

GROUP 1

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OUR TOPIC:

The Environmental Sustainability of the Niagara Falls Tourism



Why not sustainable?

1. Deteriorating water quality in the Niagara area

- Many chemical plants established since the mid-1970s
- Pollution accidents, such as
1981-1988: 110 million gallons by SCA
- Chemical Services (permitted by the state!!)
1984: 9,000 pounds contaminants illegally dumped into the river
- 1995: 150 hazardous waste sites along a three mile stretch of the Niagara River (identified by the USEPA)

Why not sustainable?

2. Water diversion

- Considerable amount of water is diverted from the Niagara River for power generation purposes
- Without sufficient volume of flow, the scenic view of Niagara Falls will be spoiled



Why not sustainable?

3. Environmental impacts from international tourism

- Significant impacts brought by tourists, for example
- Air pollution caused by the traffic connected to Niagara Falls
- Sewage and garbage produced in tourist's spots
- Determined by tourists' behaviors & their environmental awareness



Objectives

- To assess the sustainability of tourism of the Niagara Falls environmentally



WE NEED TO KNOW:

- The concept of Sustainability
- Identify the importance of the natural resources of the Fall (as a part of water ecosystem)
- Identify what measures are used to protect the environment of Niagara (=management)
- Any educational resources to rise the awareness of the visitors/local people
- the attitude and role of the gov't
- what government department in charge of the site



Method for assessment

- Indicators
- Satellite image analysis



Method for assessment Indicators

1. Damage and Deterioration caused by tourism

❖ Cleanliness of sites

- ✓ amount of waste collected
- ✓ availability of waste collection facilities
- ✓ any problem on littering
- ✓ perception of visitors on cleanliness

Method for assessment

Indicators

- 2. Share of environmentally friendly modes of transport in all arrivals**
 - ❖ Are tourists arriving by more sustainable means of transport?
 - ❖ Current situation and evolution in time to see whether there is change towards improvement or not.
 - ✓ How many tourists (staying at least for one night) used the following main means of transport: car, airplane, train, bus, ship or bicycle to come to destinations



Method for assessment

Indicators

3. Tourism's support for site conservation

- ✓ % of tourism revenue retained at site
- ✓ % used for site maintenance and conservation



Method for assessment

Indicators

4. Government Policy on environmental conservation

- ❖ Existence of a local policy for enhancing sustainability in the destination
- ✓ Existence of a political strategy decision
- ✓ Existence of an action plan
- ✓ Number of the following issues covered by this action plan: transport, land use and biodiversity, energy, water, waste, social issues, economic issues



Method for assessment

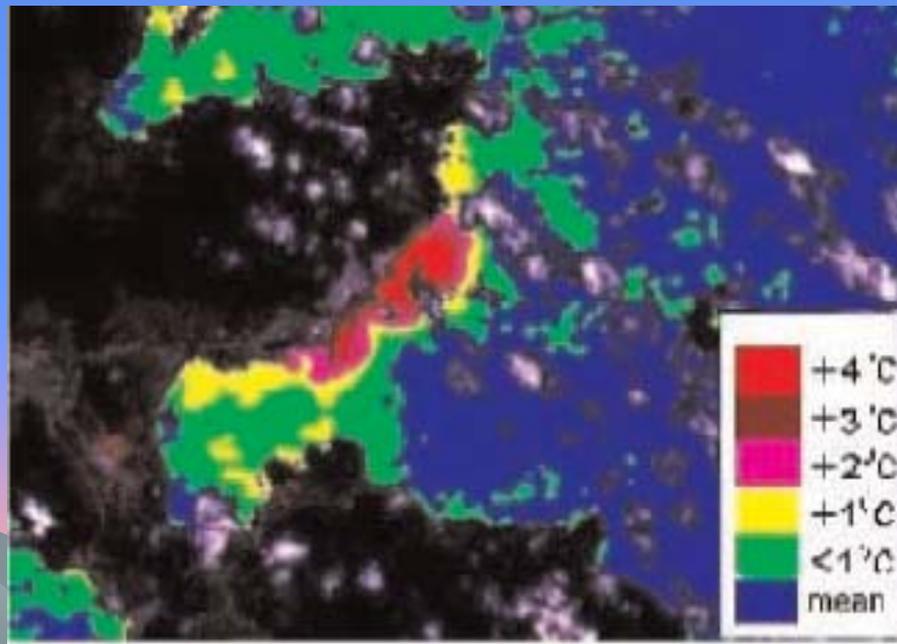
Satellite image analysis

- To detect any deteriorating trend of water quality
 1. Collect a series of satellite image of the Niagara area acquire **at different time**
 2. Conducting image analysis (e.g. classification) to identify any spots of deteriorated water
 3. Comparison of the recent and past situation

Method for assessment

Satellite image analysis

- For example,
- Use of Thermal IR image → detect thermal pollution from factories



Method for Data Collection

Primary Data

- Questionnaire
- Field Observation

Secondary Data

- Official Websites
 - Books & Articles
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Questionnaire Design

- To assess visitors' perception/ possible impacts
 - The preference of visitor on activities
 - Type of transports taken
 - Cleanliness of sites → rating



END

Thank you~

