Natural infrastructure in the nexus and suggested basin assessment indicators

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water purification
flow regulation
water storage

water for food

water supply
water storage

fisheries provision

water supply
water conveyance
cultural services

water for energy
Ecosystems are infrastructure – part of the “the stock of facilities, services and installations needed for the functioning of a society”

Nature is part of the infrastructure portfolio of every country and every economy
<table>
<thead>
<tr>
<th>“Green” infrastructure</th>
<th>Gray infrastructure</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forests and wetlands</td>
<td>Water filtration facility</td>
<td>Clean drinking water</td>
</tr>
<tr>
<td>Forests (on slopes upstream of</td>
<td>Periodic sediment dredging</td>
<td>Reliable power and flood control</td>
</tr>
<tr>
<td>hydroelectric facility)</td>
<td>Sea walls</td>
<td>Shoreline protection from storms</td>
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<tr>
<td>Mangroves</td>
<td>Breakwaters and groins</td>
<td>Reduced beach erosion</td>
</tr>
<tr>
<td>Coral reefs</td>
<td>Dikes and canals</td>
<td>Flood prevention</td>
</tr>
<tr>
<td>Natural floodplains</td>
<td>Tertiary water treatment facility</td>
<td>Clean effluent from municipal or industrial processes</td>
</tr>
</tbody>
</table>
Nature+ nexus

- Flood regulation
- Water purification
- Water provision
- Water storage
- Water for energy
- Water supply security
- Food security
- Fisheries provision

Nature+ nexus
Ecosystem indicators

- Biodiversity and habitat loss
  - Metrics: wetland disconnectivity, Red List Index

- Water management impacts on ecosystem integrity
  - Metrics: Estimated total river fragmentation, estimated total flow disruption, estimated total density of dams
Ecosystem indicators (continued)

- **Fish threat**
  - Metrics: Average annual catches of fish, estimated potential fish production, proportion of non-native fish species

- **Basin productivity**
  - Metrics: water storage capacity, flow variability, and regulation, filtering of water capacity, absorbing and buffering capacities
Understanding ecosystem indicators for the nexus

- **Water for food**
  - Agricultural water stress (cropland + irrigation vs. availability)

- **Water for energy**
  - Disconnectivity - Wetland loss and river fragmentation, flow disruption by reservoirs

- **Water for nature**
  - Environmental water stress (ecological requirement vs. availability)

- **Water for people**
  - Human water stress (population vs. availability)
Healthy vs. Degraded approach
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