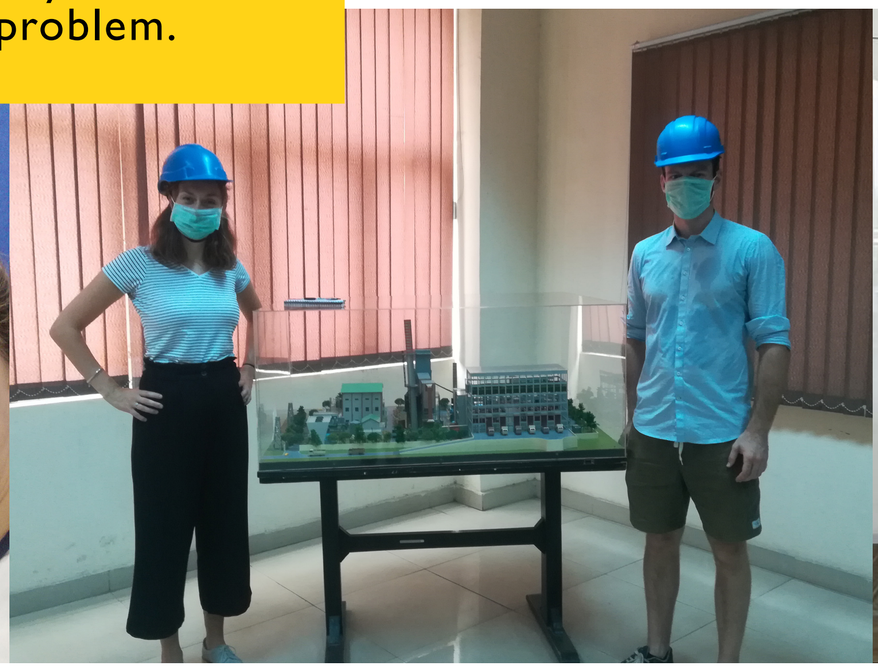
CHEMICAL RECYCLING OF INDIA'S WASTE

"Mumbai is sinking," and Delhi is buried under "mountain loads of garbage" warned India's Supreme Court in July 2018. India's waste pile is soaring due to urbanization, and a growing population and economy. Current waste handling is unsustainable as over 50% ends up on open dumps –a mere 15% is recycled. Shell has an opportunity to curb this problem.



APPROACH

Team Shell mapped the waste streams of three major Indian cities: Bangalore, Mumbai, and Delhi. Simultaneously, technologies for chemical recycling of plastic waste were identified. These technologies were mapped based on feasibility, viability and desirability. For the two most promising options, three scenarios and their business cases provided insights in the economic opportunity. Finally, a conclusion on investing in a recycling plant is presented, including a risk analysis and future recommendations for Shell.

RESULTS

The slide deck and detailed report evolve around collecting waste and implications of processing it. Conducting numerous interviews with players in India's waste handling industry provided data on waste streams and exposed the pressing problems they currently face. The sector is decentralized and waste trickles down into informal circuits through individual waste pickers and scrap dealers. Dealing with hurdles such as mafia influences and different municipal policies can be challenging.

After selecting pyrolysis and Shell's IH^2 as most promising outcomes for the current situation, three business cases explored the economic implications of waste processing scenarios. As the waste input per technology varies, the decision between those technologies is closely tied to the local circumstances. IH^2 is most promising for unsegregated waste, while pyrolysis is more efficient in hydrocarbon conversion if waste is available in segregated form.

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