



Role of the Chief of Defence Staff

For Prelims: CDS, Theatre Command.

For Mains: Significance of CDS, Rethink of CDS Reforms.

Why in News?

The Government is reassessing the concept of post of [Chief of Defence Staff \(CDS\)](#) as well as the Department of Military Affairs (DMA) and is **looking to streamline the setup**.

- The CDS is a **four-star General/Officer** who acts as the Principal Military Advisor to the Defence Minister on all tri-services (Army, Navy and Indian Air Force) matters.

What is the Role of the Chief of Defence Staff?

- CDS acts as **the permanent Chairman of the [Chiefs of Staff Committee](#)** which will also have three service chiefs as members.
 - His core function will be to foster greater operational synergy between the three service branches of the Indian military and keep inter-service frictions to a minimum.
- He also **head the newly created Department of Military Affairs (DMA)** in the Ministry of Defence.
 - The CDS will be the **single-point military adviser to the Defence Minister on matters involving all three services** and the service chiefs will be obliged to confine their counsel to issues pertaining to their respective services.
 - As the head of DMA, CDS is vested with the authority in prioritising inter-service procurement decisions as Permanent Chairman-Chiefs of Staff Committee.
- The CDS is also **vested with the authority to provide directives to the three chiefs**.
 - However, he does not enjoy any command authority over any of the forces.
- CDS is **first among equals, he enjoys the rank of Secretary within the DoD** (Department of Defence) and his powers will be confined to only the revenue budget.
- He will also perform an advisory role in the [Nuclear Command Authority \(NCA\)](#).

What is the Significance of CDS?

- **Synergy between Armed forces and Government:** CDS' role is not simply about tri-service cooperation, it is equally about fostering better cooperation between the Ministry of Defense bureaucracy and the Armed services.
 - Since 1947, there are three Service Headquarters (SHQ) designated as "Attached Offices" of the Department of Defense (DoD).
 - Due to this, communication between SHQ and DoD takes place largely through the medium of files.
 - With the creation of CDS as Principal Military Adviser (PMA) to Defense Minister, the process of decision-making will be accelerated.
- **Jointness in operations:** The Chiefs of Staff Committee-COSC (predecessor of CDS), has been dysfunctional because its chairmanship is held by one of the three chiefs on a part-time rotational

basis.

- Historically, the chairman COSC lacked the authority as well as capacity and inclination to tackle tri-service issues of substance.
- With the CDS now being designated as “permanent chairman of COSC”, he will be able to devote undivided attention to the administration of tri-service organisations.
- **Operationalisation of [Theatre Command](#)**: Creation of DMA will facilitate the operationalisation of joint/theatre command.
 - Although a successful template for joint operations was created in the [Andaman & Nicobar Command](#), the lack of political direction and indifference of the COSC has led to inactivity of this joint command.
 - Theatre commands would need staff with the knowledge and experience to deploy land, maritime and air forces. Given the disruptive impact of each of these measures, they would best be implemented by the CDS.
- **CDS as a key functionary in the nuclear command chain** will also administer the [Strategic Forces Command](#).
 - This measure will go a long way in enhancing the credibility of India's nuclear deterrent.
 - The CDS would also initiate an early review of [India's Nuclear Doctrine](#).
- **In the approaching era of dwindling defence budgets**, a crucial function of CDS will be “prioritising” the capital acquisition proposals of individual services.
 - CDS will have to ensure that the “**defence rupee**” is **spent judiciously**; on warfare-capabilities considered vital for national military power, and not on pandering to service demands.

Why Rethink the Role of CDS?

- It is experienced that the **appointment of a CDS in itself wasn't enough** and there are several issues with respect to roles and responsibilities, issues of equivalence among others.
- There is also a **dichotomy in the roles and responsibilities** with the several hats worn by the CDS and also overlap in responsibilities between the DMA and DoD.
- There is also a **rethink on the ambitious timelines set for the creation of [Theatre Commands](#)** and also the number of commands and their envisaged format.

What has been the progress on Theatre commands?

- An ambitious agenda was set for the first **CDS to reorganize the Indian armed forces into integrated theatre commands**, which would be the biggest reorganization of the military in 75 years and fundamentally change the way the three services operate together.
- Extensive studies were carried out by the Vice Chiefs of three Services on the theatre commands — land-based Western and Eastern theatre commands, maritime theatre command and an integrated air defence command had stated that the **Army's Northern Command would be left out of the ambit for now** and integrated at a later stage.
- However, **differences continue to remain on certain aspects with the Air Force having some reservations with regard to the air defence command** and the naming and rotation of the theatre commands among others.
- Additional studies were ordered, **which are currently underway but the overall process has stalled in the absence of a CDS** and continued differences.

Way Forward

- There is a need to have a CDS with operational powers who will after due legislative changes have theatre commanders report to him while the Service Chiefs will look after the raise, train and sustain functions of respective Services.
- The creation of CDS will not be a panacea, therefore India needs to carry out thorough reforms to upgrade its armed forces so that it can meet the security challenges of 21st-century.

[Source: TH](#)

The State of Inequality in India Report

For Prelims: The State of Inequality in India Report, EAC-PM, PLFS, Gross Enrolment Ratio, World Inequality Report 2022, India Inequality Report 2021, Multidimensional Poverty Index (MPI)

For Mains: State of Inequality in India and related issues

Why in News?

Recently, the **'State of Inequality in India' Report** was released by the [Economic Advisory Council to the Prime Minister \(EAC-PM\)](#).

What is the Report All About?

▪ About:

- The report **compiles information on inequities across sectors** of health, education, household characteristics and the labour market.
 - Inequities in these sectors make the population more vulnerable and trigger a descent into [multidimensional poverty](#).
- The report **stretches the narrative on inequality** by presenting a comprehensive analysis that shapes the ecosystem of various deprivation in the country, which directly impacts the well-being of the population and overall growth.

▪ Parts of the Report:

- The report consists of two parts – **Economic Facets and Socio-Economic Manifestations** which looks at five key areas that influence the nature and experience of inequality.
 - **Five Key Areas:** These are **income distribution, labour market dynamics, health, education and household characteristics**.

▪ Report is Based on:

- The report is based on the data derived from various rounds of the [Periodic Labour Force Survey \(PLFS\)](#), [National Family and Health Survey \(NFHS\)](#) and [United Information System for Education Plus](#).
 - Each chapter is **dedicated to explaining the current state of affairs**, areas of concern, successes and failures in terms of infrastructural capacity and finally, the effect on inequality.

What are the Key Highlights of the Report?

▪ Wealth Concentration:

- **Urban areas have a 44.4% wealth concentration in the highest quintile (20%)** compared to a meager 7.1% concentration in rural areas.

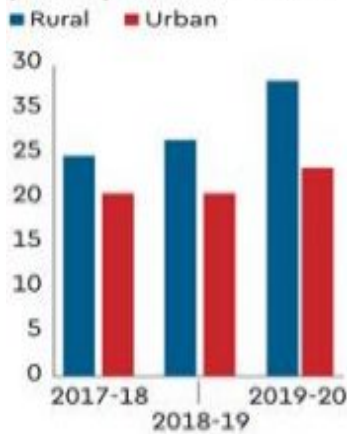
▪ Unemployment Rate:

- India's unemployment rate is **4.8% (2019-20)**, and the **worker population ratio is 46.8%**.
 - In 2019-20, among different employment categories, **the highest percentage was self-employed workers (45.78%)**, followed by regular salaried workers (33.5%) and casual workers (20.71%).
 - The share of self-employed workers also **happens to be the highest in the lowest income categories**.

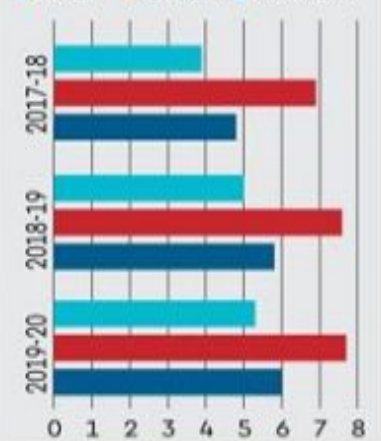
▪ Health Infrastructure:

- In the area of health infrastructure, there has been a **considerable improvement in increasing the infrastructural capacity** with a targeted focus on rural areas.
- From 1,72,608 total health centres in India in 2005, **total health centres in 2020 stand at 1,85,505.**
 - **States and Union Territories like** Rajasthan, Gujrat, Maharashtra, Madhya Pradesh, Tamil Nadu and Chandigarh have significantly increased health centres (comprising Sub-Centres, Primary Health Centres, and Community Health Centres) between 2005 and 2020.
- **Household Conditions:**
 - By 2019-20, **95% of schools would have functional toilet facilities** on the school premises (95.9% functional boy's toilets and 96.9% functional girl's toilets).
 - 80.16% of schools have functional electricity connections with States and Union Territories like Goa, Tamil Nadu, Chandigarh, Delhi, Dadra and Nagar Haveli and Daman and Diu, Lakshadweep and Puducherry have achieved universal (100%) coverage of functional electricity connections.
 - According to the [National Family Health Survey-5 \(2019-21\)](#), **97% of households have electricity access, 70% have improved access to sanitation**, and 96% have access to safe drinking water.
- **Education:**
 - The [Gross Enrolment Ratio](#) has also **increased between 2018-19 and 2019-20** at the primary, upper primary, secondary and higher secondary.
- **Health:**
 - The results of NFHS-4 (2015-16) and NFHS-5 (2019-21) have **shown that 58.6% of women received antenatal check-ups** in the first trimester in 2015-16, which increased to 70% by 2019-21.
 - **78% of women received postnatal care** from a doctor or auxiliary nurse within two days of delivery, and 79.1% of children received postnatal care within two days of delivery.
 - However, **nutritional deprivation in terms of overweight, underweight, and prevalence of anaemia** (especially in children, adolescent girls and pregnant women) remains areas of huge concern requiring urgent attention.
 - Additionally, low health coverage, leading to high out-of-pocket expenditure, directly affects poverty incidences.

Labour force participation rate (%)



Unemployment rate (%)



Health infra

| | 2005 | 2019-20 |
|--------------------------------|----------|----------|
| Sub Centres (SC) | 1,46,026 | 1,55,404 |
| Primary Health Centres (PHC) | 23,236 | 24,918 |
| Community Health Centres (CHC) | 3,346 | 5,183 |

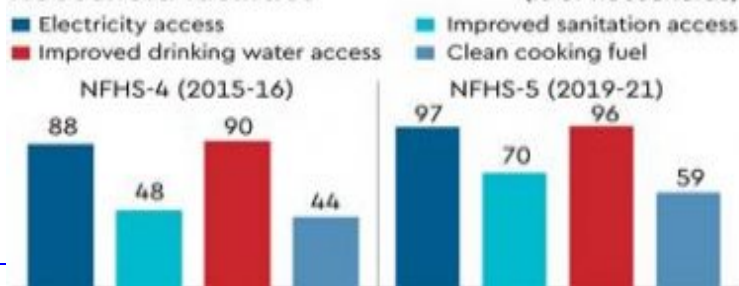
Spending on health

| | Rural | Urban |
|---------------------|---------|---------|
| Government hospital | ₹4,290 | ₹4,400 |
| Private Hospital | ₹27,000 | ₹38,000 |

Gross enrollment ratio

| Education level | 2019-20 | 2018-19 |
|---------------------------|---------|---------|
| Primary (I-V) | 102.74 | 101.25 |
| Upper primary (VI-VIII) | 89.67 | 87.74 |
| Secondary (IX-X) | 77.9 | 76.9 |
| Higher Secondary (XI-XII) | 51.42 | 50.14 |

Household facilities



Wealth concentration*

| Maximum States/UT | Value |
|-------------------|-------|
| Chandigarh | 80.80 |
| Delhi | 62.80 |
| Punjab | 62.00 |
| Goa | 55.90 |

| Minimum States/ut | Value |
|-------------------|-------|
| Bihar | 3.300 |
| Tripura | 6.200 |
| Meghalaya | 6.300 |
| Assam | 6.400 |
| Odisha | 7.300 |
| Jharkhand | 8.800 |
| West bengal | 9.400 |

Quantile (%); *in the highest quintile

Source: PLFS, UDISE, NFHS

What are the other Related Report?

- [World Inequality Report 2022](#)
- [India Inequality Report 2021](#)
- [Multidimensional Poverty Index \(MPI\)](#)

What are the Recommendations of the Report?

- Creating income slabs that provide class information
- Establishing [universal basic income](#)
- Creating jobs, especially among the higher levels of education and increasing the budget for social protection schemes.
- There is a need to **formulate reform strategies, a roadmap for social progress** and shared prosperity.

Source: PIB

India-Nepal: Recent Developments

For Prelims: India-Nepal Relations, India-Nepal Treaty of Peace and Friendship of 1950, Kalapani Boundary Issue, India's Neighbourhood First Policy.

For Mains: India-Nepal Relations - Significance and Major Challenges, China's interventions in Indo-Nepal Relations.

Why in News?

Recently, the Indian Prime Minister has visited Lumbini, Nepal, the birthplace of Buddha, where he laid a foundation stone along with Nepalese Prime Minister for a **Buddhist Vihara, being built with Indian assistance**.

- The PM celebrated the [2566th Buddha Jayanti](#) celebrations and addressed a gathering of people, including Buddhist scholars and monks, from Nepal and India.
- The PM praised Nepal for **preserving its ancient culture and civilisation**. **India-Nepal relation is as strong and as ancient as the Himalayas**.



What are the Highlights of the Visit?

- **International Centre for Buddhist Culture and Heritage:**
 - He performed the 'shilanyas' ceremony to launch the **construction of the India International Centre for Buddhist Culture and Heritage in the Lumbini Monastic Zone**.
 - The centre will be a **world-class facility welcoming pilgrims and tourists from all over the world** to enjoy the essence of spiritual aspects of Buddhism.
 - The facility is **aimed at catering to scholars and Buddhist pilgrims from all over the world** who visit Lumbini.
- **Hydropower Projects:**
 - The two leaders signed five agreements, including one between the **Satluj Jal Vidyut Nigam (SJVN) Ltd** and the **Nepal Electricity Authority (NEA)** for **development and implementation of 490.2 megawatts Arun-4 hydropower project**.
 - Nepal also invited **Indian companies to invest in the West Seti hydropower project in Nepal**.
- **Setting up a Satellite Campus:**
 - India has **offered to set up a satellite campus of the Indian Institute of Technology (IIT) in Rupandehi** and has sent some draft memoranda of understanding for signing between Indian and Nepali universities.
- **Pancheshwar Multipurpose Project:**

- Nepal discussed some pending projects like the **Pancheshwar Multipurpose Project**, an important arm of the **Mahakali Treaty** signed between Nepal and India in 1996, and West Seti Hydropower Project, a reservoir-type project with a projected capacity of 1,200 megawatts.

How have been India's Ties with Nepal?

- The India-Nepal **Treaty of Peace and Friendship of 1950** forms the bedrock of the special relations that exist between India and Nepal.
- Nepal is an important neighbour of India and occupies special significance in its foreign policy because of the geographic, historical, cultural and economic linkages/ties that span centuries.
- India and Nepal share similar ties in terms of **Hinduism** and **Buddhism** with Buddha's birthplace Lumbini located in present day Nepal.
- In recent years, **India's relations with Nepal have witnessed some 'lows'**. The relationship between the two took a nosedive in 2015, with India first getting blamed for interfering in the Constitution drafting process and then for an "unofficial blockade" that generated widespread resentment against India.
- In 2017, Nepal signed up to **China's Belt and Road Initiative (BRI)**, which sought to create highways, airports and other infrastructure in the country. **BRI was rejected by India** and this move of Nepal was seen as an inclination towards China.
- **In 2019, Nepal released a new political map** claiming Kalapani, Limpiyadhura and Lipulekh of Uttarakhand and the area of Susta (West Champaran district, Bihar) as part of Nepal's territory.

What are the Irritants in India-Nepal Ties?

- **Territorial Disputes:** One of the main irritants in the Indo-Nepal ties is the **Kalapani boundary issue**. These boundaries had been fixed in 1816 by the British, and India inherited the areas over which the British had exercised territorial control in 1947.
 - While 98% of the India-Nepal boundary was demarcated, two areas, Susta and Kalapani remained in limbo.
 - In 2019, Nepal released a new political map claiming Kalapani, Limpiyadhura and Lipulekh of Uttarakhand and the area of Susta (West Champaran district, Bihar) as part of Nepal's territory.
- **Issues with Peace and Friendship Treaty:** The 1950 Treaty of Peace and Friendship was sought by the Nepali authorities in 1949 to continue the special links they had with British India and to provide them an open border and the right to work in India.
 - But today, it is viewed as a sign of an unequal relationship, and an Indian imposition.
 - The idea of revising and updating it has found mention in Joint Statements since the mid-1990s but in a sporadic and desultory manner.
- **The Demonetisation Irritant:** In November 2016, India withdrew Rs 15.44 trillion of high value (Rs 1,000 and Rs 500) currency notes. Today, over Rs 15.3 trillion has been returned in the form of fresh currency.
 - Yet, many Nepali nationals who were legally entitled to hold Rs 25,000 of Indian currency (given that the Nepali rupee is pegged to the Indian rupee) were left high and dry.
 - The Nepal Rastra Bank (central bank of Nepal) holds Rs 7 crore and estimates of public holdings are Rs 500 crore.
 - India's refusal to accept demonetised bills with the Nepal Rastra Bank and the unknown fate of the report submitted by the Eminent Persons Group (EPG) have not helped in securing it a better image in Nepal.

Way Forward

- The need today is **to avoid rhetoric on territorial nationalism and lay the groundwork for quiet dialogue where both sides display sensitivity** as they explore what is feasible. India needs to be a sensitive and generous partner for the neighbourhood first policy to take root.
- **India should engage more proactively with Nepal in terms of people-to-people engagement**, bureaucratic engagement as well as political interactions.
- **The power trade agreement needs to be such that India can build trust in Nepal.** Despite

more renewable energy projects (solar) coming up in India, hydropower is the only source that can manage peak demand in India.

- The [Bilateral Investment Promotion and Protection Agreement \(BIPPA\)](#) signed between India and Nepal **needs more attention from Nepal's side**.
 - The private sector in Nepal, especially the cartels in the garb of trade associations, are fighting tooth and nail against foreign investments.
 - It is important that Nepal conveys this message that it welcomes Indian investments.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Consider the following statements: (2020)

1. The value of Indo-Sri Lanka trade has consistently increased in the last decade.
2. "Textile and textile articles" constitute an important item of trade between India and Bangladesh.
3. In the last five years, Nepal has been the largest trading partner of India in South Asia.

Which of the statements given above is/are correct?

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

Ans: (b)

- As per data from the Department of Commerce, Indo Sri Lanka bilateral trade value for a decade (2007 to 2016) was 3.0, 3.4, 2.1, 3.8, 5.2, 4.5, 5.3, 7.0, 6.3, 4.8 (in billion USD). It reflects continuous fluctuation in the trend of trade value. There has been an overall increase but the same cannot be said as consistent rise in trade value. Hence statement 1 is not correct.
- Bangladesh has been a major textile trading partner for India, with a share of more than 5% in exports and over 7% in imports. While annual textile exports to Bangladesh averages \$2,000 million, imports are worth \$400 (Year: 2016-17).
- The major items of exports are fibre and yarn of cotton, man-made staple fibres and man-made filaments while major import items include apparel and clothing, fabric and other made up textile articles. **Hence, statement 2 is correct.**
- According to the data, in 2016-17, Bangladesh is India's largest trading partner in South Asia, followed by Nepal, Sri Lanka, Pakistan, Bhutan, Afghanistan and Maldives. The level of Indian exports also follows the same order. **Hence, statement 3 is not correct.**

Q. Consider the following pairs: (2016)

Community sometimes In the affairs of mentioned in the news

1. Kurd — Bangladesh
2. Madhesi — Nepal
3. Rohingya — Myanmar

Which of the pairs given above is/are correctly, matched?

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

(d) 3 only

Ans: C

- **Kurd:** They are one of the indigenous peoples of the Mesopotamian plains and the highlands in what are now South-eastern Turkey, North-eastern Syria, northern Iraq, North-western Iran and South-western Armenia. They also adhere to a number of different religions and creeds, although the majority is Sunni Muslims. **Hence, pair 1 is not correctly matched.**
- **Madhesi:** It is an ethnic group living mainly in the southern plains of Nepal, close to the border with India. Madhesis are predominantly Hindus with some Muslims and Christians. **Hence, pair 2 is correctly matched.**
- **Rohingya:** They are an ethnic group, largely comprising Muslims, who predominantly live in the Western Myanmar province of Rakhine. They speak a dialect of Bengali, as opposed to the commonly spoken Burmese language. According to Myanmar authorities, they are not the authorized citizens of the country. **Hence, pair 3 is correctly matched.**

[Source: TH](#)

'Pollution and Health' Report

For Prelims: Pollution and health: A Progress Update, Air Pollution, Lead Pollution, PM 2.5

For Mains: Interlink between pollution and health, Ways to tackle the air pollution

Why in News?

According to a recent Report '**Pollution and health: A Progress Update**', published in **The Lancet Planetary Health**, **Air Pollution was responsible for 16.7 lakh deaths in India in 2019, or 17.8% of all deaths.**

What are the Findings of Report Pollution and health'?

- **Global:**
 - **Air Pollution** alone contributes to 66.7 lakh deaths, which updates a previous analysis from 2015.
 - Overall, **pollution was responsible for an estimated 90 lakh deaths in 2019** (equivalent to one in six deaths worldwide), a number that has remained unchanged since the 2015 analysis.
 - **Ambient air pollution was responsible for 45 lakh deaths**, and hazardous chemical pollutants for 17 lakh, with 9 lakh deaths attributable to **lead pollution**.
- **In India:**
 - The majority of the 16.7 lakh air pollution-related deaths in India, around 9.8 lakh deaths were caused by **PM2.5 pollution**, and another 6.1 lakh by household air pollution.
 - Although the **number of deaths from pollution sources associated with extreme poverty** (such as indoor air pollution and water pollution) has decreased, these reductions are offset by increased deaths attributable to industrial pollution (such as ambient air pollution and chemical pollution).
 - Air pollution is **the most severe in the Indo-Gangetic Plain**.

- This area **contains New Delhi and many of the most polluted cities.**
- **Failure in Tackling Air Pollution:**
 - Burning of biomass in households was **the single largest cause of air pollution deaths in India**, followed by coal combustion and crop burning.
 - The number of deaths remains high despite India's considerable efforts against household air pollution, including through the [Pradhan Mantri Ujjwala Yojana programme](#).
 - Despite a [National Clean Air Programme](#), a [Commission for Air Quality Management in the National Capital Region](#), India does not have a strong centralised administrative system to drive its air pollution control efforts and consequently improvements in overall air quality have been limited and uneven.
- **Lead pollution:**
 - An estimated **9 lakh people die every year globally due to lead pollution** and this number is likely to be an underestimate.
 - Earlier the source of lead pollution was from leaded petrol which was replaced with unleaded petrol.
 - However, **the other sources of lead exposure include unsound recycling of lead-acid batteries and e-waste without pollution controls**, spices that are contaminated with lead, pottery glazed with lead salts and lead in paint and other consumer products.
 - Globally more than **80 crore children (India alone contributes to 27.5 crore children) are estimated to have blood lead concentrations** that exceed 3.5 µg/dL than the norm established by the US Centers for Disease Control and Prevention.

What are the Recommendations?

- Inclusion of **modern pollution prevention in multilateral development institutions'** country strategy frameworks.
- International organisations and national governments **need to continue expanding the focus on pollution as one of the triumvirate of global environmental issues**, alongside climate change and biodiversity.
- There is a need to encourage the **use of the health dimension as a key driver in policy and investment decisions**, using available [GBD \(Global Burden of Disease\)](#) information.
- Affected countries must **focus resources on addressing air pollution, lead pollution, and chemical pollution**, which are the key issues in modern pollution.
- A massive **rapid transition to wind and solar energy will reduce ambient air pollution** in addition to slowing down climate change.
- Private and government donors **need to allocate funding for pollution management to support [HPAP \(Health and Pollution Action Plan\)](#) prioritisation processes**, monitoring, and programme implementation.
- All sectors **need to integrate pollution control into plans to address other key threats such as climate, biodiversity, food, and agriculture.**
- All sectors need to support a **stronger stand on pollution in planetary health, [One Health](#), and energy transition work.**
- International organisations **need to establish an SPI (Science Policy Interface) for pollution, similar to those for climate and biodiversity**, initially for chemicals, waste, and air pollution.
 - The **Science Policy Interface (SPI)** has been defined as “social processes which encompass relations between scientists and other actors in the policy process, and which allow for exchanges, co-evolution, and joint construction of knowledge with the aim of enriching decision-making
- International organisations **need to revise pollution tracking for the SDGs to correctly represent** the effect of chemicals pollution including heavy metals.
- The reporting **systems should allow burden of disease estimates** to be used in the absence of national data.
- International organisations and national governments **need to invest in generating data and analytics to underpin evidence-based interventions** to address environmental health risks.
 - Priority investments should include the establishment of reliable ground-level air quality monitoring networks, along with lead baseline and monitoring systems, and other chemical monitoring systems.
- International organisations and national governments **need to use uniform and appropriate**

sampling protocols to collect evidence on exposure to hazardous chemicals such as lead, mercury, or chromium, which can be compared or generalised across LMICs (Low and Lower Middle-Income countries).

What are the Government Initiatives to Combat Air Pollution?

- [Graded Response Action Plan](#)
- [Polluter Pay principle](#)
- [Smog Tower](#)
- [Tallest Air Purifier](#)
- [National Clean Air Programme \(NCAP\)](#)
- [BS-VI vehicles](#)
- [New Commission for Air Quality Management](#)
- [Turbo Happy Seeder \(THS\)](#)
- [Air Quality and Weather Forecasting and Research \(SAFAR\)](#)
- [Dashboard for Monitoring Air Quality](#)
- [National Air Quality Index \(AQI\)](#)
- [Air \(Prevention and Control of Pollution\) Act, 1981](#)
- [Pradhan Mantri Ujjwala Yojana \(PMUY\)](#)

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Q. Which of the following are the reasons/factors for exposure to benzene pollution? (2020)

1. Automobile exhaust
2. Tobacco smoke
3. Wood burning
4. Using varnished wooden furniture
5. Using products made of polyurethane

Select the correct answer using the code given below:

- (a) 1, 2 and 3 only
- (b) 2 and 4 only
- (c) 1, 3 and 4 only
- (d) 1, 2, 3, 4 and 5

Ans: A

- Benzene (C₆H₆) is a colorless, flammable liquid with a sweet odor. It evaporates quickly when exposed to air. Benzene is formed from natural processes, such as volcanoes and forest fires, but most of the exposure to benzene results from human activities.
- The main sources of benzene pollution in the environment include automobile exhaust, industrial sources, Tobacco smoke, wood burning and fuel evaporation from gasoline filling stations. **Hence, 1, 2 and 3 are correct.**
- Some industries use Benzene to make other chemicals that are used to make plastics, furniture etc., they are not the direct sources of Benzene pollution. **Hence, 4 and 5 are not correct.**

Source: IE

National Policy on Biofuels

For Prelims: Ethanol Blending, Biofuels, Crude oil, 2018 National Policy on Biofuels

For Mains: Ethanol Blending and its significance

Why in News?

Recently, the Union Cabinet approved amendments to the [National Policy on Biofuels, 2018](#).

What are the Key Amendments approved?

- **More Feedstocks:**
 - One of the amendments is that the **government will allow more feedstocks** for the production of biofuels.
- **Ethanol Blending Target:**
 - Instead of 2030, the Centre plans to move ahead with its [ethanol blending target of 20% of petrol containing ethanol by 2025-26](#).
 - It will **promote the production of biofuels in the country**, under the [Make in India program](#), by units located in [Special Economic Zones \(SEZ\)](#)/ Export Oriented Units (EoUs).
- **New members to the NBCC:**
 - The government has allowed the addition of new members to the [National Biofuel Coordination Committee \(NBCC\)](#).
 - NBCC was constituted **under the Chairmanship of Minister, Petroleum & Natural Gas (P&NG)** to provide overall coordination, effective end-to-end implementation and monitoring of biofuel programme.
 - NBCC has members from 14 other ministries.
- **Export of Biofuels:**
 - Permission will be granted for the **export of biofuels in specific cases**.

What is the Significance of the Amendments?

- **Boost Make in India Drive:**
 - The proposed amendments are expected to pave the way for the [Make in India drive](#) **thereby leading to a reduction in the import of petroleum products** by the generation of more and more biofuels.
- **Promote the Atmanirbhar Bharat Initiative:**
 - Since many more feedstocks are being allowed for the production of biofuels, this will promote the [Atmanirbhar Bharat](#) and give an impetus to the Prime Minister's vision of **India becoming 'energy independent' by 2047**.
- **Generate More Employment:**
 - Also, the proposed amendments are **expected to attract and foster developments of indigenous technologies** which will pave the way for the Make in India drive and thereby generate more employment.

What is the National Policy on Biofuels, 2018?

- **About:**
 - The "National Policy on Biofuels was notified by the **Ministry of Petroleum and Natural**

Gas in 2018.

- The policy was **notified in supersession of the National Policy on Biofuels**, promulgated through the Ministry of New & Renewable Energy, in 2009.

▪ **Categorisation:**

- The Policy **categorises biofuels as**
 - **"Basic Biofuels"** viz. First Generation (1G) bioethanol & biodiesel and "Advanced Biofuels".
 - **"Advance Biofuels"** viz. Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels.
 - Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.

▪ **Features:**

- It expands the **scope of raw material for ethanol production** by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production.
- The Policy **allows use of surplus food grains for production of ethanol** for blending with petrol with the approval of National Biofuel Coordination Committee.
- With a thrust on Advanced Biofuels, the **Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries** of Rs. 5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.

National Policy on **Biofuels 2018**

Salient features



An indicative target of **20%** blending of ethanol in petrol and **5%** blending of biodiesel in diesel is proposed by 2030.



With a thrust on **Advanced Biofuels**, the Policy indicates a viability gap funding scheme for **2G ethanol Bio refineries** of **Rs.5000 crore in 6 years** in addition to additional tax incentives, higher purchase price as compared to **1G biofuels**.



Categorization of Biofuels into **Basic Biofuels** - First generation(1G) Bioethanol & biodiesel and **"Advanced Biofuels"**- Second Generation(2G) ethanol, drop-in fuels, **algae based** Third Generation(3G) Biofuels.



Increase scope of raw material for ethanol procurement by encouraging Intermediate (**B-Molasses**), Sugarcane Juice, other Sugar containing materials and damaged as well as surplus food grains.



Develop **National Biomass repository** by conducting **appraisal of biomass** across the Country.



Bio diesel production to be encouraged from non edible oilseeds, **used cooking oil**, short gestation crops and development of supply chain mechanisms.



Thrust on **research, development and demonstration** in the field of **Biofuel feedstock** production, advanced conversion technologies from identified feedstock.



Setting up of **National Biofuel coordination committee (NBCC)** under **Ministry of Petroleum & Natural Gas** and Working Group on Biofuels.



What are the Related Initiatives?

- [Ethanol Blended Petrol \(EBP\) programme](#)
 - It seeks to **achieve blending of Ethanol with a view to reducing pollution**, conserve foreign exchange and increase value addition in the sugar industry enabling them to clear cane price arrears of farmers.
- [Pradhan Mantri JI-VAN Yojana, 2019](#)
 - To create an ecosystem for setting up commercial projects and to boost Research and Development in 2G Ethanol sector.
- [GOBAR \(Galvanizing Organic Bio-Agro Resources\) DHAN scheme](#)
 - It focuses on managing and converting cattle dung and solid waste in farms to useful compost, biogas and bio-CNG, thus keeping villages clean and increasing the income of rural households.
- [Repurpose Used Cooking Oil \(RUCO\)](#)
 - It was launched by [Food Safety and Standards Authority of India \(FSSAI\)](#) and aims for an ecosystem that will enable the collection and conversion of used cooking oil to biodiesel.

UPSC Civil Services Examination, Previous Years Questions (PYQs)

Q. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- (a) 1, 2, 5 and 6 only
- (b) 1, 3, 4 and 6 only
- (c) 2, 3, 4 and 5 only
- (d) 1, 2, 3, 4, 5 and 6

Ans: (a)

- The National Policy on Biofuels, 2018, allows production of ethanol from damaged food grains like wheat, broken rice, etc., which are unfit for human consumption.
- The Policy also allows conversion of surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee.
- The Policy expands the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production. Hence, 1, 2, 5 and 6 are correct. Therefore, option (a) is the correct answer.

Source: TH

Sudden Infant Death Syndrome

For Prelims: Sudden Infant Death Syndrome, Butyrylcholinesterase.

For Mains: New Study about Sudden Infant Death Syndrome and its limitations.

Why in News?

A team of researchers in Australia has identified a biochemical marker in the blood that could help identify newborn babies at risk for the **Sudden Infant Death Syndrome (SIDS)**.

- The researchers **used dried blood spots from newborn infants and screened the samples for BChE (Butyrylcholinesterase) level and total protein content.**

What is SIDS?

- Sudden infant death syndrome is the **unexpected death of an apparently healthy infant.**
- It usually occurs **while the baby is asleep, although in rare cases,** it can also occur while the child is awake.
- The condition is also called "**Cot Death**".
- Newborn babies **delivered prematurely or with low weight at birth are believed to be at a greater risk** of SIDS.
- The exact cause of SIDS is unknown, although revelations from the new research look promising.

What are the Findings?

- Babies who died of SIDS **showed lower levels of the BChE enzyme shortly after birth.**
 - A low level of the BChE enzyme **affects a sleeping infant's ability to wake up or respond to their environment.**
 - The enzyme is **an important part of the autonomic nervous system** of the body and controls unconscious and involuntary functions.
- The previously conducted studies have found that **low BChE activity is associated with severe systemic inflammation and considerably higher mortality** after sepsis and cardiac events.
 - Prior to this research on SIDS, **inflammation has been thought to be a factor in SIDS cases.**
- The mild inflammatory changes on the walls of air passages of the lungs were observed in SIDS infants as early as 1889.
- **Prematurely-delivered babies have been considered to be at a higher risk** for SIDS, although a 1957 study that evaluated BChE in infancy found that there was no difference in the levels of the enzyme in premature and mature newborn infants.
- Smoking during pregnancy is **associated with a significant increase in SIDS events.**

What are the Limitations of the study?

- Even though BChE levels can be a possible cause of SIDS, the research points out that **the samples were over two years old and hence would not accurately reflect BChE specific activity** in fresh dried blood samples.
- The researchers also added that **despite analysing over 600 control samples, they are unaware of how common abnormality is in the wider population.**
- Furthermore, the study did not use autopsy details of the subjects of the study but used **Coroners' Diagnosis (when a death is reported to the coroner, the coroner investigates who has died, where, when and how the death occurred. If the cause of death is**

unclear, the coroner will order a post-mortem) where possible.

[Source: TH](#)

World Governance Indicators

Why in News?

Recently, the **World Governance Indicators (WGI)** has been released by the [World Bank](#).

- WGI play a key role in deciding sovereign credit rating of any country. India is losing its sovereign credit rating due to low score in WGI parameters.

What are the World Governance Indicators (WGI)?

- The **World Governance Indicators (WGI)** are a research dataset that aggregates the opinions of a substantial number of **corporate, citizen, and experts survey respondents** from both developed and developing nations on the **quality of governance**.
- **World Bank's World Governance Indicators:** It assesses **215 countries** and **territories** based on a certain set of criteria.
 - Voice and Accountability
 - Political Stability and Absence of Violence
 - Government Effectiveness
 - Regulatory Quality
 - Rule of Law
 - Control of Corruption
- India's **WGI score is much below the BBB Median** on all six indicators.
 - While BBB is an investment-grade rating issued by global rating agencies such as S&P and Fitch.
 - A WGI score below BBB Median would suggest that India falls below the middle when the scores of countries are arranged in a descending order.
- **Various reports on which India's WGI ranking based on-**
 - [Economist Intelligence Unit](#)
 - Varieties of Democracy Project
 - Heritage Foundation Index of Economic Freedom
 - [Freedom House Report](#)

What are the Important Outcomes Associated With the WGI?

- Worsening of Sovereign Credit Rating of India deteriorating its **credit worthiness**.
- [Investment in India's Debt market will be risky.](#)
- It also includes political risk and provides insight to the Investor about the economic and political stability.

What are the Major Incidents Which Hugely Affected India's WGI Rank?

- Kashmir was partly free from 2017 to 2019 but in 2020 its freedom was again curtailed. Considering these circumstances, the following scores were provided:
 - **Political Rights:** 8 out of 40
 - **Civil Liberties:** 20 out of 60
 - **Total score:** 28 out of 110
- **US State Department mentioned the following:**
 - **Harassment of Activists:** Activists, lawyers, human rights defenders, and journalists

have been harassed and persecuted.

- **Sedition and Counterterrorism Laws:** These are used to suppress free speech.
- **Misuse of Foreign Funding Regulations:** Misuse of regulations were prevalent to target NGOs that were critical to government policies or conduct.
- **Economic Intelligence Unit (EIU)** showed India's rank in the [EIU democracy index](#) fell from 27 in 2014 to 51 in 2019.

Economic Intelligence Unit

- Economic Intelligence Unit is a research and analysis division of The Economist Group.
- It was established in 1946, Its basic motive is to help businesses, financial firms and governments to navigate the ever-changing global landscape.

[Source: IE](#)

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