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A Development Intervention

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## *Yojana Summary*

# North-East 2021-22

July 2021

Educational Policy Interventions

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**SPECIAL ARTICLE**

Translation : Window to the world

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NECTAR – Strengthening S&T in the NE Region

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**Note:** Please note that some inputs have been given by our team in order to make the topic more relevant to UPSC.

## 1. MEASURES TO SAVE ENERGY

- **GS-3:** Infrastructure: Energy, Ports, Roads, Airports, Railways etc.
- **GS-2:** Welfare schemes for vulnerable sections of the population by the Centre and States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

### Bureau of Energy Efficiency

- It has been established to decrease the energy intensity of the Indian economy.
- It is a statutory body established by the Energy Conservation Act, 2001.
- **Aim:** BEE aims to assist in the policy-making process, as well as promote self-regulation and market principles with an overall aim to reduce the energy intensity of the Indian economy.

### Perform, Achieve and Trade Scheme (PAT Scheme)

- It is a scheme for large industries and establishments aimed at conserving energy.
- **Ministry:** The scheme is implemented by the Ministry of Power.
- **Energy Savings Certificate (ESC):** Under the scheme, the Ministry of Power issues energy targets to the identified units of an industry. The targets when achieved by the Industry are issued to them as 'Energy Savings Certificate'.
  - ESCs are tradable instruments. They can be sold by an energy efficient unit to another unit. Thus, the scheme provides an incentive to save energy.
  - ESCs can be earned by installing energy efficient appliances, using better technologies or minimizing energy wastage through in-house procedures.
- **Sectors:** The scheme is applicable to 13 most energy intensive sectors like thermal power, cement, iron and steel, fertilizers, railways etc. Different industries are given different targets as per their energy consumption and the potential to save energy.

### Standards and Labelling Program

- The program has been introduced by BEE to increase the take up of high efficiency appliances in the market, in order to save electrical energy.
- The scheme allows the consumers to make an informed choice through providing the details on power consumption of the appliances and the resultant cost savings, through a star-label.
- **Outcome:** The scheme has resulted in an estimated savings of almost Rs. 30,000 throughout the economy.
  - It has also led to a reduction of almost 46 million tonnes of carbon dioxide emission per year.

## 2. DEVELOPMENT OF NORTH EAST REGION

- **GS-4:** Distribution of key natural resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).
- **GS-3:** Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.
- **GS-3:** Security challenges and their management in border areas - linkages of organized crime with terrorism.

**PRELIMS FOCUS**

**Free Movement Regime (FMR):** It is a system to enhance connectivity and cultural engagement across the Indo-Myanmar border.

- ❑ **Reason for FMR:** The formation of Myanmar as a separate country did not envision the division of communities along the border of India and Myanmar. Therefore, many communities, especially the Nagas, which had centuries-old links with each other were disturbed. Therefore, FMR was established between the two countries to let the communities engage without any hindrance.
- ❑ **Features:** The regime allows the local communities, within a territorial area of 16 kms either side on the border, access the other side of the border without any visa requirements. The citizens must return to their original place of residence within 72 hours.
- ❑ **Concerns of Indian Government:** However, India has raised concerns regarding misuse of the Regime by the Militants to smuggle contraband goods, fake currency and weapons across the border.

**PRELIMS FOCUS**

**Inner Line Permit (ILP):** It is a travel document issued by the Government of India to allow the Indian citizens to travel in a 'protected state'.

- ❑ **States:** Currently, the states requiring ILP are Arunachal Pradesh, Mizoram and Nagaland.
- ❑ **Act:** The system was enacted under the Bengal Eastern Frontier Regulations, 1873.
- ❑ **British legacy:** The system was instituted by the British government to stop the 'British Subjects' (i.e. the contemporary citizens of British India) from entering and competing with the commercial interest of the Crown. Such commercial interests included tea trade, oil trade, elephant trade etc. After independence, 'British subjects' was replaced by 'Indian Citizens'.
- ❑ **Reason for Continuation:** However, the Government of India has not abolished the system in an effort to protect the indigenous tribes and their way of life, from interference by the 'outsiders'.
- ❑ **Types of Permit:** Permits differ on the basis of duration. Tourist permit is different from the permit required for employment purpose.

**North Eastern Region**

- ❑ North Eastern Region of India comprises the seven sister states viz. Arunachal Pradesh, Assam, Manipur, Mizoram, Meghalaya, Nagaland and Tripura, and the state of Sikkim.
- ❑ **Geography:**
  - **International Borders:** The states of the North East Region share international boundaries with Nepal, Bhutan, Tibet, China, Bangladesh and Myanmar. There are different aspects to the boundaries for the ease of the people of the country. For e.g. India has a Free Movement Regime (FMR – see inset) with Myanmar.
  - **Area:** North East region has a total geographical area of 2,62,230 sq. km, which is almost 9.12% of the total area of the country.
  - **Topography:** About 35% of the region is plain. However, in Assam almost 85% of the state is plains. In totality, around 56% of the total area is under low altitude, 33% in mid-altitude and rest is under high altitude.
  - **Demography:** The total population of the North Eastern Region is more than 46 million. This amounts to be almost 3.76% of the total population of India. Out of this, rural population comprises almost 80% of the total population in the area.
  - **Rainfall:** Annual rainfall of the North East region is almost 2000 mm. This is almost 10% of the total rainfall received by the country. North East features the wettest region in the world in the form of areas like Mawsynram and Cherapunji.



### □ Culture:

- **Animistic Culture:** The people of the North Eastern States are generally simple, down-to-earth and trusting in nature. In fact, before the arrival of British, North Eastern people practiced primitive farming and hunted wild animals. Despite the advances over a period of time, North East culture is connected to its roots.
- **Art Forms:** The strong cultural linkage of North East people is visible in their art forms. For e.g. the folk songs revolve around the three major themes of love, hunt and war. Similarly, the tribal dances of North East are Cheraw (Bamboo dance), Bihu, Bardo Chham (Arunachal Pradesh) etc.
- **Religion:** Christianity makes up almost 87% of the total population of the State. This is attributed to the arrival of Christian missionaries in India after the arrival of British.

### Challenges to Agriculture in North Eastern Region

#### FACTS

- **Net Sown Area:** It is highest in Assam with 34% of the total area under cultivation, followed by Tripura (23.5%).
- Cropping Intensity is highest in Tripura (156%), with Manipur (152%) at the second position.
- **Major Crops:** In the North Eastern region, major crop is rice. However, in the state of Sikkim, Maize is the dominating crop.
- **Shifting Cultivation:** Almost 1.6 million ha area is under shifting cultivation.
- **Average landholding size:** In Northeast India, the average size of landholding is almost 1.69 ha compared to the national average of 1.15 ha.

- **Topographical disadvantages:** As stated above, almost half of the area of the region is under mid or high latitudes. This creates challenges for agriculture as it creates issues for the supply of water evenly in the field as well as making application for tools and equipment difficult for the farmers.
- **Loss of Top Soil:** Out of the total 4 million ha in net sown area, almost 1.3 million ha suffers from the soil erosion problem. In fact, the loss of top soil in the North Eastern region is almost 46 tonnes/ha, which is much higher than the national average of 16 tonnes/ha. This leads to the loss of a fertile layer from the top and decreases the productivity of the region.
- **Soil Degradation:** The soil of the region is acidic, despite being rich in organic matter. This is problematic with reference to the application of chemicals like pesticides, fertilizers etc. Soil Health Card scheme can be gainfully utilized in such conditions to determine the appropriate treatment for better soil quality.
- **Subsidence Agriculture:** Agriculture in the North East is predominated by the presence of Subsidence agriculture. Most of the farmers want to produce enough for their food supply without having to depend on any outside source for food. At the same time, there is a lack of education regarding the commercial crops, which can result in better remuneration for the farmers.
- **Lack of Application of Scientific Knowledge:** The absence of scientific techniques in Agriculture has led to a decrease in the productivity of agriculture in the region. For e.g. fertilizer consumption in the area is hardly 11 kg/ha with a low of 2.7 kg/ha in Arunachal Pradesh. Similarly, many tribes in the states still practice Jhuming (slash and burn) agriculture, which is not only unproductive, but also ecologically unsustainable.
- **Lack of Mechanisation:** Again, the farmers in the area rely on traditional farming practices without the use of modern machines like tractors. This not only increases drudgery, but also leads to an increase in the Disguised Unemployment. This means that many young members of the society, who can be gainfully employed in other occupations are caught up in Agriculture, without a commensurate increase in production of the crop.
- **Lack of Adequate Irrigation:** Out of the total cultivated area in the region, only 21% is irrigated. Rest of the area is dependent on the rainfall for irrigation. Though, North East is blessed with being one of the wettest places on the Earth, over-dependence on seasonal rainfall can be dangerous in the long term. This is especially relevant in the era of vagaries in the Monsoon and climate change.



## Education in the North East Region

- North Eastern Region is an area of untapped human potential which can be tapped to bridge the gap created by demand-supply mismatch between the skill requirement of the industry and the availability of skills in the country.
- **Challenges to the Growth of Education:** The North Eastern Region faces the following challenges in the development of education:
  - **Lack of Industry:** The North Eastern Region is not bestowed with an extensive industrial development except the state of Assam. Since, industry requires skilled labour, therefore it acts as a motivation for people in the vicinity to acquire literacy and skills. On the other hand, the absence of industry leads to demotivated youth, who must be ready to emigrate, if they aspire to get high-paying jobs.
  - **Industry-education linkage:** India is facing a paradoxical situation where youth remains unemployed, while industry perennially complains of shortage of skill labour. The missing link to connect the two is skill, which is in a short supply in the nation, especially the North Eastern Region. The syllabus of higher education is outdated by the industrial standards. Therefore, even the literate youth is unable to be absorbed in the industry.
  - **Sparse Population:** Many areas in the North East, especially Arunachal Pradesh are very sparsely populated, making it difficult for the government to provide schools within a defined distance. Even when the government provides schools, teacher attendance in the school is inadequate. This creates a problem of unavailability of the Education at the elementary level.
  - **Inhospitable Terrain:** North Eastern Region is characterized by the presence of hilly areas and mountainous regions. This makes it difficult to provide adequate transport for the children, especially when they look for secondary and higher secondary schools. Therefore, higher education remains inaccessible for the students, till they are ready to migrate to a boarding school.
- **Desired Changes to improve the Scenario:**
  - **Focus on New Skill in Demand:** There is a need to leverage the untapped human capital present in the country, especially the North East Region, to fulfill the shortage of human resources around the world. Countries like Japan and Russia faces shortages of workers due to their high average age and sparse population density respectively. India, with its demographic surplus, can come to the aid of such countries, while providing gainful employment to the citizens, making it a win-win strategy for both.
  - **Tap untouched areas:** Rural areas in the country have a huge supply of human capital, which is waiting to be skilled and adjusted in the global industry. There is a need to tap this potential by designing courses suited to the rural youth, as per the industry demands. Similarly, many disadvantaged communities like divyangjan can be skilled based upon their ability. Again, the retired personnel can be recruited to provide overall guidance and policy interventions based on their experience.
  - **Globalization of Skill curriculum:** Indian education is burdened with knowledge heavy curriculum, which may not be in sync with the global requirements. Designers of such courses need to update the courses to match the skill requirements, while forming inter-disciplinary groups to explore the additional skills required to make the courses attractive.
  - **Cultural Understanding:** Harnessing India's demographic dividend would depend upon preparing the students for globalized working environment. For e.g., they need to be taught the cultural nuances of a particular region, in which they are expected to gain work. Similarly, they should understand the demands of the market, trends of the global economy and the prevalent working conditions in the target areas.
  - **Leadership Skills:** Indian students score much better on knowledge of traditional subjects, than the other subtle skills, which are expected from a skilled professional. There is a need to introduce such courses to make the students trained in decision-making, problem-solving and understanding the rational ways of working with their global peers. They should be able to have a sense of responsibility towards their work and the required skills to put across their point of view and influence others' opinions by persuasion.

- **Integration Skills:** Nowadays, it is very important for the students to have a basic knowledge of almost every field, which touches their main subject. For e.g., a student of political science must understand human behavior and psychology, as well as statistical formulae and calculations, to compile and make sense of exit poll results, projecting future outcome of the polls.

### Importance of the NER

- ❑ **Growth Engine:** Recently, the Prime Minister has referred to the North Eastern Region as the potential 'growth engine' of the country. This bodes well for the future of the region, as it shows the focus on development of the region and due importance from the highest echelons of the global political executive. We can expect policy interventions suited to the local requirements in the coming future.
- ❑ **Act East Policy:** North Eastern Region is geographically contiguous to Myanmar, which is a part of South-East Asia. Therefore, it has the potential to act as the Indian 'Gateway to South East Asia'. This is important in the context of the Indian relationship with countries like Thailand and Singapore, with which we share a good rapport. They are high income countries and can help India in the alleviation of poverty in the region.
- ❑ **Strategic Location:** North Eastern Region of India is a landlocked region, with no access to seas. This is complicated by the presence of Siliguri Corridor, called as chicken's neck for India. It is a mere 21 kms wide corridor which connects India with its North Eastern Region. Therefore, any Chinese activity near the region raises eyebrows in Delhi. In the event of a war, India would need to safeguard the corridor, so that any potential advances by the Chinese in the Northern part of North-East region can be suitably repelled by the Indian armed forces.
- ❑ **Carbon Sink:** India has vowed to create an additional 2.5 to 3 billion tonnes of carbon sink per year under its Nationally Determined Contributions as a part of Paris Summit. North Eastern India with its dense forest cover can play a huge role in such endeavor. Mizoram is the best state in India in terms of forest cover.
- ❑ **Energy Resources:** Due to the presence of Brahmaputra and its tributaries, North Eastern region has an immense potential as far as the hydro-electric energy is concerned. Similarly, it has been a source of crude oil and natural gas in the form of Digboi oil fields. Potential oil and natural gas reserves have been found at the Arakan Basin.
- ❑ **Agricultural Resources:** North Eastern region is blessed with natural resources which are important for the economic growth of the country. For e.g. the tea plantations of Assam earn a significant value of foreign exchange for the country. Similarly, Bamboo is useful in cane and furniture industry. Bird's Eye Chilli from Mizoram has the Geographical Indication (GI) tag.
- ❑ **Tourism:** North Eastern region can be a hub for tourist activity due to its lush green landscape, unique tribal culture, fresh air, comfortable climate and distinct topography. It can be harnessed as a source of eco-tourism and rural tourism. However, the tourist potential is complicated by the presence of different arrangements like Inner Line Permit (ILP – see inset) and sixth schedule areas of the Constitution of India, which restrict movement of outsiders in the area.

### Challenges to the Development of the NER

- ❑ **Difficult Terrain:** North Eastern Region is majorly a mountainous region, except the state of Assam, which has plains as major part of its area. This makes it difficult for the government schemes to be implemented in the area, because of the problem of access to the remote areas.
- ❑ **Backward Areas:** Also, unlike the mainland, people of the North East Region are still content with a simple lifestyle and lack of technology in the day-to-day lives. Though we see a lot of social reform in the region, the standard of life continues to be low, due to the absence of high-income generation opportunities. For e.g., the farmers practice primitive methods of agriculture, with the tribals still practicing Shifting agriculture in the country.
- ❑ **Connectivity:** As stated above, North Eastern Region is a landlocked region. Therefore, it has limited access to the sea. Similarly, it has a difficult terrain which renders express-ways and wider roads infeasible. This is complicated by the absence of railway infrastructure in the region. In fact, Indian government asked for help from Bangladesh to transport heavy equipment to the state of Tripura as the narrow, hilly roads rendered it impossible to transport the same from Mainland through land route.

- ❑ **Lack of Physical and Social Infrastructure:** NER has complained of step motherly treatment from the Mainland, especially in the context of development projects in the region. This is demonstrated by the lack of good quality hospitals and nursing homes in the states of the NER. Therefore, despite a high literacy rate, the state lags behind in overall development.
- ❑ **Insurgency:** One of the major regions for the lack of development in the region is the lack of political and social stability in the country. The artificial boundaries of the British legacy have not been fully accepted by the tribal communities of the region, which is compounded by political opportunism. The region is still caught in the vicious circle of violence due to political reasons and diversion of youth towards the insurgent groups, which leads to a lack of skill enhancement and consequent lack of opportunity.

### Initiatives of the Government of India

- ❑ **Ministry of Development of North Eastern Region (DoNER):** North Eastern States have complained about the step-motherly treatment from the mainland for a long time. To address such concerns, a Department of Development of North Eastern Region (DoNER) was established in 2001. It was elevated to a full ministry in 2004. It acts as the nodal department for coordination of matters related to the development of North Eastern Region.
- ❑ **North East Special Infrastructure Development Scheme (NESIDS):** Lack of development has been touted as the chief factor promoting insurgency in the North Eastern Region. To assuage this concern, a Non Lapsable Central Pool of Resources (NLCPR) Scheme was created. The scheme has now been followed up by NESIDS. The aim of the scheme is to enhance the physical infrastructure related to power, connectivity and water supply, and social infrastructure in the form of health infrastructure. It is a Central Sector Scheme.
- ❑ **North Eastern Council (NEC):** It is a statutory body constituted under the North Eastern Council Act 1971. All the Governors and Chief Ministers of the states are its members. It is chaired by the Union Home Minister, while its Vice-chairman is the Minister of Development of North Eastern Region.
- ❑ **Peace Efforts:**
  - **Government Initiatives:** Government of India has tried its best to accommodate the demands of the tribal groups and other inhabitants in the region, within the framework of the Indian Constitution. The outcomes are visible in the form of Nagaland Peace Accord and Bodo Peace Accord, which have decreased the prevalence of violence and insurgency in the region, bringing the focus back to the development of the region.
  - **Earlier initiatives like Mizo insurgency:** The government has made efforts to end the insurgencies by keeping the option of talks open for the insurgents at all levels. However, the path of consultation is only available to the groups who abjure violence and are ready to resolve the crisis within the limits of the Constitution of India. In this manner, Mizoram Peace Accord was signed in 1986, bringing an end to the insurgency in the state.
- ❑ **Connectivity Projects:** To create alternate routes to the region and decrease its dependence on the Chicken's Neck, Indian government has planned additional routes through the South East Asia:
  - **Kaladan Multi-Modal Transit Project:** It is a massive connectivity project to connect the Haldia port to Mizoram through Myanmar. The route envisages marine journey from Haldia to Sittwe port in Myanmar. Sittwe would be connected to Lawngthai in Mizoram, through a combination of inland water transport and highway.
  - **Bangladesh-China-India-Myanmar (BCIM) Corridor:** The project has been envisaged to enhance economic connectivity between China and India, while benefitting Myanmar and Bangladesh, which lie on the route. India is lesser enthusiastic for the projects like Kolkata to Kunming Bullet Train (K2K Project), which China has mooted as a part of Belt and Road Initiative (BRI). However, India has kept the BCIM corridor alive, claiming that the idea predated BRI project.
- ❑ **Mission Organic Value Chain Development (MOVCD-NER):** The program has been implemented in the North Eastern states since 2017. The aim of the mission is to promote organic farming in the region. It seeks to replace the traditional subsistence farming with a cluster-based approach. The cluster of high value crops like turmeric, chillies, ginger and tea, are geared towards being market-oriented and increasing the farmer remuneration.

- ❑ **Sub Mission on Seeds and Planting Material (SMSP):** It aims to increase the availability of seeds of the High Yielding Varieties of crops. The overall objective is to double farmers' income by 2022, as envisioned by the Government. The scheme is run alongside other support programs like Krishi Vigyan Kendras (KVKs), integrated farming system etc.
- ❑ **Community Involvement:** North Eastern region is considered as a generally class-less society, with a strong sense of community. The society is mostly disciplined as manifested in Aizawl being called a 'honk-free city', with drivers not engaging in unnecessary honking. Community Patrolling was used to ensure effective lockdown during COVID, leading to fewer deaths.

### Conclusion

- ❑ North Eastern Region has been rightly referred to by the Prime Minister as the growth engine of the country. However, it is important to put extra efforts to safeguard the security of the region as well as provide financial support for its development. There is a need to reduce the feeling of alienation in the people towards the mainland for better assimilation of the cultures.

## 3. GLOBAL WASTE GENERATION AND CLIMATE CHANGE

- **GS-3:** Conservation, environmental pollution and degradation, environmental impact assessment.
- **GS-3:** Disaster and disaster management.

### Facts

- ❑ **Global Temperature:** After the Industrial Revolution, the rate of growth of Global Surface Temperature has doubled.
  - Since 1980, global temperature is rising by almost 0.18 degrees every decade.
- ❑ **Solid Waste Generation:** Globally, almost 2.01 billion tonnes of solid waste are generated.
  - 34% of this is generated by high-income countries.
  - By 2050, global waste generation is expected to increase to 3.4 billion tonnes.
  - India contributes almost 11.95% of global solid waste, despite having more than 18% of the global population.

#### PRELIMS FOCUS

**Global Warming Potential:** It refers to the amount of heat absorbed by a gas in comparison to the same mass of carbon dioxide.

- ❑ GWP for carbon dioxide is 1, methane is 21, Nitrous oxide is 310, Hydrofluorocarbons (HFCs) is 140-11,700 and Sulphur hexafluoride is 23,900.
- ❑ GWP allows comparisons for the potential of Green House Gases to cause Global Warming. The more the GWP, the more a gas warms the atmosphere.

### Climate Change

- ❑ **Climate Change:** It refers to the long-term changes visible on the earth due to anthropogenic activities. It includes global warming as a result of the emission of Green House Gases (GHGs), as well as the slow but observable changes in the weather patterns.
  - **For Example:** Climate change has led to a rise in extreme weather events like droughts, floods, heat-waves, rainfall, forest fires etc. The change includes both increased frequency of such events as well as their increased intensity.
- ❑ **Reasons for Climate Change:** Climate change has been exacerbated by connected events like faster migration of rural population towards the Urban areas. It is estimated that the proportion of urban population in India would double to 81 Crores by 2050 from just 41 Crores in 2011. This explosion in urban population has led to a growth in the generation of the solid waste, with both the amount and complexity of global wastes increasing at a faster pace.

- ❑ **Impact of Climate Change on global community:** Climate change has had a large and observable impact on the physical and geographical phenomena around the world. For e.g. one of the most talked about effect of climate change is on the global temperature. Increase in global temperature has led to the loss of snow cover in the polar areas. This, in turn, would lead to a rise in the sea level in the coastal areas, which would endanger the lives of coastal communities.

### Solid Wastes

- ❑ **Wide Variety of Solid Wastes:** Solid waste generation encompasses a wide variety of products depending upon various factors like population, climate, standard of living, economical condition, level of education and awareness level of the population. It includes Municipal Solid Waste, Commercial and Industrial waste, construction and demolition waste, agricultural waste, biomedical waste, electronic waste and hazardous waste.
- ❑ **Solid Waste and Climate Change:** Solid waste contributes to the global warming through the emission of GHGs. For e.g., if the solid waste is collected and then incinerated, it leads to the emission of Carbon dioxide. However, burning solid waste, especially organic waste, in the absence of air leads to the release of methane gas, which has a higher Global Warming Potential (GWP – see inset) than Carbon dioxide.
- ❑ **Open Dumping of Solid Waste:** Though the developed nations fare much better, but no country in the world is able to dispose of all the waste produced in the country in a proper and environment friendly manner. For e.g. African countries dump as high as 70% of their solid waste in open dumps. This figure is approximately 2% for some of the richer western countries. Open dumping has various limitations with reference to the environment of the region:
  - Reduction in the availability of land surface, which may get used in the form of landfill.
  - Decrease in the availability of green cover in an area.
  - Reduction in the availability of natural green sinks, viz. forest cover in the region.
  - Emission of poisonous gases from the landfills, which may increase the air pollution of the area, apart from being harmful to the local residents.
  - Leakage of leachate into the groundwater, harming the quality of groundwater in the area and aiding the spread of the water-borne diseases.

### Impact of Climate Change on Solid Waste

- ❑ **Effect of Climate Change on Disasters:** Climate change leads to an increase in extreme weather events like heavy rainfall, cyclones and storms, heat waves etc. These events have the potential to increase the Solid Waste generation.
- ❑ **Flooding:** It leads to destruction of infrastructure and property. This creates voluminous quantities of debris and litter. Also, at the time of crisis, floods prevent the adequate disposal of waste in a proper manner. Other challenges created by floods include inability to access the waste storage system, over-flooding of the site drainage systems and waterlogging in the open areas. Floods have the capability to break the bunds and capping layers, thereby exposing the waste to environment. It also increases the volume of leachate in the landfill sites.
- ❑ **Cyclones:** Again, cyclones led to heavy rains and fast winds. They also uproot trees and destroy other infrastructure, while disrupting communication, transport and relief activities. Thus, waste generation increases due to cyclones and storms.
- ❑ **Heatwave:** Though heatwaves do not directly lead to a destruction of infrastructure or property, they accelerate the process of decomposition of the existing waste. They also enhance the degradation of landfill sites, thereby increasing foul odour and making it difficult to live in the vicinity of the landfill. The strong odour also makes cleaning difficult for the workers and other waste management personnel, increasing the maintenance costs. At the same time, heat waves can also dry up the compostable waste and render the microbes unable to decompose the waste.
- ❑ **Rise in Sea Level:** As stated above, the rise in sea-level occurs due to an increase in global temperature and the melting of snow. As the sea level, increases it encroaches upon the landfill sites situated near the coasts. Also, inundation of water leads to erosion of the soil, which can expose the underground landfills to the environment.

## Fighting Climate Change

- ❑ **Effective Waste management:** It is important to take steps to address the problem of solid waste generation as it has the potential to become disastrous by the year 2050, when the global solid waste generation is expected to rise to almost 3.4 billion tonnes. It will require proper organization and execution of the process of solid waste management, including:
  - **Decrease in Solid Waste generation:** through encouragement of the 3 Rs – reduce, reuse and recycle.
  - **Organized Collection of waste:** Focus on maximization of the quantity of waste collected through formal institutions.
  - **Segregation of Waste:** It refers to segregation of waste according to the end result of waste disposal. For e.g. biodegradable waste must be separated from the non-biodegradable waste. Similarly, the rare-earth metals need to be separated from the electronic products and resupplied to the markets. This will decrease the burden of import of such metals and save precious foreign exchange.
  - **Treatment and disposal of Waste:** It refers to the final stage, where useful material is extracted from the waste, hazardous material is disposed of in an environment-friendly manner and other material is either disposed of in a landfill or incinerated in the waste-to-energy plants.

## Conclusion

- ❑ It is expected that with a rise in urbanization, the generation of solid waste would increase over time. It is important to organize the solid waste management sector in time, so that the problem can be nipped in the bud and before it becomes unsustainable.
- ❑ At the same time, it needs to be understood that only a holistic strategy, backed with political willpower and popular effort, can restrict the global temperature rise below the target level. Otherwise, it will have a catastrophic effect on the frequency and intensity of extreme climate events, further complicating solid waste management.

## UPSC Previous Years Questions

1. With growing energy needs should India keep on expanding its nuclear energy programme? Discuss the facts and fears associated with nuclear energy. (GS-3: 2018)
2. Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs). Comment on the progress made in India in this regard. (GS-3: 2018)
3. Cross-border movement of insurgents is only one of the several security challenges facing the policing of the border in North-East India. Examine the various challenges currently emanating across the India-Myanmar border. Also, discuss the steps to counter the challenges. (GS-3: 2019)
4. The north-eastern region of India has been infested with insurgency for a very long time. Analyze the major reasons for the survival of armed insurgency in this region. (GS-3: 2017)
5. Article 244 of Indian Constitution relates to Administration of Scheduled areas and tribal areas. Analyze the impact of non-implementation of the provisions of fifth schedule on the growth of Left Wing Extremism. (GS-3: 2013)
6. What are the impediments in disposing the huge quantities of discarded solid wastes which are continuously being generated? How do we remove safely the toxic wastes that have been accumulating in our habitable environment? (GS-3: 2018)
7. 'Climate Change' is a global problem. How India will be affected by climate change? How Himalayan and coastal states of India will be affected by climate change? (GS-3: 2017)
8. Vulnerability is an essential element for defining disaster impacts and its threat to people. How and in what ways can vulnerability to disasters be characterized? Discuss different types of vulnerability with reference to disasters. (GS-3: 2019)

## Mains Practice Questions

1. Do you think that the Bureau of Energy Efficiency has successfully exploited the 'nudge theory' while implementing the Standards and Labelling Program in the country. Give reasons for your answer.
2. Examine the importance of 'Perform, Achieve and Trade' scheme in increasing private investment in the area of sustainable energy generation of the country.
3. Recently, the Prime Minister has referred to the North Eastern Region as the potential 'growth engine' of the country. Discuss.
4. Assess the security implications of China's incursions in the Indian territory including the Doklam standoff, on India's connectivity with its North Eastern Region.
5. Do you think India is justified in opposing Belt and Road Initiative, especially when China wants to enhance connectivity between its south eastern part with India's North-Eastern Region. Discuss, in the context, of Kaladan Multi-modal transit project and China's proposal of bullet train corridor from Kolkata to Kunming, via Myanmar and Bangladesh.
6. What are the impediments to the development of North Eastern Region of India, despite the government of India creating a separate Ministry of Development of North Eastern Region.
7. Solid waste management has been held hostage to the informalisation the sector in the country. Critically examine.
8. Do you think that climate change, disaster management and solid waste management are interconnected in nature. Examine the role played by extreme weather events in complicating the process of solid waste management.



## YOJANA SUMMARY: QUESTIONS

### Multiple Choice Questions

1. With reference to Bureau of Energy Efficiency, which of the following statements is/are correct?

1. Its aim is to decrease the consumption of energy required for per unit production of the goods and services in the Indian economy.
2. It is a statutory body established under the Electricity Act, 2003.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

2. With reference to Perform, Achieve and Trade Scheme, consider the following statements:

1. Energy Saving Certificates work on the principle of Carbon credits.
2. The scheme has been implemented by the Ministry of New and Renewable Energy.
3. Targets under the scheme are uniformly applicable to all sector of the Indian economy.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

3. With reference to global warming, consider the following statements:

1. Carbon dioxide has the highest Global Warming Potential.
2. Kyoto Protocol committed the member nations to a reduction in the Greenhouse Gases.
3. Kigali Agreement further strengthened the global warming targets by amending the Kyoto protocol.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

4. With reference to Inner Line Permit, consider the following statements:

1. Its origin lies in the protection of the way of life of tribal communities from the interference of outsiders.
2. It is applicable to the areas mentioned in the Schedule 6 of the Indian Constitution.
3. There are different kinds of permit based on the duration of stay.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 2 and 3 only

5. Free Movement Regime refers to

- (a) Diplomatic immunity for the officials of the agencies of the United Nations in the resident state
- (b) A 16 KMs zone on either side of the Indo-Myanmar border allowing free movement of residents
- (c) Proposed business visa allowing visit to all the 15 members of the RCEP Free Trade Area
- (d) International Agreement of member countries allowing easier access to visa for the fully COVID-vaccinated people in the respective territories

## ANSWERS WITH EXPLANATION

1. (a)

**Statement 1 is correct:** BEE has been established to decrease the energy intensity of the Indian economy. Energy intensity refers to the energy consumed per unit GDP of the country.

**Statement 2 is incorrect:** BEE is a statutory body established by the Energy Conservation Act, 2001.

2. (a)

**Statement 1 is correct:** Just like the Carbon credits, ESCs are tradable instruments. They can be sold by an energy efficient unit to another unit.

**Statement 2 is incorrect:** The scheme is implemented by the Ministry of Power.

**Statement 3 is incorrect:** The scheme is applicable to 13 most energy intensive sectors like thermal power, cement, iron and steel, fertilizers, railways etc. Different industries are given different targets as per their energy consumption and the potential to save energy.

3. (b)

**Statement 1 is incorrect:** Global Warming Potential refers to the amount of heat absorbed by a gas in comparison to the same mass of carbon dioxide. GWP for carbon dioxide is 1, methane is 21, Nitrous oxide is 310, Hydrofluorocarbons (HFCs) is 140-11,700 and Sulphur hexafluoride is 23,900.

**Statement 2 is correct:** Kyoto Protocol commits the industrialized countries and economies in transition to reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets.

**Statement 3 is incorrect:** Kigali agreement was an amendment to the Montreal Protocol, limiting the emissions of Hydro Fluoro Carbons (HFCs).

4. (b)

**Statement 1 is incorrect:** The ILP system was instituted by the British government to stop the 'British Subjects' (i.e. the contemporary citizens of British India) from

entering and competing with the commercial interest of the Crown. Such commercial interests included tea trade, oil trade, elephant trade etc. After independence, 'British subjects' was replaced by 'Indian Citizens'. However, the Government of India has not abolished the system to protect the indigenous tribes and their way of life, from interference by the 'outsiders'.

Therefore, the origin of the system lies in the protection of British interests in the region.

**Statement 2 is incorrect:** It is applicable to the states of Arunachal Pradesh, Nagaland and Mizoram. The schedule 6 states are Assam, Meghalaya, Tripura and Mizoram.

**Statement 3 is correct:** The permits differ on the basis of duration. Tourist permit is different from the permit required for employment purpose.

5. (b)

Free Movement Regime (FMR): It is a system to enhance connectivity and cultural engagement across the Indo-Myanmar border. The regime allows the local communities, within a territorial area of 16 kms on either side of the border, access the other side of the border without any visa requirements. The citizens must return to their original place of residence within 72 hours.

