Annexure 4: Case Study

Case Study – Leh, Ladakh

Green Alternatives making the Dry Desert Sustainable

Situated in the northern part of trans-Himalayas at a height of about 4,000 metres, the City of Leh is a beautiful Eden and part of the largest district of Ladakh, famously known as the land of high passes. The city is a Pandora of rich heritage, culture and sunlight. The city witnesses harsh weather conditions with a low oxygen rate, especially in winters when the average temperature ranges between -23 degree Celsius to -8 degree Celsius.

However, the picture does not remain the same throughout the year. As the region moves out of hibernation with the melting glaciers, a massive influx of nature lovers and adventure enthusiasts flow into the city. As per the 2011 census, Leh is home to 30,870 habitants. The current population of the city is projected to be approximately around 43,000. In summer, the floating population reaches 66,000, which suddenly impacts the limited resources with high rise demands of tourists.

The town's economy majorly depends on tourist-related businesses and activities. Indeed, the travellers bring the cash flow, which is vital for sustaining the city's economy. But what matters the most is their environmental footprints which are again alarming and not sustainable for the city's identity in the long term.

Talking about the waste generation capacity of the city, the number varies four times in summers and winters. As per the Leh Municipal Council, the town generates 9 tonnes of waste per day in winter, which surges to 40 tonnes per day in summer due to tourism activities. Out of the total generated waste, 22 per cent is non-biodegradable.

Avoiding the Mountains of Waste: Tsang-Da Urban Mission

Until 2019, the city had no proper waste management policy and means. The waste remained unsegregated or overflowed in community bins. The waste was dumped near the Diskit Buddhist temple in tipper trucks. This process continued for decades and led to forming a 2km long waste dump site with open unprocessed waste.

The scarcity of resources and technology to address the bloating issue made the council comply with the directives of the Swachh Bharat Mission, an initiative of the Ministry of Housing and Urban Affairs to improve solid waste management.

The Leh District administration addressed the challenge by transforming it into a self-sustaining revenue model under the Tsang-Da Urban Mission. This created a dual impact of treating solid waste scientifically and ensuring cash inflow by converting waste into revenue-generating goods.

A 12-member Waste Management Committee steers the function of the project under the direct supervision of the Union Territory Government. The committee represents the homogeneous participation from residents, Municipal Committee Leh, Ladakh Autonomous Hill Development Council members, and other Urban stakeholders. The primary responsibility of the committee is to ensure the following:

- Spread the awareness for at source segregation though various IEC activities;
- Initiate the street clean drives;
- Promotion of circular economy;
- 100 per cent door to door collection.

Milestone – Installation of Cities First Solar Powered Waste Management Plant

The Solar powered waste management plant can process 30 tonnes of solid waste daily. This facility has been functional since 2020. The plant covers a massive area of 38 acres of land and is powered by a 100 kW solar energy plant installed by Ladakh Renewable Energy Development functional. The plant uses manual segregation and mechanical processes to treat non-biodegradable and biodegradable waste.

Photograph 1 Solar Powered Waste Management Facility – Leh

Photograph 2 Processed Waste in the Waste Management Facility

Conclusion

The program turned a challenge into a revenue generating opportunity. In 2018, the program generated a revenue of Rs 64 lakh against the total expenditure of Rs 38 lakhs, making it is success. This success of adaptation to green alternatives leading to green and clean innovation is an inspiring model for other cities.