Evaluating economic alternatives in the province of Quang Ninh, Viet Nam

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Background

- The coastline is more than 3,260 km
- **28/63 coastal provinces** and cities, accounting for more than 50% of the population, contributing more than 60% of the country's GDP
- **11,000 species** of organisms, **20** typical types of ecosystems
- The potential area for aquaculture development in the sea and coastal areas is **500,000 ha**
- The East Sea is located on an arterial **maritime traffic route**, and Vietnam has more than **100 locations** where large seaports can be built.
- **35** kinds of minerals. Petroleum potential is distributed in sedimentary basins...
- **120 beaches** can develop tourism, of which about 20 areas of international scale and standards...
Background

- Quang Ninh has strong advantage of natural resources for tourism development including not only two key beautiful landscapes namely Ha Long Bay and Bai Tu Long Bay.

- Ha Long Bay has been recognised a World Heritage Site and one of the seven new Natural Wonders.

- Bai Tu Long has a lot of potential for development of luxury tourism products.

- Two landscapes are the province's most special nature with their unique geological structure and stunning views. These two bays also have special flora and fauna, contributing to the overall biodiversity of the province.
What are ocean accounts?

- Environmental Assets
  - Natural capital
  - Monetary value
  - Quantity (physical status)
  - Minerals & energy
  - Land & soil
  - Timber
  - Aquatic
  - Other biological
  - Water
  - Ecosystems & conditions (biodiversity)

- Flows to environment
  - (residual)
  - Quantity (physical status)
  - Solid waste
  - Air emissions
  - Water emissions

- Flows to economy
  - Supply/use of energy
  - Water, materials, ecosystem services

- Ocean economy
  - Stocks of financial/non-financial assets
  - Supply and use of goods and services

- The economy
  - Price (monetary value)
  - Ocean GVA/GDP
  - Resource rents
  - Depletion, degradation, adjusted net savings
  - Non-SNA contributions to well-being
  - Health, poverty & social inclusion

- Ocean Wealth
  - Quantity (physical status)
  - Monetary value
  - SNA balance sheet
  - SEEA balance sheet
  - Critical natural capital
  - Resource life
  - Societal assets

- Governance
  - Monetary value
  - Quantity (physical status)
  - Qualitative (status)
  - Protection & management
  - Goods & services
  - Taxes & subsidies
  - Laws & regulations
  - Health, poverty & social inclusion
  - Risk & resilience
  - Technologies

- Combined Presentation
  - Quantity (physical status)
  - Monetary value
  - Qualitative (status)
  - Ocean GVA/GDP
  - Resource rents
  - Depletion, degradation, adjusted net savings
  - Non-SNA contributions to well-being
  - Health, poverty & social inclusion
  - Ocean Wealth
  - Quantity (physical status)
  - Monetary value
  - SNA balance sheet
  - SEEA balance sheet
  - Critical natural capital
  - Resource life
  - Societal assets

- Social and governance context

- Table group
  - Measurement units
  - Origin and destination of flow
  - Common (linked) statistics
  - Common (linked) statistics (multiple links)
## Tourism indicators of Quang Ninh

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The number of tourists in the year (1000 person)</td>
<td>8,350</td>
<td>9,872</td>
<td>12,246</td>
</tr>
<tr>
<td>2</td>
<td>Total revenue from tourists (billion dong)</td>
<td>13,327</td>
<td>18,445</td>
<td>23,628</td>
</tr>
<tr>
<td>3</td>
<td>Contribution of tourism to GRDP (billion dong)</td>
<td>10,400</td>
<td>13,460</td>
<td>16,679</td>
</tr>
<tr>
<td>4</td>
<td>The number of jobs created by the aggregate impacts of QN tourism sector</td>
<td>128,728</td>
<td>170,714</td>
<td>198,994</td>
</tr>
</tbody>
</table>
## Number of tourists and total revenue from tourism activities

<table>
<thead>
<tr>
<th>No</th>
<th>Criteria</th>
<th>Unit</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of tourists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Domestic tourists</td>
<td>1000 visitor</td>
<td>4,850</td>
<td>5,589</td>
<td>7,016</td>
<td>8,256</td>
<td>6,852</td>
</tr>
<tr>
<td>1.2</td>
<td>International tourists</td>
<td>1001 visitor</td>
<td>3,500</td>
<td>4,284</td>
<td>5,229</td>
<td>5,749</td>
<td>517</td>
</tr>
<tr>
<td>2</td>
<td>Total revenue from tourists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>Domestic tourists</td>
<td>Billion VND</td>
<td>5,634</td>
<td>8,690</td>
<td>11,323</td>
<td>15,399</td>
<td>14,602</td>
</tr>
<tr>
<td>2.2</td>
<td>International tourists</td>
<td>Billion VND</td>
<td>7,693</td>
<td>9,231</td>
<td>12,305</td>
<td>14,088</td>
<td>2,401</td>
</tr>
</tbody>
</table>

*Source: Annual visitor investigation of Quang Ninh*
Value-added contribution of tourism to GRDP

<table>
<thead>
<tr>
<th>Year</th>
<th>Total contribution (billion VND)</th>
<th>In which</th>
<th>GRDP at current prices (billion VND)</th>
<th>Tourism contribution rate /GRDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Direct contribution (billion VND)</td>
<td>Undirect contribution (billion VND)</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>10,766</td>
<td>5,845</td>
<td>4,921</td>
<td>127,229</td>
</tr>
<tr>
<td>2017</td>
<td>13,460</td>
<td>7,475</td>
<td>5,985</td>
<td>143,068</td>
</tr>
<tr>
<td>2018</td>
<td>16,679</td>
<td>10,055</td>
<td>6,624</td>
<td>166,271</td>
</tr>
<tr>
<td>2019</td>
<td>21,842</td>
<td>12,643</td>
<td>9,199</td>
<td>194,132</td>
</tr>
<tr>
<td>2020</td>
<td>12,604</td>
<td>7,277</td>
<td>5,328</td>
<td>219,378</td>
</tr>
</tbody>
</table>

Source: Report on tourism impact assessment in Quang Ninh
Annual wastewater from Quang Ninh

- The study has estimated the land-based pollution from different sectors (i.e. population, industry, rice, coal mine and tourism) in Quang Ninh province.

- The study has found out that tourism significantly contributed to GRDP but also accounted for pollution load in the province.

- Sustainable tourism strategy is required to ensure tourism continue to make the prominent economic development in the province.

<table>
<thead>
<tr>
<th>Pollution Source</th>
<th>Wastewater (m³/year)</th>
<th>BOD (t/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Population</td>
<td>21,285,194</td>
<td>18,224</td>
</tr>
<tr>
<td>Industry (exclude coal mine)</td>
<td>7,396,725</td>
<td>196</td>
</tr>
<tr>
<td>Rice</td>
<td>6,785,040</td>
<td>68</td>
</tr>
<tr>
<td>Coal mine</td>
<td>21,827,000</td>
<td>751</td>
</tr>
<tr>
<td>Tourism</td>
<td>1,127,183</td>
<td>877</td>
</tr>
<tr>
<td>Total</td>
<td>58,347,175</td>
<td>20,116</td>
</tr>
</tbody>
</table>
Pollution loads of tourists in Quang Ninh province in 2016, 2017 and 2018

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Pollution load of tourist (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016</td>
</tr>
<tr>
<td>COD</td>
<td>3,246.205</td>
</tr>
<tr>
<td>BOD$_5$</td>
<td>1,475.548</td>
</tr>
<tr>
<td>T_N</td>
<td>236.088</td>
</tr>
<tr>
<td>T_P</td>
<td>64.924</td>
</tr>
<tr>
<td>NO$_3$ + NO$_2^*$</td>
<td>2.361</td>
</tr>
<tr>
<td>NH$_4^*$</td>
<td>129.848</td>
</tr>
<tr>
<td>PO$_4^*$</td>
<td>35.059</td>
</tr>
<tr>
<td>TSS</td>
<td>1,770.658</td>
</tr>
</tbody>
</table>

Quantification of tourism waste pollution in term of key chemical (COD, BOD5, T_N, T_P, NO3, +NO2*, NH4*, PO4*, TSS) was estimated based on the number of tourism and waste production using value transfer method.
Findings

• Tourism in the province contributes about 11% of total regional GDP in Quang Ninh province with the direct contribution is 6.61% and the indirect contribution is 4.25%

• Tourism of Ha Long Bay, the UNESCO World Heritage Site is a key growth sector in Quang Ninh’s economy today.

• The wastewater from the tourist boats is one of the pollution sources of Ha Long Bay.

• While tourism-related activities generate a much smaller amount of wastewater than other activities such as coal mining and rice production, they show the highest impact on biochemical oxygen demands of the water among the three sectors, affecting water quality in the province.
Policy Action

• With the viewpoint that Quang Ninh tourism sustainably grows in the direction of industrialization, modernization and efficacy, to make tourism the prominent economic industry and higher and higher proportion of GRDP, Quang Ninh should identify sustainable tourism strategy

• Calculation of pollution load from different sources, including tourism would be used by provincial local authorities the planning of environmental infrastructure required to support town, city and key tourism attraction