सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science and Technology
Government of India

Call for Proposals on 'Municipal Solid Waste to Energy' under Swachh Bharat Mission

Genesis

'Swachh Bharat' Mission includes Modern and Scientific Municipal Solid Waste (MSW) Management as one of the objectives as improper management of MSW emerged a major environmental concern in India. Mostly, MSW is disposed off unscientifically in open dumps and landfills, creating problems in public health and the environment. The quantity of waste is increasing with modern living standards and increased population. Several technologies are currently available for the treatment of MSW but due to high capex, opex and other limitations not being implemented. Due to higher investment costs the municipal authorities are unable to upgrade or scale up the facilities required for proper management of MSW. Even though the technology of waste to energy (WtE) projects has been proven worldwide, its viability and sustainability is yet to be demonstrated and established in the country. The main factors that determine the techno-economic viability of WtE projects are quantum of investment, scale of operation, availability of quality waste, statutory requirements and project risks. Hence, there is urgent need to develop an economical and sustainable technology which can generate energy from MSW while addressing the critical MSW disposal issues.

Objective

The objective of present call is to develop and demonstrate technologies for sustainable utilization of MSW waste for cleaner and pollution free envirnomet as well as generaton of the energy from MSW. The technological options available for processing/ treatment and disposal of MSW are composting, vermicomposting, anaerobic digestion/biomethanation, incineration, gasification and pyrolysis, production of Refuse Derived Fuel (RDF). However each of them has advantages and limitations. Their limitations may be slow processes, incomplete conversion

and huge land requirement or high energy requirements. Hence the focus of this call is to develop adequate and sustainable technology.

Aim

Aim is development and demonstration of innovative and cost effective MSW management processes/technologies that could address above challenges and generate energy to make the process economic and suitable for integrated MSW management. The technologies should comply with upcoming Solid Waste Management Rules, 2016.

Challenge

Development of scientific and affordable technologies for safe disposal of Municipal Solid Waste with generation of energy from waste. MSW may include garbage from, hotels, shops and markets, house hold, institution, marriage halls, construction, hospitals, street sweepings etc.

Focus Areas

The scope of the call will be limited to cost effective, novel and innovative approaches for:

1. Treatment of municipal solid waste (may also include human feces)
2. Biological or/in combination with thermo-chemical routes for generation of clean energy
3. Technologies for conversion of leachate generated from landfills
4. Technologies with minimum usage of resources like water , land and power
5. Resource recovery from waste
6. Safe re-use, disposal of treated waste/by products generation

Nature of Proposal

1. Development of a new or improved technology resulting in pilot development and ending with demonstration in field conditions.
2. Development of a new or improved process resulting in establishing of process know-how in the pilot plant
3. Development and demonstration of technologies useful for Urban Local Bodies

Inclusions

Technologies which may be considered as apart of the call but not limited to:

1. Innovative biological technologies for generating energy in the form of fuel

2. Development of safe microbial consortium capable of degrading the waste under aerobic and anaerobic conditions at a faster rate.
3. Biological/other affordable technologies for reduction of green house gases and odour producing gases
4. Maximum resource recovery in form of energy,re-usable water, nutrients and organic manure
5. Sustainable technologies to sanitize waste for pathogen destruction including leachate from landfill
6. Production of Refuse Derived Fuel (RDF) or burnablefuels suchasn pellets, briquettes or biochar or inconstruction materials

It is desirable to have demonstrated proof of concept at laboratory scale with experimental data for utilzed organic matter (biodegradable/non biodegradaable) with energy generation. The process design should accept all kind organic waste from a modern society including wastes from households, food factories, dairy production and similar industries. Proposals with only proven technology and validated data will be encouraged.

Exclusions

Following areas will not be considered:

1. Concepts or R and D projects involving exploratory academic research and not resulting in any technology
2. Projects that are not scalable either by their nature or because they apply to small subsets of the population.
3. Proposals based only on screening, collection or segregation of waste
4. Solution sthat are only slight improvements over existing approaches
5. Behaviour change programmes,surveys or education

The proposal should clearly bring out

- Plan for minimum scale for MSW treatment of 01-10 TPD
- Processing efficiency
- Amonut of energy generation /ton/day
- By products if any
- Plan of sustainable operation and management

Who can apply:

Scientists and Academicians belonging to Universities, Deemed Universities and Research Institutes/Laboratories in collaboration with Indian entities Industry / NGO / PSU/ Municipal Corporation

The programme encourages Public Private Partnership with necessary infrastructure and facilities for synergistic implementation of the Project. In order to qualify for such funding, investigators are required to have a concrete and sound research proposal with sufficient experimental data. **Demonstration projects may be set up in Public Private Partner ship model by engaging Indian entities Industry / PSU/ Municipal Corportation**

Project duration

Maximum 2 years including demonstration of technology

How to apply

Online proposal may be submitted through eProMIS R&D format(http://www.dbtepromis.nic.in/Login.aspx). Also, two hard copies of the same proposal duly forwarded by the Head of the Institutions are to be submitted to; Dr. Sangita M. Kasture, Scientist 'E', Energy Bioscience Division, Department of Biotechnology, 8th Floor, Block 2, CGO Complex, Lodhi Road, New Delhi-110 003, Ph. 24365438, email : <sangita.kasture@nic.in>

Last date of proposal submission:

October 31, 2016

THE PROPOSAL NOT IN ACCORDANCE WITH THE GUIDELINES IS LIABLE TO BE REJECTED.