National STEM Competition 2020

STEM Projects: Pool of Ideas

(Divided into SDG sub-categories)

The participating teams need to select one topic from the list below:

Goal 1: No Poverty

1. Waste to wealth: converting municipal waste to fuel, biogas and useful carbonaceous materials.
2. Develop and design solutions to use renewable energy in the rural and remote areas of the country for poverty reduction.

Goal 2: Zero Hunger

3. How to beat the food-shortage problem caused by flood by developing means to grow food crops even when the land floods?
4. Identify and propose solutions through agricultural farming to grow suitable food crops in the sandbar areas in Bangladesh.
5. Design and develop a model of sustainable and adaptable food collection system for reducing food waste from households and commercial facilities.
6. Design a project that uses food processing technology to reduce food waste.

Goal 3: Good Health and Well-being

7. To design and build a low-cost and affordable hand-washing device for stopping the spread of infectious diseases.
8. To design and model improved cooking stoves and hoods.
9. Find a solution for destroying mosquitos in home and around to fight diseases like Dengue and Chikungunya.

10. To design and find solutions to reduce indoor air pollution in homes of Bangladesh.
11. To develop a project to provide a cheap source of calcium (Ca) supplement for poor people.
12. Design and develop an easy kit-based detection system of health-hazardous chemicals in fruits and vegetables.
13. To find solution and develop models to address the challenges of telemedicine technology in Bangladesh.

Goal 4: Quality Education

14. Design and model a "Smart Classroom" to ensure quality education in the remote and rural areas of Bangladesh.
15. Develop solutions to ensure access to all levels of education for the vulnerable children, people with disabilities, and marginal communities.
16. Design and develop solutions to make safer virtual space/safer internet for the youths and vulnerable adults.

Goal 6: Clean water and sanitation

17. Design and model a low-cost and affordable healthy sanitation system for slum dwellers.
18. To design low cost, affordable water filters.
19. To design and develop model of a locally adaptive solution to reduce sub-surface water consumption in Bangladesh
20. Find and design solution to prevent contamination of natural water bodies.

Goal 7: Affordable and Clean Energy

22. Design and model a "Renewable energy village" in Bangladesh
23. Develop a cost effective and affordable design and model for solar water heating system for Bangladesh.
24. To develop a low-cost solar lighting and heating solutions for people living without electricity in Bangladesh.

25. Develop solutions to use modern biomass in the rural areas and protect local biodiversity.

Goal 8: Economic Growth

26. Design and build an energy efficient food transport system to transport perishable crops from rural to urban areas.
27. Develop solutions to use renewable energy-based energy access for agro-farms.
28. Develop a model for connecting the farmers nationwide through ICT for enhancing agricultural production and promote sustainable economic livelihoods.
29. Design a renewable energy-based cooling solution for the fisherman communities in the coastal areas to preserve fish.

Goal 9& 12: Industry, Innovation and Infrastructure

30. Identify the energy inefficient segments of the industrial sector of Bangladesh and develop and design solutions to increase their energy efficiency.
31. Design and develop drones that are to be used in the firefighting of tall buildings.
32. Design and develop robots for rescue and other life-saving operations.
33. Develop and demonstrate ways to carry out big data analysis to accelerate discoveries and strategies for national development.

Goal 11: Sustainable Cities and Communities

35. Design and prepare models for cleaner, healthier, and better cities in Bangladesh to live and work.
36. Design and model an integrated transportation system for making movement of private vehicles, mass transit, bicycling, and pedestrian walking as easy and efficient as possible.
37. Develop solution and design models for earthquake-and-fire-resistant low-cost housing for the urban areas.
38. Find a sustainable solution of the growing plastic waste problem of Bangladesh.

Goal 13: Climate Action

39. Design and develop a sustainable and effective monitoring and forecasting system for disaster preparedness and climate resilience.
40. Design, prepare specifications, and make models of homes for flood-prone areas that are able to withstand the effects of flooding.
41. Develop possible ways of pest control without/with less use of pesticide.
42. Find an alternate sustainable solution to replace the use of bricks in construction work and thus mitigate air pollution from the brick fields.