

# Climate Tribune



## YOUTH IN CLIMATE ACTION

> Pg 12



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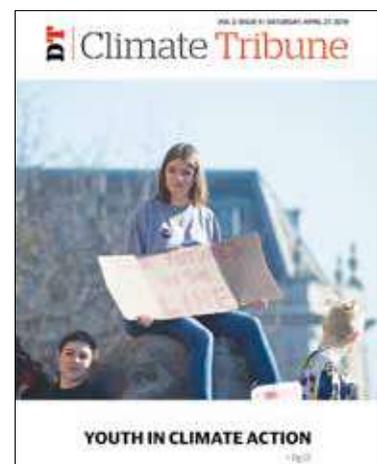
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## Editor's note

### Dear Readers

Climate change is a global problem and a global concern, but there's none it concerns more than the youth, for they will be inheriting its full impact. To prepare them for a future filled with unprecedented challenges, it is important to bring them into conversations about adaptation and mitigation as early as possible.

This month's issue aims to do just that. Featuring ideas, proposals and reflections by various youth groups, young researchers and innovators around the country, Climate Tribune opens up the table to tomorrow's changemakers to present their ideas to today's policymakers, in the hopes of creating a sustainable future together ■



COVER: BIGSTOCK

TRENDING

# #TRASHTAG IN THE SUNDARBANS

INTERNET TRENDS THAT CHANGE THE WORLD FOR THE BETTER



PHOTOS: COURTESY

**Syeda Warda Ahmed**

The Sundarbans forest, lying in the delta of Bay of Bengal, is a precious possession held by Bangladesh, which inhabits 6,000 km<sup>2</sup> area of its land in the country, out of its entire expanse of 10,000 square kilometers. It is a coastal fringe of mangrove forest created by the confluence of Ganges, Hooghly, Padma, Brahmaputra and Meghna rivers across southern Bangladesh until it meets the sea, making it the largest mangrove forest in the world.

Sundarbans, which translates to “Beautiful Forest”, does the absolute justice to its name. Having abundant biodiversity, the Sundarbans is home to a broad number of flora and fauna (245 genera, 334 plant species, and 40 species of mammals, 260 species of birds, 35 species of reptiles), including the world famous Royal Bengal Tiger.

The Sundarbans also plays a crucial role in protecting the southern coastal belt of Bangladesh from the effects of climate change, including coastal erosion, rising salinity levels and acts as a protective belt against cyclones and storm surges.

It is no news that tourism is prominent in beautiful areas across the world. Spotting the mighty Royal Bengal Tiger being the centre of interest of tourism, about 1.22 Lac domestic and foreign tourists have visited the Sundarbans from 2016 to 2017 and the number only continues to increase.

While tourism plays an essential part of a growing economy, it is the dominant cause of environmental degradation and pollution. Kotka beach, located in the south-east corner of the Sundarbans is a popular spot for sightseers, which makes it one of the most littered places in the region. Starting with the highest number of plastic bottles, cigarette filters, empty cans, Styrofoam containers and what not, the trash truly takes away the purity of the place.

A group of highly influenced and impassioned individuals from an Environment based club, The Green Planet Club of Independent University, Bangladesh, conducted the on-trend Trash Tag Challenge on a field trip to Sundarbans, organized by the Department of Environmental Science, Independent University, Bangladesh (IUB).

The Trash Tag Challenge has become a viral trend across the world which is prompting people to clean up littered places and post a before/after picture. This movement is sweeping across the world and encouraging people to show respect towards the environment by cleaning it up.

The team from the Green Planet Club set out to Kotka beach at the dawn of the day and collected over 20 bags of trash along the beachside with help from a line-up of other students from the department. Students teamed up in groups of 3 or 4 and scouted to different parts of the beach to collect trash; each group was given a trash bag and a pair of gloves to avoid the toxicity of the outdated and decaying garbage. Three honourable faculties from the Department of Environmental Science, IUB accompanied the team throughout the event and helped bring the collected trash onboard for proper treatment.

After a series of all different kinds of challenges, the Trash Tag is truly the trend that the world needed—motivating people to clean polluted wilderness. It just takes a little bit of individual initiative to clean up a place and the difference is fascinating. The Green Planet Club did their part and now the floor belongs to everyone out there. Mother Earth needs each one of us and as the saying goes - be a part of the solution and not the pollution. ■

**Syeda Warda Ahmed is a student at Independent University, Bangladesh and a member of the Green Planet Club.**

# PYROPROJUBRIDHI

## A 5-STEP SOLUTION TO PLASTIC MANAGEMENT

**Muhammed Ahnaaf Naeer**

Plastics have been widely and extensively used since their invention due to their durability and versatility. From plastic bottles, bags and many other products have depicted the perfect picture of their usefulness to humanity. However, the shocking reality is that not only is it harming humans indirectly but also environment, ecosystems, water life and countless others.

In Bangladesh, plastic has increased by 80 times in past 28 years. It has grown to 1,800,000 metric tons in 2019 from just 15 thousand metric tons in 1990 and is speculated to grow furthermore. Management of plastic consumption is essential as regular use is causing severe harm to the soil, water, health, flora and fauna, as well as affecting food chains due to non-biodegradability.

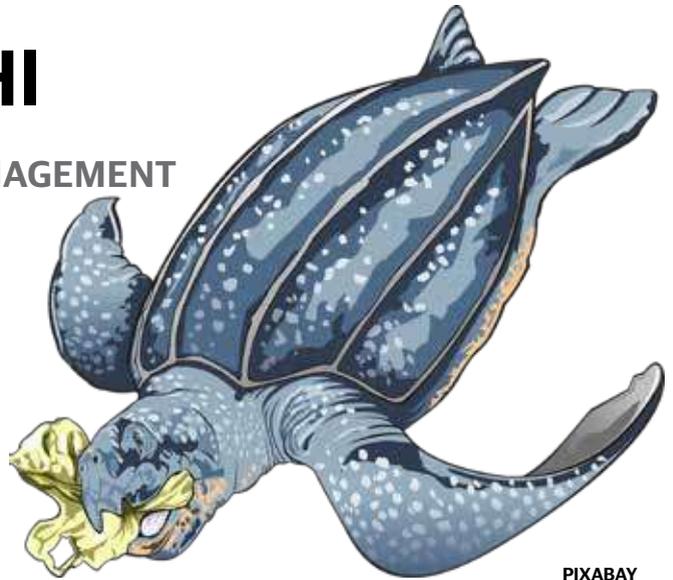
Plastics in oceans typically degrade within a year, but not entirely. In the process, toxic chemicals such as bisphenol A and polystyrene can leach into waters from some plastics. Polystyrene pieces and nurdles—recycled small plastic raw material, but they easily end up released into the environment during production—are the most common types of plastic pollution in oceans and combined with plastic bags, and food containers make up the majority of marine debris which harms aquatic life.

Many plastics end up at landfills causing area reduction. It also clogs the drains causing waterlogging. Some end up being incinerated releasing harmful sulphates, nitrates, carbon monoxides and dioxides which lead to acid rain, breathing problems and global warming. These problems are faced by many people especially the slum areas. Everywhere I used to go; one would see traces of its waste.

Thus to combat this dilemma I proposed an idea known as 'Pyroprojubridhi'. This conjoined Bangla word is a scheme containing step by step measures to manage the consumption and minimise the effects of plastic pollution. 'Pyroprojubridhi' broken down contains pyrolysis of plastics, proper disposal, decrease of production of plastics, and increase the use of jute as a substitute. This scheme has five steps.

First, we approach the government and people of the country and spread awareness against the issue in the form of documentaries, social media and news.

Second, we request polymer and plastic industries such as, Horizon Plastic Industries, Naseem Group, and others to cooperate by slightly decreasing production of additional products such as drinking straws, bags and packages and bottles.



PIXABAY

Next, we install collection and recycling bins, along with collection trucks all over the country. Giving proper instructions on disposing plastic and ensuring it occurs by taking assistance from the government. The government may impose laws and form unions with recycling companies such as Bangladesh petrochemical company to ensure better disposal and recycling of plastic.

Then, we work to increase production of jute to supplant plastic. Partnerships two jute companies, Alhaj Jute Mills and Sadat Jute Industries Limited will hopefully lead to increase the yield of jute products

Finally, we seek support to install a pyrolytic plant. It will be set up at a remote area of Savar. It will be a medium scaled factory requiring a land area of 1800 square meters.

In the plant, Plastic is continuously treated in a cylindrical chamber without oxygen at 370C-420°C, and the pyrolytic gases condensed in a specially-designed condenser system to yield hydrocarbon distillate comprising straight and branched chain hydrocarbons.

The resulting mixture is pyrolytic oil. Pyrolysis gases are condensed and liquid separated using fractional distillation to produce liquid fuel products efficient than diesel making a reliable resource.

This scheme is a mixture of a natural renewable resource, modern technology and human work ethic. It will help in both economic and environmental aspects. In the economic perspective, it flourishes businesses of jute. Also, it helps reducing the unemployment problem.

In an environmental viewpoint, it is giving Bangladesh a reliable fuel resource plus is minimising the waste preventing these harmful effects. In the end, Bangladesh will be able to get out of the plastic dilemma and be highly benefited. ■

**Naeer is a student at Scholastica School. Naeer received a special mention in the Green Genius Competiton.**

## REFLECTIONS

# NOTES FROM A WINNER

### TWO SOLUTIONS TO A PLASTIC PROBLEM



COURTESY

#### Fairooz Samia

Green Genius Season 2 has taken students through a gamut of experiences. Green Planet Club (GPC) of the Independent University Bangladesh (IUB) has not only fascinated students but also portrayed a dedication and determination towards achieving their formidable goals, leading to potentially significant improvements in the environment. How lucky to have come across such an ingenious competition!

Beginning from the grooming session which only selected participants could attend; I was utterly amazed by how articulate every coach was. They were there to lend a hand, find solutions to every problem and advise every step of the way with assurance.

The desire to tackle the gargantuan problem in the world right now—plastic pollution—galvanized my mind late at night as I was scrolling through my Instagram feed and a video popped up on my screen. It featured marine biologists pulling out a straw from a turtle's nose, followed by a tragic image of a dead whale, washed up on shore as it had ingested eight tons of plastic.

Indeed, the severity of the situation had to be mitigated; hence the inspiration for my project became extant. My idea included two microbes, a bacteria and fungi that scientists discovered and were found to secrete enzymes to break down or help degrade PET bottles and polyurethane respectively.

Two methods are highlighted within my research for recycling plastic. First method is the development of plastic roads from the enormous heaps of rubbish in the landfills. Plastic roads are made by mixing plastic and hot bitumen that result in making better roads than conventional ones.

Why are plastic roads better? Plastic roads have increased tensile strength and are hollow underneath which is useful for storing water temporarily and allow for transit of cables and speed sensors without digging up the roads—which is consequently the perfect remedy for such a flood-prone country like ours.

The second method was turning plastic into fuel. The diesel obtained from plastic burns more efficiently and emits much less carbon dioxide in the atmosphere compared to traditional fuels. This can provide a green substitute to fossil fuels.

Other alternatives include Water Blobs i.e. edible water bottles. It is made with Bioplastic—plastic made from plants that are degradable and edible. With such packaging, it is water that you can eat! Considering the vulnerability of marine animals to discarded plastic, bioplastic can be a great way to reduce plastic wastes.

The feedback and adulation I have received for my project and handcrafted miniature model—from the judges and visitors alike in the symposium—was absolutely overwhelming. Even the volunteers gave me a motivational pat on the back and a boost of confidence if I were too worried or anxious before my speech to a judge. I cannot emphasise the energy as well as the meticulousness of everyone I met on that day throughout the stages of the competition.

The competition soon drew to a close, and we were all eagerly awaiting the result. The president of the GPC went onstage, I closed my eyes. Suddenly I heard my name. Filled with stupefaction and trying to regain a hold of my nerves, I walked up to the stage—my heart drumming. I glanced at my father; he was smiling from ear to ear and gave me two thumbs up. Receiving the crest, I shook hands with the famous Shykh Seraj, “Amazing project, absolutely incredible!” he exclaimed. It was one of the greatest highlights of my whole experience.

Winning recognition at Green Genius made me adamant about going forward and achieving greater heights to make the world a better place. I will also encourage others of my age to get involved in laudable environmental projects as well. I cherish every memory I made during this competition, and they will forever be etched in my heart. ■

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**Fairooz Samia is a student of South Breeze School and was the winner from school/college category of the Green Genius Competition.**

# BRINGING OUT THE TRASH BUGS

## A SUSTAINABLE AND MULTIDIMENSIONAL SOLUTION TO INDUSTRY EFFLUENTS

**Koushik Chakroborty**

Bangladesh is among the countries with the lowest level of wastewater treatment in the Asia Pacific region as the country treats only 17 percent of its wastewater (United Nations World Water Development Report, 2017). Since 2015 the water bodies around Gazipur, such as, Turag river, Belai beel etc— which represent the sewage canals of the city—have been showing rapid deterior action.

All over Bangladesh, the industrial effluents contribute a major ratio of the untreated wastewater that needs to be handled immediately—as these are recognized units where wastewater treatment can be implemented effectively. The industry operators have ignored this part for economic reasons. It costs much to establish an effluent treatment plant and it is a troublesome job because no native initiative or technology has simplified it.

Even then, emphasising on physical and chemical

Based on this concept we are trying to isolate and optimize the microorganisms for treatment of the wastewater. Basically, the treatment plant is designed in such a way that can be easily maintained, requires only reasonable space for setting up, and reduces the cost of prevailing treatment processes by 83 percent per meter cubes of treated water.

The treated water will be a catalyst for reviving the aquatic biodiversity and in the long run, return water level of the rivers to the desired point. The treated water can also be reused for agricultural irrigation—which is even known to have beneficial effects with the presence of organic acids. Finally, the treated water may be used in households or even for drinking purpose.

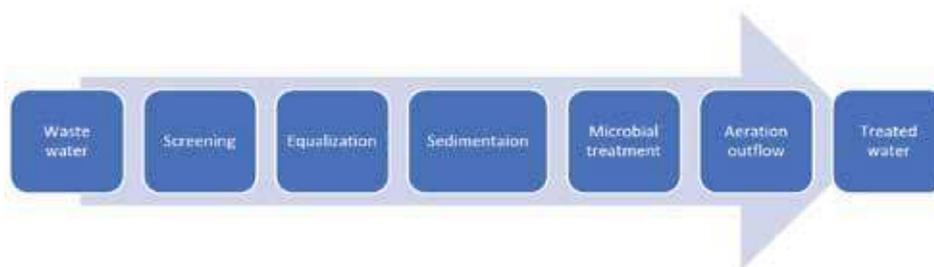
With the Government focusing to achieve the SDGs through country’s developmental progress, this microbial treatment plan can significantly support the sustainable development goals (SDGs) provided by the UN. Especially, in terms of 6th goal that stipulates ensuring availability and sustainable management of water; and 13th goal in which the

UN encourages the public sector to take initiative in this effort to minimize negative impacts on the environment.

In conclusion, low-cost microbial treatment plants for treating industrial wastewaters in Bangladesh may not only to save our water bodies and biological resources but also to ensure the

sustainable use of waters in the industrial sector and reduce the health hazards from aquatic food sources.

We can hope that the concept of the low-cost microbial treatment plant draws the attention of authorities and government as this concerns many important sectors of Bangladesh like Fisheries and Livestock, Agriculture, Environmental degradation and pollution, Bangladesh Water Development Board, River research institutes and so on. ■



COURTESY

treatments is not scientifically sound in this modern world. Physical treatments are costly and not fully effective and the chemical treatments produce residues of treated chemicals.

Considering safety and sustainability, the idea is to design a low cost microbial (biological) effluent treatment plant with native microbes and local ingredients with a view to treating industrial wastewater. The wastewater then can be reused for multiple purposes. The idea of the experiment was initiated a few months ago in Fisheries Biology and Aquatic Environment laboratory of BSMRAU under the supervision of Dr S. M. Rafiquzzaman, Associate Professor.

The microorganisms that inhabit any particular type of wastewater (like tannery or textile wastewater) can utilize the substances of the wastewater for survival and multiplication.

**Koushik Chakroborty is a student in the Department of Fisheries Biology and Aquatic Environment at the Bangabandhu Sheikh Mujibur Rahman Agricultural University. Koushik received the 2nd runner up prize in the University category, at the Green Genius competition.**



## 'POLAR BEARS ARE THE LEAST OF OUR PROBLEMS WHEN IT COMES TO CLIMATE CHANGE'

### HOW THE ENDANGERED WHITE WARRIORS OF THE ARCTIC ARE HERALDING THE CATACLYSM

**Samia Tunazzin**

Polar bears have captured the human imagination for thousands of years. They are the largest land carnivores in the world of the bear family and hence, they sit at the top of the food chain in the biologically rich Arctic.

They are marine mammals, and spend much of their time on Arctic sea ice. Many adaptation processes make polar bears uniquely suited to life in the icy habitats. They are distributed throughout the Arctic region in 19 subpopulations. Polar bears were once hunted for their fur and meat, but loss of habitat

due to climate change is now the biggest threat to these great ice warriors.

#### **Impact of climate change on polar bears**

To date, climate change due to global warming has been most pronounced in the Arctic. So, polar bear's dependence on Arctic makes them highly vulnerable to the changing climate. In 2006 the polar bear was categorized as being vulnerable (VU) on the IUCN's (the World Conservation Union) Red List.

With the summer sea ice decreasing, the bears must walk longer distances to stay within the receding ice. Regrettably,



JORGE GUILLEN, PIXABAY

this brings them and humans into greater conflict in coastal communities and leads to malnutrition for the bears, especially for mothers with cubs.

Furthermore, a low reproduction rate and a long generation time means that this species is poorly equipped for tackling rapid climate changes in the Arctic.

### **Climate change and Polar bears**

New YouGov research reveals climate change is considered the third most serious issue facing the world by the world's population, with a 12.8 percent share of concern—behind international terrorism (25.1 percent) and poverty, hunger and the lack of drinking water (15.2 percent).

There are enormous problems that the world today facing,

“Polar bears are known as an ‘indicator species’ meaning the overall health of the species reflects the health of the environment”

in spite of such things polar bears should be the least of our concerns, even a Truman Scholar Emily Calandrelli said “In the grand scheme of things, polar bears are the least of our problems when it comes to climate change.”

### **The caveat of ignoring the polar bears**

Grievously, the world today underestimated the value of this great species. The habitat of polar bears (i.e. the Arctic), is among the 12 percent of the earth's permanent ice caps, and, melting of this region is the only threat of their destruction.

Thus, polar bears are known as an ‘indicator species’ meaning the overall health of the species reflects the health of the environment. The Arctic regulate the global temperature as it is an icy sea surrounded by land which acts as a huge white reflector at the top of the planet, bouncing some of the sun's rays back into space, helping keep the Earth at an even temperature.

This region has warmed over the past few decades, actually about twice as much as the global average. As the sea ice melts there is less to reflect the rays back, and more heat is absorbed by the ocean—magnifying the warming effect. It also helps circulate the world's ocean currents, moving cold and warm water around the globe. Temperatures vary from -60°C to +30°C (occasionally even hotter), and as a result, the sea ice during the summer months is declining.

Furthermore, as the Arctic sea ice melts, the influx of freshwater from the melting ice is making seawater at high latitudes less salty and less dense. As a consequence, it will not be able to sink and circulate through the deep ocean as it does currently. If this trend continues, it would also be the harbinger of many adverse impacts, such as, ocean acidification, deforestation, and many other which are yet very difficult to predict.



IMAGINE IMAGES, PIXABAY

Scientists predict that there may be virtually no summer sea ice in the Arctic within a generation. The extent of Arctic sea ice, which melts to its low each September, has steadily declined over the past three decades. Consequently, the extinction of polar bears would indicate the sea ice has disappeared, and would indicate what is happening to the Arctic environment.

### **How protecting this magnificent creature can help tackle climate change?**

Climate change remains an issue of widespread political debate, often split along party political lines, especially in the United States. The president of the country, Donald Trump once mentioned that “Climate Change scientists have political agenda!” This has also altered attitudes further and led to number of climate change deniers to proliferate.

The indicator species play a huge role to raise global awareness evidently. February 27th is the International Polar Bear Day which is organized to raise awareness about the impact of climate change and reduced sea ice on polar bear populations. The day encourages people to find ways to reduce their carbon output—encouraging people to install energy efficient insulation in houses and to turning down thermostats by two degrees in order to reduce our climate impact.

February 2nd marks the start of the 2018 Biennial

Meeting of the Parties to the five polar bear Range States in Fairbanks, Alaska, more than 40 years since the countries first came together to recognize their joint role in polar bear conservation. During that period, polar bears living in Canada, the Kingdom of Denmark, Norway, the Russian Federation and the United States have been exposed to two major threats: unregulated hunting before 1973 and loss of sea ice habitat due to climate change afterwards.

While polar bears are recovering from overhunting, the threat of climate change increases. Without urgent action to reduce greenhouse gas emissions, scientists predict we will lose a third of the world’s polar bears by 2050. So, if this “International Polar Bear Day” is introduced and celebrated worldwide, climate change may actually result at a slower pace than now.

Climate change is a natural phenomenon, and it is inevitable. It’s the anthropogenic factors which made this phenomenon extremely vulnerable for the life on earth. As climate change is perceptible in the Arctic the most, the increase of the polar bear population will indicate a better environmental condition of the region and in extension, for the world outside! ■

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**Samia Tunazzin is a student of department of Environmental Science at the Independent University, Bangladesh. She is also the core body representative of the Green Planet Club.**

# MOVING NUMBERS

## QUANTIFYING THE TOTAL INTERNAL MIGRATION OF BANGLADESH

**Shohail Bin Saifullah**

Internal migration has become both a major policy concern and a subject of a heated public debate in Bangladesh. It has been identified as both saviour and sinner of the national developmental story. It is a driver of economic expansion and modernization. On the other hand, it is the cause of severe urban deprivation and a destroyer of traditional rural life.

This tension is not an unusual one for a country undergoing a rapid socioeconomic transition—from a low-income agrarian past to a middle income, industrial future.

It would be wrong to deny, that migration is now a major feature in Bangladesh. According to recent successive research done on the population, it was found that there are a staggering 600,000 outward migrants, which bring in remittances equivalent to a staggering 10 percent of the GDP.

Internal migration has more or less always been thought of as an urbanization phenomenon, and the rate of urbanization has been quoted to be at the 3 percent mark from a period of 1975 to 2009. In turn, this is typically explained by a dramatic shift from agricultural to industrial production (the former down from 32 percent to 19 percent and latter up from 21 percent to 28 percent as a share of GDP between 1980 and 2010).

It is vital to differentiate between seasonal and longer-term population movements. Environmental challenges play a big part in these two considerations. Referring to the first, Bangladesh has a long established seasonal pattern of temporary rural worker movement, associated with the annual cycle of rainy and dry periods.

While Bangladesh has few administrative restrictions, the extent of environmental pressures (notably within the cyclone-prone coastal belt) does call into question the freedom of migration choices. Indeed, the risks and impacts may be so severe as to preclude human settlement.

The utilization Geographic Information Systems become very vital in this regard. Using GIS to monitor the total change in the spatiotemporal in a holistic manner can result in better analysis. As the migration of people leads to rapid

urbanization and results in the loss of vegetation, it puts severe pressure on the resources of one specific area (in this case Dhaka). This, in turn, results in overall centralization.

Generally, migration of people is to seek a better socio-economic standard of living; however, it may also be due to the ever-present river bank erosion or as the result of a major disaster that may leave people homeless. GIS can be used to keep the ever-shifting landscape in check and can warn about possible future outcomes or it can be used to monitor the total devastation of the rural settlement, opening the window to further research.



**BIGSTOCK**

According to the aforementioned data, the whole urbanization and incremental increase of GDP are amazing from an economic standpoint, but it does lead to a lot of unforeseen issues. Centralizations of Dhaka leads to overpopulation as well as road congestions and scarcity of living space, leading to expanding urban territory towards development, leading to the destruction of ecology.

The solution that is being proposed here is the idea of “satellite towns”, which provide a migrating family everything that they may require in a town that is away from Dhaka. ■

**Shohail Bin Saifullah is a Bachelors student of Environmental Science and Management at the Independent University, Bangladesh. Shohail is also the Director of Outreach, Green Planet Club, IUB.**

# YOUTH IN CLIMATE ACTION

### WHY IS IT HIGH TIME TO CONCENTRATE ON PROPER YOUTH CENTRIC CLIMATE FINANCING IN BANGLADESH?



**Sakib Rahman Siddique Shuvo**

Most of the disastrous impacts of climate change are expected to be felt within the near future. Young people are particularly vulnerable to the impacts, as they are often on the margins of decision-making and will face the climate change impacts for many more years to come. So it would be unethical to take steps (or not) to mitigate climate change or adapt to the problems without their contributions.

Globally, youths have participated in movements spontaneously (and in large numbers), they have collaborated with organizations that are working to address their concerns and provide solutions to real-world problems. According to UNFPA (2014), 48 million youth are living in Bangladesh, which is 30 per cent of the total population. Securing the future of this large segment of society cannot be ensured without their participation and engagement at much larger scales than currently.

The Joint Framework Initiative on Children, Youth, and Climate Change is recognition of the role of youths in tackling climate change, given by the United Nations. This initiative coordinates efforts of 16 intergovernmental entities (e.g. UNFCC, FAO, UNDP, the World Bank group), some nongovernmental organizations (e.g. the British Council, EarthChild Institute, the World Association of Girls Guides) and many youth organizations to empower young people to take adaptation and mitigation actions and enhance active

participation of youths in climate change policy and decision making processes.

In 2009, the UNFCC secretariat allowed the Youth Non-Governmental Organizations (YOUNGOs) to receive official information and notices, to participate in the meetings, to request speaking slots, and to receive logistical support. The YOUNGO networks have been organising the Conference of the Youth (COY) every year on the weekend before the UN-Level COP, since 2005.

This conference brings together the climate change enthusiastic young people from around the world, who promote sustainable lifestyles, look to reduce their emissions footprints and are eager to engage. In the 21st UNFCC intergovernmental negotiation conference (COP 21), youth delegates got involved through a broad range of activities for the very first time.

At the latest conference, COP24, a sixteen-year-old girl, Greta Thunberg gave a powerful speech on climate change which drew the attention of the world, proving the power of youth activities and their voices.

Examples of climate actions taken by the youth are not only in international conferences. Youths are also implementing various projects around the world.

In Central Guyana, the Amerindian people are “Custodians” of the rainforest but have a severe lacking in their basic needs. A project designed to ensure the protection of the forest, aiming at improving health, hygiene and environmental

management delivered a child-to-child educational programme. This programme engaged and empowered the children, of that particular area, to conserve the rainforests, which vastly contributed to mitigation efforts, by absorbing CO2 emissions.

In Morocco, the El Moudda adaptation Initiative is an award-winning project, which is led by young people under 30; this is a community-based adaptation project aiming at various sustainable development measures. They build infrastructure such as dams and early flood warning systems to support community-based Disaster Risk Management. They helped the community through local consultations, awareness raising for conservation, reforestation and re-vegetation of the land aside from the villages.

In Ethiopia, UNICEF financed 50,000 school going students, through their environmental clubs, for planting trees in the region of Addis Ababa as a mitigation and adaptation measure.

It is imperative that the Bangladesh government and society as a whole help prepare our significant youth population to fight for a sustainable future.

Among the key policies developed by the government (in relation to climate change) are; the Bangladesh Climate Change Strategy and Action Plan (BCCSAP 2009) and the Country Investment Plan (CIP) of the Ministry of Environment, Forests and Climate Change—both of which focus on community-based adaptation, increasing resilience at the community level and capacity building as crucial approaches to sustainable development for Bangladesh. Similar to the examples above, such as El Moudda Initiative, the youth of Bangladesh can be engaged to deliver real changes at the community levels.

Youth actions in climate change have already been activated in Bangladesh. Various environment-related university clubs had started working in this problem. They are arranging workshops, seminars, innovation fair, various competitions on climate change and environment-related problems.

For example, Local chapters of Youth-mappers are contributing a lot in mapping base volunteering, and Green Planet Club of Independent University organized Green Genius Contest, where university students present their innovative ideas to make a sustainable environment.

Academic institutions are also promoting youth-oriented climate actions. Department of Environmental Sciences, Bangladesh University of Professionals, arranged Environmental Fest last year. Institute of Remote Sensing, Jahangirnagar University arranged two days workshop on applications of GIS and Remote Sensing, where 100 students from ten universities participated and had some introductory lessons about applications of geospatial technologies in environmental management.

A recent initiative, developed by the International Centre for Climate Change and Development (ICCCAD) supported by UKAid and British Council, aims to build the capacity of young people to become the actors in taking climate actions. It is designed as a year-long mentorship programme, entitled “Re-think & Innovate for a Sustainable Environment (RISE)” that works to engage the youth (selected university students from across Bangladesh) to break down the complex sustainability issues that will challenge their generation and to identify opportunities in how they can initiate projects and activities on their own.

The programme focuses on providing a grounding of climate science and sustainability issues, mentoring on project design and implementation, representing their peers

““ The youth of any nation is a valuable asset for prosperity and sustainable development, and the youth of Bangladesh is no different ””

among various stakeholders (policymakers/practitioners/private sector firms, etc.) and engaging their peers to collaborate and participate in national development issues.

As a critical barrier to most initiatives is support (mostly financial and technical), the programme aims to catalyze the youth into; identifying the appropriate assistance and guidance needed, to approach key stakeholders (investors/decision-makers etc.) and propose feasible solutions and mobilize their peers into making real changes.

The youth of any nation is a valuable asset for prosperity and sustainable development, and the youth of Bangladesh is no different. These eager and enthusiastic minds can, and should, be channeled towards adaptation & mitigation projects (under our existing policies/frameworks).

To network and share their ideas, and most importantly, to become actors that take climate actions it is vital to provide adequate support and assistance by investing in the youth of our nation.

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**Sakib Rahman Siddique Shuvo is a student at Jahangirnagar University.**

# COMMUTING GREEN



BIGSTOCK

## TRANSPORTATION EFFICIENCY

### A DISCUSSION TO REDUCE FOSSIL FUEL DEPENDENCY

**Tasnim Enam**

One of the main pollutants responsible for climate change is carbon dioxide. Because of the excessive use of fossil fuels, climate change is now a burning issue. Humans are responsible for anthropogenic climate change. One of the reasons is the excessive use of cars in our day to day lives, carbon dioxide from the combustion of car fuels are accumulating in the atmosphere.

Bangladesh is still a developing country. For this very reason many other alternatives, such as hydrogen fuel cells and electric cars are very difficult to import to Bangladesh. Thus the most approachable methods for the reduction of car use are carpooling, bicycling and public transport.

#### Sharing rides, healthier lives

Carpooling is where a car is shared by many to travel from one location to another. This approach is especially helpful for people living in the same neighbourhood or sector. But how do we implement this? The idea goes like this: if say there are 4 students (A, B, C, D) who live in the same sector and go to

the same school. All of the 4 students gather together and select a place that is near to all of their houses. Then on the first day, student A takes his car and picks up the 3 students and goes to school. On the next day student B gives the ride and so on.

The other approach is public transports. These vehicles will aim to carry a lot of passengers for long distances. In countries such as Singapore, most people use MRTs or buses to go to the destinations. This is mainly due to many people considering their cars a luxury rather than a necessity.

The third approach is bicycling or walking, useful for destinations which are nearby. Bicycling is not only eco-friendly but also good for exercising and mental health. Many countries provide biking lanes in their roads to motivate bicycling.

#### But how does this help the climate?

Firstly the amount of carbon dioxide emitted by per car is reduced. For the school analogy, instead of 4 cars, only 1 went to school. Thus if a lot of people do carpool then that small number can add to a very large significant number.

Secondly, it reduces traffic congestion. When public trans-

ports and carpooling are done, fewer cars will on the roads.

Thirdly, when there is a smaller amount of vehicles on the road, there are fewer loads on the road. Thus the fuels burned by machinery to repair roads are also reduced. The cost of repairing the roads can be used to build new infrastructure and replace old public transport with more efficient public transportation.

### How can we implement it?

For these ideas to work people have to work with joint hands. The Government should make legislation that encourages the use of public transport, carpooling and bicycling. The local authorities will have to ensure that this legislation is followed accordingly.

For example, a monthly survey could be conducted to gather information on the amount of fuel consumed by private cars. The media also have a role to play. They should create awareness of climate change and persuade the audience to follow the ideas.

### Confronting the hurdles

However, with every idea, there are also challenges. The first is that Bangladesh is still not as economically developed as many developed countries. That is why it would not be possible for the Government to replace also the inefficient public transport at once.

Instead, they can take on annual projects that will target specific routes. In other words, the government can take a specific route in the first year, say the Uttara to Mirpur route, and replace all of the public transport with updated models.

And progressively, they can aim for another route the next year and so on.

“...we lose weight and stay fit, we also saved our car fuel for a whole month!”

People will always be reluctant to take the first step. However, I would like to give my own experience to prove that everyone can make a change. In January, I had convinced my father to walk me to school on that month. So every day my father and I walked to school and after dropping me off, he comes back to Rajlakkhi take his office’s car.

Interestingly, my father shared the car with many of his colleagues to go to his office every day. My mother walked to my school and picked me up. Except for using Uber to go to Jahangir Nagar University for a few time, none of us used the car for the whole of January. In the end not only did we lose weight and stay fit, we also saved our car fuel for a whole month!

So what did I learn from my experience? Instead of comparing our country and blaming it for all it lacks, we must take the first steps in building our country. In fact, did you know China was way behind us in the 20th century? Now, however, they are one of the most influential countries of the 21st century. Instead of continuing the ‘blame game’ we all must work together to build up our own nation. Always remember one man can make a huge difference. ■

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**Tasnim Enam is a student at Aga Khan School, Dhaka. She received a 2nd runner up award from the school/college category in the Green Genius Competition.**



PIXABAY

## TEACHING GREEN

### CULTIVATING THE MENTALITY OF ECO-FRIENDLINESS



SYED ZAKIR HOSSAIN

#### Adeeba Nuraina Risha

Environmental education is a vital part of the entire field of environment studies. The primary step to mitigate the environmental challenges of today is to educate and equip humans with the basic knowledge and understanding of the world we live in. When humans comprehend the extent of their impact on this world, only then we will be inevitably inclined towards improving our lifestyles to a far better, less harmful and sustainable one.

Take, for example, the images and videos that go viral on social media. A few years back there was painful footage of a sea turtle with a plastic straw lodged inside its nose in Costa

Rica. This video motivated millions of people to stop using plastic straws, resulted in several world-known companies to eliminate plastic straws in their production, etc.

This basic human trait can be utilized in preserving the environment, starting from a primary stage. Incorporating environmental education into the curriculum can thus largely influence how students are brought up with the mentality of practising “green” methods in their daily lives.

Taking this as the main theme of my research project, I delved into the current scenario of environmental education in Bangladesh, in particular, the English Medium Schools. The methodology involved two-step surveys.

First, I asked students from seventh to the eighth grade of

different English medium schools of Bangladesh including Sunbeams School, Manarat Dhaka International School, etc to fill out an online questionnaire, asking them about their personal environmental awareness levels.

The second step involved a physical survey of specific schools such as DPS STS School, where the students filled out the same online questionnaire in person. The second step ensured that the sample was unbiased. The data gathered in the surveys were then condensed into a statistical format, giving scope for clear interpretation.

To provide a short summary of the results, 72 percent of the respondents believed that they have sufficient knowledge about the current environmental issues that the world faces. 83 percent of respondents felt that the knowledge they have on the environment stems from the lessons they were taught in their curriculum. 43 percent of the students felt that the lessons are, however, not enough to prepare the students for a greener lifestyle.

In terms of individual responsibility, 57 percent of the students believe that they are aware of the significant role they play and have adopted measures in their daily lives to better preserve the environment. 50 percent of the students have participated in or initiated environmental projects and activities.

To bring a comparison on how many students actually include green methods in their lives, they were asked about whether they practice small actions such as switching off the air conditioning before leaving a room; or turning off the tap while brushing their teeth, and 82 percent responded that they do indeed adopt such methods in their lives. 89 percent of the students believe that one individual can affect the environment largely and that personal awareness is an important factor in preserving the environment.

However, commenting on the effectiveness of education, 62 percent of students feel that the education system in Bangladesh is insufficient in making environmentally conscious citizens. 85 percent of respondents feel that imparting education in all schools can minimize environmental problems. When asked about the largest environmental threats faced in today's world, 44 percent of the students believe that it is climate change while 31 percent said it is plastic wastage.

Now, if we were to interpret the data, it seems almost everyone believes that they have sufficient understanding of the problems that the world faces in this day in terms of the environment, and they are actively using that knowledge to amend their lifestyles. These students are well aware of the concerns, threats and consequences of human activity on the planet. They, however, feel the need for specialized education on the environment so that schools of Bangladesh



BIGSTOCK

produce well oriented, concerned and conscious citizens.

In order to address the SDG goals set out by the UN General Assembly to achieve sustainable development for all, incorporation of environmental education in all curriculums of Bangladesh will not only reduce educational incompetence but also result in the responsible consumption of resources and help to build sustainable cities and communities.

By taking a very simple action, we will be taking care of several aspects of the world through an integrated approach. This could be done on a policy level as well as locally, such as the steps taken by the Green Planet Club of Independent University Bangladesh.

The club often arranges training workshops and seminars to educate fresh university students of the environmental issues and how they can address them personally by taking certain measures in their lives to create a better future for the generation to come. Such programs may be adopted throughout the country in different schools and colleges.

There has never been a time more crucial for taking steps to save the environment. The point of prevention is gone, it is time for salvation. Everyone has a role to play and the littlest of actions result in a large impact. Thus the importance of environmental education is now paramount to build a sustainable future for the generations to come. ■

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**Adeeba Nuraina Risha is a student of Environmental Science and Management student at the Independent University, Bangladesh. She is also the Former Director of Public Relations, Green Planet Club.**

# POROUS ASPHALT: AN INITIATIVE TO SAVE THE SINKING DHAKA CITY

A SMART SOLUTION TO MITIGATE WATERLOGGING IN THE CAPITAL



MEHEDI HASAN

**Nahid Sultana Lubna**

Waterlogging is a condition of land in which the soil profile is saturated with water either temporarily or permanently.

A recent report by Dhaka South City Corporation (DSCC) and Dhaka WASA identified about 48 waterlogging prone areas. According to them, the waterlogging prone areas are Mirpur, Shewrapara, Kazipara, Pirebag, Mohammadpur, Uttara, Motijheel, some places of Pura Dhaka, Dhanmondi, Sobhanbag, Newmarket and many more.

Poor drainage pattern along with unplanned structure of Dhaka city and heavy monsoonal rainfall over a short period causes water logging problem. And soon the city is going to be hit by frequent waterlogging since monsoon is near at hand. Waterlogging poses unbearable traffic congestion which disrupts the natural traffic flow. Hence, it takes almost a double time to reach any destination.

From my personal experience, it almost needs two hours or more to reach Dhaka University campus from Mirpur during rainfall, while typically it does not take more than an hour.

### **Possible Solution for the Waterlogging Problem**

“Porous Asphalt” may be a possible solution to mitigate the waterlogging problem in Dhaka city. It is also known as Porous Pavement, Porous Concrete, Pervious asphalt, Open-graded asphalt etc. It has been being used for than 50 years, but it was originally developed in 1970 at Franklin Institute in Philadelphia, Pennsylvania. Porous asphalt pavements are being used successfully throughout the United States.

Porous Asphalt allows for percolation of water through hot-mixed with reduced sand or fines, which allows water to drain through it. Rain seeps into layers of rock and soil beneath the surface, where the water is then naturally filtered. Because this material comes in the form of concrete,

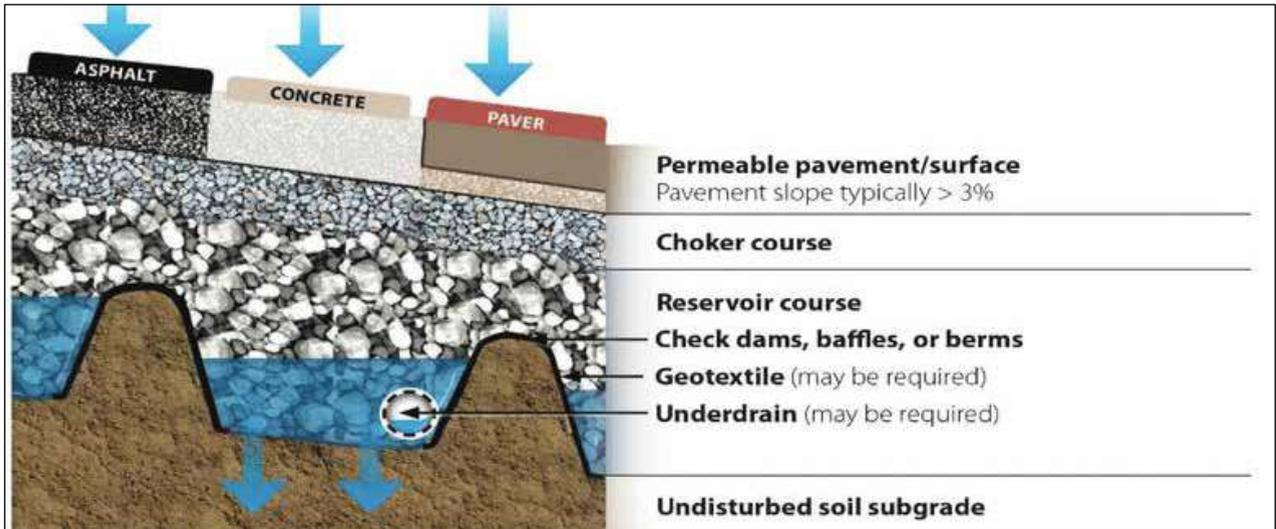


Figure: Cross section of Porous Asphalt

asphalt, and pavers, it helps to increase or conserve the groundwater level.

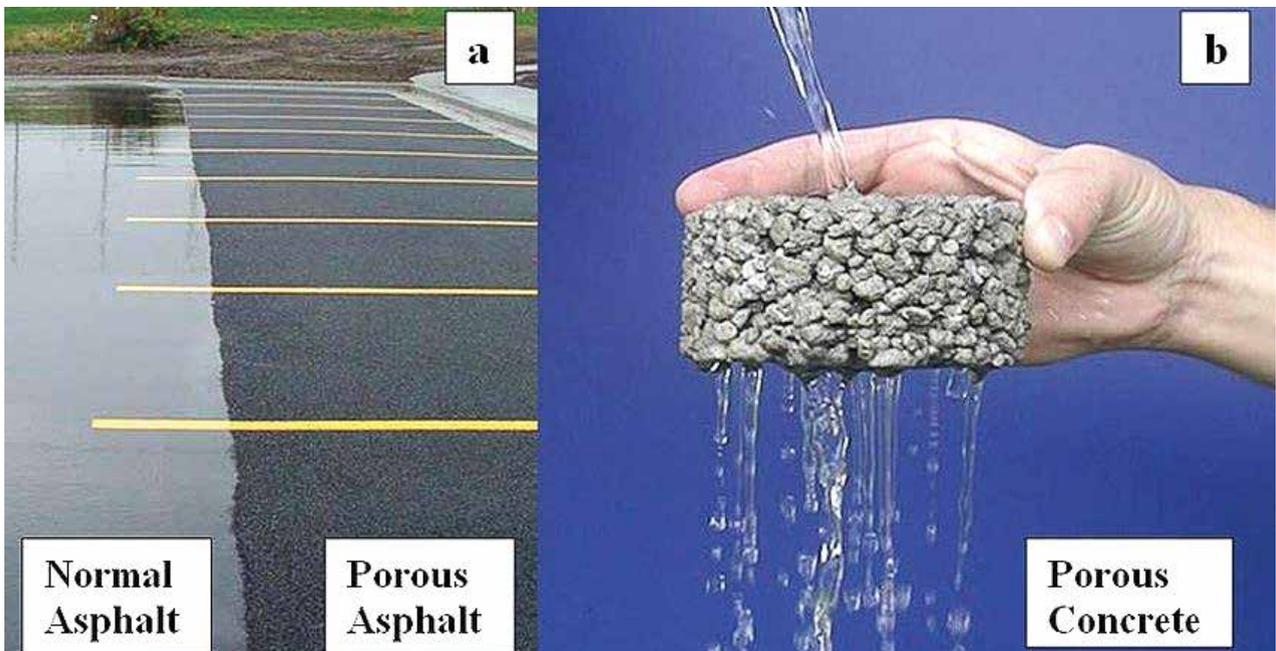
Porous asphalt surface mixes are also used instead of putting it over a stone recharge bed. It can be used as a thin surface layer on conventional highway pavements. Rainwater sinks directly into the surface and then hits the impermeable asphalt layer below forcing the water to drain off to the sides. This way is more suitable for us because it saves time and requires less capital.

#### Porous Asphalt vs. Drainage System

We know most of the water bodies in Dhaka city are full and it is both times consuming and costly to improve our drainage

system. Furthermore, a huge amount of money is used for road maintenance every year. Adopting porous asphalt will reduce the maintenance cost as porous asphalt pavement surface cost approximately the same as conventional asphalt and mitigate water logging problem as well. As a result, the authority needs not to allocate budget for improving drainage system separately.

Furthermore, Porous asphalt is fast and easy to construct. It is suitable for every climate and geography. This project is also environment-friendly. In comparison to traditional dense-graded pavement, porous pavement is typically installed as an urban “best management practices” (BMPs). ■



## YOUTH WORKING FOR THE ENVIRONMENT

# THE STORY OF GREEN GENIUS SEASON 2

**Sobiya Aziz Badat**

The Green Planet Club (GPC) at Independent University (IUB) has the vision to ensure a clean, healthy and safe environment to support sustainable development. At GPC, we strive to encourage and promote environmental awareness and leadership among students by arranging a wide range of activities.

We make differences by fostering collaboration with the wider community and cultivating relationships with organizations having a similar purpose. Since its formation in 2013, the club has been working to achieve just that and more.

In 2017, GPC arranged the Green Genius (GG). It was an intra-university talent hunt with the theme of making IUB a sustainable institution. The talent hunt was immensely popular and became a primary event for the Club. Green Genius Season 2 was launched at the beginning of the spring 2019 semester, after months of meticulous planning.

The objective of GG Season 2 was to come up with an innovative environmental solution for the community, by the students. The involvement of the community, as a primary stakeholder for the solution of even simple environmental problems around us, is an approach that has been widely recognized and accepted. Therefore, GPC aimed to involve bright youth to help our country.

We hoped to become a platform for those young minds as they struggled to voice their creative ideas. The youth of today is the force for tomorrow, and it is utmost important to

not only hear their voices but also to motivate them, to bring more positive transformations around us.

GG Season 2 was designed to be conducted in two categories: school/college and university. This made the entire process more inclusive and engaging. In addition, every aspect of the environment was open for participation, divided for ease into 8 broad themes.

Entries were open for individual participation, so as to encourage more originality. After an initial social media campaign, dedicated club members took it upon themselves to conduct road campaigns across the city.

There were multiple teams going to schools, colleges and universities, not only promoting the event but also facilitating the entry process for interested participants. Hundreds of leaflets and posters were put up across the many campuses visited and the members were tirelessly answering phone queries and emails. The overall response was very encouraging. Eager students from the schools motivated the club members by their interest particularly. Not one but many “Green Genius” was amongst us all along!

After the initial submission of idea abstracts online, the critical task of shortlisting started. With over 300 applications from 40 schools, 15 colleges and 25 universities nation-wide, the members were faced with the huge responsibility of a fair judgment for all.

The amazing panels of screening judges were respected senior faculty members and professors from IUB. These judges checked and re-checked the scripts and provided their





PHOTOS: ARTLAND

valuable feedbacks. The quality of the incoming ideas was ingenious and it made the entire process more difficult. A total of 40 students from the school/college category and 35 from the university category were finalized to be invited for the next round of the competition.

The abstracts submitted had to be presented in front of an expert panel of judges and GPC conducted a grooming session for the finalists for that purpose. The objective was to help the participants to understand the criteria for the judgment and to enhance their basic presentation skills.

Alongside the club members, GPC collaborated with experts from the International Centre for Climate Change and Development (ICCCAD) to provide their insight. The session helped the participants understand their requirements and proved as an ice-breaking session as they met the club members and interacted with them. In addition, individual groomers were assigned to every participant to act as mentors throughout the succeeding phase, as they prepared their posters for presentations.

GPC invited judges for the final round from various field of environmental expertise to cover the themes of the competition. There were experts from the field of conservation, adaptation, development and planning, gender and migration. The symposium was scheduled over two days, one for the school/college category and the other for the university.

GPC members and volunteers worked tirelessly, till after hours, to decorate and plan every detail for the successful execution of the event. The venue for the event was at IUB and for the décor, everything was handmade by the volunteers and recycled items were preferably used. The end result was subtle yet thought-provoking display of the themes of Green

“ The objective of GG Season 2 was to come up with an innovative environmental solution for the community, by the students ”

Genius Season 2 itself.

The symposium round was a display of the colourful and detailed posters and elaborate presentations of the innovative ideas the students had submitted. There were models with micro details to deliver better and the entire hall was buzzing with excitement. The judges were pleasantly surprised with the outcomes and highly appreciative of the students' efforts. It was heart-warming to see the enthusiasm of not only the students but the entire School of Environmental Science and Management (SESM) at IUB.

# YOUTH WORKING FOR THE ENVIRONMENT



The prize-giving ceremony for the event was a much-awaited affair with the Chief Guest being the pioneer in sustainable agricultural development, Shykh Seraj. A total sum of 1 Lakh Taka was distributed amongst the categories. The winners for the competition were Fairouz Samia from South Breeze School in the school/college category and Tahsin Rahman from Independent University Bangladesh in the university category.

Their ideas were “recycling plant where plastic eating bacteria will produce energy” and “recycling of cigarette filters” respectively. The runners-up had ideas that covered transportation efficiency, low costing microbial treatment plant, producing printing ink from waste fruit peels and converting garbage bacteria to electron banks. A special mention category was also included for the schools to acknowledge the amazing response from the students.

Mr. Shykh Seraj was deeply moved by the efforts of GPC to bring invaluable ideas from the youth of Bangladesh and extended his support to the Club for future ventures, with his organization. The closing ceremony was followed by a celebratory musical night with various popular band

performances at IUB.

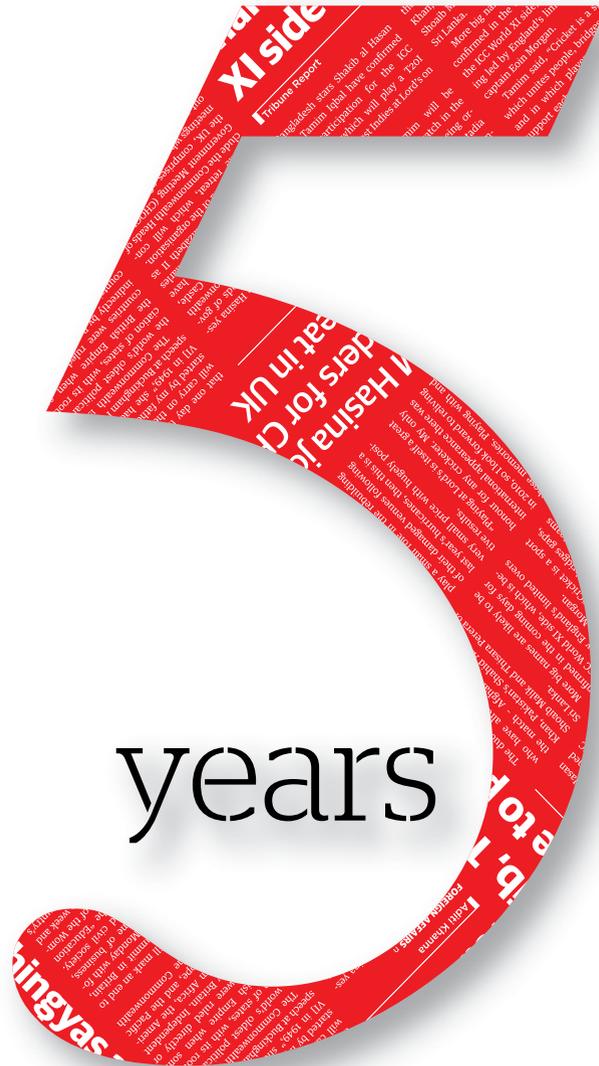
Green Genius Season 2 provided a platform for environmentalists in-training to think about practical solutions to our vulnerability. It raised awareness on various issues around us and initiated many thought-provoking discussions. Many students came forward with astounding ideas that if applied would be the answer to many of our problems today. It proved once again that we, as the future of our nation, are environmentally conscious and able to stand up and take appropriate actions.

GPC is deeply grateful to its much-adored coordinator, Md Ekhtekharul Islam, for his continuous support, guidance and energy to make this event possible, and our dedicated members who make the Club's vision their own. Green Genius Season 2 is not the end, it is just the beginning!

To know more about the Club and its activities visit us at [facebook.com/gpciub/](https://facebook.com/gpciub/) ■

**Sobiya Aziz Badat is a student of Environmental Science at IUB and an Executive Body member of Green Planet Club.**

# Celebrating



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