The Environment *Review*

Volume 1, Issue 1

September - October 2020

The Environment *Review*
ISSN: 2708-776X (print), 2708-7778 (electronic)

Contents

Publisher:
The Environment Review Society

Place of publication:
Mymensingh, Bangladesh

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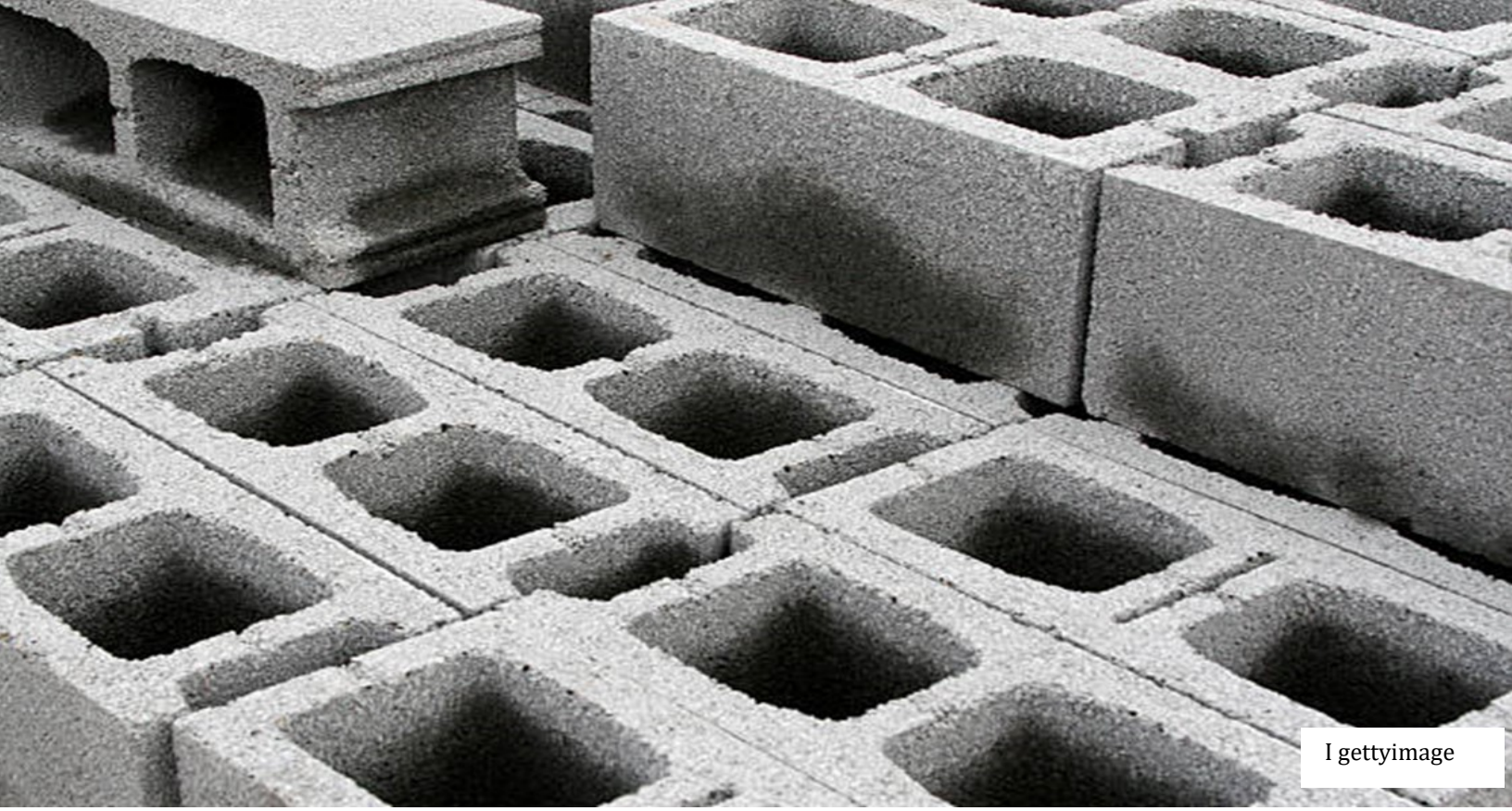
Price:

BDT 100.00

USD 2.00



I gettyimage

Concrete Blocks instead of Conventional Bricks to Control Air Pollution

Captain Arif Mahmud

Since the year 1990 Bangladesh is going through numerous development projects. Roads, bridges, flyovers are being constructed by the public sector in the country. To keep pace with the public sector, residential and commercial buildings are being built by the private sector. For all these constructions there is always endless demand for bricks but still the century old techniques are used here to produce bricks. The raw brick is made from soft mud and then it is kept in fire for long time to make them real hard and then used for construction purpose. There are more than 1000 brick kilns around the Greater Dhaka region spread across six districts. With the century old technologies these brick kilns run only in the dry seasons, namely from October to March and the kilns cannot produce bricks in the monsoon seasons. Most of these brick manufacturing plants use energy inefficient fixed chimney bull trench kiln technology and predominantly using coal, furnace oil, oil sludge, wood and agricultural waste as fuel.

The emissions from all these fixed chimney bull trench kilns are estimated to be 23,300 tone of Particulate Matter (PM2.5) 15,000 tons of sulfur dioxide (SO_2) , 302,000 tons of carbon monoxide (CO), 6,000 tons of black carbon and 1.8 million tons of CO_2 gas emissions from these brick kilns to produce approximately 3.5

million of bricks per year. Brick kilns are primarily associated with PM, CO, SO2, volatile organic compounds, nitrogen oxides (NOx), and heavy metals depending on the type of fuel burnt. At the brick kilns in the Greater Dhaka region, the energy required for baking 100,000 bricks is estimated at 20 t of coal with a calorific value of 22 MJ/kg and the majority of the energy needs is supplemented by coal (about 80 %) and occasional use of gas (about 10 %) and heavy fuel oil (about 10 %).


Conventional Brick kiln makes air pollution
I Reuters

Brick kilns are marked to be one of the major sources of rural and urban air pollution throughout Bangladesh. The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into human lungs, and some may even get into human bloodstream. Exposure to such particles can affect both human lungs and heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including, premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma , decreased lung function, increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. People with heart or lung diseases, children, and older adults are the most likely to be affected by particle pollution exposure.

Fine particles (PM2.5) are the main cause of reduced visibility (haze) in parts of Bangladesh, including many areas of greater Dhaka district. Particles can be carried over long distances by wind and then settle on ground or water. Depending on their chemical composition, the effects of this settling may include, making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, affecting the diversity of ecosystems, contributing to acid rain effects.

It can be seen from the previous explanation that producing conventional bricks with conventional energy inefficient fixed chimney bull trench kiln technology is actually consuming mainly coal, natural gas and furnace oil. The natural gas produces less air pollution but using of natural gas in brick fields is limited in Bangladesh. So the major fuels for firing the bricks are coal and heavy fuel oil and the use of coal in all the brick kilns is about 80%. Thus the air pollution created by the coal smoke in the dry months in Bangladesh is devastating for the mass population living in all the six districts of the Greater Dhaka Division. All these smoke and dust are serious health hazard for people specially the children and aged people.

To stop this serious air pollution, instead

ISSN: 2708-776X (print), 2708-7778 (electronic)

of conventional bricks the 'Concrete Blocks' can be used in construction of the buildings. In Bangladesh for making roofs and columns cement, stones and mild steel rods are used. The use of conventional bricks are mostly for erecting the walls either for outer walls or for making partitions in different rooms inside of a building. For making all these vertical walls the concrete blocks can be used very easily. The concrete blocks are heavy, durable and are thought to be stronger than the conventional bricks.


Concrete Block

A concrete block is primarily used as a building material in the construction of walls. It is sometimes called a concrete masonry unit (CMU). A concrete block is one of several precast concrete products used in construction. The term precast refers to the fact that the blocks are formed and hardened before they are brought to the job site. Concrete blocks may be produced with hollow centers to reduce weight or with improved insulation. The use of block work allows structures to be built in the traditional masonry style with layers of staggered blocks. Blocks come in many sizes. This type of block manufacturers offer many types of blocks and these can be used for partition wall, footpath, car parking, side walk, container yard, house lane, market Street, industrial yard, airport's taxiways, hanger etc.

The benefits of Concrete Blocks

Greatly reduced construction cost : Using concrete block in construction significantly reduces cost in various ways. To produce brick hectors of land, tons of wood and coal are wasted. If we practice using concrete block we can save these natural resources to build our home, offices, roads and any other construction. Each concrete block is about 25% cheaper than the bricks.

Reduced Maintenance cost : For long run concrete Buildings and pavements that "stand the test of time" through their low maintenance requirements have a significant sustainable advantage over the conventional brick structures. Moisture, which can undermine other building materials through rust or rot, has no weakening effect on concrete. Neither termites nor mold take any toll on concrete. In fact, concrete continues to strengthen over

time, which is why concrete structures built thousands of years ago are still intact.

Extremely Durable : Concrete is one of the most durable materials on Earth. Concrete homes are far less likely to suffer damage in the event of a fire and earthquake. Concrete bricks can be reinforced to protect against high winds or earth tremors. If damage does occur, the structural integrity of the home typically remains intact, allowing for easier rebuilding. Concrete block is unquestionably the most practical home building material. There's no rotting or wall warping.

Energy Saver : 80% or more of the greenhouse gases generated from structures are released through energy produced for their ongoing heating and cooling. Insulated concrete wall systems provide good insulation and thermal mass with low air infiltration to provide superior thermal efficiency and optimal energy performance over the long life of the building. Since homes and buildings constructed with insulated concrete walls are not subject to large daily temperature fluctuations, owners can lower heating and cooling bills by up to 25%. Heating, ventilating and air-conditioning can also be designed with smaller-capacity equipment for additional savings.

Design Flexibility : Concrete block is an extremely flexible building material. Concrete block can be used to build just about any type of house feature imaginable. Columns, archways and other intricate designs are all easily achieved with the material. Building with concrete block means you have the flexibility to do just about anything you want. Whether it be a one- story home or a three story home with such options as high ceilings and tall windows concrete block provides the needed flexibility for every type of job.

If we practice using concrete block we can save these natural resources to build our home, offices, roads and any other construction. Each concrete block is about 25% cheaper than the bricks.

It can be said that the making of conventional bricks has many demerits. It consumes heavy amount of coal or heavy fuel oil which will produce huge amount of smoke and other harmful gases which will affect the public health. More over the most fertile top soil of the fields are taken for producing conventional bricks as a result the fertile lands are losing the fertility.

On the other hand concrete blocks can be easily manufactured and it does not require any fire for burning. So there is no emission of any harmful gases and no threat to public health. More over the concrete blocks are cost effective and highly durable.

So , definitely it will be better in all the aspects and for all the concerned parties to use the concrete blocks instead of the conventional bricks.

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The Environment *Review*
ISSN: 2708-776X (print), 2708-7778 (electronic)

E-waste Management to Protect The Environment

Mahmud Kamal Anamul Haque

With the rapid change of technology, the demand for electronic goods is constantly increasing. Not a single day of our daily lives can go by without electronic products. On the other hand, as the use of electronic items is increasing, so it is increasing the electronic waste. Electronic waste, also known as e-waste, is a variety of electrical and electronic equipment that becomes worthless to its users or no longer serves its original purpose. Replacing or disassembling the bulk of electronic products destroys the quality of their functionality, most notably refrigerators, washing machines, microwave ovens, and "brown products" such as televisions, radios, computers, and cell phones.

E-waste is currently considered to be the fastest growing waste stream in the world. Glob-

ally, e-waste generates more than 5 percent of all municipal solid waste, and e-waste production is increasing in developing countries as the cost of electronic products decreases. E-waste generation is increasing rapidly, especially in developing countries. On the other hand, there is not enough planning and action for e-waste management. The use of digital goods and products is also increasing rapidly in our country.

Bangladesh is now not only importing but also producing electronic products. The study found that the use of electronics products in Bangladesh has increased in the last 10 years as a result of the country's economic progress, more than in the last 30 years. Private research institutes in Bangladesh say that 10 million metric tons of electronic waste or e-waste is being generated in the country every year. By 2030, the e-waste generation rate will increase several times.

Electronic waste / e-waste contains many harmful elements for the natural environment including lead, mercury, cadmium, beryllium, lead oxide and other metallic and chemical elements. These metallic and chemical elements can penetrate dust or water. Moreover, mixtures can enter the soil through wet and dry soils and cause contamination of both soil and water. Soils become toxic when lead, mercury, cadmium, arsenic, and polychlorinated biphenyls (PCBs) accumulate in landfills. E-waste contains many toxic substances and chemical compounds, which react in various ways with the sun and heat. This is increasing health risks and environmental pollution. The way to avoid this danger is safe management and recycling of e-waste. Without safe and proper management of e-waste recycling, not only the environment is being harmed, but also economically and commercially.

Most of the metallic and chemical elements that electronic waste contains are harmful to human health. Lead usually has adverse effects on the kidneys, central nervous system, blood circulation and brain development in children, cadmium is toxic to human health, causing damage to the kidneys, liver and nervous system. Mercury can damage to the brain, causing shortness of breath and skin disorders. Lithium can enter breast milk and harm a nursing baby; inhalation is responsible for pneumonia. Copper can cause abdominal pain, nausea, liver

ISSN: 2708-776X (print), 2708-7778 (electronic)

damage or Wilson's disease. The burning of plastics and PVC produces dioxins which cause reproductive and developmental problems. These metals and chemicals also play a special role in causing various diseases.

"While developed countries can manage e-waste properly, developing countries still do not have a clear vision for it. Informal processing of e-waste in developing countries can lead to adverse effects on human health and environmental pollution"

While developed countries can manage e-waste properly, developing countries still do not have a clear vision for it. Informal processing of e-waste in developing countries can lead to adverse effects on human health and environmental pollution. Bangladesh has not yet managed to bring e-waste under proper management which is necessary for the protection of environment and human health.

At present, e-waste in Bangladesh is not managed separately. All other wastes are dumped there. E-waste, on the other hand, usually stay on the streets for a long time as it does not spread the odor, but there is no initiative for management. Most of the waste in Bangladesh is stored in the land through landfill. However, the remaining waste releases various metallic and chemical elements into the soil. Some of these wastes are incinerated and pollute the air. Metals and chemicals that mix with soil and air can enter the water through various processes which degrade the general quality of water.

Landfills are primarily used for e-waste management. This is the most common method of e-waste disposal. This method involves digging the soil and making grooves to bury the e-waste. An impermeable layer is made of soil or plastic with a long basin for collecting e-waste and transferring it to the treatment plant. However, landfill is not an environmentally efficient process for e-waste management due to the release of toxins such as cadmium, lead and mercury into the soil and groundwater.

"The best way to manage e-waste is to recycle it properly. E-waste has many different components and needs to be looked at so that the components can be converted into new products"

Acid sorbents, on the other hand, contain strong sulfuric, hydrochloric or nitric acids. Electrical circuits are soaked in these solutions which frees metals from electronic products. The recovered metal is used to manufacture other products. When hazardous acids are disposed in the water sources, it decreases quality.

The combustion method is a controlled method of e-waste removal and involves the combustion of electronic waste at high temperatures in specially designed incinerators. This e-waste disposal method is quite convenient because the amount of waste is greatly reduced and the energy obtained is also used individually. However, it is also not free from the disadvantages of emissions such as mercury and cad-

mium, the harmful gases in the environment. The best way to manage e-waste is to recycle it properly. E-waste has many different components and needs to be looked at so that the components can be converted into new products. Special equipment is required for the processing and disposal of broken and dismembered products that can prevent contamination and ensure the safety and health of the workplace. Complete management must be performed in a controlled manner.

Recyclable materials can be used to create new products. Recycling and processing reduce the need for limited raw material mining from the earth. Not only does it reduce the need for mining but it also reduces pollution, because the reduction in raw materials from the mining process affects our environment. Recycling e-waste helps preserve our planet's precious natural resources. Moreover, e-waste can be refined to collect precious metals like copper or gold. Several recycling factories have already been set up in Bangladesh, but the required e-waste is not being collected through proper management.

"In Bangladesh, it is necessary to take initiative to create a specific place or infrastructure for the disposal or recycling of these old electronics products and e-waste."

It is most desirable that e-waste is a recyclable process where mobile phones, computers, laptops, printers can be reused with little modification or given to a second person as a second hand product. Old electronic equipment can be donated to various metal factories and also help the needy. Moreover, some recycling and recycling companies have better ways to sell old mobile phones or laptops.

Several websites are acting as intermediaries between recyclers and electronic users. This is a convenient method for users because they not only remove old mobile phones but also pay for them after resale. Nowadays, many e-waste recycling companies can bring the advantage of collecting obsolete electronic items from your homes. In addition, they can run a number of recycling programs for users, retailers and manufacturers to collect electronics.

"So, we need to make sure that our electronic devices are properly managed before disposing of them properly as the consequences of not doing so can be painful."

Electronics products are an important part of our lives today but the e-waste that comes with them is harmful to the environment. So, we need to make sure that our electronic devices are properly managed before disposing of them properly as the consequences of not doing so can be painful. Therefore, in Bangladesh, it is necessary to take initiative to create a specific place or infrastructure for the disposal or recycling of these old electronics products and e-waste. At the same time, awareness at all levels can facilitate the management of e-waste.

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The Environment *Review*
ISSN: 2708-776X (print), 2708-7778 (electronic)

Welcome to Plasticville: Population 7.8 Billion

We've lived in a synthetic world for more than 70 years. How much longer can it last?

Susan Freinkel

In 1950, a Philadelphia toy company came out with a new accessory for electric-train enthusiasts: snap-together kits of plastic buildings for a place it called Plasticville U.S.A. Sets of plastic people to populate the town were optional.

Today we all live in Plasticville. But when, exactly, did we take our first steps into this synthetic world? Some say it was in 1870, when the inventor John Wesley Hyatt patented a malleable compound that was originally conceived as a substitute for an increasingly scarce commodity: ivory. It was created from a natural polymer — the cellulose in cotton — combined with other ingredients; Hyatt's brother Isaiah dubbed the new material celluloid, meaning "like cellulose."

Unsplash

Image Source: The Rotarian

Others fix the date to 1907, when a Belgian émigré named Leo Baekeland cooked up Bakelite; the first fully synthetic polymer, it was made entirely of molecules that couldn't be found in nature. With the product's invention, the Bakelite Corporation boasted, humans had transcended the classic taxonomies of the natural world: the animal, mineral, and vegetable kingdoms. Now we had "a fourth kingdom, whose boundaries are unlimited."

Bakelite was invented to replace another scarce natural substance: shellac, a product of the sticky excretions of the female lac beetle. Demand for shellac began shooting up in the early 20th century because it was an excellent electrical insulator. Yet it took 15,000 beetles six months to make enough of the amber-colored resin needed to produce a pound of shellac. To keep up with the rapid expansion of the electrical industry, something new was needed.

As it turned out, the plastic Leo Baekeland invented by combining formaldehyde with phenol (a waste product of coal) and subjecting the mixture to heat and pressure was infinitely more versatile than shellac. A dark-colored, rugged material with a sleek, machinelike beauty, it could be precisely molded and machined into nearly anything. Contemporaries hailed its "protean adaptability" and marveled at how Baekeland had transformed something as foul-smelling and nasty as coal tar — long a discard in the coking process — into this wondrous new substance.

The 1920s and '30s saw an outpouring of new materials from labs around the world. One was cellulose acetate, a semisynthetic product (plant cellulose was one of its base ingredients) that had the easy adaptability of celluloid but wasn't flammable. Another was polystyrene, a hard, shiny plastic that could take on bright col-

ISSN: 2708-776X (print), 2708-7778 (electronic)

ors, remain crystalline clear, or be puffed up with air to become the foamy polymer DuPont later trademarked as Styrofoam.

DuPont also introduced nylon, its answer to the centuries-long search for an artificial silk. When the first nylon stockings were introduced, after a campaign that promoted the material as being as "lustrous as silk" and as "strong as steel," women went wild. Stores sold out of their stock in hours, and in some cities, the scarce supplies led to nylon riots. Across the ocean, British chemists discovered polyethylene, the strong, moisture- proof polymer that would become the sine qua non of packaging. Eventually, we'd get plastics with features nature had never dreamed of: surfaces to which nothing would stick (Teflon), fabrics that could stop a bullet (Kevlar).

Though fully synthetic like Bakelite, many of these new materials differed in one significant way. Bakelite is a thermoset plastic, meaning that its polymer chains are hooked together through the heat and pressure applied when it is molded. The molecules set the way batter sets in a waffle iron. And once those molecules are linked into a daisy chain, they can't be unlinked. You can break a piece of Bakelite, but you can't melt it down to make it into something else.

Polymers such as polystyrene and nylon and polyethylene are thermoplastics; their polymer chains are formed in chemical reactions that take place before the plastic ever gets near a mold. The bonds holding these daisy chains together are looser than those in Bakelite, and as a result these plastics readily respond to heat and cold. Unlike Bakelite, they can be molded and melted and remolded over and over again. Their shape-shifting versatility is one reason thermoplastics quickly eclipsed the thermosets.

Much of the plastic we've produced is with us still. Humans could disappear from the earth tomorrow, but many of the plastics we've made will last for centuries.

It's understandable why many at the time saw plastics as the harbinger of a new era of abundance. Plastics, so cheaply and easily produced, offered salvation from the haphazard and uneven distribution of natural resources

that had made some nations wealthy, left others impoverished, and triggered countless devastating wars. Plastics promised a material utopia, available to all. At least, that was the hopeful vision of a pair of British chemists in 1941. "Let us try to imagine a dweller in the 'Plastic Age,'" Victor Yarsley and Edward Couzens wrote. "This 'Plastic Man' will come into a world of colour and bright shining surfaces … a world in which man, like a magician, makes what he wants for almost every need."

That world was delayed in coming. Most of the new plastics discovered in the 1930s were monopolized by the military over the course of World War II. Production of plastics leaped during the war, nearly quadrupling from 213 million pounds in 1939 to 818 million pounds in 1945. Come V-J Day, all that production potential had to go somewhere, and plastics exploded into consumer markets. Just months after the war's end, thousands of people lined up to get into the first National Plastics Exposition in New York, a showcase of the new products made possible by the plastics that had proven themselves in the war. For a public weary of two decades of scarcity, the show offered an exciting and glittering preview of the promise of polymers. Here was the era of plenty that the hopeful British chemists had envisioned. "Nothing can stop plastics," the chairman of the exposition crowed.

Plastics production expanded explosively, with a growth curve that was steeper even than the fast-rising GNP's. Thanks to plastics, newly flush Americans had a never-ending smorgasbord of affordable goods to choose from. The flow of new products and applications was so constant it was soon the norm. Tupperware had surely always existed, alongside Formica counters, Naugahyde chairs, red acrylic taillights, Saran wrap, vinyl siding, squeeze bottles, push buttons, Barbie dolls, Lycra bras, Wiffle balls, sneakers, sippy cups, and countless more things. The nascent industry partnered with the press to sell consumers on the virtue of

plastics. "Plastics are here to free you from drudgery," House Beautiful promised housewives in a special 50-page issue in October 1947 titled "Plastics … A Way to a Better, More Carefree Life."

That proliferation of goods helped engender the rapid social mobility that took place after the war. We were a nation of consumers now, a society increasingly democratized by our shared ability to enjoy the conveniences and comforts of modern life. Through the plastics industry, we had an ever-growing ability to syn-

thesize what we wanted or needed, which made reality seem infinitely more open to possibility, profoundly more malleable. Now full-fledged residents of Plasticville, we began to believe that we too were plastic. As House Beautiful assured readers in 1953: "You will have a greater chance to be yourself than any people in the history of civilization."

I pexels

6% Share of global oil consumption used to make plastic

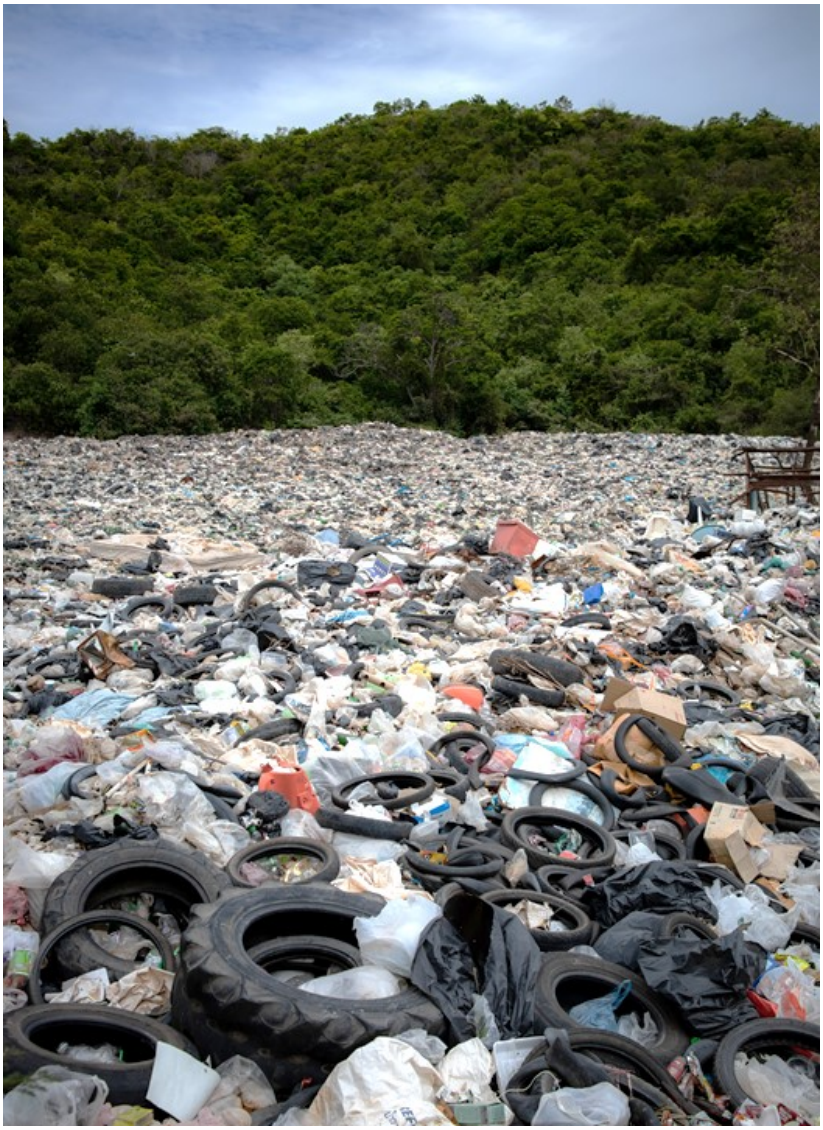
It's hard to say when the polymer rapture began to fade, but it was gone by 1967 when the movie The Graduate came out. Somewhere along the line, plastic's penchant for inexpensive imitation came to be seen as cheap ersatz. So audiences knew exactly why Benjamin Braddock (as played by Dustin Hoffman) was so repelled when a family friend took him aside for some helpful career advice: "I just want to say one word to you … Plastics!" The word no longer conjured an enticing horizon of possibility but rather a bland, airless future, as phony as Mrs. Robinson's smile.

Today, few other materials we rely on carry such a negative set of associations or stir such visceral disgust. Norman Mailer called it "a malign force loose in the universe … the social equivalent of cancer." We may have created plastic, but in some fundamental way it remains essentially alien, ever seen as somehow unnatural — though it's really no less natural than concrete, paper, steel, or any other manufactured material. One reason may have to do with its preternatural endurance. Unlike traditional materials, plastic won't dissolve or rust or break down, at least, not in any useful time frame. Those long polymer chains are built to last, which means that much of the plastic we've produced is with us still — as litter, layers of landfill, and detritus in the ocean. Humans could disappear from the earth tomorrow, but many of the plastics we've made will last for centuries. Each of them offers an object lesson on what it means to live in Plasticville, enmeshed in a web of materials that are rightly considered both the miracle and the menace of modern life.

42% Share that car tires contribute to microplastics dumped into the sea by European rivers

The story of plastics is riddled with those kinds of paradoxes. We enjoy an unprecedented level of material abundance and yet it often feels

impoverishing, like digging through a box packed with Styrofoam peanuts and finding nothing else there.



We take natural substances created over millions of years, fashion them into products designed for a few minutes' use, and then return them to the planet as litter that we've engineered to never go away. We enjoy plastics-based technologies that can save lives as never before but that also pose insidious threats to human health. We bury in landfills the same kinds of energy-rich molecules that we've scoured the far reaches of the earth to find and excavate. We send plastic waste overseas to become the raw materials for finished products that are sold back to us.

8.8 million tons Amount of plastic that ends up in the ocean every year

These paradoxes contribute to our growing anguish over plastics. Yet the plastics-related issues that dominate headlines today surfaced in earlier decades. Studies that show traces of plastics in human tissue go back to the 1950s. The first report of plastic trash in the ocean was made in the 1960s. Suffolk County, New York, enacted the first ban on plastic packaging in 1988.

But the stakes are much higher now. As Plasticville sprawls farther across the landscape, we become more thoroughly entrenched in the way of life it imposes. It is increasingly difficult to believe that this pace of plasticization is sustainable, that the natural world can long endure our ceaseless "improving on nature." But can we start engaging in the problems plastics pose? Is it possible to enter into a relationship with these materials that is safer for us and more sustainable for our offspring? Is there a future for Plasticville?

The Environment *Review*
ISSN: 2708-776X (print), 2708-7778 (electronic)

Flood Control and Watershed Management Systems in Bangladesh

Happy Khatun

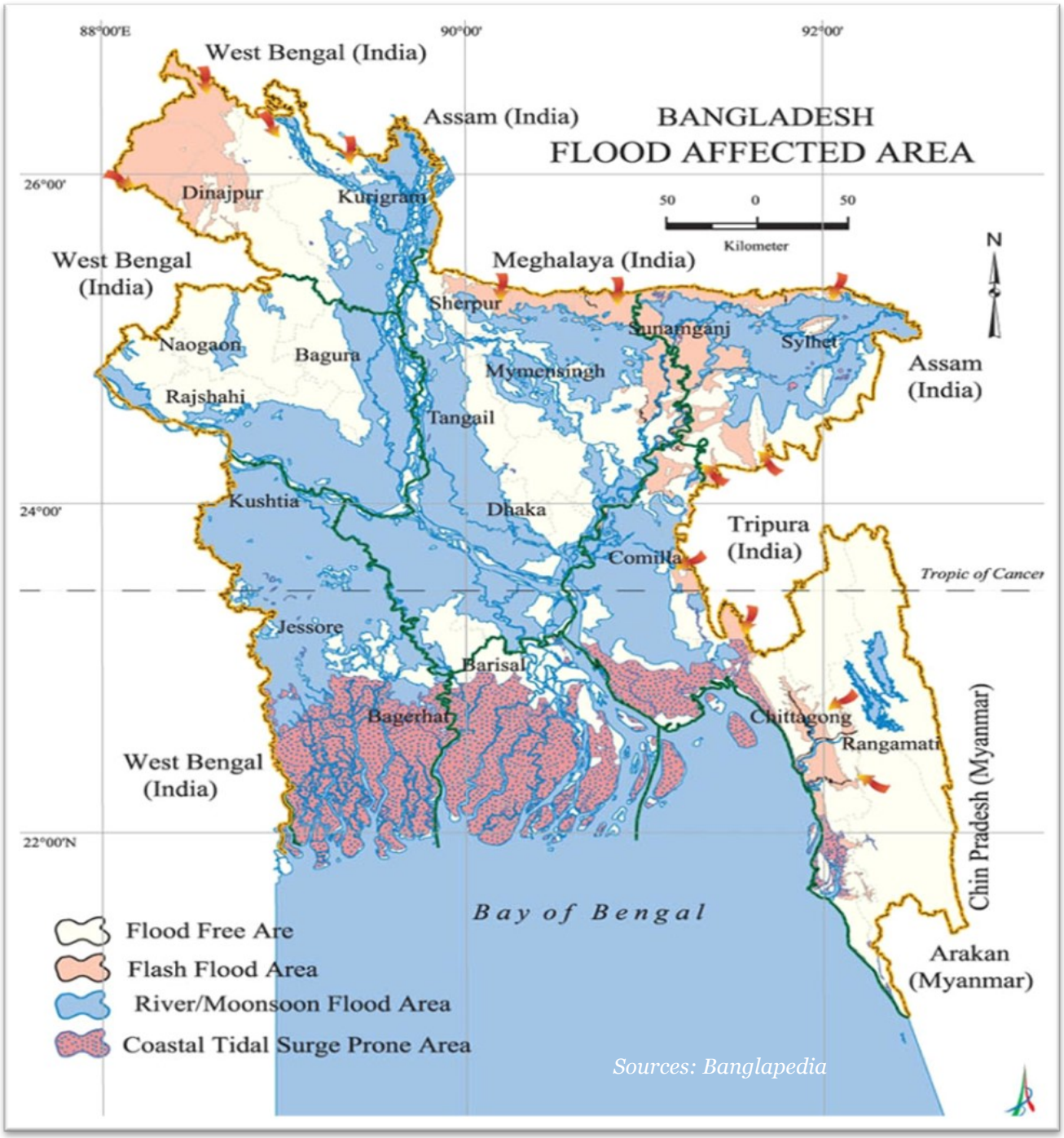
Flood effected area in Bangladesh
Source: UNICEf

Flood is a natural disaster, and it is an overflow of water that submerges land that is usually dry. Flooding may occur overflow of water from water bodies, such as a river, lake, or oceans, in which the water overtops or breaks levees, resulting in some of that water escaping usually its boundaries. Bangladesh experience four types of floods, flash floods, riverine floods, rain floods, and storm floods. The country consists of the flood plains of the Ganges, the Brahmaputra, and the Meghna River, are generating a basin named GBM, which cover almost of the area of this country and drained the huge runoff through this three river system. Flash flood occurs in the northern and eastern rivers. Riverine floods from the spilling of Major River and tributaries and it's generally rise and fall slowly over 10-20 days or more. It can cause extensive damage to property and loss of life. Storm surge floods occur in coastal areas of Bangladesh. Which consists of large estuaries, extensive tidal, and low lying islands. River floods occurred by high intensity rainfall of long duration in the monsoon season. From year to year, the extent and depth of rain water flooding varies with the monsoon.

Normal floods are the important in the economy and peoples life. Peoples of rural and

urban areas of Bangladesh have adapted to changes introduced in normal floods. Bangladesh is the recognized as one of the most vulnerable countries to flood disasters in the world.

Floods in Bangladesh are both a blessing and a curse. Flooding is the most common disasters in our Bangladesh and it is the most economically damaging and devastating natural hazard. In every year, Bangladesh affected in different kinds of floods. There is no doubt that flood is a major threats for the inhabitants of marginal settlements. In the flood seasons, slum areas people and the floods of Bangladesh of 1954, 1955, 1963, 1974, 1987, 1988, 1998, 2004, and 2007, all caused enormous damages to properties and considerable loss of life. This flood damage to standing crops, livestock, poultry, houses, transportation. Communication sys-



tems, educational and institutional buildings and other social and economic facilities. In 1988, the floods are the dangerous for all category of peoples. This flood are affected in Bangladesh in long time period and flooding resulting from hydro and meteorological events. The floods of 1987, 1988, 1998, 2004, 2007 flood caused heavy damage in Bangladesh and suffered more deaths per flood event during the time period from 1971 to 2014.

During the flood season, people are always afraid. Bangladesh is recognized as one of the most vulnerable of flood disasters of the whole world. Flood causes destruction of country's physical and social infrastructure, transport network, assets of crop production, loss of lives, domestic animals, fields, loss of house and shelters etc. It's not only the social lives of the people but also the economy as a whole.

During 1972 to 2013, floods 15,033 people died from flooding in the Bangladesh and average facilities resulting in 358 per year. The major impact of flood is death caused by drowning water-borne disease, diarrhea, and snakebites.

In Bangladesh, flood management process is not sustainable and proper. The incident year to year the several methods and systems are used for all flood management. In incident period to colonial period the flood management limited to the embankment. The first master

plan developed in 1964 and started coastal embankment projects, 1968 as a result of Krug Mission. The national scale of Flood Control and Drainage (FCD) project has been taken and this FCD project continue till as creation of Flood Action Programme (FAP) but This method of flood management was not proper and sustainable for Bangladesh thus this can't help in flood management and we see the more devastating flood after the existing of embankment.

Major positive outcomes initiative including the formulation of guidelines of precipitation, environmental impact assessment, better understanding of flood management and effect of flood control and drainage, on fisheries has been formed and changed the flood management paradigm to more focused on pre-disasters flood preparedness rather than the post disasters flood management as relief and rehabilitation. The several law act and policy developed this time Bangladesh Government has already finalized Flood Management Strategy in1995, National Water Policy in 1998, and National Water Management Plan in 2004.

Mainly two types of flood management in Bangladesh, one are structural and another one is non-structural flood management. Flood Embankment, Channel Improvement, River Training, Coastal Embankment etc. are the structural flood management, it's also called the engineering structure. Flood Proofing, Disaster Preparedness and Response Planning Flood Forecasting and Early Warning, Flood Plain Zoning and Management, Policies for infrastructure, Planning and Development in the flood plains are the non-structural flood options.

In flood-prone areas, preventive measures should be taken to reduce possible adverse effect of floods on aquatic and terrestrial ecosystems, water and soil pollution. Flood forecasting and warning is a prerequisite for successful mitigation of flood damage. Its effectiveness depends on the level of preparedness and correct response. Therefore the responsible authorities should provide timely and reliable flood warning, flood forecasting and information. The effectiveness of the best practices describe in above part depends on among other hydrological and environmental

ISSN: 2708-776X (print), 2708-7778 (electronic)

circumstances.

The control of natural hazards is part of watershed management. A watershed is the geographical area drained by a water course. Watershed approaches in floodplain management, however, require conditional time, cost, and effort, to pursue. Major floods, local flash floods, or regionally extensive major floods, present a significant challenges to watershed management. Management challenges the appropriate role and approaches to flood 'control' effects of land use modification and floodplain regulations.

Runoff from rainwater or snowmelt can contribute significant amounts of pollution in the lake or river. Watershed management helps to control pollution of water and other natural resources watershed by identifying and how much different kinds of pollution present in watershed. Watershed management practices to protect the water quality. Management of environment primarily focused on some specific issues, such as, air, water, remediation of waste sites, contaminated groundwater, improved landfills, protection of rare and endangered species, design of best management practices to improve water and contaminated runoff. Watershed management system exists in point source pollution and non-point source pollution. Problems Management must come together to better understand the interactions between the environmental components and actions that can be taken by all towards the goal of ecosystem integrity.

Watershed management is an important aspects of creating and implementing plans, programs, and projects to sustain and enhance the watershed functions that affect the plant, animals, and human communities within a watershed boundary. Watershed ecology primarily discusses the biotic and abiotic components. Forests and tree play a crucial roles in hydrological processes in watersheds.

Watershed management is also important because the planning process results in a partnership among all affected parties in the watershed. Watershed boundaries not coincide with political boundaries. Watershed management the adoption of sustainable land and water management practices and encourages investment in better land husbandry. Efforts to improve efficiency in the use of natural resources, water are required to reduce pressures on the resource base and to restore the health and quality of freshwater ecosystems. In comprehensive planning, for the resources the entire watershed, with participation and commitment from all municipalities in the watershed, is critical to protecting the health of the watershed resources.

Flood control and watershed management is the most important topics in flooded area. Watershed management to protect, and conserve, and improve the land of watershed for more efficient and sustained production. Enhance water resource originating in the watershed and moderate the flood peaks at downstream areas.

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Turn the Corner of World Environment into COVID-19 Pandemic

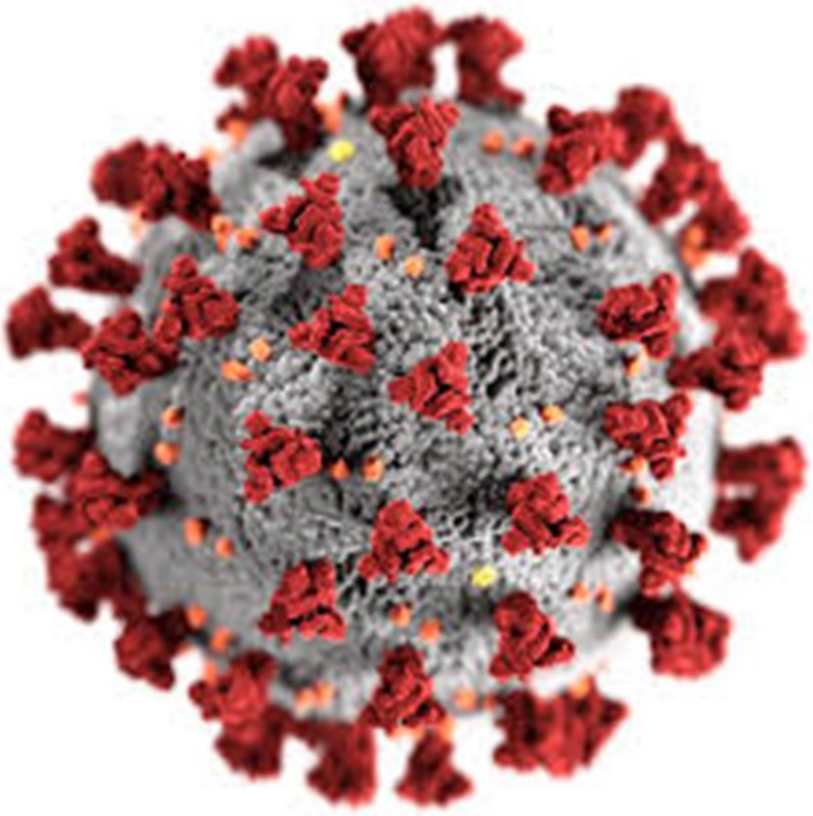
Joy Chandra Das

The climate is an integral component of human and animal health. COVID-19 is a global health challenge in the twenty-first century. The emergence of SARS-CoV-2 in Wuhan, China in December 2019, and its spread to regional countries and nowadays affecting more than 210 countries. COVID-19 is affecting the lives of millions of people and also the environment. The CO2 and various types of chemical gases emissions and human mobility have been reduced, which improves air quality and encourages wild animals to come out and explore the cities. Scientists have confirmed that air quality in certain regions has improved in recent weeks as industries, aviation and other means of transportation stop, air pollution is reduced countries severely affected by the virus, such as China, Italy, Spain and USA.

The worldwide disruption caused by the covid-19 pandemic has resulted in numerous impacts on the environment and the climate. The considerable decline in planned travel has caused many regions to experience a large drop in air pollution. In china lockdowns and other measures resulted in a 25% reduction in carbon

ISSN: 2708-776X (print), 2708-7778 (electronic)

emissions and 50% reduction in nitrogen oxides emissions, which saved at least 77000 lives over two months. Other positive impacts on the environment include governance systems controlled towards sustainable energy transition and other goals related to environmental protection.



Air Quality

Due to the corona virus out break's impact on travel, industry, many regions and the planet as a whole experienced a large drop in air pollution. Reducing air pollution can reduce both climate change and covid-19 risks but it is not yet clear which types of air pollutions are common risks to both climate change and covid-19. The Centre for Research on Energy and Clean Air reported that methods to contain the spread of corona virus, such as quarantines and travel bans resulted reduce carbon emissions and air dust particles.

Carbon Emissions

The daily global carbon emissions during the lockdown measures in early April fell by 17% and could lead to an annual carbon emissions decline of up to 7%, which would be the biggest drop since World War II according to the researchers. They ascribe these decreases mainly to the reduction of transportation usage and industrial activities. However, it has been noted that rebounding could diminish reductions due to the more limited industrial activities. Despite of this the concentration of carbon dioxide in the atmosphere was the highest ever recorded in human history in May 2020.I think "a pandemic is the worst possible way to reduce emissions" and that "technological, behavioral, and structural change is the best and only way to reduce emissions". The world's demand for fossil fuels has decreased by almost 10% amid coronavirus measures. During the pandemic many people have started cycling and bike sales surged.

Seismic Noise Reduction

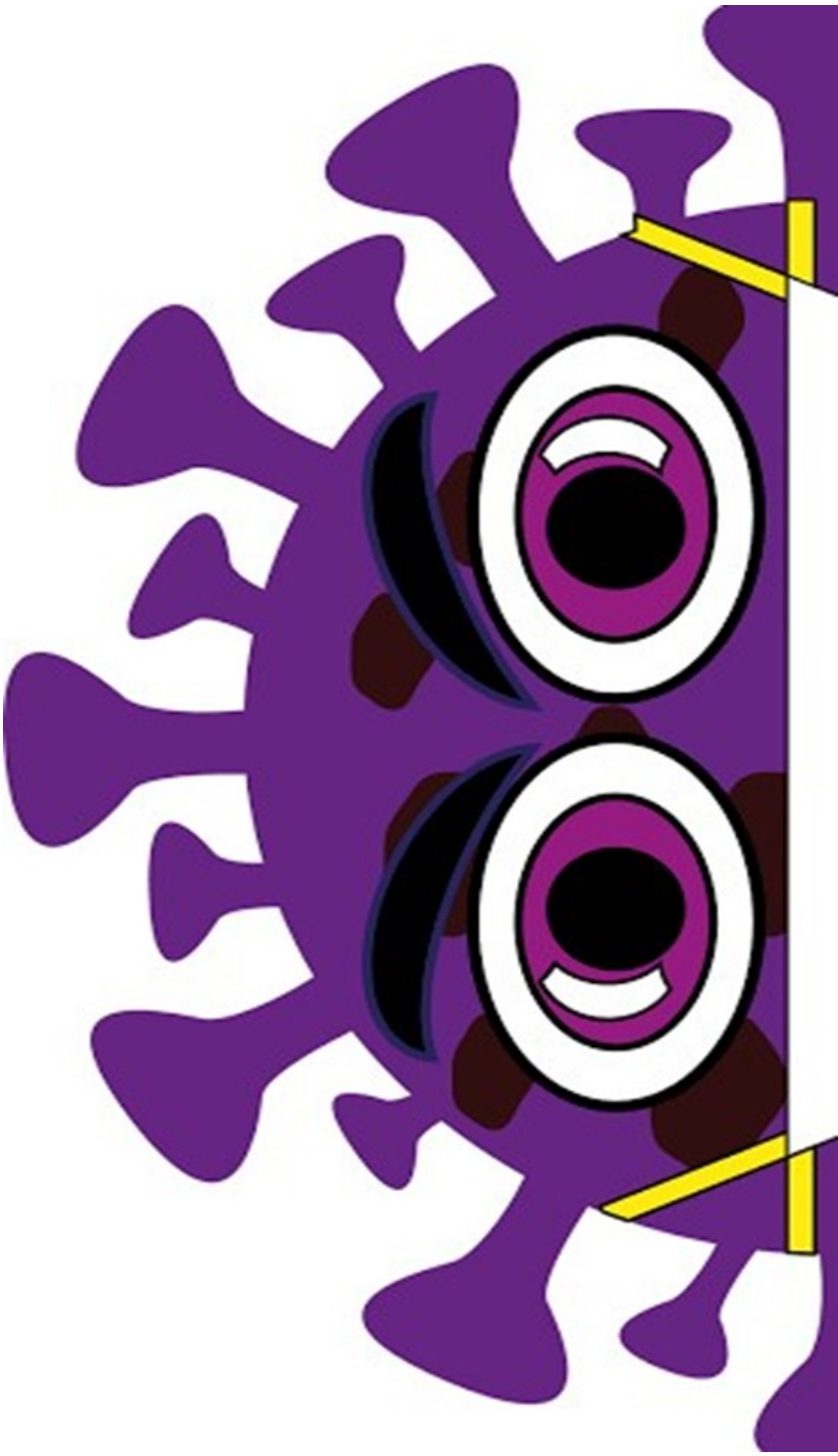
Seismologists have reported that quarantine, lockdown, and other measures to mitigate COVID-19 have resulted in a mean global high-frequency Seismic noise reduction of 50%.This study reports that the noise reduction resulted

from a combination of factors including reduced traffic/transport, lower industrial activity, and weaker economic activity. The reduction in seismic noise was observed at both remote seismic monitoring stations and at borehole sensors installed several hundred meters below the ground. The study states that the reduced noise level may allow for better monitoring and detection of natural seismic sources, such as earthquakes and volcanic activity.

Public Health Effects

During the coronavirus pandemic, many workers are without jobs, public school students are preparing for online classes, and everyone is being asked to wear masks and to social distance. This ongoing health crisis also appears to be having an impact on the environment. Masks make a difference, it is one of the primary and fundamental tools that we have, while the masks have the benefit of helping protect people from the illness. Besides, masks and other forms of Personal Protective Equipment or PPE's being discarded in a haphazard manner. The litter includes masks and gloves. Everything on the ground ends up in the river. Anyone throw it out on the side of the road, that is not where it stays is going to wash it into a drain and it's going to head straight into the nearest river. This pollution includes the PPE people are using to stay safe during the pandemic.

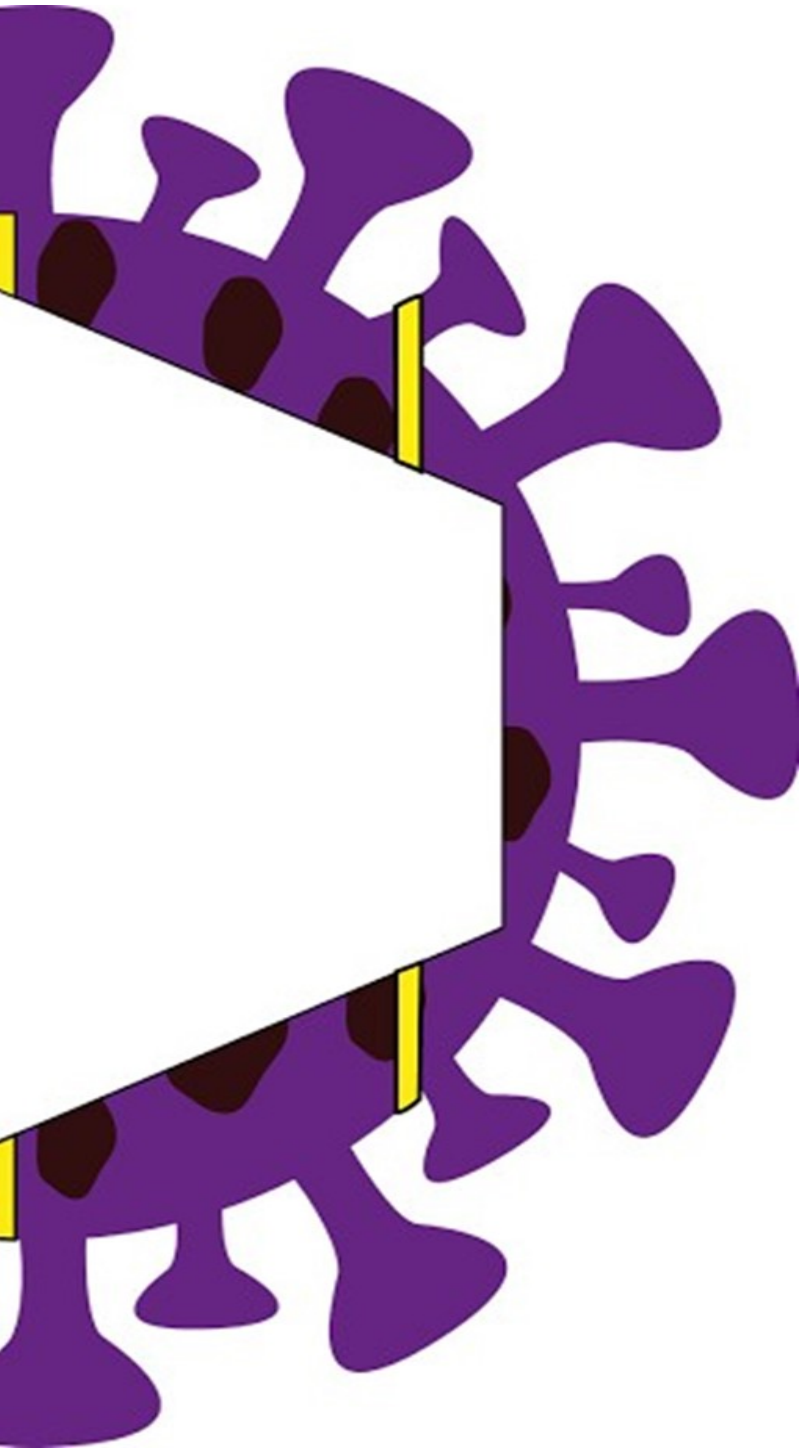
The pandemic has kept a lot of people home from work and social distancing to stand apart from strangers. When confronting viral outbreaks or climate change, however, policy procrastination can be tragic. The spread of COVID-19 and the changes in our climatic system are ruled by non-linear dynamics. That



means that delayed responses get disproportionately more expensive: in the US, starting social distancing one week earlier could have avoided an estimated 55% of deaths (36,000) between mid-March and early May.

ISSN: 2708-776X (print), 2708-7778 (electronic)

I think mentally it can give us a boost also when the world seems kind of heavy and hectic and a little scary and wean know we are taking steps to at least be environmentally friendly.



Changing Anthropology

Public in a uniform format, Almost people across the world had to change the way they live, the way they work – with many facing loss of income – commute, buy food, educate their children and other energy-consuming behaviors. It's critical for us to better understand how future societal disruptions and catastrophes could affect interactions among the people and behaviors and other systems that serve society. Understanding the human response, it's a key factor in understanding how the pandemic's effects play out is its influence on human behavior and decision making. Human behavior contributes to, but is also affected by changes in the Earth system, and COVID-19 is creating new challenges for ensuring people and corporations act to protect the planet.

Politics

In the early days of the pandemic, many political leaders had the tendency to delay decisive policy action until it seemed inevitable. However, politicians cannot be blamed alone for initial policy paralysis. At least in democratic systems, the action space of policymakers is always constrained by the support of the public. We the public, however, are psychologically ill-equipped to understand the gravity of abstract threats like climate change. The virus, abstract in the beginning when it seemed still confined to the city of Wuhan. Climate change has thus far failed to attract a similar level of alertness. Indeed, what society is willing to do seems to depend crucially on how 'bad' we think it will get

The pandemic has also impacted environmental policy and climate diplomacy, as the

2020 United Nations Climate Change Conference was postponed to 2021 in response to the pandemic after its venue was converted to a field hospital. This conference was crucial as nations were scheduled to submit enhanced nationally determined contributions to the Paris Agreement. The pandemic also limits the ability of nations, particularly developing nations with low state capacity, to submit nationally determined contributions, as they are focusing on the pandemic.

Time highlighted three possible risks: that preparations for the November 2020 Glasgow conference planned to follow the 2015 Paris Agreement were disrupted; that the public would see global warming as a lower priority issue than the pandemic, weakening the pressure on politicians; and that a desire to "restart" the global economy would cause an excess in extra greenhouse gas production.

However the drop in oil prices during the coronavirus recession could be a good opportunity to get rid of fossil fuel subsidies, according to the Executive Director of the International Energy Agency. Carbon Tracker argues that China should not stimulate the economy by building planned coal-fired power stations, because many would have negative cash flow and would become stranded assets. The United States' Trump administration suspended the enforcement of some environmental protection laws via the Environmental Protection Agency (EPA) during the pandemic. This allows polluters to ignore some environmental laws if they can claim that these violations were caused by the pandemic.

World Economics

Climate change is harder to defeat politically, although easier to tackle economically. On the bright side, while these transformations would last longer, they would not be as disruptive to the economy: the IMF (2020) predicts a 4.9% contraction of the global economy in 2020, while the European Commission assumes that GDP in the euro area will even drop by 8.7%. In comparison, a 0.06% reduction in annual global consumption growth over this century that will be compromised for achieving the Paris Agreement (IPCC 2014) seems negligible. Yes, economists are currently asking to direct huge sums of tax money from the COVID-19 economic stimulus packages into climate-friendly investments, but in the long-run many of those measures may pay for themselves. In a recent survey, economic experts demonstrated how certain green policies could outperform conventional stimulus packages in getting pandemic-ridden economies back on track.

The researchers note that although many of the initial impacts of COVID sheltering, such as clear skies resulting from reduced pollutant emissions, could be perceived as beneficial to the environment, the longer-term impacts – particularly related to the economic recession – are less clear. To understand the impacts across both short and long timescales, they propose focusing on cascading effects along two pathways: energy, emissions, climate and air quality; and poverty, globalization, food and biodiversity.

Some of the pandemic's most lasting im-

pacts on climate and air quality could occur via insights it provides into the calculation of policy parameters that measure the value that individuals and society place on different environmental trade-offs. The COVID-19 crisis is making these tradeoffs more explicit, the researchers point out. This is because governments, communities and individuals are making historic decisions reflecting underlying preferences for current and future consumption, as well as the tradeoff between different types of economic activity and individual and collective risk. [Erupted from Stanford University]

The Socio-Environmental Effects

COVID-19 presents a unique opportunity to study policy interventions designed to prevent socio-environmental damage, according to a Stanford-led paper. The results could help vulnerable people weather poverty shocks from COVID-19, and provide a deeper understanding of how and where poverty and environmental degradation are most tightly linked.

COVID-19 and climate change share a marked similarity: the worst damage is only averted when society commits to decisive and early action in the face of a seemingly abstract threat. There are good reasons to believe climate change will be even harder to defeat, even though – or precisely because – there is more time to confront it. This column argues that the current pandemic is an exceptional opportunity to understand where the real challenges lie for progression on climate action – in garnering political will and public support. It provides key policy suggestions for the next wave of climate action.

Studying policy interventions designed to prevent socio-environmental damage – such as the role of poverty in driving deforestation – could also help vulnerable people weather poverty shocks from COVID-19 by providing a deeper understanding of how and where poverty and environmental degradation are most tightly linked. The researchers propose using the kinds of solution such as payments for protection of natural resources are effective in staving off deforestation, over-fishing and other environmental damages. After all environmental impact of the COVID-19 pandemic is a lesson for the future.

Recommendations

On balance, there are reasons to believe that climate change will be even harder to defeat than the COVID-19 pandemic. We will probably resume some semblance of normalcy in a post-pandemic world once an effective vaccine and treatment protocol have emerged. Stabilizing the climate, however, requires more lasting transformations that need to be implemented long before climate change reaches catastrophic dimensions.

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Ozone Depletion: Earth's Ozone Layer is Healing

Sourav Bhowmick

"Be a slayer for the ozone layer, else future will be based on artificial layer, so save ozone layer as our environmental resource"

It's really a true fact that the total healing of the Ozone Layer all over the world expected soon. The ozone layer is a belt of naturally occurring ozone gas in the stratosphere.
Ozone depleting substances (ODS) like CFCs and other organic substances that are used in appliances are responsible for the depletion and thinning of ozone layer. It absorbs the harmful Ultraviolet radiations emitted from the sun before it reaches the Earth's atmosphere.

The Montreal Protocol is an international treaty signed to protect the ozone layer where the parties agreed to phase out production of ODSs. It has proved to be one of the most successful international treaties as the ozone layer is slowly reviving and the ozone hole over Antarctica is also healing. The role of ozone in the two regions of the atmosphere is different. The stratospheric ozone is called as the
good ozone due to its role in shielding the biologically damaging ultraviolet sunlight (called UV-B).

ISSN: 2708-776X (print), 2708-7778 (electronic)

Whereas, tropospheric ozone is known as bad ozone because of it's highly reactive nature with other gas molecules and it is toxic for living systems. Surface ozone is also a key component in formation of photochemical smog which is a potential air pollutant. The ozone molecules in the stratosphere are constantly formed and destroyed during any given time. Thus, the concentration of ozone is supposed to remain relatively stable unless the chemistry is drastically disturbed by external factors.

In the beginning of the 1970s, the scientific community discovered that the ozone layer has been depleting more quickly than it is naturally formed. It was due to the human produced ozone-depleting organic compounds generally identified as halocarbons. They are combinations of elements like chlorine, bromine, fluorine, oxygen and hydrogen. Collectively they are known as Chlorofluorocarbons (CFCs) and Hydroclorofluorocarbons (HCFCs). Other ozone depleting substances are carbon tetrachloride, methyl chloroform and methyl bromide. These substances are non-reactive, non-flammable and non-toxic and can travel for a long distance reaching up to the stratosphere in a few years.

In the presence of UV light they produce free chlorine, fluorine and bromine which in contact with ozone break down their molecules. It is estimated that, one chlorine molecule can destroy 100,000 ozone molecules before it is removed from the stratosphere (Environmental Protection Agency, US, 2016). ODSs are used in our day today appliances like refrigerators, air conditioners, fire extinguishers, foam insulators etc. The use of these substances is banned legally in most of the countries but illegal use is still widespread. Finding a replacement for CFCs became inevitable and with effort the global scientific community found substances which are less harmful than CFCs.

Hydro chlorofluorocarbons (HCFCs) are one of the temporary replacements for CFCs, while Hydroflourocarbons (HFCs) are the main long term replacements for CFCs and HCFCs.

Since chlorine has the highest potential to destroy ozone, products that are entirely free of chlorine will be the ultimate replacements for CFCs and HCFCs.The growing awareness of the serious impacts of ODSs in the ozone layer led to the groundbreaking Montreal Protocol on Substances that Deplete the Ozone Layer which was signed in 1987. It was the first joint international effort to protect the stratospheric ozone.

The parties under the Protocol decided to phase out CFCs and Halon productions. The measures taken up under this agreement was met with positive results as ODSs are falling and the ozone layer is expected to be fully healed near the middle of the 21st century. Most of the biological impacts of ozone layer depletion are due to the damaging nature of UV-B radiations. The reduction of ozone concentration in the stratosphere allows more UV-B radiations to penetrate into the Earth's atmosphere. Research says that 1(one) per cent decrease in ozone overhead can result in a 2 per cent increase in UV-B intensity at ground level (Baird and Cann, 2008).

The DNA molecules of a living body absorb the UV radiation and can cause several genetic aberrations. It can be linked to several human conditions like skin cancers, cataracts, macular degeneration (gradual death of retinal cells) etc. Malignant melanoma is a widespread skin cancer caused by over-exposure to UV-B radiations. The impacts of UV-B radiation is confined not only to humans but plants as well.

The efficiency of plant photosynthesis is reduced leading to less leaves, fruits and seeds. It also affects the production of microscopic phytoplankton which is an important base in the marine food chain. On the bright side, research and monitoring have shown that the ozone hole over Antarctica has started to heal. It was reported in 2015 that the hole was around 14 million sq. km smaller than it was in the year 2000, an area roughly the size of India.

This milestone has been credited to the international joint efforts in phasing out of ozone depleting substances. Meanwhile, researchers say that even though production of ODSs has been phased out in many countries, there is still plenty of chlorine left in the atmosphere. It is expected that complete recovery of ozone depletion would happen by around 2050-60 owing to the long lifetime and slow decay of chlorine.

Therefore it is the responsibility of every single person to realize the value of ozone layer towards our Biodiversity and making step towards a positive change.

"We're going to do a bowling for dollars type thing, but it'll be breakdancing on cardboard for yen for the ozone layer, so it'll be called breaking in space."

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Time for The Nature

Shahrin Tabassum

Nature is a forest surrounded by greenery. Externally we call the forest. There is a lot of biodiversity in a forest. The free movement of various kinds of animals and birds, the chirping of birds, the beautiful environment covered with greenery which is playing an outstanding role in maintaining our natural balance.

In our eyes, the forest is just a pleasant environment, but a huge supply of oxygen needed to survive comes from this forest. 20% of the world's total oxygen comes from one Amazon forest. For which Amazon is called the lungs of the earth. But we human society has repeatedly risen and fallen to destroy the Amazon. Not once or twice, from January to August last year, there were 62,600 wildfires in the Amazon rainforest. Until August 2017, this number was about 40,137 times. There were more fires in Brazil in 2013 (3556 times) than in the four months to 2019. As a result, 5 million square

kilometers of Amazon rainforest in Brazil is under threat. Evidence of this is the 50% increase in deforestation in the Amazon Basin between August 2016 and July 2019.

A team of scientists at the Federal University of Brazil says wildfires in the Amazon are a common occurrence during the dry season. The dry season there is from July to October. These fires can be caused by natural causes such as lightning. But Carlos Nobre, a researcher and Climate Scientist at the Institute for Environmental Studies at the University of Sao Paulo, said farmers who want to use the land as cattle grazing are waiting for dry weather to clear the area. At this time it caught fire very easily. Again some farmers and carpenters set fire to the forest to clear the land for crop production.

Scientists say the level of carbon emissions is increasing due to the disappearance of the ice cover. As a result, the situation is becoming more dangerous day by day. These figures have been highlighted in a recent special report by the IPC or the International Panel on Climate Change. This was their third report on climate change in the last one year. The latest report reveals the possible effects of rising temperatures on ice-covered seas. What scientists have found this time is much more frightening than previous reports. In short, sea surface temperatures are rising, ice is melting rapidly, and this is having an impact on the world's animal kingdom. "The future of the sea is still in our hands," the report said. But it will have to reduce its carbon emissions by at least 45 percent by 2030.

At this time in 2020, when we are discussing nature conservation, maybe one of our vicious circles is destroying thousands of hectares of forest in Bangladesh. The rate at which we are destroying forests is threatening our fu-

ISSN: 2708-776X (print), 2708-7778 (electronic)

ture generations. We are pushing ourselves towards a very bad time. We need to have 25 percent of the total forest area of a country, we have only 16 percent. There is no way to increase the forest area but the number of forests is decreasing day by day. People are invading inaccessible areas of nature. The Sundarbans that was once protected, is now being harmed by overuse. The natural forest of the Chittagong Hill Tracts (CHT) is the largest forest in Bangladesh. But the huge forest cover in Cox's Bazar has been damaged due to sheltering Rohingyas deported from Myanmar.

According to official estimates, Bangladesh's forest cover is 17 percent, but the Food and Agriculture Organization of the United Nations (FAO) said in a report on July 9, 2016 (The Test of Global Forest 2018) that 13 percent of Bangladesh's total land area is forest. According to the report of CFO and WRI, Chittagong region is the most advanced in terms of deforestation. In 2010, 60% of the country's total natural wealth was in this area. In the last 7 years, it has come down to about 10 percent. Ukhia and

Teknaf in Cox's Bazar have been destroyed 5,000 acres of forest land in about six months in 2018 for Rohingya settlement. In Cox's Bazar, another upazila, Maheshkhali, 200 acres of reserved forest land was acquired in May for setting up crude oil depots and pipelines. Economic zones and power plants have sprung up in different parts of the country. In this situation, it is natural that the natural forest area in the country will decrease. According to FAO's World Report 2011, forest cover in Bangladesh is 11% of the total land area.

Characteristically, the forests of Bangladesh have been divided into several phases such as evergreen forests, tropical evergreen forests, tropical deciduous forests, freshwater wetland forests, parabon or mangrove forests and created forests. 65% of Bangladesh's mangroves or Sundarbans are located in our country. This forest is a reservoir of natural resources. Thousands of animals, birds and even humans depend directly and indirectly on the Sundarbans for survival. The Sundarbans has become a shield for Bangladesh during the catastrophic cyclones & various natural calamities like Sidr, Aila, Amphan. But sadly, this forest is not being properly protected. The number of our national animal Royal Bengal Tiger is decreasing day by day along with the declining deer, crocodiles, various birds, fishes, aquatic and terrestrial animals, a huge amount of trees.

Excessive extraction of natural resources is upsetting the balance in nature. As a result, climate change is taking place. The navigability of river water is decreasing. Problems such as landslides, river erosion, extreme floods and other natural disasters are taking shape. Large high-rised buildings are being built by cutting down trees and filling the river. The water level is going down as a result of extra groundwater extraction. As a result, the desertification process is accelerating. There is shortage of fresh water in different areas. High-density saline water occupies the freshwater layers. Yet the oppression of man on nature has not stopped. Everyone is responsible for making us suffer in the present heated condition, the responsible civilized human society. Many organizations around the world, including the United Nations, are now working to save nature. Many steps have been taken to prevent desertification. Much is being done to reduce ozone depletion. The protection of future generations must be ensured. We have to plant trees personally and inspire others. There is no alternative to planting trees to protect the environment.

Man has wanted to rule over nature since the beginning of creation. This is like a demonic intoxication of mankind. The biggest loss in that game is in mandkind themselves. Even then, people get involved in that ugly game. Mankind forgets that their lives are intertwined with every aspect of nature. Free hunting of animals, keeping birds flying in the open sky in cages, cutting down trees indiscriminately, building houses to live by filling water bodies, cutting down trees and occupying forest lands have all become a habit of human beings. As a result nature is losing its own movement. We forget that powerful creatures like dinosaurs have become extinct from the earth as a result of adverse changes in nature. So in order to sustain our existence, we have to let nature move at its own pace. Not to rule over nature but to adapt to nature. Otherwise, tiny creatures like cockroaches will survive and the human race will disappear from the face of the earth like dinosaurs. So we have to try our best to protect the environment from our respective positions.

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The Environment *Review*
ISSN: 2708-776X (print), 2708-7778 (electronic)

Natural Beauty of Madhutila Hill Tracks at Sherpur, Bangladesh

Nadira Islam

Nature, biodiversity, ecosystem and beauty are all intertwined. Wherever nature has arranged itself on the basis of beauty, there are stories of fauna and natural balance. There are some places in Nalitabari upazila at Sherpur District. Sherpur is a district in Northern Bangladesh. It is a part of Mymensingh Division. Sherpur city is located about 197-199 kilometres north of Dhaka which is the capital of the capital of the country. The area of Sherpur District is about 1364 km2. There are many attractive place at Sherpur for any nature lover people.

Firstly which name comes is about Madhutila Eco Park, this is also describe the Sherpur district. And another name is Tarani pahar, Panihata. This one is unknown tourist place for maximum people for other district.

Madhutila Eco Park

Madhutila Eco Park is fully funded under the Ministry of Environment and Forests, with about 100 hectares of mountainous forests, located in the Nalitabari upazila of Bangladesh-India border and under the division of Mymensingh Forest Division, controlled by the division of Madhutila range Greater Mymensingh Sherpur district. The modern facility the Madhutila Ecocharkt, has opened the entertainment gates to the beauty pageants by attracting local and foreign tourists.

Madhutila Eco Park, a distance of 20 kil-

ISSN: 2708-776X (print), 2708-7778 (electronic)

ometres from the Nalitabari upazila on the border of Sherpur district, is a unique entertainment centre. Tura Hills of Meghalaya state, located two and a half kilometers from the side. Madhutila Eco Park is being built on the cutting edge of the tree of forest trees to protect the balance of biodiversity. Ecotected by various types of animals, the natural beauty of the small and large number of the mountain ranges are really delightful. Forest Beat Muntila, surrounded by natural beauty, is an attractive amusement place.

Tourism facilities include 15 acres of auspicious and rare species forestry. There are 20 acres of forests in the forest, including the cultivation of medicinal herbs, rest house, homes. The four-room sophisticated rest house is under construction. Various wildlife sculptures have two hands, two tigers, fisheries, eagles, hanuman, pawns, snakes, crocodiles, deer, kangaroo, frogs, lions, etc. Infrastructural works include observation towers, 1 star bridge, public toilets, sitting space.

There are 3 paddle boats and 5 domestic boats for sowing and using the Lake. Presently, eCorkers are open to visitors-tourists. There is a growing crowd increasingly touring the tourism center. Many people are enjoying unrestrained pleasures in the tranquil peace environment. Traveling from across the city's racket every day,

travels from across the country, thirsty, is coming to see alluring natural beauty. The mountains after the Hills roam the mountains. There is huge range for entertaining. Madhutila to go to the left side of the Eco Park Gate, in the observation tower. It has been built on top of the hill. Stand on the observation tower to enjoy the fun, silent-silence of nature.

As if a frozen window everywhere in the green state you will see the Hills of the Indian state of Meghalaya, located just a few miles away. The main gate of Eco Park will be seen in Peru, wildlife elephant sculptures. It is standing in reality. A few feet will be seen by the Kumari fisherman in the corner of the Lake and 3 pedal boats and five domestic boats in the Lake. The water of the fishery has come in the Lake of Lake. At the right side of Culvert, there is a light breakfast, tea and coffee shops. A little excited, the beautiful Star Bridge, built on the Lake of Lake. Hundreds of people together can enjoy the banqueting banquet.

There are artificial crocodiles nearby. Looks realistic to see. Then, in the greater area,

ISSN: 2708-776X (print), 2708-7778 (electronic)

there will be a glimpse of the various animal sculptures. The place to sit in place. The highlands are cut into sloping roads to go to the rest house. Suitable for private-micro running, in the middle of a rigid paved street, there are several colored stones that do not slip out. And if you stand on top of the bottom, it will be like a row of flowers. There are two side biodiversity portraits. If you see the sculptures, it would seem like the perfect picture of the artist's hand. Standing on the curved stairs of the Rest house can be enjoyed by the enchanting environment of nature.

Looking at the high mountains, it seems like the water stream and the Lake is already under the Lake. Actually, they are on the mountain road. Take a break and rest in the rest house. Enjoy the rest house' modern amenities. Then after eating and drinking, go out again from mountain to Hills, on the other Hills. Biodiversity, wildlife sculptures, and scenes with nature, take pictures in the camera, remember the past remembering the past. There is a secret behind the road of Madhutila it create one of best scenario. Everybody should go and see this beautiful place.

Tarani Pahar, Panihata

Tarani Pahar, Panihata, this is such an attractive place near from Madhutila. Beautiful Panihata-Tarani hills in the Garo hills bordering Sherpur constantly attract nature lovers. The lurking view of the clouds and mountains will draw the mind of any nature lover. Part of the place called Panihata is the hill of Tarani village.

Here you will see the Tura hills of northern India covered with cloud. The distant hills are playing hide and seek with the clouds. From the Tura basin, the mountain river Vhogai flows straight ahead to the west. On one side of the river stood a hundred-foot-high hill surrounded by greenery.

One hundred yards ahead, freight trucks are occasionally rushing from east to west along the winding road in the Indian part. Surrounded by innumerable small hills. Next to it is a Christian synagogue, a small medical centre, a school and a hostel for small students. There are also few tea stall at down of the hills. And the Christian synagogue is really beautiful.

How to get there

Tourism center Madhutila Eco Park can go directly from Dhaka with pivot car, microbus, minibus and big buses. Apart from Mohakhali Bus terminal, Sherpur's Dreamland, Turag, Joy or Other services are available. They can go to sherpur on the 90-to-140 Taka and go straight to the 30-kilometer paved road in the Mexicel-Taxi or pic-up van, at Madhutila Eco Park or Picnic spot. You can also go to Nakla Nalitabari upazila to save some time in the Maxi-Taxi or pickup van.

And what about Tarani pahar, Panihata? About 19 km from Nalitabari upazila town of Sherpur district and about 25 km from Sherpur district town. However, there is an easy and short distance road from Dhaka to Sherpur district town and from Nakla upazila town to Nalitabari. After that you have to cross the Garkanda crossroads of Nalitabari town and go straight to the north first near the Nakugaon land port and cross the Vhogai bridge at the turn on the east side. Then go straight east for about two and a half to three kilometers. At this junction you have to change direction again to the north. The main point of Panihata-Tarani is about one kilometer along this northern road. Private rickshaws, CNG auto rickshaws or rented motorbikes can be reached from Nalitabari town in just 35-45 minutes and at low cost. However, it is a good trip to take a private car into a group. It will take 4/5 hours to go to the spot. If anyone want to stay the night, can find such of beautiful resort.

There can be no greater companion than nature to spend a little beautiful and lively time outside of a busy life. Outside Dhaka, you can visit one of the most beautiful place in Sherpur district if you want. Which is of course within your time and affordability.

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The Environment *Review*

ISSN: 2708-776X (print), 2708-7778 (electronic)

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With Cover — 44 pages
Price: BDT 100.00, USD 2.00

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