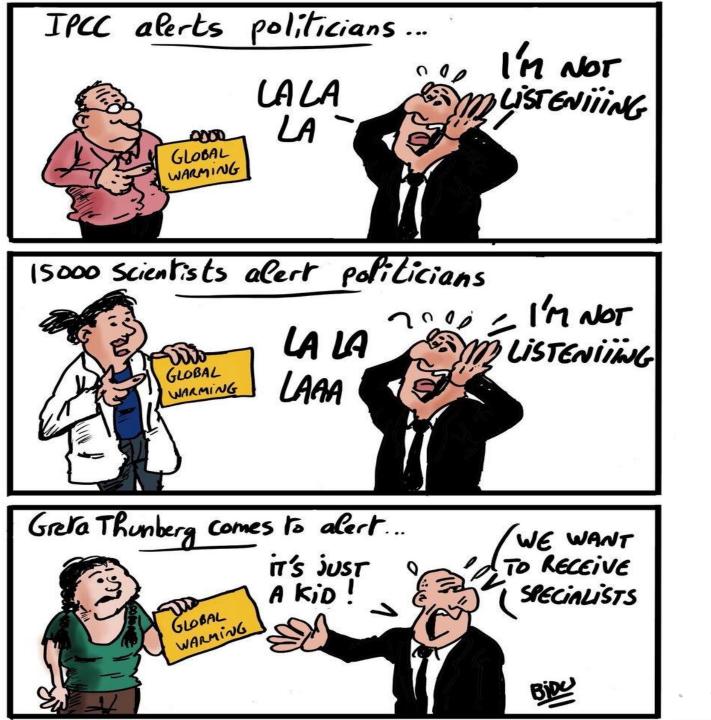
- 1. Waste reduction & energy efficiencies 59%
- 2. Environmental resource conservation 52%
- 3. Operational cost reduction 43%
- 4. Business productivity improvement 32%
- 5. Business revenue generation 27%

Inhibitors

- 1. Limited government support 55%
- 2. Lack of general infrastructure/network support 44%
- 3. Lack of expertise & knowledge 42%
- 4. Shortage of technical skills 36%
- 5. Resistance to change & business innovation 26%

CONCLUSIONS

- Design a regulatory framework for circular economic development (including legislation and monitoring)
- Enforce regulation, conservation, and regeneration of natural resources (especially of marine ecosystems)
- Allocate government investments and actively source foreign investments
- Design 'deep dive' business cases (by lines of industry)
- Establish "Center of Circular Excellence" (for knowledge and human capital)



Thank you

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