

Project Details

Brief Title of the Project (Max. 100 Chars)

Self-Sustaining Low Maintenance Toilets: The Eco-Toilet

Tell us about your project (Max. 2000 Chars)

To address the open defecation & sanitation challenges in India, we envision to develop a practical, financially self-sustainable and stand-alone toilet model that runs on minimal water, no sewer- infrastructure, sustainable renewable energy, and minimal maintenance. This model will completely transform the scenario of public sanitation in India. It would be ideal for installation in market places, public parks, railways, government schools in general and thousands of XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX Inadequate sanitation facilities requiring general public, especially women to use open spaces or unmaintained filthy public toilets is one of the biggest problems in India. This problem not only compromises dignity, but also comes wrapped up in its own domino effect â€” disease, chronic illness, malnutrition, and on a much larger scale, loss of human resource. The state of operation, availability of water, as well as mechanisms for dealing wastes in the existing toilet models, is something which requires a lot of consideration. Social factors come into play too; for instance, how safe the toilet is for women or how hygienic it is. Therefore, designing a toilet which caters to these needs is crucial to seeing positive results in this arena. Any device, machine or technology can be viewed as a system with its own stocks and flows â€” the stocks characterise the fixed operational units, while the flows characterise the entities that move in between these stocks. To last long, the system should also monitor itself with a feedback mechanism, allowing room for maintenance and troubleshooting. Our innovation lies in all these three components of our toilet model: in superstructure XXXXXX by involving both technical and social solutions at the same time, in energy needs and waste handling XXXXXX by incorporating self-sustaining mechanisms, and in maintenance (feedback mechanism) by eliminating the need for human intervention for a long-lasting operation.

Details of the Project highlighting Business Feasibility of Idea (Max. 4000 Chars)

The feasibility of any business starts with the evaluation of need of the product. Our beneficiaries include students in government schools and institutions which do not have a single, well-maintained toilet within their premises. According to
XX . Hence our beneficiaries include all these girls and women who have to change their diets out of the fear of safety while defecating in open, or who suffer from diseases due to unavailability of proper sanitary care; and also those thousands of people who use unhygienic, poorly-maintained public toilets every day throughout the country. Next, comes the evaluation of - revenue generation streams. We would sell our product at a profit margin to our customers. Also, we see valuable partners in XXXXXXXXXXXXXXXXXXXX or any other private or XXXXXXX XXXXXXXXXXXXXXXXXXXX which can pay for the one-time installation costs in return for advertisement rights for a specified period. Revenue can also be generated from the XXXXXXXXXXXXXXXXXXXX usage. Finally, since our product is environment-friendly as it recycles water and uses solar energy, it is not only feasible but also sustainable in the long run. Though our system would be costlier than the conventional toilets, but the life cycle assessment of both the toilet systems clearly indicates that our system is a winner because of its almost zero maintenance costs, low water consumption, no sewer system requirement, no dependence
to meet its energy needs and full proof backup mechanism.

Details of the Project highlighting Team Profile (Max. 4000 Chars)

Our team consists of engineering graduates and students from Indian Institute of Technology
XXXXXXXXXXXXXXXXXXXXXXXXXXXX one of the most prestigious engineering institutions in India. Our different, interrelated backgrounds (Civil, Electrical and Architectural Engineering) are an added advantage for us when it comes to reaching technological solutions, helping us look at the same problem from different perspectives. Our team also has experience in technical assessment of various small-scale wastewater treatment systems and in microcontroller programming. We have been working in sanitation sector for past two years and this adds to our experience for we have successfully implemented some toilet complexes. For the purpose of developing a sustainable, low-maintenance toilet model, we have collaborated with our alma mater itself (
XXXXXXXXXXXX) and have signed a Memorandum of Understanding (MoU). Professors from four departments (
XX) are helping us in developing the toilet model in addition to providing all the laboratory infrastructure that we need. A lecturer in Water and Environmental Engineering,
XX , University of
XXXXX ,
XXXXXXXXXXXX and an expert in extracting valuable products out of waste, is also helping us with the design of the small scale prefabricated treatment system. We have a chartered accountant -, who looks after the financial aspects. We plan to hire few technically sound and experienced professionals in our team to ensure the successful delivery of the project. All in all, we have a strong, well-balanced team that is possessed with strong expertise and deep knowledge to innovate and deliver towards a successful project-

Details of the Project highlighting Risk & Mitigation factors identified (Max. 4000 Chars)

1. The biggest risk associated with public toilets is the lack of a plan for meeting maintenance funds. We are trying to mitigate this by making our toilet maintenance free and exploring the model of usage of panels of the toilet for
XXXXXXXXXXXX purposes to meet out the expenses of timely electronics accessories replacement. 2. There is a huge risk of \XXXXXXXX and theft in public places. We have carefully designed and reiterated our product keeping in mind the pattern of user behaviours across geographies. Our health monitoring system would try to ensure that risk of
XXXXXXXXXXXXXXXXXXXX . 3. Also, as of now, our scope is limited to the use of
XXXXXXXXXXXXXXXXXXXX requirements for the toilets, so regions with insufficient potential have to rely on traditional sources of electricity for the operation of the toilet. 4. Higher cost would be a problem while selling the product. Making people aware of the life cycle assessment results would help them to better appreciate the associated higher costs

Timelines Envisaged for establishing Proof of Concept (PoC) (in months)

Funding Required for next 3 years (in rupees)

Business Plan for next 5 years (Commercialization Strategy & Business Feasibility) (Max. 4000 Chars)

We plan to spend the first XX months in the product development phase after which prototypes will be developed. Post our successful prototyping, we aim to get our products accredited in the first six months or so. We will also be aiming to get next level of funding to scale up the operations. We plan to install XXX Single XXXXXXXXXXXX by the end of next years after XXX prototype testing with roughly XXX units every year. This would generate a turnover of XXXXXX , revenue of crores roughly with a profit of XXXXX , which can be utilised for capacity building. We would need additional Crore to meet out our capacity development for scaling up, after XX years. We will follow different commercial strategies to deal with different players as already mentioned. We will be hiring to form a strong resource pool for - XX team to scale up our innovation and consistently win against the competition. The key to scaling our innovation lies in coordinating with all the players involved in the domain of sanitation and fulfilling all the complementing goals of different players in the process. Sanitation in India being a major hotspot for action, every single entity is associated with this "private organisations, governmental agencies, non-profit organisations and individuals themselves. Hence, in terms of an upscaling mechanism, we have a solid network of interested entities which would be willing to participate. We will partner with private entities and customize our product in accordance with the branding and marketing requirements of these organizations. By entering into agreements with various governmental authorities at local, state and central level, we will try to expand our operations all over India

Business Plane file

[Download Business Plan File](#)

How do you feel that your idea would be relevant to IndianOil? (Max 4000 Chars).

Indian oil has around XXXXXXXXXXXX across India and with the government of India pushing the agenda of ensuring clean and robust toilet facilities at XXXXXXXXXXX, especially along XXXXX , the need for a well-functioning smart toilet cannot be overstated. These XXXXXXXXXXX cater to the requirements of lacs of Indians every day, which have a right to get basic facilities of clean water and hygienic toilet. Also, the traditional toilet which relies upon human intervention for daily maintenance fails, in the long run, owing to the lack of funds to support the maintenance staff. Our low maintenance automated toilet is ideal for the conditions and challenges presented by a typical site setting of a XXXXXXXX . The inbuilt treatment system mitigates the risk associated with improper waste disposal and vacuum flushing would ensure that these toilets work efficiently even in dry areas. Since XXXXXXXXXXXXXXXXXXXX might provide us with the XXXXXXXX for the technology development, an XXXXXXXXXXX XXXXXXXX , to provide them with the developed toilets at lower profit margins, which can be fixed at a later stage.

Declaration

I/We

(Name of person(s) representing the entity) certify that our entity is working towards innovation, development, deployment or commercialization of new products, processes or services driven by technology or intellectual property. Our entity seeking benefits of the IndS_UP scheme have presented a novel case to the best of our knowledge and belief. We also understand that Indianoil reserves the right to accept or reject the application without assigning any reason whatsoever.