March 2015

Towards a sustainable island economy
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Sustainable Development
Towards Sustainable Island Economy

Goal
- Towards Sustainable Island Economy

Who?
- TEEB Studies
  - Values = awareness & decision support

How?
- Supportive Citizens & NGOs
- Responsible business

Effective nature managers
- Sustainable financing
  - Costs & revenues

GEM
- Trends & policies
- Harmonized government
Valuing ecosystem services
### Tourism value

<table>
<thead>
<tr>
<th></th>
<th>BVI</th>
<th>Bonaire</th>
<th>Saba</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total expenditures</td>
<td>$1,129,000,000</td>
<td>$125,600,000</td>
<td>$40,000,000</td>
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<tr>
<td>Added value</td>
<td>$282,250,000</td>
<td>$31,800,000</td>
<td>$8,300,000</td>
</tr>
<tr>
<td>Related to ecosystems</td>
<td>$172,500,000 (61%)</td>
<td>$23,400,000 (74%)</td>
<td>$6,000,000 (72%)</td>
</tr>
</tbody>
</table>

*Value of nature is critical element in the tourism industry*
Will tourists return?

British Virgin Islands

Do you plan to return? 100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% 
... if 50% more crowded? 60% 70% 80% 90% 100% 
... if beaches disappeared? 40% 50% 60% 70% 80% 90% 100%

Bonaire

Current situation 100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% 
More crowded island 30% 40% 50% 60% 70% 80% 90% 100% 
Degraded marine environment 20% 30% 40% 50% 60% 70% 80% 90% 100%

Keeping nature healthy is most effective tourist campaign

Yes
Maybe
No
## Policy scenarios Bonaire

### Feasibility of nature investments in million US$

<table>
<thead>
<tr>
<th></th>
<th>Restoration</th>
<th>Sewerage</th>
<th>Conservation</th>
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<tbody>
<tr>
<td><strong>Benefits</strong></td>
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<tr>
<td></td>
<td>135</td>
<td>51</td>
<td>29</td>
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<tr>
<td><strong>B/C ratio</strong></td>
<td>0.9</td>
<td>2.9</td>
<td>4.6</td>
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</table>

Over 30 year period; discount rate 10%

Nature funding primarily allocated to conservation projects.
Value maps

Expansion of terrestrial park to **protect values**
Non-use value

Total Economic Value Bonaire

$ 105 million / year

Island biodiversity holds an important value for mainland Europe
Documentary Websites

Policy briefs

Reports

Communication matters!
Regional cooperation builds capacity and enables more efficient policy testing.
Towards Sustainable Island Economy

How?

Who?
Sustainable development & private sector

Maximize

Fishery / farming
Tourism / recreation
Coastal protection
Real estate
Education / research

Ecosystems

Dependency
Economy

Minimize

Opportunities
Risks
Impact
Sustainable development & private sector

- 70% of the private sector on Bonaire is dependent on healthy coral reefs
- 90% of the tourist industry in Anguilla is heavily dependent on healthy ecosystems
- The industry in Anguilla cite high capital costs and lack of government incentives as main constraints for green investments

Public-private collaboration is key in transformation towards a sustainable economy

```
<table>
<thead>
<tr>
<th>Constraints</th>
<th>Major constraint</th>
<th>Constraint</th>
<th>No constraint</th>
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<tbody>
<tr>
<td>Weak government support</td>
<td>56%</td>
<td>11%</td>
<td>33%</td>
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<tr>
<td>Bank's interest rate too high</td>
<td>44%</td>
<td>33%</td>
<td>6%</td>
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<tr>
<td>Lack of customer demand</td>
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</tbody>
</table>
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Conceptual framework for sustainable development
Where are you?

- Zero waste policy
- Market based instruments
- Renewable energy
- Sustainable agriculture

Current economy | Green growth | Sustainable economy

- Current economy
- Green growth
- Sustainable economy
## Indicators

<table>
<thead>
<tr>
<th>Trends</th>
<th>SEEA</th>
<th>UNEP</th>
<th>OECD</th>
<th>GGGI</th>
<th>Dual Citizen</th>
<th>GGGKP</th>
<th>CBS</th>
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<td>Natural Capital</td>
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<td>Use of resources</td>
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<td>Ecological footprint</td>
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<td>Income/ GDP</td>
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<td>Access to Natural Capital</td>
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<td>Healthy ecosystems</td>
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<td>Education</td>
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<td>Resilience</td>
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Instrument 1: Monitoring

Key Performance Indicators (KPIs)

**Economy**
- GDP
- Consumer Price Index
- Export/ import
- Unemployment rate

**Environment**
- Value of Ecosystem services
- Waste
- Renewable energy
- Biodiversity
- M2 protected areas

**Social**
- Support network
- Job satisfaction
- Overweight rates
- Living standard
- Natural resource use

**Governance**
- Registered voter turnout
- Civil engagement
- Confidence in governmental institutions
Instrument 2: Modeling

Assess the impact of policy on indicators

- Determine integrated goals
- Analyze policy impact on goals
Conclusion

The transition towards a sustainable island economy:

✓ Requires insight in the value of natural capital

✓ Requires integral policy planning, with clear indicators to monitor and pre-assess policy plans
Thank you

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Conceptual Model

Consumer demand and externalities
- Current demand
- Policy scenario
- Change in demand e.g. more cruise tourists
- Sectors affected
- Externalities e.g. increased reef damage
- Change in revenues sectors

Ecological indicators
- Endogenous stressors e.g. higher level of nutrients
- Exogenous stressors e.g. invasive species
- Change in ecosystem stock e.g. area healthy coral reef available

Ecosystem service availability
- Change in ecosystem service supply a change in capacity of ecosystem to deliver services
- Change available ecological inputs to sectors

Results
- Macro indicators Multiplier effects & growth
- Social indicators Employment, high and low income jobs
- Ecological indicators Needs and consequences of development
A BILL FOR AN ACT

RELATING TO ADMINISTRATIVE PENALTIES FOR DAMAGE TO STONY CORAL AND LIVE ROCK.

(e) In addition to subsection (c), a fine may be levied for damaging or breaking stony coral or live rock in an amount equal to the greater of:

1. Up to $10,000 per square meter of area damaged; or
2. The value of the particular area damaged, determined by using an accepted economic valuation method.

"Accepted economic valuation method" means a valuation approach to estimating the value of a reef within a total economic framework, including considering such indicia as direct and indirect uses, option values, bequest values, and existence values.
TEEB theory

Ecosystem Service Value

Sum Ecosystem Services value

Regulating services

Recreational services

Provisioning services

Cultural services (i.e. spiritual)

Land-use

Natural Light use Extensive Intensive Degraded Urban
<table>
<thead>
<tr>
<th>Category</th>
<th>Option A</th>
<th>Option B</th>
<th>Expected future without extra management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reef quality</td>
<td>High</td>
<td>Moderate</td>
<td>Poor</td>
</tr>
<tr>
<td>Terrestrial quality</td>
<td>High</td>
<td>Moderate</td>
<td>Poor</td>
</tr>
<tr>
<td>Fish catch per trip</td>
<td>20% higher</td>
<td>No change</td>
<td>20% lower catch</td>
</tr>
<tr>
<td>Roaming goats</td>
<td>No grazing</td>
<td>Grazing</td>
<td>Grazing</td>
</tr>
<tr>
<td>Public beach access</td>
<td>10% less access</td>
<td>No change</td>
<td>20% less access</td>
</tr>
<tr>
<td>Fee</td>
<td>$10</td>
<td>$10</td>
<td>No payment</td>
</tr>
</tbody>
</table>

The diagram illustrates the comparison between Option A and Option B for various aspects related to marine and terrestrial environments, along with the expected future without extra management. Each category is evaluated with different outcomes, highlighting the impacts of each option.