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DEPARTMENT OF ECONOMICS

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Theme:

ENVIRONMENT & THE ECONOMY



From Principal's Desk



On behalf of Vijaygarh Jyotish Ray College, I would like to congratulate the Department of Economics for initiating such a wonderful attempt to publish E-magazine or Webzine. As we know as well as experiencing a severe crisis of mankind from March 2020. Till date during a long time span college remains closed. We the teachers unable to interact with students and unable to understand them and unable to guide them properly. Though we are trying to teach them on a virtual platform, we interact with them over phone but there remains a gap to touch their mind. However, the Department of Economics is trying to explore what they are capable of in different fields by organizing many programs like quiz debate etc. Here in this webzine “**ECOLORE**”, they are trying to encourage them to think independently and present in an organized manner. Sometimes it may appear that student's thinking is not so rich but initiative and attempt is most important which drives them to think big in future .Nobody knows, in future any one of them may shine in any field. This may be treated as home ground where they are practicing for their future. In this publication the department has rightly chosen a very contemporary and very important aspect “Environment and The Economy”. I wish all contributors in this E-Publication.

Dr. Rajyasri Neogy

Principal

Vijaygarh Jyotish Ray College

Acknowledgement

Welcome back readers to the Second issue of **ECOLORE**.

The glory of this venture is the contributions that comes from our Teachers and Students.

Our magazine provides a platform to the independent ideas of the young minds of our department. It focuses on the thought provoking issues in the field of Economics. Our purpose is to motivate the expression of the thought and present it.

Within such an unfavorable condition, Department of Economics, Vijaygarh Jyotish Ray College, came into forefront with their thoughts on the current socio-economic situation and published this E-Magazine or Webzine with a new theme “ **Environment & Economy**”

I would like to express my special thanks to our Principal Madam Dr. Rajyasri Neogy who gave me this opportunity and making this endeavor a success with her continuous support , inspiration and cooperation .

I would like to thank all contributors (as Principal, H.O.D, and my beloved Students) for their interests.

I am also thankful to our H.O.D. Dr. Abhijit Das , my senior Dr. Palashpriya Halder for their guidance and support.

I hope that the magazine will continue to provide **ECOLORE** every year with new zeal.

Dr. Isita Mukherjee

Editor

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Editor's Note

Greetings,

As the Second issue of “**ECOLORE**” , we can't help but feel immense pleasure in taking this work forward. From the past year, The Economics Department of Vijaygarh Jyotish Ray College has given its students an opportunity to use their potential in the art of writing.

This year we chose the theme, - “**Environment & the Economy**”.

Economic and Environmental performance must go hand in hand. The natural environment is central to economic activity and growth, providing the resources we need to produce goods and services, and absorbing and processing unwanted by-products in the form of pollution and waste. Environmental assets contribute to managing risks to economic and social activity, helping to regulate flood risks, regulating the local climate (both air quality and temperature), and maintaining the supply of clean water and other resources. This underpins economic activity and wellbeing, and so maintaining the condition of natural assets is a key factor in sustaining growth for the longer term. Correspondingly, economic growth contributes to the investment and dynamism needed to develop and deploy new technology, which is fundamental to both productivity growth and managing environmental assets. We face significant environmental challenges, globally, from tackling dangerous climate change to managing threats to our water resources and biodiversity. Far from reducing the urgency of this challenge, the economic downturn and subsequent recovery provides an opportunity to shape the future economy and set us on a sustainable growth path.

We have attempted to bring in different perspectives on issues as effect on COVID-19 on Economy as well as Environment, and we hope that they add some shade to your views on the same.

We are determined to do our level best and give the readers the enjoyable experience possible. Here's hoping our readers thoroughly enjoy the Second edition of **ECOLORE**.

Warm Regards,

Editor

Dr. Isita Mukherjee

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We, Environment & the Economy

Dr. Rajyasri Neogy
Principal & Economist
Vijaygarh Jyotish Ray College

Environment is our surroundings, the trees, the animals, the human, everything, in biological term known as flora and fauna, Economics is generally related to matters of finance, money etc. So there is a simple question whether environment is related with economics or in other way is it really important that environment matters economics. In simple words, for living on this earth humans need to produce many things for which basic factors of production are land, labor, capital and entrepreneurship. So it is the environment which is extensively used by mankind for their development from the initiation of civilization. But the problem is as we are developing our world we are extensively using our environment, it is better to say that we are destroying our environment to some extent for our betterment. We are not thinking about the rights of other habitats of the environment, even we are not thinking about the future generation. We are becoming so selfish that for our own sake we are destroying the present world which may create a severe crisis to our future generation.

Here I am going to share an example of how we are hampering the future of our generation. The crux of the development concept should be that we will develop our world but not at the cost of development of future generations. This is the concept popularly known as sustainable development.

In the environment we have two types of energy sources: renewable and non-renewable. Renewable means Sun resource, sea resources, forest resources etc. Whereas non-renewable means petroleum, coal, minerals etc. It is quite obvious that non-renewable resources will be exhausted today or tomorrow. We should be very rational enough that these resources will last for a very long time but for renewable resources we can make policies so that even after use of these resources they remain intact for our future generation. We have no right to deprive our future generation to use these resources. Here we may take an example of fishing resources of the sea. Fish are one of the most important diets of many countries. Fishing is one of the important livelihoods of the people living nearby coastal areas. In India, crores of people live on fishery resources for their livelihood directly or indirectly. Fishery is a source of foreign exchange earned by any country having coastline.

The Fishing industry in the present scenario becomes one of the important industries of any country having a significant coastline. Nowadays indigenous fishing is replaced by commercial fishing.

The main input is sea fishes which do not require cultivation. These are God gifted free renewable resources. Sea resources are considered as common property resources. Any person having a license can harvest from the sea.

The main problem of common property resources is that no one bothers about the future. The greed and composition of mankind leads to over exploitation of resources. So far as non-renewable resources are concerned these two attributes of mankind lead to severe darkness in the world in near future. For renewable resources these two attributes also lead to non-existence of these resources. For example in India over harvesting of sea fishes is leading to depletion of the resources. A natural time is required to replenish renewable resources but our greed and our compulsion is not willing to allow nature this time to replenish herself. So nature is also taking revenge for these attributes. Presently in India these resources are quickly depleting as a result of crores of people losing their age old profession, they are compelled to switch over to other professions. Sometimes they become jobless, the foreign exchange earnings of the country is decreasing. Another example is forest. It is our greed and compulsion that leads to huge deforestation as a result super cyclones like 'Amphan', ' Cyclone' badly hit the country and destroy agricultural fields, houses etc. Years of years is required to replenish the loss created by this natural calamity. So in every corner of a life we require the help of the environment for our living and development but we should be judicial and rational enough so that our environment remains intact for our future generation as it was when we have started our civilization.

Arsenic: A Silent Killer

Dr. Abhijit Das

HOD

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In West Bengal, India and Bangladesh over 60 million low income individuals are exposed to arsenic levels well in excess of the maximum contaminant level (MCL) recommended by the World Health Organization (WHO) in their drinking water from nearby shallow tube wells. Surface waters in the rural areas are severely contaminated with microbiological pathogens, leaving no viable alternative source for drinking. In West Bengal, 107 blocks of 9 districts are affected by arsenic in the ground water.)

Long-term exposure of arsenic can lead to reduced IQ in children, dermatologic, neurologic, vascular, and carcinogenic adverse effects that can result in constant pain, disability, amputations or death. A recent cohort study reported that about 20% of all deaths in Bangladesh are now attributed to arsenic exposure from drinking water. The Arsenic problem in Bangladesh has rightly been described by the WHO as the largest case of mass poisoning in human history.

Arsenic concentration in water beyond permissible limit can have very serious health implication. About 1 in 100 people who drink water containing more than 0.05 mg/l of arsenic for a long period may eventually die from arsenic-related cancers. This proportion becomes 10% when concentrations exceed 0.5 mg/l. It is clinically proved that human body excretes arsenic through urine after 30 hours of intake through drinking water. That is why to measure short time exposure of arsenic in human body, pathological test of urine is done. If ingested faster than it can be excreted, arsenic accumulates in the hair and fingernails. The poisonous effect of arsenic in human body depends on the following factors:

- The concentration of arsenic in drinking water
- The time period of exposure through drinking of the arsenic contaminated water
- The quantity of water consumed
- General Nutritional status

Arsenic toxicity can be divided into three types depending on the quantity of arsenic taken.-

Acute toxicity; Sub-acute toxicity; Chronic toxicity

According to different symptoms of the disease, the health condition of arsenic affected person can be divided into four stages. Table 1 shows the four stages along with the symptoms at each stage.

Table 1: Classification of Arsenicosis Symptoms

<i>Stages</i>	<i>Inference</i>
I. Pre-clinical	Arsenic(As) is detectable in hair, nails or skin, but without symptoms
II. Clinical	Melanosis, Diffuse melanosis on palms, Spotted melanosis on trunk (raindrop pigmentation), Generalised Melanosis, Spotted keratosis on palms and soles, Diffuse keratosis on palms and soles, Dorsal keratosis on hands or legs on hands and legs.
III. Complications	Hepatic disorder, Palpable liver, Jaundice, Ascitis
IV. Malignancy	Malignancy, Single lesion, Two lesions, More than two lesions

Arsenic patients found in West Bengal and Bangladesh are mostly in the pre-clinical and clinical stages. In the last stage the presence of arsenic is more than 0.05mg/liter. This stage comes almost after 10 to 20 years. In West Bengal, arsenic infected patients of the last stage are also found. Although in case of abnormally high level of arsenic concentration and the lower level of nutritional status some exceptional cases are found Many household and community level technologies have been shown to remove arsenic in the laboratory but fail to solve the arsenic problem sustainably in the field. In a recent case study of Murshidabaad district, which is one of the 9 arsenic-affected districts of West Bengal, an estimated 95% of the arsenic treatment technologies failed within 6 months of installation due to a combination of social and technical failures, notably the lack of appropriate social embedding through the creation of a stakeholder network. In recent field visits to multiple schools in the arsenic affected areas of Baruipur block in the South 24 Praganas district of West Bengal, we learned from discussions with community members that the piped supply water is insufficient and unreliable. Some schools do not have piped water, so children are sometimes forced to drink water with high arsenic levels from contaminated tube wells. In some cases, a lack of information about the arsenic status of tube wells or the health consequences of arsenic ingestion lead to the use of arsenic unsafe water. The main challenge for arsenic remediation technology to be successful and sustainable in the long term is to make a technology that is low cost, socially demanded and accepted, affordable, robust under severe field conditions, scalable, and with easy minimal maintenance that is within local capacity. Good social placement of the technology (setting up incentives of stakeholders and clients to be aligned with success of the technology) is also a crucial matter for long term success.

Green Economy

Abhilasha Bhattacharya
4th Semester

In the upcoming decades, humanity faces serious challenges like climatic change, biodiversity loss, growing inequality, and more. These systemic global crises cannot be tackled in isolation, because they are all interconnected. But our economic systems are not fit enough to deliver a good balance of environmental and social goals.

Economies are, at heart, a collection of rules and norms that reward some behaviors and punish others. In their current form, our economies incentivize overconsumption, degrade communal bonds, and destroy natural wealth. But this is not inevitable or unavoidable rather it is simply how our economies have evolved to operate. To solve these problems, a new economic vision: Green Economy.



A green economy is defined as low carbon, resource efficient and socially inclusive. The notion of green economy does not replace sustainable development but creates a new focus on the economy investment capital and infrastructure employment and skills and positive social and environmental outcomes across Asia and the Pacific. UN Environment promotes a development path that understands natural capital is a critical economic asset and a source of public benefits especially for poor people whose livelihoods depend on natural resources.

In a green economic growth in employment and income are driven by public and private investment into such economic activities infrastructure and assets that allow reduced carbon emissions and pollution enhanced energy and resource efficiency and prevention of the loss of biodiversity and ecosystem services. These green investments need to be enabled and supported through targeted public expenditure policy reforms and changes in taxation and regulations.

The major role of green economy is to provide a macro economic approach to sustainable economic growth with a central focus on investments employment and skills.

The three main areas for the current work on green economy are:

- Advocacy of macroeconomic approach to sustainable economic growth through regional, sub-regional and national fora.
- Demonstration of green economy approaches with a central focus on access to green finance technology and investments.
- Support to countries in terms of development and mainstreaming of macroeconomic policies to support the transition to a green economy.

What is Green Economy?

Green Economy is an economic model based on sustainable development and knowledge of ecological economies.



The UN environment is supporting Mongolia in the implementation of the national green development. Policy, integration of green economy into local level development plans, sustainable development goals indicators and greening of key sectors.

The vision of a green economy is one that provides prosperity for all within the ecological limits of the planet. It follows five key principles, each of which draws on important precedents in international policy, and which together can guide economic reform in diverse contexts.

1. Wellbeing principle

A green economy enables **all people to create and enjoy prosperity.**

- The green economy is people centered. Its purpose is to create genuine, shared prosperity.
- It focuses on growing wealth that will support wellbeing. This wealth is not merely financial, but includes the full range of human, social, physical and natural capitals.
- It prioritizes investment and access to the sustainable natural systems, infrastructure, knowledge and education needed for all people to prosper.
- It offers opportunities for green and decent livelihoods, enterprises and jobs.

It is built on collective action for public goods, yet is based on individual choices.



2. The Justice Principle

The green economy promotes **equity within and between generations**.

- The green economy is inclusive and non-discriminatory. It shares decision-making, benefits and costs fairly; avoids elite capture; and especially supports women's empowerment.
 - It promotes the equitable distribution of opportunity and outcome, reducing disparities between people, while also giving sufficient space for wildlife and wilderness.
 - It takes a long-term perspective on the economy, creating wealth and resilience that serve the interests of future citizens, while also acting urgently to tackle today's multi-dimensional poverty and injustice.
 - It is based on solidarity and social justice, strengthening trust and social ties, and supporting human rights, the rights of workers, indigenous peoples and minorities, and the right to sustainable development.
 - It promotes empowerment of MSMEs, social enterprises, and sustainable livelihoods.
- It seeks a fast and fair transition and covers its costs – leaving no-one behind,
- enabling vulnerable groups to be agents of transition, and innovating in social protection and reskilling.



3. The Planetary Boundaries Principle

The green economy **safeguards, restores and invests in nature**.

- An inclusive green economy recognizes and nurtures nature's diverse values – functional values of providing goods and services that underpin the economy, nature's cultural values that underpin societies, and nature's ecological values that underpin all of life itself.
- It acknowledges the limited substitutability of natural capital with other capitals, employing the precautionary principle to avoid loss of critical natural capital and breaching ecological limits.
- It invests in protecting, growing and restoring biodiversity, soil, water, air, and natural systems.

It is innovative in managing natural systems, informed by their properties such as circularity, and aligning with local community livelihoods based on biodiversity and natural systems



4. The Efficiency and Sufficiency Principle

The green economy is geared to **support sustainable consumption and production.**

- An inclusive green economy is low-carbon, resource-conserving, diverse and circular. It embraces new models of economic development that address the challenge of creating prosperity within planetary boundaries.
- It recognizes there must be a significant global shift to limit consumption of natural resources to physically sustainable levels if we are to remain within planetary boundaries.
- It recognizes a 'social floor' of basic goods and services consumption that is essential to meet people's wellbeing and dignity, as well as unacceptable 'peaks' of consumption.
- It aligns prices, subsidies and incentives with true costs to society, through mechanisms where the 'polluter pays' and/or where benefits accrue to those who deliver inclusive green outcomes.



The Good Governance Principle

The green economy is guided by **integrated, accountable and resilient institutions.**

- An inclusive green economy is evidence-based – its norms and institutions are interdisciplinary, deploying both sound science and economics along with local knowledge for adaptive strategy.
- It is supported by institutions that are integrated, collaborative and coherent – horizontally across sectors and vertically across governance levels – and with adequate capacity to meet their respective roles in effective, efficient and accountable ways
- It requires public participation, prior informed consent, transparency, social dialogue, democratic accountability, and freedom from vested interests in all institutions – public, private and civil society – so that enlightened leadership is complemented by societal demand.
- It promotes devolved decision-making for local economies and management of natural systems while maintaining strong common, centralized standards, procedures, and compliance systems.
- It builds a financial system with the purpose of delivering wellbeing and sustainability, set up in ways that safely serve the interests of society.



Multi-stakeholder partnerships for the promotion of a Green Economy are supported to accelerate and consolidate sustainable changes in both consumption and production patterns. In addition to the governments and non-profit organizations, UN Environment has increased its engagement with the private sector which is a very important factor in promoting resource efficiency and Green Economy.

In a unique initiative, the Angul district administration in partnership with the United Nations Environment Programme (UNEP) recently organised a two-day stakeholder orientation workshop on resource efficiency and circular economy. The events, held on June 24 and 25, were in alignment with Angul's 'Vision 2023' plan and national priorities for green economic growth. The consultation brought together various stakeholders from public line departments, private sector, research institutions, academia and others. Collector Siddharth Shankar Swain said the event will help gain clarity to attain principles of circular and green economy across different sectors at district level. Country head of the UNEP, India office, Atul Bagai said the workshop will aid district-level action plan for green economic growth and establish a role model for other districts.

A Step Towards The Green Earth

There has been a plan in managing environmental resources for green growth in Bangladesh for a better future. The current pattern of global economic development is unsustainable, mainly based on the extraction of natural resources and use of a carbon-intensive production and consumption system to produce goods and services for the economy. Indeed, the global development path has been based on the philosophy of accelerating growth by way of burning fossil fuels. Since the '60s and '70s, several economists have been arguing for sustainable economic development which would take care of natural resources and ensure intergenerational equity.

As the world is struggling to recover from the fallout of the Covid-19 pandemic, the importance of sustainable use of natural resources and adopting a green growth strategy have taken a serious topic in the global discourse. Therefore, in the wake of the pandemic, several advanced countries are in the urge of creating green infrastructure. In fact, during the global financial meltdown in 2008-09 also, several countries had invested in green industries.

Low-income countries like Bangladesh have also shown much enthusiasm in adopting a green growth policy. Even though its carbon emission is only a little over 0.1 percent of global carbon emissions, Bangladesh has committed to make a transition towards a green economy in its national plans and strategies. Bangladesh's green growth strategy will mostly be geared towards addressing environment-related challenges. It will be to reduce the burden of future environmental costs. This requires huge investment in green infrastructure. Given the enormity of investment required, the private sector has to come forward. In order to attract private sector investment in this field, the government can provide fiscal incentives for green investments.

Measures, such as a low interest rate for loans to support low-carbon technologies, tax incentives for environmentally friendly cars, measures to increase energy efficiency in industry and agriculture, and allocation for protected areas and cultural heritage could also be undertaken to encourage adoption of a greener development path. As the global trade regime is getting stringent on compliance issues, many Bangladeshi readymade garments factories have already implemented green technologies in their factories. However, for smaller factories, this is an additional burden. They will need the government's support. Development partners will also have to support green investment. The other aspect of a green growth strategy is to protect and manage environmental resources. These resources are essential for the existence of humankind and the ecosystem. For example, the ecosystem services provided by forests are often ignored. As a result, the cost-benefit of trees would be compared with the return from a factory established by cutting those trees. Hence, Bangladesh is on a way to make a green economy very soon.

Today's world is full of pollution, deforestation, climatic changes, population crisis and unfortunately humans are a big cause behind these exploitations of Mother Nature. So only we can save our Earth. To fight for green we need an appropriate economic infrastructure as well. The Green Economy is a wonderful initiative to bring back the greeneries of the Earth through economic growth all over the world. Hope one day we get to see a Green Planet, our Earth.



Economic Growth & Environmental Sustainability

Anindita Ghosh
4th Semester



Deforestation And It's Effect On Economy

Akshata Pradhan
6th Semester

Deforestation refers to the decrease in forest areas across the world that are lost for other uses such as agricultural croplands, urbanization or mining activities. By doing deforestation, roads, railways are constructed for transport and connectivity from one part to the other. Controlling for trans border, geo climatic differences, we find that income per capita is the most robust determinant of differences in the cross- border forest cover area. Economic growth in poor countries increases along with deforestation rates but the effect disappears in wealthier economies. In economics, the hypothetical link between economic development and environmental degradation is known as an environmental “kuznet’s curve”. In the new study, the researchers found what they described as “half of kuznet’s curve”- that is the data agreed with the hypothesized link between economic development and deforestation for developing countries. The relationship between development and the rate of deforestation is expected to reveal the existence of an environmental Kuznet’s curve. The term deforestation potentially covers a wide range of meanings and measures. Geographical area matters when regressions are on a mix sample of developed and developing countries, the probability of finding and EKC(Environmental Kuznet’s Curve) decreases. On the contrary, when the sample is constituted of developed countries only or developing countries only the probability increases.

This result may be the consequence of mean effects in mixed samples which captures the heterogeneous individuals and thus may drive estimated coefficients towards zero. We find a strong positive relationship between the introduction of a controlled variable for inequalities and the probabilities of finding EKC. Introducing trade variables into regressions has a negative impact on the probability of finding EKC. Considering controlled variable increases the probability of finding an effect of channels of transmission between macro variables and deforestation which may in turn weaken the link between growth and deforestation. Deforestation causes significant economic and social cause and ease now one of the most critical environmental issues of the as age. As income continues to grow more environmental amenities are demanded, a point in reached where further increased in income leads to reduced rates of deforestation or even reforestation.

Deforestation can ruin the economy but also it can help it, that is why countries let it happen. Deforestation reduces the amount of tourists visiting forest, countries still do it because there are so many resources that forest provide which can help the economy. Deforestation is a hard problem to solve because it does hurt the environment and the economy but at the same time it helps the economy in a lot of ways.

The Effect of Covid - 19 on the Environment and the Economy

Imon Mukherjee
6th Semester

Honestly speaking, it is quite difficult to break into the effects immediately, as people throughout the world have been caught in this seemingly never-ending lapse of time which keeps on testing us again and again in every possible way. We might get accustomed to the new-normal, even after enduring a long period of hardships and heart-breaking crisis, we must also keep a tab on what's going on out there, as such events do not happen often, to prepare us for the future.

So, in order to keep it consistent and expository, the environmental and economic effects will be fairly sufficient to give us an idea which is elemental at most.

The global outbreak of COVID-19 has affected every part of human lives, including the whole world. The steps taken to control the spread of the virus and the slowdown of economic activities have significant effects on the environment.

Primarily, we would start by exploring the positive and negative environmental impacts of the COVID-19 pandemic, by reviewing the available resources and thus reflecting upon our day to day activities, which have been thoroughly affected by it.

Various studies indicate that, the pandemic situation has significantly improved air quality in different cities across the world, reducing GHGs emission, less water pollution and noise, and reduces the impact on the tourist destinations, which may help with the reinstatement of the ecological system.

To add with this, there were also some negative consequences of COVID-19, such as increase of medical waste, disorganised use and disposal of disinfectants, mask, and gloves; and burden of untreated wastes continuously endangering the environment.

It seems that, economic activities may return back soon after the pandemic, and the situation would change eventually.

Hence, we will also provide an outline on all the possible ways to achieve long-term environmental benefits. The implementation of the proposed strategies might be helpful for the global environmental sustainability.

As several countries are observing quarantine and social distancing, as a “healing time for nature” with lessened human interference in natural environment.

Major impact of lockdown due to COVID-19 can be observed on the quality of air, which anyone can experience right now also it has been recorded in various official reports.

Emission of both industrial and transport sectors along with effluents have been reduced, and available data supports the clearing of hazardous wastes in the atmosphere, soil and water.

The following effect comes under contrast with carbon emissions, which shot up by 5% after the global financial crash, which happened almost over a decade ago, as a result of stimulus spending on fossil fuel to reignite the global economy.

In India, similar results were found too; 22nd of March, was the ‘Janta Curfew’, following which, a significant and reasonable dip in air pollution levels, which was computed across the country. Cities like Delhi, Kolkata, Lucknow and even Bangalore have seen their average Air Quality Index coming around two digits

There are various other impacts of anthropogenic threats on environment too. During the pandemic, the country has endured significant amount of industrial disasters, like there was this gas leak in a polymer plant in Andhra Pradesh, along with that there were several boiler explosions as well, in thermal power plants and chemical plants and also in a steel factory in Tamil Nadu and Gujarat. To top of with that, there was also a fire in biodiversity rich landscape in Assam caused by natural gas extraction, due to complete absence of compliance with the norms pertaining to the environment and sub-standard safety regulations.

Lots of lives were lost because of the following events, long term health impacts and inimical impact on the environment.

There had to be this significance of strict environmental safety regulations for activities regarding mining, development in infrastructure, power projects on thermal, nuclear and hydro, real estate and other industrial projects.

The country is presently going through a nationwide frustration over the attenuation of environmental regulations in the recently proposed draft of the Environmental Impact Assessment Notification 2020 of India.

To ease the running of industrial activities the environmental regulatory regime has been consistently weakened by the government since the commencement of EIA in India.

Food security and nutritional status of a country are critical for achieving sustainable development. But forces like trade and market, loopholes in the patent regime, dominance of transnational corporations, internal production policies have exposed India to expansion of industrial or commercial farming, use of high yield and genetically modified crops and loss of genetic diversity of crops.

Extreme events like cyclone, flooding due to heavy rainfall etc. further adds to the vulnerability. A massacre was impacts occurred due to the landfall of super cyclonic storm Amphan on May 20, 2020 in the eastern coast and another cyclonic storm Nisarga on June 3, 2020 in the western coast of India during the pandemic crisis. Till July 15, 2020, approximately 45 Lakhs people (with several loss of human lives, properties and wildlife in Kaziranga Wildlife Sanctuary) were affected in the north eastern state of Assam due to flooding of Brahmaputra river and landslides as a result of three days of heavy rainfall.¹⁵¹⁵ The out-migration rates are higher in regions with higher vulnerability to natural threats such as Sunderbans in West Bengal (prone to cyclonic storms, flooding, saline water intrusion etc), Assam (prone to flooding during monsoons), drought prone regions like Bundelkhand and several other places in India.

Just because there is a reduction in commercial activities and public transportation, noise pollution was also reduced. It was found that the lockdown resulted in a 30% decrease in air pollution (China, France, Europe, Italy, Spain and USA) while mobility was curbed by approximately 90%. However, these positive effects were due to the imposed lockdown in several countries particularly during the initial phase of coronavirus and these positive impacts were only short-term benefits. As various activities resume to normal levels, these positive environmental effects have started to vanish.

Water pollution has also decreased by a lot because of less anthropogenic reasons such as absence of industrial waste, improper disposing of solid waste after commercial use, rinsing or washing utensils, clothes with river water, etc. Fortunately, aquatic flora and fauna have been restored back to the previous seemingly everlasting hygiene.

After the breakout of COVID-19 when people lost jobs and migrant labourers tried to get back to their native place, these incidents instigated their vulnerability by severely impacting the potential livelihood opportunities and access to basic facilities. It put forwards the urgency of developing coastal and inland durability through unified action towards disaster proof infrastructural planning, crop planning, social security, and protecting livelihood through strengthening of disaster management plan, coastal regulation zone notification and it's implementation.

Some of the additional environmental acts in India, that have become more relevant to act on during the post-COVID condition, are those related with waste management i.e. bio-medical waste management rules, plastic waste management rules etc.

Mass disinfection and worldwide usage of hand sanitizers containing alcohol and isopropyl alcohol are used on a regular basis. Disinfectants like sodium hypochlorite, hypochlorous acids and chlorine are used in huge quantities in almost all places where there are human habitations. They become rapidly degraded in the presence of organic matter and therefore, do not bioaccumulate and persist in the environment.

Sodium hypochlorite , which is often used for mopping of floors, lobbies, elevators, corridors, offices, rooms, hospitals etc. for killing the virus. Sodium hypochlorite is again, very harmful to the environment and microorganisms. However, as the substance is extremely reactive, sodium hypochlorite or its related chemicals poured into the gutter from households might react with organic matter and can get removed before reaching the environment.

Triclosan is hazardous to health and is known to give rise to antibiotic-resistant bacterial strains. These chemicals are responsible for causing endocrine disruption, cancer to the liver and have various neurological effects. Both chemicals are injurious to the health of the environment as they are difficult to degrade and they form 60% of the mass of all drugs that are found in the sludge from waste water treatment plant and sewage. These chemical contaminants have harmful impact on aquatic fauna.

The biomedical waste generation from COVID-19 patients is rising throughout the world. India is on the run by producing approximately 550 tons of biomedical waste p.a. which are treated by only 198 Common Bio-Medical Waste Treatment Facilities(CBMWTF) and 225 captive incinerators.

The management of COVID-19 waste is something to be concerned about; as the cases rise, the treatment centres are becoming overloaded by such medical waste, and if precautions are not ensured, it could result in infections among sanitary workers.

There is an underlying risk of mixing of COVID-19 waste with regular medical waste which also includes food waste from COVID-19 wards. Repeated sanitization of workers and adequate personal protective equipment including 3-layer masks, splash-proof aprons, nitrile gloves, gumboots, and safety goggles involved in handling and collection of biomedical waste should be compulsory. However, this is going to lead to huge increase in the generation of bio-medical waste. High temperature pyrolysis and medium temperature microwave technique are two primary alternative thermal technologies that are available to deal with biomedical waste. Disinfection through chemicals may also be used to pre-treat COVID-19 waste before mechanical shredding.

Almost every sector has been adversely affected as domestic demand and exports sharply rose with some notable exceptions where high growth was observed. Since agriculture is the backbone of the country and a part of the government announced essential category, the impact is likely to be low on both primary agricultural production and usage of agro-inputs. Several state governments have already allowed free movement of fruits, vegetables, milk etc. Online food grocery platforms are heavily impacted due to unclear restrictions on movements and stoppage of logistics vehicles. RBI and Finance Minister announced measures will help the industry and the employees in the short term.

Insulating the rural food production areas in the coming weeks will hold a great answer to the macro impact of COVID-19 on Indian food sector as well as larger economy. Aviation and Tourism were the first industries that were hit significantly by the pandemic. The common consensus seems to be that COVID will hit these industries harder than 9/11 and the Financial Crisis of 2008. These two industries have been dealing with severe cash flow issues since the start of the pandemic and are staring at a potential 38 million lay-offs, which translates to 70 per cent of the total workforce. The impact is going to fall on both, White and Blue collar jobs. According to IATO estimates, these industries may incur losses of about 85 billion Rupees due to travel restrictions. The Pandemic has also brought about a wave of innovation in the fields of contactless boarding and travel technologies.

The pharmaceutical industry has been rising since the start of the pandemic, especially in India, the largest producer of generic drugs globally. With a market of \$55 billion since the beginning of 2020, it has been bursting in India, exporting Hydroxychloroquine to the world, especially to the US, UK, Canada, and the Middle-East.

There has been a recent rise in the prices of raw materials imported from China due to the pandemic. Generic drugs are the most impacted due to heavy reliance on imports, disrupted supply-chain, and labour unavailability in the industry, caused by social distancing. Simultaneously, the pharmaceutical industry is struggling because of the government-imposed bans on the export of critical drugs, equipment, and PPE kits to ensure sufficient quantities for the country. The increasing demand for these drugs, coupled with hindered accessibility is making things harder. Easing the financial stress on the pharmaceutical companies, tax-relaxations, and addressing the labour force shortage could be the differentiating factors in such a desperate time.

The Indian Oil & Gas industry is noteworthy in the global context as it is the 3rd largest energy consumer only behind USA and China and contributes to 5.2 percent of the oil demand throughout the globe. The lockdown across the country had retarded the demand of transport fuels considering 2/3rd demand in oil & gas sector, as auto and industrial manufacturing declined along with that goods & passenger movement which includes bulk & personal, fell. Though the crude prices fell in this period, the government made the excise and special excise duty to go up in order to make up for the revenue loss, also, road cess was raised. As a policy recommendation, the government thought of passing on the benefits of decreased crude prices to consumers who come last at retail outlets to stimulate demand.

In view of the scale of disruption caused by the pandemic, it is very much evident that the current downturn is fundamentally different from usual recessions which we have dealt with previously. The sheer drop in demand & increased unemployment is going to alter the business landscape. Applying new principles like 'shift towards localization, cash conservation, supply chain resilience and innovation' will help businesses in treading a new path in this uncertain environment.

The pandemic has made us dependent on the IT sector more than ever. On many of the sectors such as manufacturing, retail, hospitality, communication etc. has resulted in major impacts on purchasing ability and investing patterns on IT services. This has affected the requirement of additional work-force resulting in more influx of revenue in this sector.

Stock markets in India post worst losses in history. SENSEX fell by 13.15% and NSE NIFTY fell by 12.98%. However, SENSEX posted its biggest gains in 11 years, adding a value of ₹4.7 lakh crore for investors. Following positive indication from the Wall Street that the pandemic may have reached its peak in the US, the stock markets in India rose steeply once again. Nifty held the 9500 mark.

Following the lockdown, certain essential supply chains broke down. Britannia Industries, supporting the lockdown, urged the government to ensure inter-state movement of the raw material for the food processing industry was not hampered. The Managing director of Britannia stated that "if even one link in the supply chain is broken, the country could run out of stocks of packaged food in the next 7–10 days. Although inter-state travel has been banned, it doesn't apply to essentials, and in places like Maharashtra the state police are yet to streamline the process, disrupting supply chains. Vidya Krishnan writes in The Atlantic that due to the lockdown even movement of medical goods were affected. The government allowed the movement of all essential as well as non-essential goods across the country during the lockdown. The milk and newspaper supply chains are also allowed to function.

Amidst quarantine, industries such as food delivery and online shopping are on the run to have the sharpest rise ever, as individuals are getting more time to browse the internet . Most of them are buying cosmetics, items which provide digital entertainment, electronic goods, agro based foods and beverages ,fashion and accessories ,etc.

Tourism industry took a bigger bite of the negative side, as quarantine has drastically reduced the number of tourists and accommodation for hospitality lies idle in waste, losing loads of revenue which could have been earned otherwise.

In India, economists expect the near-term impact of the outbreak to be limited to the supply chains of major conglomerates, especially pharmaceuticals, fertilizers, automobiles, textiles and electronics. A severe impact on global trade logistics is also expected due to disruption of logistics in mainland China, but due to the combined risk with regional geopolitical tensions, wider trade wars and Brexit. The stock market took a bearish mode in response to COVID-19.

The most recent impacts would include:

Largest GDP contraction ever in April–June (FY2020–2021) at –24 percent.

Sharp rise in unemployment

Stress on supply chains

Decrease in government income

Complete collapse of the tourism and hospitality industry

Reduced consumer activity

Plunge in fuel consumption.

Rise in LPG sales.

Trade tensions with China.

Since agriculture is the backbone of the country and a part of the government announced essential category, the impact is likely to be low on both primary agricultural production and usage of agro-inputs. Several state governments have already allowed free movement of fruits, vegetables, milk etc. Online food grocery platforms are heavily impacted due to restrictions which are not clear on movements and cessation of logistics vehicles. RBI and Finance Minister announced measures will help the industry and the employees in the short term. Insulating the rural food production areas in the coming weeks will hold a great answer to the macro impact of COVID-19 on Indian food sector as well as larger economy.

The high impact sectors in terms of risk on account of Covid-19 are aviation, hotels, restaurants, retail, shipping, ports and port services. The medium impact sectors are automobiles, building materials, residential real estates while the low impact sectors include education, dairy products, fertilizers, FMCG and healthcare among others. Nearly 55 percent of electronics imported by India originate from China. These imports have already slid down to 40 percent in light of the coronavirus outbreak and subsequent lockdown. As a countermeasure, India is considering the promotion of indigenous production in a bid to reduce dependency on a single market.

Additionally, China is India's third largest export partner for export of raw materials like organic chemicals, mineral fuels, cotton, etc.; and lockdown of the countries is likely to lead to a substantial trade deficit for India. MSME exporters have been impacted more by the current lockdown on account of Covid-19 pandemic as the sector accounts for over 45 per cent in the country's total outbound shipments. They are facing issues in calling back their workers as several of them have migrated to their villages and towns. However, incentives will help exporters to resume work immediately after things start getting normal, otherwise they will not be able to restore their global suppliers.

Like India, various international economies are going cognizant of the risk they have faced by being overly dependent on one market. Making the current situation a learning opportunity, it is believed that this is the time where India might make it work by capturing potentially 40% of their competitor's market share by looking at indigenous production of goods, furthering the country's Make in India campaign.

India is at a pivotal juncture in its fight against COVID-19. The country has responded with urgency and determination as reflected in the Prime Minister's bold and decisive leadership. The government has also stepped up the response measures with aggression – find, isolate, test, treat and trace. WHO is supporting the government's endeavor to further strengthen and intensify surveillance and build capacity of the health system.

Economy & Environment

Anindita Ghosh
4th Semester



Recent Sustainable Growth in India

Debosmita Banik
2nd Semester

Economic growth occurs when real output increases over time. Real output is measured by Gross Domestic Product (GDP) at constant prices, so that the effect of price rises on the *value* of national output is removed.

Sustainable economic growth means a rate of growth which can be maintained without creating other significant economic problems, especially for future generations. There is clearly a *trade-off* between rapid economic growth today, and growth in the future. Rapid growth today may exhaust resources and create environmental problems for future generations, including the depletion of oil and fish stocks, and global warming.

A quarter-century of growth has transformed the lives of millions of Indians and offered India its rightful place on the global stage. India, now the sixth-largest economy, is predicted to move up three places by 2030.

India is currently among the top three nations in energy use, though way down the list on per capita basis. Its energy demand will grow the most on the planet over the next 20 years. Interestingly, it is not just economic growth driving this demand.

In 2019, India ranked fourth globally in installed renewable power capacity, with solar and wind power leading the way. Prime Minister has set a goal to generate 450 gigawatts of renewable energy by 2030 — this will represent five times the current capacity and amount to 60% of its total electricity generation from non-fossil fuel sources as against its Paris pledge to reach 40% by 2030.

Solar energy could be India's salvation. With about 300 sunny days a year, India has the potential to lead the world in solar electricity, which will be less expensive than existing coal-fired power by 2030, even when paired with battery storage.

This will require the development of utility-scale renewable energy projects with innovative regulatory approaches that encourage pairing solar with other renewable technologies and storage to offer "round-the-clock" supply. The other would be attracting foreign investments in renewables.

India should be up to the challenge. The IEA report states that the nation's fuel import bills are likely to triple in the next two decades under current policies. At the same time, India is seen emerging as the renewables and storage powerhouse and is one of the few countries on track to meet most of its Paris targets. If the country follows a more sustainable path of reducing emissions and increasing its share in non-fossil-based fuel for electricity generation, its import bills can be reduced substantially, offsetting the investments in renewables.

It's becoming increasingly clear that we are in a period of transformation. It takes bold and decisive leadership to unlock the potential, widen the perspective, tune in to broader systemic needs, and ultimately ²Build partnerships that help deliver for the greater good.

Natural Resources & Economic Growth

Krittika Bhowal
6th Semester

Natural resources, both renewable and non-renewable, are a part of the real wealth of nations, by which the nation contribute towards **fiscal revenue, income, and poverty reduction**. Economists have identified four factors that are necessary for an **economy** to begin producing goods. Of these four, **natural resources** stands out as the most **important** because a country without them will not be able to begin production.

- **Classification of natural resources :**

1. Based on their **stage of development** Natural resources can be classified as **potential, actual, reserve, or stock resources** .
2. Natural resources are either **renewable** or **non-renewable** depending on **whether or not they replenish naturally**.
3. In terms of the **source of origin**, natural resources can be divided into **biotic** and **abiotic** .

- **Some important natural resources of our country and their contribution in Indian economy :**

India is rich in **natural resources**. The country produces as many as **87 minerals** including **fuel, metallic, non-metallic, and atomic minerals**. Among the minerals, reserves of **coal** (**4th** largest reserves in the world), **iron ore, Manganese ore** (**7th** largest reserve in the world as in 2013), **Mica, Bauxite** (**5th** largest reserve in the world as in 2013), are vast and will last decades. Other exploitable metallic minerals include **copper, zinc, lead, gold, silver, Chromite, Natural gas, Diamonds, Limestone** and **Thorium**.

On the other hand we have sufficient **land resources**. In terms of area India ranks **seventh** in the world with a total area of **32, 87.263 sq. km.** (32.87 crore hectare). It accounts for **2.42%** of **total area** of the world. Land utilization figures are available for about **92.9%** of **total geographical area**, that is, for **3,287.3 lakh hectare**. Out of a **total land area** of **304.2 million hectares** about **170.0 million hectares** is **under cultivation**.

As well as land resources we have **forest resources**. India's forest cover in **2007** was **69.09 million hectare** which is **21.02 per cent** of the geographical area. Of this, **8.35 million hectare** is **very dense forest**, **31.90 million hectare** is **moderately dense forest** and the rest **28.84 million hectare** is **open forest**.

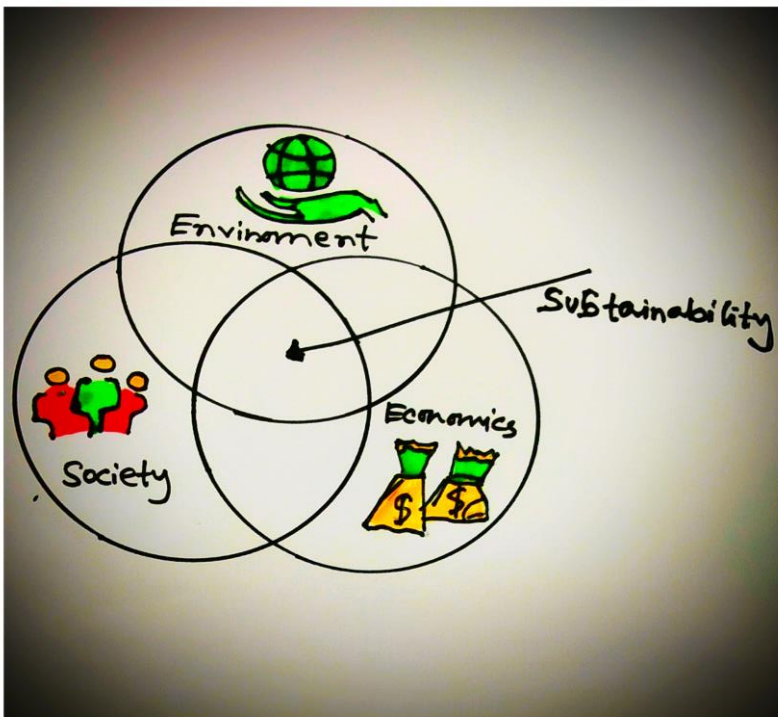
Last but not the least we have human resources. In **2020**, the estimated total **population** in **India** amounted to approximately 1.38 billion **people**. Economic growth and social development require the production of goods and services – and this unavoidably requires the use of natural resources. Over the past **five** decades, the **global population** has **doubled** while global **Gross Domestic Product** (GDP) has grown **fourfold**, requiring large and increasing amounts of natural resources to fuel economic development. The use of natural resources has more than **tripled**, with increasingly negative impacts on human health and the environment. The economic significance of natural resources depends upon the magnitude of two basic variables: current flows of income and potential future flows of income. The first is largely a function of production costs and market demand, and the second of natural resource endowments and management planning. In addition to providing revenues to resources rich countries, natural resources can play a central role in poverty reduction efforts. The poor generally depend upon natural resources directly for their livelihoods, especially the rural poor. Consequently, policies that improve natural resources management can have immediate and meaningful poverty reduction impacts.

Natural resources such as oil, gas, minerals and timber are expected to continue to play a significant role in resource abundant economies, as demand from rapidly growing economies increases, and as supplies of non-renewable resources decline and renewable resource harvests approach maximum sustained yield levels. In the absence of urgent and concerted action and rapid growth, the use of natural resources will continue to grow unsustainably. According to the **International Resource Panel's** (IRP) Global Resource Outlook, under current 'business as usual' trends, GDP will continue to grow at an average rate of **2.2%** per year to reach **216 trillion USD** by **2060**. This would require a **110%** increase in global resource extraction (190 billion tonnes), and an increase in **greenhouse gas** (GHG) emissions by **43%** (70GT CO_{2e}).

- **Decoupling economic growth from natural resource use** : Decoupling, in its simplest form, is precisely breaking the link between natural resource use and environmental impacts from increased economic activity and human well-being. This is to say that a new relationship must be forged where improved human well-being and increased economic activity are achieved while simultaneously mitigating natural resource depletion. As such, 4 is an essential element in the transition to a sustainable future and to achieving the SDGs.
- **Conclusion** : The case for utilizing non-renewable energy sources is favored by some and disfavored by environmentalists who plead for the need of renewable energy sources such as **solar power** and **wind power**. Lifestyle and mindset seem to play a role as well. Those against it face the challenge of changing the mindset that non-renewable energy sources are, indeed, bad for the environment and continue to contribute to **global warming**.

Sustainable Communities

Anindita Ghosh
4th Semester



The Economics of Global Climate Change

Debolina Dhar
4th Semester

In recent decades, concern has grown over the issue of global climatic change caused by increased accumulation of greenhouse gases. Putting climatic change in framework of economic analysis, it is considered that greenhouse gases, which is responsible for causing GREENHOUSE EFFECT, which in turn causes planetary warming and other changes in weather patterns as both a cause of environmental externalities and a case of overuse of a common property resources. Precisely, climate change poses the biggest long term threats to the global economy. ONE MAJOR THREAT INCLUDES GLOBAL WARMING. It is the long term heating of the Earth's climate system observed since the pre industrial period, due to human activities primarily fossil fuel burning which increases heat trapping green house levels in the Earth's atmosphere. The PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA states that global warming has very likely exacerbated global economic inequality, including 25% increase in population weighted between country inequality over the past half century. It is founded very high likelihood that anthropogenic climate is forcing has increased economic inequality between countries. For Eg, per capita GDP distribution yielding a ratio between the top and the bottom deciles that is 25% larger than in a world without global economy. As a result although Country inequality has decreased over the half past century there is 90% likelihood that global warming has slowed the decrease.

The major causes and consequences are as follows:

- **Damage to property and infrastructure:** Sea level rise ,floods, droughts, extreme storms and cyclones requires extensive repair of infrastructure such ad homes, roads, airport runways, power and electricity. Recently over the years or more, the people of India has witnessed some dreadful cyclones, leaving thousands homeless ,and destroyed financially.
- **Lost productivity:** Severe rainfall and snowstorms can delay planting and harvesting.
- **Mass migration and security threats:** Global warming is likely to increase the number of "climate refugees". Mass movement of people and social disruption may lead to civil unrest.

Government leaders are currently debating whether the country can afford the GREEN NEW DEAL(am ambitious plan to address climatic change)or something like that. Nobel prize winner economist JOSEPH STIGLITZ, a professor of Columbia University has wrote that "We will pay for climate breakdown one way or the other, so it makes sense to spend the money now to reduce emissions rather than wait until later to pay a lot more for the consequences...it's a cliché but it's a true: An ounce of prevention is worth a pound of cure".

SOLID WASTE MANAGEMENT AND ITS ECONOMIC EFFECT

Kalpak Chatterjee
6th Semester

Solid Waste Management- Solid waste management is a term that stands for the process of the collect and treat solid wastes. It also offers solutions for recycling terms that don't belong to garbage or trash.

As long as, people have been living in sentiments and residential areas, solid wastes are very major problems. In short, the term Solid waste management means that how solid wastes of our daily life can be transformed or changed into a valuable resources. If we look on the industry areas, then we realised that it is the creation of solid wastes. Plastics, packets, unused tires, tubes, uneatable parts of vegetables, are some examples of solid wastes.



Methods of Solid waste management:- There are some different kinds of methods of solid waste management. These are following—

- (1) Incineration:** - This method suggests that the burning of solid wastes in high temperature until it turns into ashes. Incinerators are made in such a way when solid wastes are burning, don't give extreme amount of heats. It recycles the heat energy through furnace and boilers are called as **waste to energy**. This method can be done by any individuals, municipality. The advantage thing is that this process reduced 20-30% volume of solid waste from its original volume.
- (2) Sanitary Landfill:** - This is the most popular solid waste management method. Garbage's spread out in thin layers, compressed and covered with soil and plastic foam. In modern times, it designed in such a way
That the bottom of the landfill is covered with an impervious liner, which is basically made of thin plastic and sand. When the landfill is full, it is covered with sand, topsoil, gravel to prevent the seepage the water.

(3) Composting: - It is a biological process in which micro organisms converts into degradable like humus. At the end, it looks like soil, high Carbone, nitrogen good quality of eco friendly. This is also a best way to plant trees and will be helpful for agricultural purposes.

Impacts of Solid waste management in Economy :

A large proportion of recycled components; papers, plastics, unused metals, rubber tubes etc. Is collected by rag pickers from the garbage bins, from roadside or in street Market places, thus supplying raw material to the flourishing recycling units. Almost about 0.80 Million tones of plastic wastes are recycled every year in India. In metro cities, this business is very lucrative and can fetch everything between Rs 3/- to 15/- per kg at each case of the transfer. In small cities of India likes Delhi, Hyderabad, Kolkata 15-20% of total garbage's are recycled annually.

This excludes the plastics and paper retained in the household to be sold. The plastics recycling industry in India is valued at 25 billion rupees at the pre-granulation stage .

The landfill gas should be used as substitute of fossil fuels, generating additional revenue and reducing pollution. Lastly, conversation of landfill gas into powder has become a lucrative business in the developed world. Composting the organic portion of municipal solid waste can produce 0.7 million tones of organic fertilizer every year, which could partially offset the degradation of land and pollution due to indiscriminate application of chemical fertilizers.

Due to foul orders emanating from landfills and explosion hazards due to emissions of methane, a 1-2 KM wide strip around the site is unsuitable either for habitation or for plant life. As a result of this, the land is left unused, despite acute scarcity of land in towns, cities and the soaring land prices.

CONCLUSION:- The main aim of this study on impact of solid waste due to non engineering and non scientific disposal. On this way, we found that with the increase in the global population and the rising demand of food and other necessities there has been arise in the amount of waste being generated daily by each household. If we not properly managed those solid waste from household or any other communities, will become a serious health issue, can lead to the spread of infectious diseases. So, we need to use solid wastes properly and also eco friend fully.



Environmental Economics

Anindita Ghosh
4th Semester





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