Evaluating Solid Waste Management in and Around IIT Mandi: A Catalyst for Environmental Activism

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Problem Statement

Rapid urbanization and consumption worsen waste issues, requiring urgent grassroots activism and awareness to address overwhelmed management and community apathy towards environmental impacts.
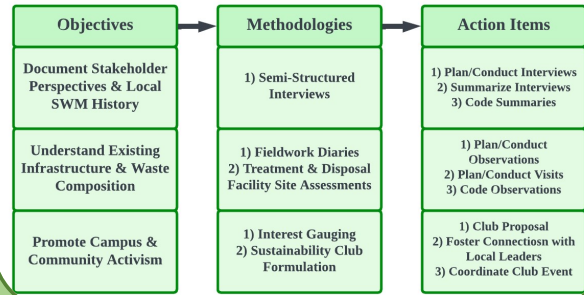
- Global municipal solid waste (MSW) production surged to 2 billion metric tons in 2016, expected to double by 2050.
- Rapid urbanization worsens waste management challenges across Himachal Pradesh, particularly in Mandi District, where tourism and IIT Mandi drive this trend.
- Population growth & economic activity have caused uncontrolled accumulation of unsorted garbage, echoing global concerns.
- Our aim is to enhance environmental awareness & promote sustainability.
- Our research categorized waste in interviews & observations into the following defined categories:

Dry Waste	Wet Waste
Bottles & cans	Food items
Paper	Wet food wrappers
Clothing	Hygiene products
Plastic	Yard waste
Wood	Tissues
Glass	Paper towels
Metals	
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Methodology

Goal: Evaluate & Improve Solid Waste Management in and Around IIT Mandi

Objectives	Methodologies	Action Items
Document Stakeholder Perspectives & Local SWM History	1) Semi-Structured Interviews	1) Plan/Conduct Interviews 2) Summarize Interviews 3) Code Summaries
Understand Existing Infrastructure & Waste Composition	1) Fieldwork Diaries 2) Treatment & Disposal Facility Site Assessments	1) Plan/Conduct Observations 2) Plan/Conduct Visits 3) Code Observations
Promote Campus & Community Activism	1) Interest Gauging 2) Sustainability Club Formulation	1) Club Proposal 2) Foster Connectiosn with Local Leaders 3) Coordinate Club Event

Results & Discussion

Objective 1 - Document Stakeholder Perspectives & Local MSW History:
- Because of urbanized lifestyles, single-use plastics (e.g., chip bags) are the primary concern.
- Surrounding villages lack formal waste collection systems & infrastructure (e.g., household dustbins).
- Larger municipalities sometimes collaborate with Panchayats to successfully extend waste collection to rural communities.

Objective 2 - Understand Existing Infrastructure & Waste Composition:
- Noticeable litter on IIT Mandi's campus & waste accumulates near drainage pipes after heavy rainfall.
- Waste segregation is not followed due to inconsistent bin color coding, labeling, and student confusion.
- Nearby villages exhibit higher litter levels, especially down slopes leading to water sources.
- Municipal processing centers struggle with waste segregation despite adequate infrastructure and technology.

Objective 3 - Promote Campus & Community Activism:
- Worked with PhD student, Jeet, to propose a club for students & faculty, covering cleanup initiatives and campus dog vaccinations.
- Discovered a waste site near campus through observation.
- Mixture of dry and wet waste with evident open burning, partly traced back to IIT Mandi through packaging addresses.
- Coordinated with the Deanery of Infrastructure and Services to ensure swift cleanup and proper waste disposal.

Recommendations & Conclusions

1. Simplify waste segregation on campus (e.g., only offer wet and dry dustbins).
2. Actively monitor management practices and expand beyond campus (e.g., documenting changes monthly at nearby landfill).
3. Provide additional support to surrounding communities whether through infrastructure or waste services (e.g., third-party collection vehicle & waste segregation dustbins).
4. Feed campus dogs mess hall food waste to decrease wet waste and improve wellbeing.
5. Conduct cleanup drives at least twice a semester to limit litter on campus and in surrounding areas.
6. Partner with EWOK and local groups to foster campus-community collaboration, encouraging nearby residents to keep their communities clean.

To Save