Sustainable Tourism at Machu Picchu: Developing a Management Framework to Protect Peru’s Famous “Lost City”

Lincoln R. Larson
Sustainable Tourism

• “Sustainable tourism is... developed and maintained in an area in such a manner & at such a scale that... it remains viable over an infinite period of time & does not degrade or alter the environment (human & physical) in which it exists.” (Butler, 1999, p. 12)
Machu Picchu: Background
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Machu Picchu Ruins

To Cusco

Aguas Calientes

To Santa Teresa

Urubamba River

Inca Trail

Machu Picchu Access Road
Machu Picchu: Background

• Allure of Machu Picchu
  – UNESCO World Heritage Site (1983)
  – IUCN “managed resource protection area”
  – New “Wonder of the World”
  – Symbol of Peruvian culture & heritage
Tourism at Machu Picchu

- 90% of Peru’s international tourists visit Cusco; Almost 50% visit Machu Picchu
  
  *(Desforges, 2000; Solano, 2005)*

“Machu Picchu is a victim of its own success.”

  - *Irina Boklova, UNESCO Chief, 2011*

Source: Vecchio, 2011
Machu Picchu Management Challenges

- Ecosystem fragility
  - Biodiversity threatened
  - Geological instability
  - Archaeological damage
Machu Picchu
Management Challenges

• Site Accessibility
Machu Picchu Management Challenges

• Local Community Development
  – Aguas Calientes population jumped from 400 to 4,000 in 10 years \( \textit{(UNEP, 2008)} \)
  – Profit leakages from tourism in similar areas may exceed 90% \( \textit{(Mitchell & Eagles, 2001)} \)
Machu Picchu Management Challenges

• Persistence of Peruvian Culture
  – Commercialization of Inca culture (Cohen, 1988)
  – Yachay Wasi’s Inka Challenge
Machu Picchu Management Challenges

• Institutional Complexity
Machu Picchu: A “Messy Situation” (McCool & Moisey, 2008)

• **Advocates of mass tourism:**
  – Increase access to site
  – Generate revenue for regional governments, private tour operators & local communities
  – Promote Inca culture as marketable commodity

• **Opponents of mass tourism:**
  – Limit access
  – Preserve ecological, archaeological & spiritual assets
  – Protect existing cultures and livelihoods
Sustainable Tourism Priorities

- Participatory planning requires unified goals
  (Regalado-Pezua & Arias-Valencia, 2006)

Sustainable Tourism: A Pyramid of Priorities

Pyramid of Priorities concept developed by Larson (2011)

- **Resource Integrity**
  (Protect Biological Diversity, Prevent Site Degradation, Preserve Cultural Heritage)

- **Resource Utility**
  (Support Community Development, Increase Economic Benefits)

- **Social Viability**
  (Stakeholder Satisfaction, Collaborative Planning)

- **Sustainable Use**
Adaptive Management Framework

• Existing management plan suffers from ambiguous goals & poorly articulated action strategies (Zan & Lusiana, 2011)

• Adaptive Resource Management could help resolve issues (Miller & Twining-Ward, 2005)
Adaptive Management Framework

1. Identify Fundamental Objective

2. Define Corresponding Means Objectives

3. Develop Indicators to Monitor Objectives

Adapted from Hammit & Cole, 1998; Knutson et. al, 2011; Miller & Twining-Ward, 2005
Adaptive Management Framework

**FUNDAMENTAL OBJECTIVE**

Maintain value as unique natural, cultural & economic resource

**MEANS OBJECTIVES**

- Maximize benefits of tourism
- Ensure stakeholder satisfaction
- Support community development
- Increase economic benefits
- Prevent physical degradation
- Preserve cultural heritage
- Protect biological diversity
- Minimize impacts of tourism

**Fundamental Objective:**

- Protect biological diversity
- Prevent physical degradation
- Preserve cultural heritage

**Means Objectives:**

- Maximize benefits of tourism
- Ensure stakeholder satisfaction
- Support community development
- Increase economic benefits

**Adaptive Management Framework**
### Management Objectives

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<tr>
<th>Protect Biological Diversity</th>
<th>Possible Indicators</th>
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| *EX:* Minimize land use change & fragmentation | - % urban development increased/year  
- Rate habitat integrity  
- Rate site susceptibility to climate change |

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<th>Prevent Site Degradation</th>
<th>Possible Indicators</th>
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| *EX:* Minimize erosion & landslide potential | - Visitor density across spatial/temporal scales  
- Satellite images of shifting earth & structures  
- Rate landslide potential |

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<th>Increase Economic Benefits</th>
<th>Possible Indicators</th>
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| *EX:* Increase flow of tourism profits to local communities | - % of local economy based on tourism  
- Tourism revenue per week, etc. (plus leakages)  
- Rate perceived collaboration in planning process |

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<th>Preserve Cultural Heritage</th>
<th>Possible Indicators</th>
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| *EX:* Minimize exploitation of ethnic tourism & dissolution of local culture | - % of revenue spent on structural renovation/yr.  
- Rate authenticity of interpretive efforts  
- Rate local perceptions of cultural degradation |

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<th>Ensure Stakeholder Satisfaction</th>
<th>Possible Indicators</th>
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| *EX:* Maximize visitors’ satisfaction | - Crime statistics in surrounding areas  
- Rate satisfaction levels  
- Rate perceived crowding |
Adaptive Management Framework

1. Identify Fundamental Objective
2. Define Corresponding Means Objectives
3. Develop Indicators to Monitor Objectives
4. Are Objectives Being Met?
   - Yes: Continue Monitoring
   - No: Initiate Management Response

Adapted from Hammit & Cole, 1998; Knutson et. al, 2011; Miller & Twining-Ward, 2005
Summary

• Future of Machu Picchu depends on **delicate balance between preservation & utilization**

• Explicit **collaborative framework needed to address challenges & direct growth**

• **Adaptive resource management could help to identify key priorities & monitor progress**
Machu Picchu: “No se vende. Se defiende.”

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