F. No. 13-45/2024-TC
Government of India
Ministry of Education
Department of Higher Education
Technical Coordination Division
****

Room No. 106 (A), D-Wing, Shastri Bhavan
New Delhi, dated the 17th September, 2024

To

The Directors of all IITs/IIITs/NITs/IISERs/IISc/SPAs

Subject: Swachhata Grand Challenge (SGC) under the Swachh Bharat Mission- Grameen (SBM-G) - reg.

Sir/Madam,

I am directed to forward herewith a copy of the D.O. letter No.S-18020/87/2024-SBM-III DDWS dated 10.9.2024 alongwith enclosure, received from Shri Jitendra Srivastava, Joint Secretary, D/o Drinking Water and Sanitation (DoDWS), Ministry of Jal Shakti on the above subject and to say that the Swachhata Grand Challenge (SGC) is being hosted by the Start-Up India, in collaboration with the DoDWS, on its portal. The goal of the challenge is to inspire the creation of innovative and cost-effective technical solutions to address the challenges of Rural Solid and Liquid Waste Management (SLWM) and ensuring water quality.

2. You are requested to kindly ensure participation of your Institution in the event. The deadline for submission of applications is 30.9.2024. Your institution can leverage this opportunity to showcase and experiment with innovative talents in sanitation-related areas as outlined in the SGC.

Yours faithfully,

(Madhavendra Pratap Singh)
Under Secretary to the Govt. of India
Ph.:011-23070431

Encl: As above.

Copy to :

i. The Joint Secretary, D/o Drinking Water and Sanitation
ii. PPS to JS (TE)
iii. Dir (IIT)/Dir (Sc)/DS (NIT)/DS (GS)

जितेन्द्र श्रीवास्तव, आई.ए.एस
संयुक्त सचिव
Jitendra Srivastava, IAS
Joint Secretary

सत्यमेव जयते

भारत सरकार
जल शक्ति मंत्रालय
पेयजल एवं स्वच्छता विभाग
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D.O.No.S-18020/87/2024-SBM-III DDWS

Date: 10th September, 2024

Dear Saumya Gupta ji,

Department of Drinking Water and Sanitation is organizing the Swachhata Grand Challenge (SGC) under the Swachh Bharat Mission-Grameen, with active promotion by Start-Up India. Start-Up India, in collaboration with the Department of Drinking Water and Sanitation (DDWS), is hosting this challenge on its portal, inviting registrations and submissions of innovative solutions, technologies, and products.

2. The deadline for application submissions has been extended to 30th September, following requests from several technical institutions that learned about the SGC only recently. A copy of the concept note on the Swachhata Grand Challenge is enclosed.

3. To increase participation and enhance the quality of the event, I request your support in encouraging technological institutions, including engineering and technology universities like IITs, IIITs, and other colleges under the Department of Higher Education of the Ministry of Education, to participate. These institutions can leverage this opportunity to showcase and experiment with their innovative talents in sanitation-related areas as outlined in the SGC.

Enclosure: As above,

With Regards,

Yours sincerely,

10/9/24

(Jitendra Srivastava)

Smt. Saumya Gupta,
Joint Secretary(TE),
Department of Higher Education,
Shastri Bhavan,
New Delhi- 110 001.

17/9

DS(TC)

USCTD

17/9

Shri Rishi

Shri Ghosh

Swachhata Grand Challenge (SGC) 2024, Engagement of Start Ups , Innovators Technology Institutes and Promoters on Sanitation as part of SBMG Phase II

Department of Drinking Water and Sanitation (DDWS), a part of the Ministry of Jal Shakti, is planning to launch initiative under its flagship programs, the "Swachh Bharat Mission Grameen (SBM-G) and Jal Jeevan Mission (JJM)". This initiative is called as **'Swachhata Grand Challenge (SGC)',** aims to engage startups, innovators, technology producers, and promoters, as well as entrepreneurs in the water, sanitation and allied sectors. The goal is to inspire the creation of innovative and cost-effective technical solutions to address the challenges of Rural Solid and Liquid Waste Management (SLWM) and ensuring water quality.

About the Challenge:

The 'Swachhata Grand Challenge (SGC) for Swachh Bharath Mission -Grameen (SBM- G) of Department of Drinking Water & Sanitation is being organized and promoted by Startup India. Startup India is a flagship initiative of the Government of India, intended to catalyze startup culture and build a strong and inclusive ecosystem for innovation and entrepreneurship in India. Startup India was launched in January 2016 under the Department for Promotion of Industry and Internal Trade (DPIIT) and has rolled out several programs with the objective of supporting entrepreneurs and transforming India into a country of job creators, rather than job seekers. DDWS has collaborated with Start Up India and hosted the Swachhata Grand Challenge (SGC) through its website (https://www.startupindia) where the application process (details of application process briefed hereunder) has been hosted during last week of July and the process of submission of application is till 30th September 2024. The Start Ups registered with start Up India across the nation who are members in Start Up India initiative of Department for Promotion of Industry and Internal Trade (DPIIT) has commenced the submission of application for the said Challenge.

Application Process:

The Start-up India in consultation with Department of Drinking Water & Sanitation (DDWS) will host this challenge in its portal for the Registration and Submission of Innovations, Technologies, and Products. This portal will facilitate the application process for startups and other technical entities interested in participating.

Participants can easily register on the portal using a secure OTP-based system. Once registered, they can proceed to fill out the application form, providing all necessary details in the prescribed format. Additionally, participants can upload supporting documents, photographs, and video URLs (if available) pertaining to their submissions.

The challenge will cover a range of focus areas, including but not limited to the given areas where the problem statement is also furnished. *(Annexed to this letter)*

- **Individual Household Latrines (IHHL) and Faecal Sludge Management FSM**
- **Grey Water Management**
- **GOBARdhan and**
- **Solid waste Management (SWM) (including Plastic Waste Management-PWM**

The SGC is also rewarded with cash incentive as given below.

The top Two winners of the grand challenge in each domain would be rewarded a cash prize by DDWS. A sum of Rs 2 lakhs would be rewarded to the Winner and a sum of Rs. 1 Lakhs to the runner up in each problem statement in the domains as mentioned below.

Domain	Cash amount for Winner (in Rs.)	Cash Amount for Runner-up (in Rs.)
Individual Household Latrines (IHHL) and Fecal Sludge Management (FSM)	2,00,000	1,00,000
Grey Water Management (GWM)	2,00,000	1,00,000
GOBARdhan	2,00,000	1,00,000
Solid waste Management (SWM)	2,00,000	1,00,000

Problem Statement in areas proposed to be covered in the Grand Challenge are as under:

1 Individual Household Latrines (IHHL) and Faecal Sludge Management (FSM)

As part of Sustainability, Swachh Bharat Mission (G) promotes Twin leach pit pour flush water seal toilets at Household and community level where the ground water level is below 3m depth and soil condition is normal/ sandy/ permeable / hard strata beyond 1.2 m depth.

Faecal sludge management entails the comprehensive handling of sludge generated from on-site sanitation systems, ensuring its safe collection, transportation, treatment, and final disposal. By implementing rigorous protocols and utilizing appropriate technologies, faecal sludge can be managed in a manner that minimizes public health risks, protects the environment, and contributes to overall sanitation improvements.

To address challenges in these areas, the following issues need to be tackled:

1. *Enhancing Twin Pit Toilets through technological innovation to improve retrofitting techniques, compost handling, construction cost optimization, and facilitate safe and convenient household emptying.*
2. *Innovate climate resilient Twin Pit Toilets, optimizing construction costs, and enabling safe and convenient household emptying.*
3. *Investigating innovative technical interventions for extending the lifespan of Single Pit Toilets through in-situ management of faecal sludge, with a focus on reducing greenhouse gas emissions.*
4. *Innovations that reduce the pathogen and organic loads discharged by septic tanks. A typical septic tank effluent is let out to open storm water drains and increases the cost of greywater management. Technical interventions that reduce pollution load in septic tank effluents will help lower costs of treatment. This will also improve visual cleanliness due to reduced solids accumulation in drains.*
5. *Developing cost-effective and safe technologies for toilet arrangements catering to the needs of disabled individuals in a cost-effective manner. Accordingly, disability friendly IHHL and CSC designs are expected in this regard. Design innovations such as foldable,*

portable or simple adaptations that ease use of regular toilets for physically challenged individuals are encouraged. Or innovations that extend use of regular toilets to a wider range of the disability spectrum as defined in the Harmonized Guidelines on Norms and Standards for Barrier Free Environment, 2021 by TCPO

6. *Introducing innovative mechanized models for desludging of single pits and septic tanks, particularly in varied climatic zones and hilly terrains. Specific challenges include extending the reach of desludging equipment beyond the existing practice to reach difficult areas, vacuum suction being infeasible when suction requirement exceeds a certain depth, use of excess water or manual mixing/stirring due to viscous sludge, among others.*

1.2 Grey Water Management (GWM)

In Grey Water Management, the appropriate technology interventions should be consistent with the broad principles of Reduce (i.e. Judicious use of fresh water which will result in less generation of a minimum quantity of grey water, Reuse (i.e. reuse of grey water for Kitchen garden, and treated water for irrigating crops, toilet flushing, vehicle washing etc.) and Recharge (i.e. adoption of technologies such as soakage pit and leach pit). Greywater Management is encouraged to be implemented as close to source as possible to reduce cost and complexity. Preferably, greywater should be managed at the household level, with community-level management as a secondary option, and management at the Drain End Point considered only as a last resort.

Here are the identified challenges to be addressed:

1. *Implementing low-cost technical interventions to manage greywater effectively across entire villages.*
2. *Introducing affordable technologies for the desilting of ponds and other water bodies. Where the water bodies are used as treatment systems accumulated sludge should be removed and effective volume of the ponds restored at low cost.*
3. *Exploring innovative model requiring least quantum of land both at household and community level for GWM.*
4. *Exploring technologies for grey water management in areas flooded every year.*
5. *Effective solutions for the challenges which arise on account of the rate of flow of discharge into the individual/community soak pits being higher than the capacity of soakpit to absorb and in cases where liquid outflow from an existing greywater soakpit on account of siltation.*

1.3 GOBARdhan

In Bio slurry production at village level, we witnessed few challenges and issues associated with handling, and utilization and some common issues with bio-slurry are Pathogen Contamination, Nutrient Imbalance, Odor and Ammonia Emissions, Solid-Liquid Separation, Contaminant Accumulation, Anaerobic, Conditions, Transport and Storage.

Solutions for the problems as stated below are needed:

1) *Innovative uses of Bio Slurry*

2) *Common cooking gas stove burner for LPG & CBG for easy usage.*

1.4 Solid waste Management (SWM)- including Plastic Waste Management-PWM) & Menstrual Hygiene Management (MHM)

Segregation of waste at the source is indeed fundamental to effective solid waste management (SWM). Proper segregation allows for more efficient handling and treatment of different types of waste, leading to better recycling, composting, and disposal practices.

SWM broadly comprises three main categories:

Wet Waste: This category includes biodegradable waste such as kitchen and institutional waste (food scraps, leftovers), animal waste, crop residue, discarded fruits and vegetables, and garden waste. Wet waste decomposes naturally over time and can be processed through composting or anaerobic digestion to produce valuable resources like organic fertilizer or biogas.

Dry Waste: Dry waste consists of non-biodegradable materials such as plastic, paper, metal, glass, and other similar materials. These materials do not decompose easily and can persist in the environment for long periods if not properly managed. Dry waste can often be recycled or repurposed through various recycling processes to conserve resources and reduce the strain on natural ecosystems.

Hazardous and Sanitary Waste: This category includes waste materials that pose risks to human health and the environment due to their toxic, infectious, or otherwise hazardous nature. Examples include sanitary/menstrual/medical waste, chemical waste, electronic waste (e-waste), batteries, expired pharmaceuticals, and other potentially harmful substances. Proper handling, treatment, and disposal of hazardous and sanitary waste are essential to prevent environmental pollution and protect public health.

Here are some of the challenges encountered in the field along with the need for technological solutions:

1. *Developing composting models at different capacities specifically tailored for agricultural waste. Technical innovations that encourage blending of cattle dung with compost thus avoiding its use for cooking fuel will help reduce incidence of respiratory issues among rural households. This will also encourage nutrient recycling thus improving soil characteristics and enhancing food security.*
2. *Designing low-cost and intelligent waste collection units or equipment. Low-cost battery-operated vehicles designed for rural waste collection will help in reducing the carbon footprint of the waste value chain. These vehicles may be designed for within village collection or for operating from a central PWMU for collecting stored dry waste from villages within a certain radius.*
3. *Implementing technical solutions for managing multi-layer plastics at the PWMU/MRF level.*

4. *Streamlining and developing cost-effective technologies to treat menstrual waste and sanitary waste such as adult/baby diapers at community levels. Developing cost-effective technologies and protocols to manage menstrual waste and sanitary waste such as adult/baby diapers at community levels. Explore possibilities of managing Menstrual waste with medical waste.*

To Develop a comprehensive Mobile app to ascertain / assess the functionality of various SBM-G structures / assets such as Community sanitary Complexes, various SLWM (Solid and Liquid Waste Management) Assets such as segregation sheds, PWMU (Plastic Waste Management Units), Community soak pits, Rural Faecal Sewage Treatment Plants, Big GWM Assets (like WSP, Phyto rid, Constructed wetland, DEWATS etc.)