WEALTH FROM WASTE

LEH, JAMMU & KASHMIR

Located in a cold desert and endowed with pristine landscapes, the district of Leh is well known for its colorful and unique culture. Economy is traditionally based on agriculture, horticulture and animal husbandry. However, over the past decade tourism has gradually become the mainstay of the economy of Leh. Tourist arrivals surpassed 3 Lakhs in year 2018. With rapid urbanization spurred by the growth in tourism, solid waste management has emerged as a new challenge for administrators of Leh. If left unattended it would have posed a serious threat to the district's fragile ecology.

This emerging scenario prompted the launch of *Project Tsangda* (meaning 'cleanliness' in Ladakhi language). Launched in December 2017, the objective of the project was to ensure sustainable disposal of urban solid waste so as to protect and preserve this environmentally fragile region. The project is being implemented through the Rural Development Department of the Leh district.

From one waste segregation center in 2017, the project has been expanded to 4 such centers that are now running successfully at Choglamsar, Disket (Nubra), Khaltse and Nimoo. A total of 2034 units, including 1174 households and 863 shops, have been covered under the project to take its benefits to about 15,000 individuals.

In the first year of the operations of the project, a total of 81,350 Kg. of waste has been handled for recycling and reuse. Of this, 77,000 Kg. was dry waste. The waste collected under the project, which would have otherwise polluted the water bodies or pasture lands and damaged the ecosystem, has been put to use in various innovative ways to cater to local needs. The project activities have already begun to generate revenue from sale of waste material to recyclers. These cash flows, in addition to the user fees that are collected from beneficiaries, are on the way to make waste segregation centers self sustainable.

After collection, the segregated waste is brought to the Secondary Segregation Centre, where it is further segregated in approximately 20 categories for recycling and reuse. The residual material that is not fit for recycling is disposed off in a scientific manner. Apart from technology, logistical efficiency, staff training and community participation, a very striking feature of the project is perhaps the creativity and innovation with which various categories of waste are recycled and reused to cater to local needs. Some examples are cardboard and paper made into bricks for insulation or as fuel in winter, thermocol reused as insulating material for passive solar structures, discarded egg trays used as wall

OBJECTIVES

- PROTECT AN ECOLOGICALLY FRAGLIE REGION FROM BEING OVER RUN BY URBAN WASTE.
- TO MAKE SOLID WASTE MANAGEMENT A SELF SUSTAINING ENTERPRISE.
- TO NURTURE ETHOS OF REDUCE, REUSE AND RECYCLE AMONGST INHABITANTS.
- TO SET AN EXAMPLE FOR OTHER SIMILAR LANDSCAPES TO ADOPT AND IMPROVISE.

claddings for soundproofing, cotton clothes as filling for mattresses and recycled paper for envelopes etc.

In the category of dry waste, single use polythene has had the maximum share. Though the district administration is taking adequate measures to curb single use plastic, such waste shall be used in construction of roads after mixing with bitumen from this working season. The tetra packs discarded by locals and tourists are being used to make ply boards for the furniture industry and human hair are used as an organic fertilizer.

OUTCOMES

Project Tsangda has focused exclusively on management of solid waste leading to an integrated, participative and sustainable approach towards waste management. This is while also combating and overcoming unique challenges like extreme cold temperatures (as low as -20° Celsius), low humidity, high altitude and inadequate funding. Community participation based on sensitization and awareness has played a major role in project's outcomes.

The success of waste management centres has largely been due to financial model based on user fees paid by the beneficiaries. The project has also generated employment for locals as segregation workers, drivers and centre supervisors. Overall, it has brought about a visible improvement in the cleanliness of the areas, not just land but also water bodies.

Another important benefits of the project are the forward and backward linkages it has created in waste collection and segregation chain. While households are being encouraged to segregate and use organic waste at the household level itself, market linkages are being provided for the dry waste as described earlier in examples of reuse and recycling. Project Tsangda has also led to tangible positive behavioral changes in the civil society. The market associations, women's groups, panchayats now play a proactive role in community awareness and mobilization. The intense research that has gone into the project has also had a positive impact where new ideas and methods have been discovered and adopted by the Project Tsangda team. Many of the new ideas emanating out of the project are gradually being adopted by the local community

This integrated approach to management of solid waste has led to resource conservation and a visible change in the markets and localities and water bodies where the project is operating.