Project TwoPager | EuroTeQaThon III

Our third EuroTeQathon will be hosted in Prague (CTU) from Saturday June 10th until Monday June12th 2023. In preparation of thise event every (selected) Collider project is asked to submit a TwoPager on their project according to the locally communicated deadline and procedure. This document will be used by the jury to complement the final presentation on Monday and have a good overview of all the different projects

PROJECT DETAILS

Challenge Collaborator: Nishant Tiku, Himalayan Institute of Alternatives, Ladakh

Team name: Waste Wise & The Himalayan LEGOs

Team slogan: Building a Waste-Wise Future and Cleaning up Ladakh Brick by Brick

Team members (full name | study program | university)

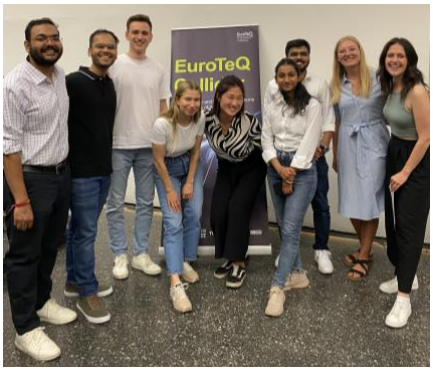
Elisa India Hobelsberger	M.Sc. Politics & Technology	TUM
Sapna Dawaldi	M.Sc. Civil Engineering	TUM
Vaibhav Sharma	M.Sc. Environmental Engineering	TUM
Aljoscha Franovic	M.Sc. Politics & Technology	TUM
Amir Aslam	M.Sc. Environmental Engineering	TUM
Mihir Agarwal	M.Sc. Environmental Engineering	TUM
Rahul Jagannath Manna	M.Sc. Environmental Engineering	TUM
Bianca Wehner	M.Sc. Sustainable Management & Technology	TUMCS
Sophia Ehrmann	M.Sc. Sustainable Management & Technology	TUMCS
Jingyuan Zhang	M.Sc. Bioeconomy	TUMCS

What is the target problem for your project (in one sentence) ?

Management of plastic waste generated by the massive influx of tourists in the Trans-Himalayan region of Ladakh, India which has a severe negative impact on the environment and local population.

How do you solve it (in max. three sentences) ?

We are promoting a holistic waste management solution focusing on the collection and recycling of plastic waste to create a circular economy model for plastic in Ladakh. By recycling plastic waste into construction bricks for insulated housing we are adressing three problems with one solution: The plastic waste problem, the demand for insulated housing material, and the unemployment rate. Further benefit is delivered to the local population by incentivizing them to collect plastic waste with a government buyback scheme for plastic waste that presents an attractive source for income and is financed through a waste tax for tourists.



Potential for impact

How does it contribute to a more sustainable future from an environmental, social and/or economic perspective? On what scale and what range of the population could your project have an impact? (regional, national, European, only a small group of people, a wide range of the population etc.)

Our solution contributes to a more sustainable future for Ladakh by recycling plastic waste from landfills, thereby reducing its impact. The recycling of plastic waste into building bricks has several positive impacts: First, plastic waste becomes a valuable resource in form of construction material (upcycling). Second, the recycling plants will create jobs that can reduce the high unemployment rate as the plants don't require high-skilled labor. Third, the construction bricks address the high demand for insulated housing material. On a social level, our solution includes ragpickers and households into collecting plastic waste with a buyback scheme that provides them with an additional income substantially higher than the minimum wage for unskilled labor.

Innovation

How is the solution innovative comparing to existing ones (if exist) from an application area, business model, technological and/or customer experience perspective? Who are the main competitors?

Our solution represents a cutting-edge approach that draws upon successful strategies implemented in various regions worldwide. By tailoring innovative concepts to suit the unique geographical conditions of the region, we have devised a solution that is both practical and efficient. Through the transformation of waste into plastic construction bricks, we offer a pioneering solution that is novel to the region of Ladakh. By supplying high-quality bricks to local construction companies, we not only address the pressing issue of plastic waste, but also cater to the soaring demand for insulated housing. Our solution surpasses the short-term reliance on traditional building materials like concrete bricks, effectively meeting Ladakh's immediate requirements while simultaneously addressing the need for sustainable and energy-efficient housing. Also the material used to give such insulation properties is also one kind of waste so ultimately, we are adding value to waste by upcycling the plastic waste.

Feasibility

To what extent can your project be self-sustainable? Are the means available to realize your innovations? What would be your ambition/the next steps with the project?

Producing building blocks from collected plastic waste offers a great solution for several reasons. Firstly, the government buyback scheme incentivizes households and ragpickers to collect and deliver plastic waste, ensuring its availability. Secondly, these bricks are competitively priced and have an advantage in insulation capacity, which meets the demand for insulated building materials in Ladakh. Additionally, the process doesn't require sophisticated machinery, allowing for easy transportation and quick setup. The low fixed costs, including reduced labor and material expenses, also contribute to its feasibility. Both the recycling plants and the buyback scheme are financially self-sustaining through revenue generated from selling building bricks and tourist waste taxes.

Inclusivity

Are the stakeholders (industry partners, govermental bodies, societal stakeholders, potential users, etc.) involved in the process of the solution development? How did you take them and their feedback into account? What disciplines (engineering perspective, sociological perspective, etc.) are taken into consideration in the development of the solution?

The approach, developed in collaboration with the Himalayan Institute of Alternatives, considers the perspectives of all stakeholders involved. We engaged with the local government and existing plastic recycling market players in India to efficiently process plastic waste and meet the interests of Ladakh's district. Unfortunately, from the district government we did not receive any feedback yet. However, Indian market players like RecycledX provided us with valuable information on prices etc. Furthermore, we will work with local NGOs to promote plastic bricks and explore recyclability. While feedback from stakeholders like the government is pending, our solution focuses on engineering while delivering sustainable benefits to Ladakh and its local population.