

# Framing Transformative Change in Sustainable Tourism

Case of Mangrove Eco-tourism for Artisanal Fishermen in Mauritius  
**Science – Policy Forum, Session 12**  
**12 December 2022**

Koji Miwa

Policy researcher, Biodiversity and Forest Area  
Institute for Global Environmental Strategies



## Questions

- **How can we make transformative change happen in the tourism sector?**
- **How can we fill the gap between knowledge and action?**

## Aim

- **Apply Tourism and Sustainable Transformation Framework to the case of Mauritius.**
- **Integrate the findings from the recent IPBES assessments**

# Background

## - Sustainable Issues on Tourism Sector -

- Tourism has been one of the fastest growing socio-economic sectors across the world
- International tourist arrivals: 25 million in 1950 to 1.4 billion in 2018 (UNWTO, 2018)
- Generate income and employment:
  - Produce 10.3% of global GDP and employ 10% of the total population in the world in 2019 (WTTC, 2022).
  - In Mauritius: 9.1% of total GDP and about 10% of the total population in 2018. (National Accounts and Balance of Payments of Mauritius 2017; Ministry of Tourism, 2018)

# Background

## - Sustainable Issues on Tourism Sector – (2)

### Positive impacts

- Generate employment and income (Hunt et al., 2015; Agarwal & Mehra, 2019),
- Improve health and sanitation (Tenzin et al., 2019) and provide learning tool for nature conservation (Anup et al., 2015; Mondino & Beery, 2018).

### Negative impacts

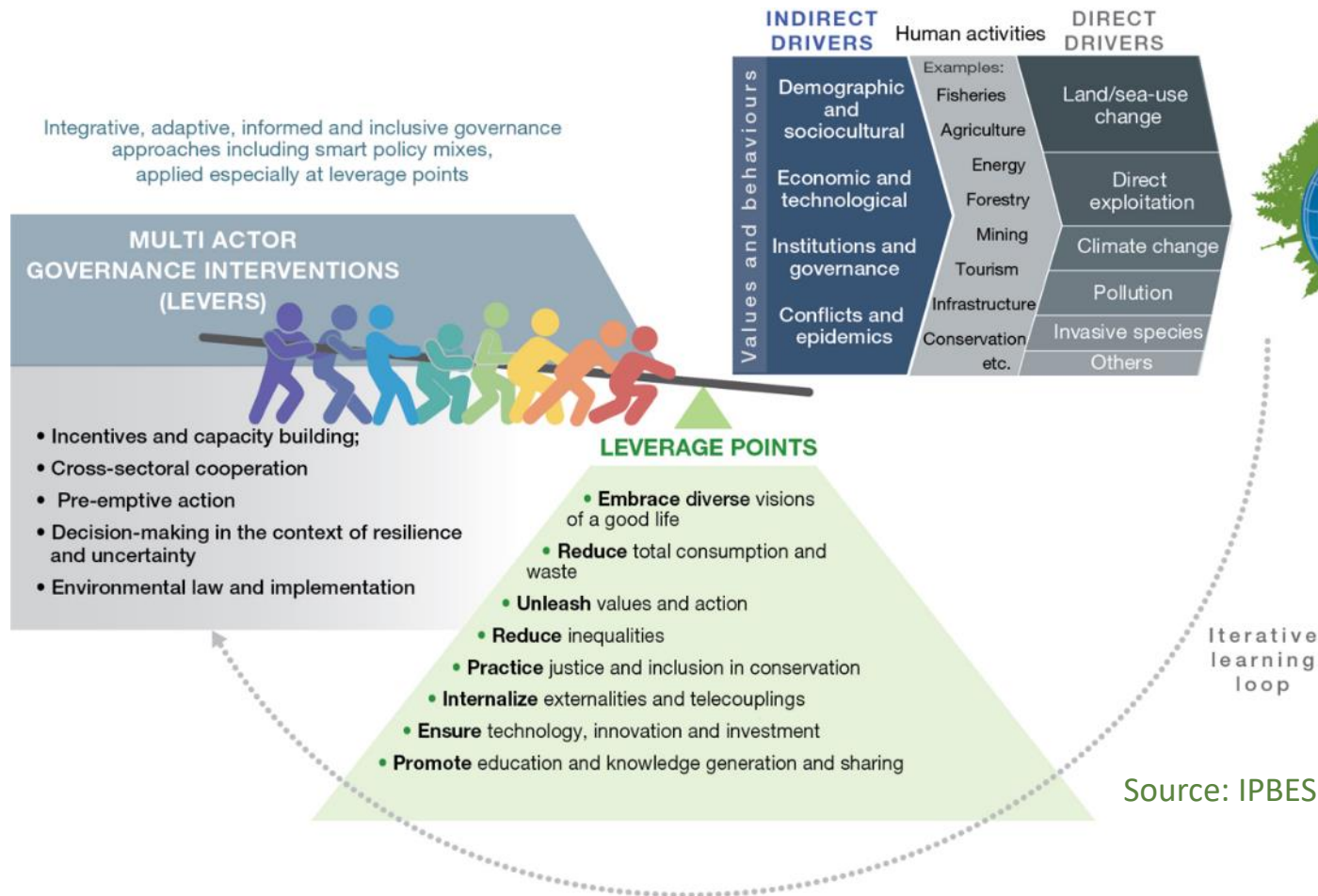
- Social issues
  - Relocation of communities, nuisance for local, social crimes, widening income disparity
- Environmental issues
  - Pollution, destination degradation, damages on biodiversity, etc
  - Estimated: over 5% of global CO2emissions in 2005 (UNWTO, 2008)

## Current discussion on Transformation of Tourism

- Community-based ecotourism is able to enhance their livelihoods and transform socially (Kunjuraman et al. 2022)
- Volunteer tourism may facilitate transformative change when it's organized in a certain way (Eckardt, 2021)
- Renewable energy (green energy), Green transport and sustainable mobility, Green building, Green infrastructure, Green agriculture, and Smart technology (Pan et al., 2018)
- Downscaling of tourism activities (such as **restriction of access or numbers, stricter enforcing of protected zones**) at destination levels (Chakraborty, 2019)

| Stage             | Explanation of Stage  | Steps within Each Stage   |
|-------------------|---|---|
| 1. Preparation    | Preparing for the transformation                              | Identify goal of transformation   |
|                   |   | Analyze current state of system   |
|                   |   | Establish baselines and appropriate metrics to measure status                               |
|                   |   | Involve and bridge multiple stakeholders  |
|                   |   | Analyze and strengthen support systems  |
|                   |   | Plan timing and strategies  |
| 2. Transformation | Action of transforming the system using multiple transactions | Demographic transition  |
|                   |   | Technological transition  |
|                   |   | Economic transition   |
|                   |   | Social transition   |
|                   |   | Institutional transition  |
|                   |   | Informational transition  |
|                   |   | Ideological transition  |
| 3. Support        | Supporting the new transformed system to ensure success       | Build resilience of new trajectory  |
|                   |   | Measure success of new system using established baseline data and other measurement metrics |
|                   |   | Practice forms of sustainable management  |

Tourism and sustainable transformation framework (Fennell and Bowyer, 2019)



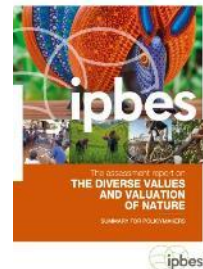
Source: IPBES (2019) Global Assessment



# What do we need for transformative change?

Findings from IPBES Values Assessment (2022)

- Need to shift to **sustainability-aligned values**, putting sustainability at the heart of decision-making
- Transform established norms and legal rules
- **Less than 5%** of valuation studies report its uptake in policy decisions
- Facilitate the policy uptake (fill the knowledge-action gap)

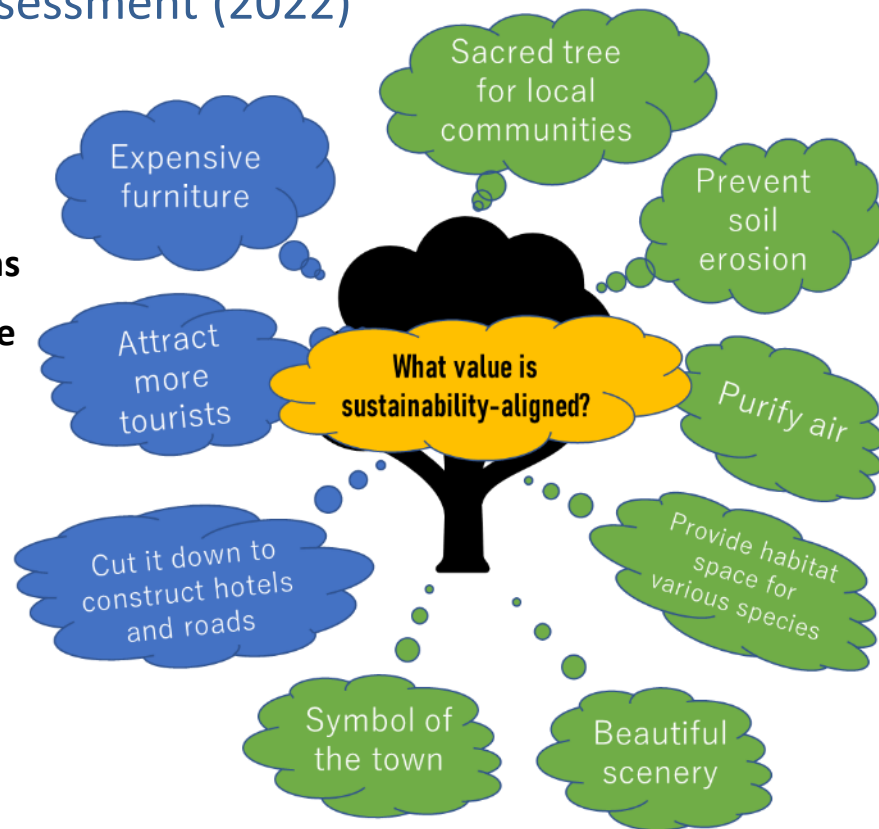




# How transformative change happen

## -Findings from the IPBES Values Assessment (2022)

- International institutions: support **sustainable and fair global value chains, at all levels**
- Governments:
  - Enable **flexible and adaptive institutional designs**
  - Make **sectoral policies coherent** and consider **the full suite of nature's values**
  - **Empower civil society and change societal structures and institutions**
- Enhance **the capacities of decision makers** to address conflicting or contradictory values
- **Social learning** (e.g. environmental education programmes; awareness-raising campaigns)



# How the policy uptake happen

## -Findings from the IPBES Values Assessment (2022)

- **Valuation** is useful with consideration of different knowledge system
- **Community involvement** that allows for the prioritization of local values
- **Co-management** of protected areas and **co-design** of payments for ecosystem services programmes **with local communities**
- Support **the development of specific capacities of key stakeholders** (e.g., understanding of the different world-views of local stakeholders).

## -Findings from other relevant studies

- **Reducing scientific uncertainty** through research and local knowledge (Ferraro et al., 2022)
- **Increase public engagement/practitioners in research design** (e.g. Thomas, 2012, Ferraro et al., 2022)
- Many studies do not include the connection of their results with the policies

| Stage             | Explanation of Stage  | Steps within Each Stage   |
|-------------------|---|---|
| 1. Preparation    | Preparing for the transformation                              | Identify goal of transformation   |
|                   |   | Analyze current state of system   |
|                   |   | Establish baselines and appropriate metrics to measure success                              |
|                   |   | Involve and bridge multiple stakeholders  |
|                   |   | Analyze and strengthen support systems  |
|                   |   | Plan timing and strategies  |
| 2. Transformation | Action of transforming the system using multiple transactions | Demographic transition  |
|                   |   | Technological transition  |
|                   |   | Economic transition   |
|                   |   | Social transition   |
|                   |   | Institutional transition  |
|                   |   | Informational transition  |
|                   |   | Ideological transition  |
| 3. Support        | Supporting the new transformed system to ensure success       | Build resilience of new trajectory  |
|                   |   | Measure success of new system using established baseline data and other measurement metrics |
|                   |   | Practice forms of sustainable management  |



Valuation;  
co-management/co-design  
with local communities;  
Make sectoral policies  
coherent; and  
capacity development;



Tourism and sustainable transformation framework (Fennell and Bowyer, 2019)

## Consider the case of Mauritius



# Situation in Mauritius



- Coastal environmental degradation (e.g. coral bleaching, loss of mangrove forest area) has been caused by:
  - Coastal tourism development
  - Illegal tourism and fishing activities
  - Lack of awareness among the local communities
  - Lack of policy enforcement
- High carbon footprint by tourists (come by air)
- High economic gap
  - Poverty (artisanal fishermen)



# Project plan



- Aim: Enhance conservation and restoration of mangroves by local communities while generating alternative income
- Activity: Introduction of Mangrove Eco-tourism
- Target: the vulnerable group, artisanal fishermen
- Value diverse values of mangroves in the area

| Stage   | Explanation of Stage  | Steps within Each Stage   | Lever  |
|---|---|---|--|
| 1. Preparation  | Preparing for the transformation                              | Identify goal of transformation   | (1) incentives and capacity-building;                            |
|   |   | Analyze current state of system   | (2) cross-sectoral cooperation;                                  |
|   |   | Establish baselines and appropriate metrics to measure status                               | (3) pre-emptive action   |
|   |   | Involve and bridge multiple stakeholders  | (4) decision-making in the context of resilience and uncertainty |
|   |   | Analyze and strengthen support systems  | (5) environmental law and implementation                         |
|   |   | Plan timing and strategies  |  |
| 2. Transformation   | Action of transforming the system using multiple transactions | Demographic transition  |  |
|   |   | Technological transition  |  |
|   |   | Economic transition   |  |
|   |   | Social transition   |  |
|   |   | Institutional transition  |  |
|   |   | Informational transition  |  |
|   |   | Ideological transition  |  |
| 3. Support  | Supporting the new transformed system to ensure success       | Build resilience of new trajectory  |  |
|   |   | Measure success of new system using established baseline data and other measurement metrics |  |
|   |   | Practice forms of sustainable management  |  |
| Tourism and sustainable transformation framework (Fennell and Bowyer, 2019) |   |   |  |
|   |   |   | Leverage points [LP]   |
|   |   |   | (1) visions of a good life                                       |
|   |   |   | (2) total consumption and waste                                  |
|   |   |   | (3) values and action  |
|   |   |   | (4) inequalities   |
|   |   |   | (5) justice and inclusion in conservation                        |
|   |   |   | (6) externalities and telecouplings                              |
|   |   |   | (7) technology, innovation and investment                        |
|   |   |   | (8) education and knowledge generation and sharing               |



| Stage  | Explanation of Stage             | Steps within Each Stage  | Identified action [LP3]  |
|--|----------------------------------|--|--|
| 1. Preparation   | Preparing for the transformation | Identify goal of transformation  | Conserve and restore mangroves while improving the living standard and quality of life among the local communities, by introducing the mangrove tour business and building capacities of the local fishermen as a tour guide <b>[LP1]</b>  |
|  |                                  | Analyze current state of system <b>[L5]</b>  | <ul style="list-style-type: none"><li>- Registered fishermen cannot engage in other works.</li><li>- People have been prohibited from using mangroves but the degradation of mangroves are observed and expected to go worsened due to the damages by oil</li><li>- The mangrove area has been decreased due to the coastal development and hotel construction. However, the restoration has not been sufficiently implemented. <b>[LP4, 6]</b></li></ul>            |
|  |                                  | Establish baselines and appropriate metrics to measure status <b>[Valuation: L4]</b> | <ul style="list-style-type: none"><li>- The current mangrove area is to be clarified through remote sensing and GIS mapping</li><li>- The income of the local communities is surveyed</li><li>- Awareness and understanding of ecosystem services provided by mangroves among the local communities are identified by questionnaire survey <b>[LP2 and 6]</b></li></ul>  |
| Levers   |                                  |  |  |
| (1) incentives and capacity-building;                            |                                  | Involve and bridge multiple stakeholders <b>[L2]</b>                                 | <ul style="list-style-type: none"><li>- Consultation with the relevant ministries and local government is conducted as part of interview and analyzed, making sure the consistency among the different sectors;</li><li>- Organize meetings with the village leader and local communities (business, fishermen cooperation and individual), and assess their motivation and willingness to change in the destination and individual levels <b>[LP4, 5]</b></li></ul> |
| (2) cross-sectoral cooperation;                                  |                                  |  |  |
| (3) pre-emptive action   |                                  |  |  |
| (4) decision-making in the context of resilience and uncertainty |                                  | Analyze and strengthen support systems <b>[L2, 4 and 5]</b>                          | <ul style="list-style-type: none"><li>- Lobby the relevant ministries to request for their understanding and supports (e.g. approval of the use of land) and to enable fishermen to engage in other jobs (e.g. mangrove tour guide and other relevant works such as mangrove conservation and restoration) <b>[LP5]</b></li></ul>  |
| (5) environmental law and implementation                         |                                  | Plan timing <b>[L3]</b> and strategies <b>[L1]</b>                                   | <ul style="list-style-type: none"><li>- Make a schedule of preparation and actions, considering the time required for each action</li><li>- Analyze the necessary resources (i.e. labor, materials, training) and costs <b>[LP7, 8]</b></li></ul>  |
|  |                                  |  |  |

| Stage                            | Explanation of Stage  | Steps within Each Stage        | Identified actions   |   |
|----------------------------------|---|--------------------------------|--|---|
| 2. Transformation                | Action of transforming the system using multiple transactions | Demographic transition [ID1]   | Enhance awareness of diverse values of mangroves [LP3]   | <div>Direct drivers [DD]</div> <div>Land/sea-use change</div> <div>Direct exploitation</div> <div>Climate change</div> <div>Pollution</div> <div>Invasive species</div> |
|                                  |   | Technological transition [ID2] | <ul style="list-style-type: none"><li>- Provide the government or local NGOs with technique to measure various ecosystem services that the area can benefit</li><li>- Provide knowledge and technique for the local communities with operating mangrove tours and accommodating tourists</li></ul> |   |
|                                  |   | Economic transition [ID2]      | <ul style="list-style-type: none"><li>- Artisanal fishermen does not need to rely only on the unstable fishing but the service sector (tourism) for their alternative livelihood</li></ul>   |   |
|                                  |   | Social transition [ID1]        | <ul style="list-style-type: none"><li>- Lifestyle of the local community become more environmentally-friendly as they become aware of the environmental values [LP5]</li><li>- Necessary infrastructure is installed to make sure safety for the tourists and local community</li></ul>            |   |
|                                  |   | Institutional transition [ID3] | <ul style="list-style-type: none"><li>- Change the law to enable the fishermen to engage in other jobs [LP4]</li></ul>   |   |
|                                  |   | Informational transition       | <ul style="list-style-type: none"><li>- </li></ul>   |   |
|                                  |   | Ideological transition [ID3]   | <ul style="list-style-type: none"><li>- Local communities and tourists approach to nature with a more holistic view. (They are aware of not only economic values but also other diverse values of mangroves and its surrounding ecosystems)</li></ul>  |   |
|                                  |   |                                |  |   |
| Indirect drivers [ID]            |   |                                |  |   |
| 1. Demographic and sociocultural |   |                                |  |   |
| 2. Economic and technological    |   |                                |  |   |
| 3. Institutions and governance   |   |                                |  |   |
| 4. Conflicts and epidemics       |   |                                |  |   |

| Stage      | Explanation of Stage                                    | Steps within Each Stage   | Identified actions  |
|------------|---|---|---|
| 3. Support | Supporting the new transformed system to ensure success | Build resilience of new trajectory  | <ul style="list-style-type: none"> <li>- Strengthen the supervision and law enforcement</li> <li>- Support those people who could not engaged in the tourism job</li> <li>- Monitor and evaluate the quality of work</li> </ul> |
|            |   | Measure success of new system using established baseline data and other measurement metrics | <ul style="list-style-type: none"> <li>- Monitor and evaluate ecosystem services and people's understanding and awareness, and compare with the baseline survey</li> </ul>  |
|            |   | Practice forms of sustainable management  | <ul style="list-style-type: none"> <li>- Local community takes the initiative to manage the mangrove and surrounding ecosystems responsibly.</li> <li>- DMO is established.</li> </ul>  |

## Findings

- Tourism and sustainable transformation framework (TSTF) can be a useful tool to inform decision-makers of the strategy of transformative change.
- TSTF clarifies what policies or policy enforcement are needed
- TSTF can be linked with the levers, leverage points and address impacts on indirect and direct drivers which

## Recommendation:

- It is important that the framework contains sustainability-aligned values and take into account policy uptake.
- It can add an column of policies required for each action.

| Stage             | Explanation of Stage  | Steps within Each Stage   | Actions                              | Required policies |
|-------------------|---|---|--------------------------------------|-------------------|
| 1. Preparation    | Preparing for the transformation                              | Identify goal of transformation   | To be identified by the stakeholders |                   |
|                   |   | Analyze current state of system   |                                      |                   |
|                   |   | Establish baselines and appropriate metrics to measure status                               |                                      |                   |
|                   |   | Involve and bridge multiple stakeholders  |                                      |                   |
|                   |   | Analyze and strengthen support systems  |                                      |                   |
|                   |   | Plan timing and strategies  |                                      |                   |
| 2. Transformation | Action of transforming the system using multiple transactions | Demographic transition  |                                      |                   |
|                   |   | Technological transition  |                                      |                   |
|                   |   | Economic transition   |                                      |                   |
|                   |   | Social transition   |                                      |                   |
|                   |   | Institutional transition  |                                      |                   |
|                   |   | Informational transition  |                                      |                   |
|                   |   | Ideological transition  |                                      |                   |
| 3. Support        | Supporting the new transformed system to ensure success       | Build resilience of new trajectory  |                                      |                   |
|                   |   | Measure success of new system using established baseline data and other measurement metrics |                                      |                   |
|                   |   | Practice forms of sustainable management  |                                      |                   |

# Thank you for your attention

**Koji Miwa**

Policy researcher, Biodiversity and Forest Area  
Institute for Global Environmental Strategies