SWANA's Plastic Waste Reduction Initiative: A Sustainable Path Forward for a Decade

The SWANA International Solid Waste Design Competition (SWDC) 2024

Plastic waste generation in the United States is alarming, with approximately 35,680,000 tons produced annually, constituting 12.2% of the total waste stream. Despite long-standing advocacy for recycling, the efficacy of such programs has been questioned, particularly in the aftermath of China’s Operation National Sword in 2017, which imposed strict restrictions on imported recyclables. Economic factors, notably the Producer Price Index (PPI) for recycled plastics, significantly influence recycling programs’ viability, with fluctuations in PPI impacting the economic feasibility of recycling initiatives.

**Study Area**
- Bumpa-Landfill has not closed next 34 years
- Majora Beach-Landfill has 12 years of the remaining capacity
- Dawton-Landfill has 34 years of the remaining capacity

**Overall Process**
- Environment: Analysis of Adopted Processes
- Community: Based Community Programs
- Plastic waste: Data analysis
- Proposed Technologies: Policy Measures Aimed at Reducing Plastic Waste
- Contingency: Cost benefit analysis

**Result and Discussion**

- **Plastic Waste Generation (Year 2023)**

- **Waste Matrices Analysis (Year 2023)**

- **Por capita waste matrices analysis (Year 2023)**

**Proposed Technologies**

- **Environmental Impact of Adopted Processes**
  - Optimization of sorting technologies
  - Advanced sorting methods
  - Enhanced recycling processes
- **Cost benefit analysis**
  - Benefits of plastic recycling
  - Economic impact of recycling
- **Policy Measures at Reducing Plastic Wastes in SWANA State**
  - Implementing EPR policies requiring manufacturers to take responsibility for the end-of-life management of their products, including plastic packaging, can incentivize the use of recyclable materials and promote recycling infrastructure development.
  - Enacting a DRS for beverage containers, requiring a refundable deposit on all plastic bottles and cans, to incentivize recycling and reduce plastic waste generation.
  - Introducing regulations that promote the use of sustainable packaging materials and encourage manufacturers to produce products that can help reduce plastic waste generation.

**Cost-benefit Analysis**

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<tr>
<th>Criteria</th>
<th>Amount</th>
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<tr>
<td>Roadmap Development</td>
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