WATER FOOTPRINT AND SUSTAINABLE TOURISM

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International Network of Sustainable Tourism Observatories (INSTO) – June 22nd 2021
Former presentation of Suez at INSTO Forum:
“Everyone wants to save the planet, but no one wants to take the trash”. (unwto.org)
⇒ Presentation of Suez in 2017, focus on technologies & innovation for tourism.
The impact of tourism activities on local water resources remains a largely understudied issue in environmental and sustainable tourism management. (..) Using available data on water use associated with different forms of travel, accommodation and tourist activities, indicative water footprints are calculated for each of the illustrative examples. Food consumption by tourists appears to have by far the most significant impact on the overall water footprint and this aspect of water use is explored in detail in the paper. The paper also suggests a way of employing the water footprint methodology along with import/export balance sheets of main food commodities to distinguish between the global and local pressure of tourism demand on water resources.

=> Legislations such as that of Andalusia (Climate Change Law) already speaks of the obligation to calculate the water footprint. The Spanish Circular Economy strategy aims to achieve 10% efficiency in water consumption ...
Introduction to water footprint

Indicator of freshwater use including:

- **Direct use**
- **Indirect use (value chain)**

It has a geographical and temporal dimension, so great importance is given to the point of capture, consumption and return to the environment.

Can be calculated for a person, product, organization or destination.

- WFP of a person (Tourist)
- WFP of a product (Package)
- WFP of an Organization (hotels, golf, etc...)
- WFP of a destination (country, city, etc...)

https://waterfootprint.org/

https://www.cetaqua.com

http://www.esagua.es/
Some examples of calculation

- **Carbonated drink bottle of 0.5 liters**: 185 liters of water

- **100 grams of cooked ham**: 910 liters of water
  - Source: study Innovac and Cetaqua.

- **1 liter of tap water**: 1,212 liters of water
Basic principle of WFP calculation

Volume of fresh water consumed and contaminated directly and indirectly [m³]

Green WFP: consumption of rainwater evaporated or incorporated into products (important for agricultural products).

Blue WFP (direct and indirect): consumption of surface or groundwater by evaporation or incorporation into products.
  ⇒ direct: used directly in the process (pools, showers, aquatic parks, etc...)
  ⇒ indirect: use of energy, chemicals, waste, travels, etc...

Grey WFP: water necessary for the receiving environment to assimilate the pollutants discharged by the activity (related to the quality of the discharges)
  ⇒ Related to the quality: equivalent to the necessary volume of water to assimilate activity contaminants).

NB. Different from the traditional classification
A methodology similar to Carbon Footprint Management

**Calculation**

- Water Footprint Network (water footprint)
- ISO 14046 based on Life Cycle Analysis (Environmental Management Water)

**Communication**

- Internal & external communication
- Reporting
- Audit & certification
- Eco labels

**Reduction**

- Baseline, objectives, actions and KPIs
- Efficiency, improvements, investment, replacement, communication.

**Compensation**

- Mechanism not in place... For now
From baseline to continuous monitoring of Water Footprint

Step 1: Define the scope

Step 2: Current information available (data and study)

Complementary information (intelligent meters – smart cities and management of water resources)

Step 3: First analysis of the WFP & Strategy action plan for improve management (in tourism and beyond)

Step 4: Monitoring Process (KPI, action monitoring, communication...)

First analysis of the WFP & Strategy action plan for improve management (in tourism and beyond)
**Benefits of water footprint management**

<table>
<thead>
<tr>
<th>Existing management of water</th>
<th>Expected management of water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on own operations</td>
<td>Contemplate the entire value chain</td>
</tr>
<tr>
<td>Focus on water extraction</td>
<td>Consider efficiency of consumptive and degradative water use</td>
</tr>
<tr>
<td>Ensure the &quot;right of extraction&quot; (me, now)</td>
<td>Assess the actual sustainability of water consumption (us, later)</td>
</tr>
<tr>
<td>Comply with requirements</td>
<td>Assess the activity’s real contribution to the preservation of the natural environment</td>
</tr>
</tbody>
</table>
Carbonated drink WFP

Carbonated drink bottle of 0.5 liters

WFP 185 liters

Direct ➔ 0,3%  78%
Indirect 99,7%  9%

78%
100 g cooked ham WFP

WFP 960 liters

Direct 3% 76%
Indirect 97% 12%

100 grams of cooked ham
A starting point study: “the water footprint of tourism in Spain” (2012) - I. Cazcarro and Al

Table 3
Water footprint of foreign tourism (exports) and national tourism expenditures, by activity, through which consumers obtain the embodied water in products and services.

<table>
<thead>
<tr>
<th>Classifications — sectors</th>
<th>Foreign tourism in Spain</th>
<th>National tourism in Spain</th>
<th>Total tourism in Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of expenditure</td>
<td>Water footprint (km³/yr)</td>
<td>% of expenditure</td>
</tr>
<tr>
<td>NCH Food</td>
<td>6.0%</td>
<td>1.411</td>
<td>4.8%</td>
</tr>
<tr>
<td>NCH Energy, water, silviculture and extractives</td>
<td>2.1%</td>
<td>0.059</td>
<td>1.5%</td>
</tr>
<tr>
<td>NCH Consumption goods</td>
<td>3.5%</td>
<td>0.384</td>
<td>1.8%</td>
</tr>
<tr>
<td>NCH Rest of industry</td>
<td>0.5%</td>
<td>0.017</td>
<td>0.5%</td>
</tr>
<tr>
<td>NCH Construction</td>
<td>0.1%</td>
<td>0.001</td>
<td>0.1%</td>
</tr>
<tr>
<td>NCH Wholesale of agricultural raw materials and food</td>
<td>0.4%</td>
<td>0.051</td>
<td>3.5%</td>
</tr>
<tr>
<td>NCH Other commerce</td>
<td>7.4%</td>
<td>0.083</td>
<td>3.3%</td>
</tr>
<tr>
<td>CH Restaurants, coffee shops, bars</td>
<td>28.0%</td>
<td>1.043</td>
<td>28.2%</td>
</tr>
<tr>
<td>CH Hotels, bed and breakfasts</td>
<td>20.3%</td>
<td>0.425</td>
<td>12.8%</td>
</tr>
<tr>
<td>CH Real estate</td>
<td>4.7%</td>
<td>0.026</td>
<td>19.3%</td>
</tr>
<tr>
<td>CH Transport and communicationsb</td>
<td>17.6%</td>
<td>0.182</td>
<td>15.2%</td>
</tr>
<tr>
<td>CH Leisure services (cultural, recreational, sport, etc.)</td>
<td>2.5%</td>
<td>0.027</td>
<td>2.9%</td>
</tr>
<tr>
<td>NCH Financial services</td>
<td>6.0%</td>
<td>0.023</td>
<td>5.5%</td>
</tr>
<tr>
<td>NCH Public services</td>
<td>0.7%</td>
<td>0.003</td>
<td>0.7%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>3.737</td>
<td>100%</td>
</tr>
</tbody>
</table>

“the estimated water embodied in Spanish exports is 22.834 km³ per year. This can be further broken down into 19.097 km³ attributable to trade in goods and 3.737 km³ to non-resident (16%)”

Some policy levers can be used price of water, taxes, etc... But have limited impact because they act just on the “visible” water.
Examples of water footprint initiatives for tourism

Direct goods used by tourist:
- Promote tap water drinking in restaurants and hotels.
- Promote low WFP consumption.
- Implement saving technologies and smart metering into hotels.

At city/destination level:
- Start calculating tourism WFP and define and action plan.
- Implement Smart Metering and optimize water infrastructure.
- Promote recycling of water (used for irrigation of Parks).
- Implement green infrastructure and nature based solutions in cities.
- Provide access to tap water.
Tourism can be a referent sector using WFP as a management tool, especially in water scarce regions.

The future of sustainable tourist: have the possibility to be a carbon & water neutral tourist.

Thank you, for further information please contact: vincent.giroud@suez.com