CURRENT AFFAIRS PROGRAM PRE-CUM-MAINS 2024 SEP 2023 - BOOKLET-1

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1) PYQS OF LAST 10 YEARS

- "The **incidence and intensity of poverty** are more important in determining poverty based on income alone". In this context analyze the latest United Nations Multidimensional Poverty Index Report. [15 marks, 250 words] **[MAINS 2020]**

- There is a **growing divergence in the relationship between poverty and hunger** in India. The shrinking of social expenditure by the government is forcing the poor to spend more on non-food essential items squeezing their food-budget – Elucidate. [10 marks, 150 words] [**Mains 2019**]

- How far do you agree with the view that **the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies** in India? [15 marks, 250 words] [**Mains 2018**]

- **Hunger and Poverty** are the biggest challenges for good governance in India still today. Evaluate how far successive governments have progressed in dealing with these humongous problems. Suggest measures for improvement. [10 marks, 150 words] [**Mains 2017**]

- "Poverty Alleviation programs in India remain mere showpieces until and unless they are backed up by **political will**." Discuss with reference to the **performance of the major poverty alleviation program** in India. [15 marks, 250 words] [**MAINS 2017**]

- Though there have been **several different estimates of poverty in India**, all indicate reduction in poverty levels over time. Do you agree? Critically examine with reference to urban and rural poverty indicators. [12.5 marks, 200 words] **[Mains 2015]**

2) POVERTY

- **Why in news?**
    - As per National Multidimensional Poverty Index (MPI) prepared by NITI Aayog, India has lifted 135 million people out of Multidimensional Poverty between 2015-16 to 2019-21 (Aug 2023)
        - The UNDP had earlier estimated that India lifted **415 million people out of poverty** (MDPI) over 2005-06 to 2019-21.
        - As per the PLFS survey, the unemployment had reached a 45 year high in 2017-18.

- **What is Poverty?**
    - Poverty is a situation or condition in which **a person or community lacks the financial resources essential for a minimum standard of living**. Poverty stricken people and families may be surviving without good enough food, housing facilities, health and education facilities.

- **Poverty Situation in India**:
    - **At the time of independence**, **more than 80% of country's population** were in extreme poverty.
    - This has come down to less than **15% (2019-21)** as per National MDPI released by NITI Aayog and **11%** based on income criteria ($2.15 PPP).

- **Causes of Poverty:**
    - **In Indian context, the causes of poverty may be described as:**
        i. **Historical Factors:** Colonial rules -> deindustrialization -> lack of development of modern industries etc.
        ii. **Rapidly Rising Population ->** strain on resources
        iii. **Low Agriculture productivity**: This is due to fragmented holdings; non-scientific cultivation; lack of focus on value addition etc.
        iv. **Unemployment:** The situation is still bad and as per Periodic Labour Force Survey (PLFS) by NSO, the **unemployment had reached a 45 year high in 2017-18**.
        v. **Shortage of Capital and able entrepreneurship**
        vi. **Social Factors:**
            - Social set up is still backward and is not conducive for faster development. **Laws of inheritance, caste system, gender discriminatio**n etc. are putting hinderances in the way of faster development and have aggravated the problem.
        vii. **Increasing Inequalities**
        viii. **COVID-19 Pandemic and its impact**

- **Problems faced by poor and pains of poverty.**
    1. Inability to fulfill basic needs:
    - **Housing challenges**: Poor people (specially in urban areas) suffer from houselessness, overcrowding, slums and rental laws. Substandard houses leave little for the prerequisite of decent living.
    - **Malnourishment**
    - **Poor health and educational opportunities**

2. **Social Discrimination:** Poor people are harassed, humiliated and discriminated against at every level. They have to face the challenge of illiteracy and hostility by the powerful. Poverty is not only about *economic poverty,* but also about *inequality.*

3. **Sub-culture of poverty**: When poverty is transmitted over generations, it becomes a culture, according to Oscar Lewis.

- **Other Negative impacts of poverty**:
    1. **Radicalization and Criminalization**: It is easy to radicalize people who have nothing to lose.
    2. **Economic growth suffers**: When a large section of population live in poverty, their demand is generally much lower than middle class. This hampers the overall demand of the economy and keeps the economic growth of the country below its actual potential.
    3. **Hampers India's soft power** at international forums.

- **Three Distinct strategies** for reducing poverty in India may be identified:

    1. **In 1950s**, the policymakers focused on **maximization of economic growth** by stepping up investment assuming that the benefits arising out of it would **'trickle down'** and diffuse among all sectors of the society.
        - **But** it was realized later that the b**enefits of economic growth (including agricultural growth) didn't percolate** to the rural poor.

    2. **Redistribution**: This approach pleaded for the establishment of egalitarian society and suggested distribution of assets through **land reforms, community development programs, cooperative farming and nationalization of big industries**.
        - But even this approach was unable to reduce poverty substantially.

    3. **Focused Poverty alleviation program**:
        - Since 1980s, a number of schemes are focused on attacking poverty through rural development programs. In recent years, MGNREGA has emerged as a landmark scheme to alleviate rural poverty in the country.

- **Key Measures which contributed to fight against Poverty**:
    ▫ **Poverty Reduction Initiatives**
        » **MGNREGA**
        » **PMAY**
        » **National Food Security Act, 2013**
            • **PMGKAY**
        » **PMUY**

- **Other steps which have helped in poverty reduction**:
    ▫ **Economic Reforms**:
        » For e.g., the 1991 economic reforms paid huge dividends after a few years of transitional adjustments.
        » LPG reforms have also increased opportunities within the country.

- ▫ **Promoting Manufacturing Sector** in India: Make in India; Atmanirbhar Bharat; Various PLI Schemes
- ▫ **Skill Initiatives**

- **Current Situation**:
    - ▫ As per National Multidimensional Poverty Index (MPI) prepared by NITI Aayog, India has lifted 135 million people out of Multidimensional Poverty between 2015-16 to 2019-21. **Poverty levels** have reduced to **less than 15%** of the total population by 2019-21.

    - ▫ The UNDP had earlier estimated that India lifted **415 million people out of poverty** (MDPI) over 2005-06 to 2019-21.

- **Measures that need to be** taken **for poverty alleviation**

    - ▪ **Focus on better implementation** of **schemes which help vulnerable groups** like NFSA, PMJAY, MGNREGA etc.
        - • **Decentralized Planning and its execution**: For the success of anti-poverty programs, it is necessary that they should be planned by village panchayats/ Municipality levels.
        - • We need to provide **minimum income for poor and vulnerable** - cash transfers for women, increasing MGNREGA to 150 days in rural areas; introduction of urban employment guarantee scheme etc.

    - ▪ **Employment Generation**:
        - • Skill development in emerging technologies
        - • Training in horticulture, animal husbandry, food processing sector
        - • Women empowerment and creation of SHG led initiative

    - ▪ **Promoting ease of doing business**:
        - • Reforming labor laws and other regulatory framework
        - • Land Reforms

    - ▪ **Focus on Agri-growth**:
        - • Marketing reforms, land leasing reforms etc.
        - • Reduce dependency of people on agriculture sector -> industries need to expand, and rural workforce needs to be skilled to serve these industries.

    - ▪ **Fight growing inequality:** Though total egalitarianism in income and property may not be possible, but tax reforms can be introduced to reduce generation of black money. Similarly, laws can be better implemented to ensure that benami transfers and deals doesn't take place.

    - ▪ **Economic development and Economic Growth**:
        - • Rapid Industrialization
        - • Increased budget for welfare measures and reducing unnecessary expenses.

- **Make Statistical System Independent of state interference** - to get proper numbers.

- **Conclusion:**
    - Various stakeholders, including government, civil society organizations, and citizens need to move constantly towards a vision of an egalitarian democracy where people can live fulfilling lives, instead of remaining mired in notions of minimal reparation or remedies.

3) POVERTY ESTIMATION IN INDIA

- **Why in news?**
    - India has not released its Consumption Expenditure Survey (CES) data since 2011-12. Normally, a CES is conducted by the National Sample Survey Office (NSO) every five years.

- **Post-Independence Poverty Estimation in India**
    - In 1962, **Planning commission formed a Working Group to estimate poverty** nationally. This working group **formulated a separate poverty line for Rural and Urban Areas** (Rs 20 and Rs 25 per capita per year respectively)

    - **In 1971, VM Dandekar and N Rath** made the **first scientific assessment of poverty estimation** based on NSS data from 1960-61.
        - They argued that poverty line should be determined by **expenditure that was necessary to provide 2250 calories per day** in both rural and urban India.

    - **Alagh Committee** (1979) was a task force created by Planning commission for the purpose of poverty estimation.
        - It formulated a poverty line for rural and urban India based on **nutritional requirements** (24,00 calories for Rural India and 2100 calories for urban India).

    - **Lakdawala Committee** (1993) was formed in 1993 to review the methodology of poverty estimation.
        - He recommended:
            a. **Consumption expenditure** should be calculated based on **calorie consumption** as earlier.
            b. **State Specific poverty lines** should be constructed, and these would be updated using the CPI(IW) and CPI (RL) in urban and rural areas respectively.

        - It assumes that basket of goods and services included in (CPI-IW) and CPI-RL reflect the consumption pattern of poor.

    - **Suresh Tendulkar Committee (2009)**
        - Planning Commission formed an expert group chair by Suresh Tendulkar to review the methodology for poverty estimation in 2005.
        - It recommended four major changes:
            a. A s**hift away from calorie consumption**-based poverty estimation.

b. Incorporation of **private expenditure on health and education** while estimating poverty.
c. Shift to **Mixed Reference Period (MRP)** based estimates, as opposed to Uniform Reference Period based estimates.

- The committee concluded the poverty line of just **Rs 32 per capita per day** in Urban India and **Rs 27 in Rural India**.

▫ **Rangarajan Committee (2012)**
- In 2012, the Planning Commission constituted a new expert panel on poverty estimation, chaired by C. Rangarajan in light of public outrage over the planning Commission's suggestion of Rs 27 a day as poverty line for rural areas.
- **Key recommendations**
  - **Poverty Threshold:** Rs 47 a day in urban areas and Rs 32 in villages
  - This method estimated that the number of poor were **29.6%**.

  - In 2014, the **NDA government had junked the C Rangarajan Committee Report on poverty as it had pegged 100 million more BPL** vis a vis the last estimate based on **Tendulkar Committee Report**.

- Since, government is **not conducting Consumption Expenditure Survey since last few years,** the **official poverty estimates haven't been updated**.
  ▫ The last consumption survey of 2017-18 was rejected by government as defective.
  ▫ So, currently **the last official estimate of** poverty that is comparable over time, undertaken by planning commission, is for the year 2011-12.

- **Is there a need of consumption-based poverty estimation** when there is a National Multidimensional Poverty Index by NITI Aayog?

  ▫ **What is the need of MPI?**
    » **Capabilities Approach** - Some of the capabilities may not be tightly linked to the privately purchased consumption basket.

  ▫ **But there are concerns about MPI:**
    » Multidimensional indicators/measures raise several issues regarding their **measurability, aggregation across indicators**, and **database** which provide the requisite information at reasonably short interval.
      - **For e.g., Child Mortality** indicator is a problem as it is for population groups and not for individual households.
      - **Aggregation is another problem** - Drinking water can't be aggregated with indicator like Child mortality.
      - **Arbitrary weight** being given to different components.

  ▫ **Why consumption-based poverty data should be supplementing MPI**?
    » **Easy to understand and measure** - In the minds of people, being rich or poor is associated with levels of income.

- **Challenges for Poverty Line estimation**
  - **Determining the poverty line basket (PLB) is a crucial challenge** in a country like India because of <u>varying consumption pattern, prices etc. in different part of the country.</u>

  - **Bringing states on board has also remained a challenge.**
    - The <u>current official measures are based on **Tendulkar Committee's recommendations**,</u> but some states suggest that C Rangarajan method will be a better estimation.

  - **Poverty Line has to be very dynamic** - because of rapid changes in demography, consumption pattern, and technology.

- **Why is poverty estimation crucial?**
  - To get **public opinion to support massive and urgent cash transfers**.
    - The world outside India has moved onto <u>proposed high fiscal support, as economic rationale and not charity.</u>
  - To ensure **honest evaluation of various policies on the basis of whether they meet the needs of the majority**.

  - Holding **public representatives more accountabl**e

  - Poverty, inequality and a deeper understanding of what works for poverty reduction is not just an academic exercise but is crucial for **designing policies and programs that work. I**t is <u>crucial for any government to prioritize social sector schemes in a data driven fashion.</u>

- **Way Forward:**
  - We <u>need **reliable data provided by independent public bodies**</u> ring fenced from potential political interference.

  - <u>Complete the new CES</u> at the earliest and <u>decide yardstick for measuring poverty</u> which is the poverty line.

- **Conclusion:**
  - Many of our fellow citizens are living in <u>abject poverty</u>. Counting them would be a <u>much-needed start to convey that each life matters.</u>

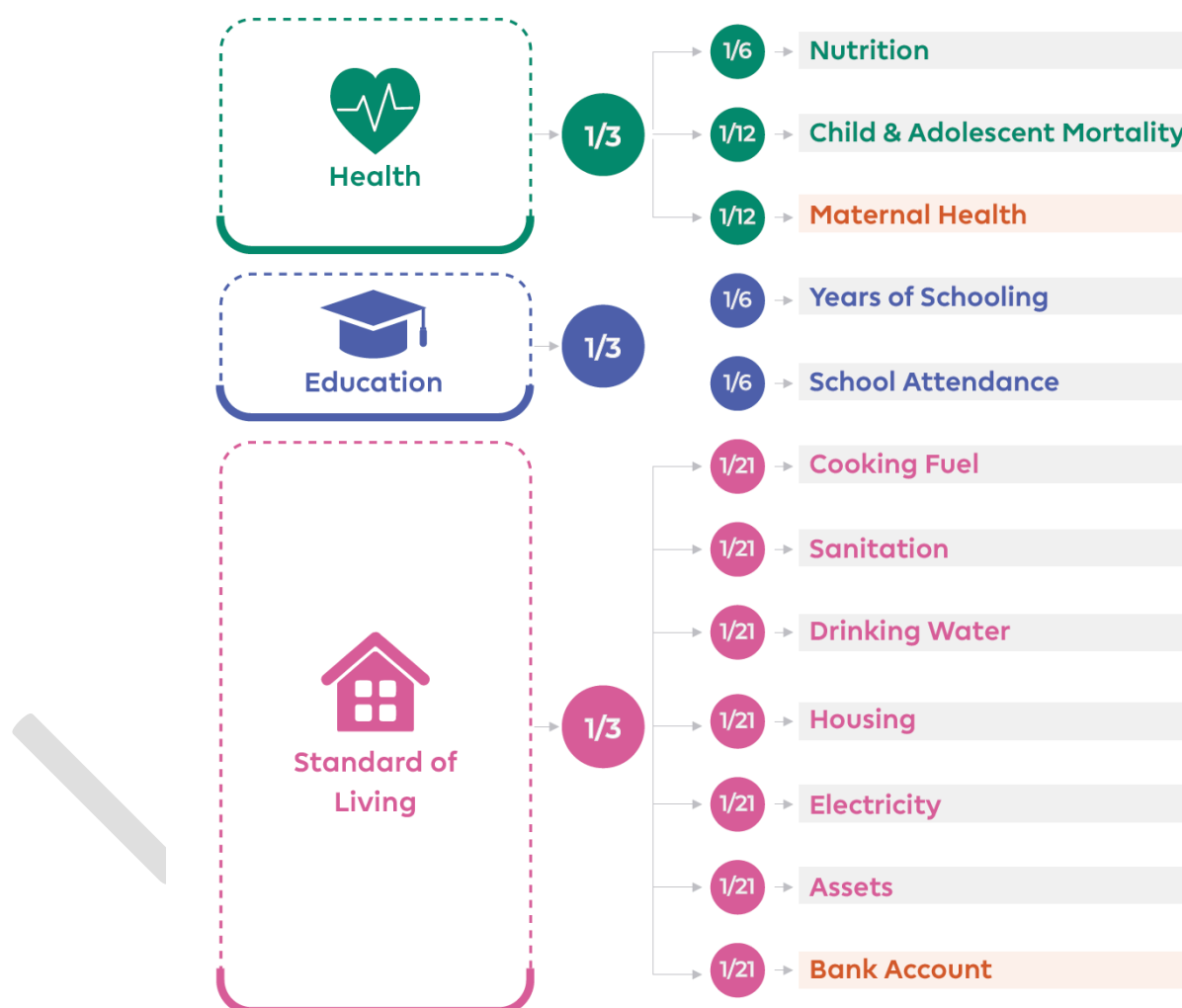## 4) NATIONAL MULTIDIMENSIONAL POVERTY INDEX, 2023

- **Why in news?**
  - NITI Aayog publishes 2nd version of the National Multi-dimensional Poverty Index (July 2023)

- **Background**:
  - Historically, <u>poverty estimation</u> has relied on <u>income as the **sole indicator**</u>.

- However, the **Global Multidimensional Poverty Index (MPI)**, based on the **Alkire-Foster** (AF) methodology, captures **overlapping deprivations** - in **health, education and living standards**.

- GoI has acknowledged the significance of the global MPI under the mandate of **Global Indices for Reform and Action** (GIRG) initiative.

- In this context, NITI Aayog, has created an **indigenized index** for monitoring the performance of states and UTs in addressing multidimensional poverty in coordination with various ministries and technical partners - OPHI and UNDP.

- **Key features of India's MPI**:
  - It captures overlapping deprivations in **health, education and living standards**. These three dimensions have been given equal weights, which have further been represented by 12 indicators. The primary data source to arrive at the numbers of MPI is the NFHS-5.

Indicators and their weights

|	Dimension	Weight	Indicator Weight	Indicator
	Health	1/3	1/6	Nutrition
			1/12	Child & Adolescent Mortality
			1/12	Maternal Health
	Education	1/3	1/6	Years of Schooling
			1/6	School Attendance
	Standard of Living	1/3	1/21	Cooking Fuel
			1/21	Sanitation
			1/21	Drinking Water
			1/21	Housing
			1/21	Electricity
			1/21	Assets
			1/21	Bank Account

- **Key Highlights of the second edition of National MPI** which is a follow up of baseline report published in 2021.

- ▫ **Steep Decline in Poverty** between 2015-16 and 2019-21, indicating success of the country's commitment and action to address multidimensional nature of poverty through its multi-sectoral approach.
  - » **Population under multidimensional Poverty (H)**: **14.97% (2019-21)** when compared to 24.85% in 2015-16.
    - ▪ In absolute terms, approximately **13.5 crore** Indians escaped poverty in the period, courtesy in improvements in indicators like access to cooking fuel, sanitation, drinking water, and bank accounts among others.
  - » **Poverty intensity (A)** has also reduced to **44.39% (2019-21)** when compared to 47.14% in 2015 - 16.
    - ▪ **MPI = H x A** = 0.066 (which was 0.117 in 2020-21)
  - » **Rural Areas** have seen fastest decline in poverty from 32.59% to **19.28%** in the period owing to improvements in states like Bihar, UP, Madhya Pradesh, Odisha and Rajasthan.

Steep decline in
Poverty Headcount Ratio
24.85% 2015-16
14.96% 2019-21
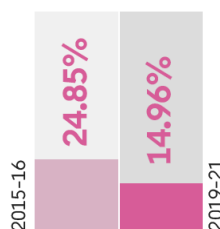
135 million (13.5 crore) people escaped **multidimensional poverty** between 2015-16 and 2019-21

India on track to achieve
SDG Target 1.2
(reducing multi-dimensional poverty by at least half) much ahead of 2030

All **12 indicators have shown improvement** suggesting that impact of Government interventions is increasingly visible on ground

Fastest decline in percentage of multidimensional poor in rural areas from
32.59% 2015-16
19.28% 2019-21
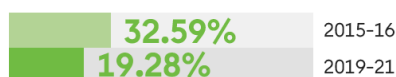
Reduction in the incidence of poverty in urban areas
8.65% 2015-16
5.27% 2019-21
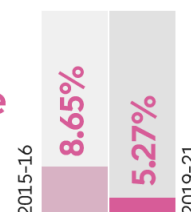
The **Intensity of poverty**, which measures the average deprivation among the people living in multidimensional poverty improved from about
2015-16 47.14%
44.39% 2019-21
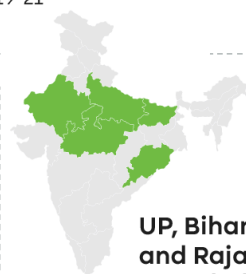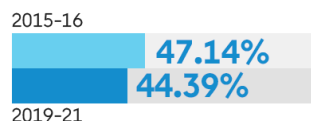
UP, Bihar, MP, Odisha and Rajasthan recorded steepest decline in number of **MPI poor**

= MPI Value
Improvement in **nutrition, years of schooling, sanitation, and cooking fuel** played a significant role in reducing the MPI value

- - **Concerns**:
  - ▫ **In the health category** - the three indicators - nutrition, Child and adolescent mortality, and maternal health - showed only moderate improvement, the report showed.

- Nutritional deprivation decreased from 37% to 31%;
    - Lack of nutrition **contributed close to 30% - the highest** - in the overall calculation of India's multidimensional poverty index.
  - Maternal health deprivation improved from 22.5% to **19.7%**; and
  - Child and adolescent mortality deprivation declined from 2.69% to **2.06%**.
- **Other indicators** that didn't record a significant decline and aided the most in keeping Indians poor include lack of years of schooling (16.65%); inadequate access to maternal health services (11.73%), and less-than-desired school attendance (9.10%), among others.
- **Cooking fuel** is an area where significant improvement has taken place but close to **44% of India's population** is still deprived of it.
- **Sanitation** numbers have also improved, but still 30% of the population is deprived when it comes to sanitation services.
- **Access to housing** was another indicator where progress was marginal. In 2015-16, 46% didn't have access which has come down to 41% now.

- **Performance at State Level**:
  - **States with less than 10% people living in multidimensional poverty doubled** in last five year. There were 7 states (Mizoram, Himachal Pradesh, Punjab, Sikkim, TN, Goa, and Kerala) in this category in 2015-16, which has doubled to 14 states with seven new states added including Telangana, Andhra Pradesh, Haryana, Karnataka, Maharashtra, Manipur and Uttarakhand.
  - **Except for Bihar**, no other state in India has more than 1/3rd of its population living under Multidimensional Poverty. However, even in Bihar's case, the **reduction in multidimensional poverty** has been significant over the five year time period - in 2015-16, over 51.89% of people lived in multidimensional poverty, by 2019-20, the figure **dropped to 33.76%**.

- **Conclusion**:
  - India's stellar progress in the National MPI between 2015-16 and 2019-21 reflects the Government's commitment to improving the **quality of people's lives** - through targeted policies, schemes, and developmental programs rolled out at both national and subnational levels.
  - Key government schemes such as Swachch Bharat Mission (SBM), Jal Jeevan Mission, Poshan Abhiyan, Samagra Shiksha, Pradhan Mantri Sahaj Bijli Har Ghar Yojna (Subhagya), Pradhan Mantri Ujjwala Yojna (PMUY), Pradhan Mantri Jan Dhan Yojna (PMJDY), Pradhan Mantri Awas Yojna (PMAY) and many more have contributed significantly in driving the tremendous progress highlighted in National MPI.

5) GLOBAL MULTIDIMENSIONAL POVERTY INDEX, 2023

- **About the report**:
  - The update is released by **UNDP** and the **Oxford Poverty and Human Development Initiative (OPHI)** at the University of Oxford.

- **Key Highlights**:
  - **25 countries** including India, successfully halved their global MPI values within 15 years, showing that rapid progress is attainable.

- ▫ **1.1 billion** out of 6.1 billion people (just more than 18%) live in acute multidimensional poverty across 110 countries.
    - ▪ **Sub Saharan Africa** (534 million) and **South Asia** (389 million) are home to approximately five out of every six poor people.
- ▫ **Nearly 2/3rd of all poor people** (730 million) lives in middle income countries, making actions in these countries vital for reducing poverty.

- - **Most important Highlights** for India.
    - ▫ India lifted **415 million people** out of poverty (MDPI) over the period 2005-06 to 2019-21.
        - ▪ Incidence of poverty fell from **55.1%** in 2005/2006 to **16.4%** in 2019/2021.
    - ▫ The deprivation in all indicators declined in India and "*the poorest states and groups, including children and people in disadvantaged caste groups, had the fastest absolute progress*".
        - ▪ **Poor and deprived of cooking fuel** fell from 52.9% to 13.9%.
        - ▪ Those deprived of **sanitation** fell from 50.4% in 2005/2006 to 11.3% in 2019/2021.

A) RURAL POVERTY

- **Introduction**:
    - ▫ As per National Multidimensional Poverty index released by NITI Aayog, the rural areas have seen fastest decline in percentage of multidimensional poor in rural areas from (32.59% in 2015-16) to **19.28%** in 2019-21.
    - ▫ However, there are still some challenges which allows the rural poverty to exist.

- **Causes:**
    - ▫ Inadequate and Ineffective implementation of anti-poverty programs
    - ▫ Very small population engaged in non-agricultural activities.
    - ▫ **Agriculture related issues:**
        - ▪ **Monsoon dependence on Agriculture** makes farmers dependent on vagaries of nature. Irrigation facilities are still not available for most of the agricultural land in India.
        - ▪ **Low productivity** of agriculture and allies' activities. For e.g., wheat production/acre or milk production per animal in India is way lower than that of developed countries.

    - **Poor Infrastructure**: Poor roads, inadequate electricity etc. make economic development of rural areas difficult.

    - **Social Factors:**
        - ▫ Poor situation of health and education facilities in rural areas.
        - ▫ **Inter-caste conflicts and rivalries**
        - ▫ **Excessive expenditure** on ceremonies like marriage, childbirth etc.

- **Way Forward:**
    - ▫ **Improvement implementation** of the poverty alleviation programs like MGNREGA, MUDRA, PDS etc.
    - ▫ **Infrastructure improvement:** Providing accessibility to electricity, water supply etc., to make rural areas suitable for establishment of agriculture.
    - ▫ **Reform Agriculture** -> Agri-Market reforms, land leasing reforms etc.; Focus on improving productivity of animal husbandry sector.
    - ▫ **Improved focus on** education, skill development and entrepreneurship in rural areas.
    - ▫ **Promoting cottage industries, agro-based industries** and food processing industries

B) URBAN POVERTY

- **Example Questions:**
    - ▫ "The Past Practice of seeing all poverty in a rural light and applying rural solutions in urban conditions will not yield expected results" Elaborate [10 marks, 150 words]

- **Background:**
    - Poverty eradication has been a key goal of Government of India since many decades now. But, the focus has mostly been on rural areas as most of the Indian population lived in rural area and rural poverty was pervasive.

- **However**, <u>Urban population has kept on rising</u> and so has been the <u>number of poor in Urban areas</u>. One key reason for it has been <u>migration of rural poor into cities</u> in search of better livelihood. This phenomenon is universally acknowledged as the **Urbanization of Poverty**.
    - Urban Poverty is <u>manifested</u> in terms of increasing slums, and <u>around 20% of urban population</u> lives in **slums**.

- **There are some similarities** in urban and rural poverty. These include - <u>lack of adequate food, employment, healthcare and education</u>; <u>Access to information and lack of voice and representation in the settlements</u>; the <u>ability to influence decision making is remote</u>, since they end up powerless in the face of the landed gentry in villages and the rich and organized classes in cities.

- **But** there are some <u>key differences in between urban poor and rural poors</u>.
    i. **Adequate housing and basic services** clearly differentiate urban and rural poor.
        - In Urban areas <u>security of tenure is an issue</u>; this is not generally a concern in <u>rural areas</u>.
    ii. **Urban poor are** also much more deprived <u>in terms of sanitation and infrastructure</u>.
        - The <u>non-availability of toilet facilities, especially for women; lack of clean drinking water, clean air and ventilation; and exposure to disease make living conditions awfully run-down</u>.
    iii. **Other challenges** of urban poor include <u>challenges of transport, dangers of extortion and</u> **increased vulnerability to crime**.
    iv. **Social and Psychological situation**: The <u>stark differences that are seen in the living standards of the urban rich and the urban poor</u> have a significant bearing on the psychology of the urban poor.
        - Within the <u>rural society</u>, the <u>stratification is far less</u>. Consumption pattern is likely to be <u>less dissimilar</u>, since the variety of consumer products available in a village is narrow.
        - The **deprivation of poverty, therefore, unlike the rural areas, hit the urban poor hard**, because they see what the others have and what they don't. The situation <u>breeds powerlessness, emotive confusion, resentment and buried anger</u>.

- **Conclusion:**
    - Acknowledgment of these differences is crucial for <u>creating effective antidotes against urban poverty</u>. The past practice of seeing all poverty in a rural light and applying rural solutions in urban conditions will <u>not yield the expected results</u>. Furthermore, the <u>design of anti-poverty policies needs to be looked at in the context of overall urban policies</u>, urban planning and legal and institutional framework.

7) UNIVERSAL BASIC INCOME

- **Why in news?**
    - 'The State of Inequality in India', a report released by the <u>Economic Advisory Council</u> to the Prime Minister (EAC-PM) Chairperson **Bibek Debroy**. [May 2022]
        - It calls for <u>an urban job guarantee scheme</u> and <u>introducing Universal Basic Income (UBI)</u>.

- **Example Questions**:

i. What is Universal Basic Income? What can be the advantage of UBI over the current poverty reduction efforts?
ii. Do you agree that Universal Basic income will facilitate a more inclusive society with reduced inequalities? Give reasons for your answer

- **Definition**
   - A basic income (unconditional basic income or universal basic income) is a <u>form of social security in which</u> **all citizens or residents of a country regularly receive an unconditional sum of money**, either from government or some other public institutions, in addition to any income received from elsewhere.

- **UBI Has three components**
   i. Universality
   ii. Unconditionality
   iii. Agency (by providing support in the form of cash transfers to respect, not dictate, recipients' choices)

- **The time has come for UBI because of following reasons**
   i. **Social Justice**
      - UBI is, first and foremost, <u>a test of a just and non-exploitative society</u>. Almost every theory of Justice has argued that *a society that fails to guarantee a decent minimum income to all citizens will fail the test of justice*.

   ii. **Poverty Reduction**
      - Conditional on the <u>presence of a well-functioning financial system, a UBI may simply be the</u> **fastest way of reducing poverty**. The COVID-19 pandemic highlighted how the poor were most vulnerable and needed an assured income to fulfil their basic needs.

   iii. **Employment concerns**
      - As we move towards a <u>more technologically competent world</u>, a large section of the workforce may not be able to find work. UBI can be granted to compensate for the losses to make ends meet.
      - Further, a basic income will make <u>employments less exploitative</u>.

   iv. **Agency**
      - **Problems with other schemes to deal with poverty**
         - Our current welfare system, even when well intentioned, <u>inflicts a indignity upon the poor by assuming that they cannot take economic decisions relevant to their lives</u>.
      - **UBI,** an unconditional cash transfer <u>treats them as agents, not subjects.</u>
         - It <u>liberates citizens</u> from <u>paternalistic and clientelist relationships with the state</u>.
         - By <u>taking the individual and not the household</u> as the unit of beneficiary, UBI can also enhance agency, especially of <u>women within household</u>.

   v. **Administrative Efficiency and Transparency**

- The existing welfare schemes are riddled with misallocation, leakages and exclusion of the poor.
- UBI is a way of ensuring that state welfare transfers are more efficient so that the state can concentrate on other public goods.

vi. **Increase in financial inclusion**
- **Payment** - transfers will encourage greater usage of bank accounts, leading to higher profits for banking correspondents (BCs) and an endogenous improvement in financial inclusion.
- **Credit** - increased income will release the constraints on access to credit for those with low income levels.
- **Profitable for banks**: More money in the bank accounts, which have remained inactive.

vii. **Numerous Successful trials** have found that basic income, whether given to everyone or specific groups or communities, improve health, life satisfaction, trust in others and employment opportunities among participants.
- A nationwide experiment in Finland showed these favourable results.

- **The Conceptual Case Against UBI / Criticism of UBI / Factors hindering implementation of UBI:**
  i. **Weather UBI reduces incentive to work**
     ▫ Critics conjure up images of potential workers frittering away their productivity. It may hamper labour supply.
     ▫ **This argument is highly exaggerated?**
        - For one thing, the levels at which universal basic income are likely to be pegged are going to be minimal guarantee at best; they are unlikely to crowd incentive to work.
        - One school of thought would argue that, it truly is a diminution of human dignity to suppose that the only motivation for which people work is necessity.
  ii. **Will UBI promote social vice like drinking, smoking etc?**
  iii. **Should Income be detached from employment?**
     ▫ Society already does this, but largely for rich and privileged.
        - Any society where any form of inheritance or accepting non work related income is allowed, already detaches incomes from employment.
     ▫ So receiving a small unearned income as it were, from the state should be economically and morally less problematic than the panoply of unearned incomes our society allow.
  iv. **Reciprocity: If society indeed is a "scheme of social cooperation", should income be unconditional, with no regard to people's contribution to society?**
  v. **Fiscal cost given political economy of exit**
     ▫ Once introduced, it may be difficult for government to wind up a UBI in case of a failure.
     ▫ This might affect implementation of other welfare schemes.

- **Why Universalize**
  ▫ **Limitations of Existing Schemes**
     » **Sheer large number of schemes** (950+ by central government only)
        - Too much bureaucratic cost involved.

- » **Effectiveness of the schemes is poor - Misallocation -> Leakage**
- » **Exclusion of genuine beneficiaries**
  - □ **How come an Universal UBI overcome these issues**
    - » Every citizen getting basic income -> few chances of misallocation
      - ▪ Success hinges much less on local bureaucratic ability than do other schemes.
    - » UBI further reduces the burden on administration by doing away with the tedious task of separating the poor from the non-poor.
    - » Direct Benefit transfer eliminates out of system leakages and scope of diversion reduces considerably.
    - » Further because state is answerable to a larger section of its citizen, the out of system leakage further decreases.
    - » Universalization ends exclusion error.

- **Way Forward: Three principles that can help guide thinking in this direction.**
  - a. **De jure universality, de facto quasi-universality:**
    - • Exclude on the basis of assets; Bring Give it Up Scheme; list of UBI beneficiary should be publicly displayed; Self-Targeting; Tax UBI;
  - b. **Gradualism**
    - • One of the guiding principles can by gradualism the UBI must be embraced in a deliberate, phased manner. A key advantage of phasing would be that it allows reform to occur incrementally - weighing the cost and benefit at every step.

  - c. **UBI and redistributing resource transfers to states**
    - • A number of state governments receive large amount of transfers that may not prima facie increase growth or consumption. The UBI offers a possible way around :
      - ▪ A part of the redistributing resource transfers may be transferred by the centre directly into beneficiaries accounts in the form of pilot UBI programme.

  - d. **Other Key way-forwards:**
    - i. **Ensure 100% coverage of Jandhan-Aadhar and Mobile**
    - ii. **Create a framework for Centre-State Cooperation**
      - ▪ A key federal question will be the centre-state share in funding of the UBI. This would like the GST, involve complex negotiations between federal stakeholders.
      - ▪ ESI suggest that initially, a minimum UBI can be funded wholly by the centre. The Centre can then adopt a matching grant wherein for every rupee spent in providing a UBI by the state, the centre matches it.
    - iii. **Spread awareness about usefulness of UBI for the entire society** and develop public support for it.

- **Conclusion:**
  - » Like the social market economy, the UBI reconciles economic efficiency and social security. It is radical, but also just. It is liberal and contemporary. Therefore it may offer the best social-political prerequisites for "prosperity of all" in the 21st century.
  - » India should begin to explore the nuances of shifting to basic income, explore alternatives, feasibility and gather evidence to make an informed choice.

- **Why in news?**
    - The Key to India's Hunger Challenge: A focus on gender sensitive growth (Aug 2023: Source: IE)

- **Hunger**:
    - **Hunger** is a situation when a person is <u>not able to consume sufficient food to meet basic nutritional needs for a sustained period</u>. The required number of calories may vary according to age, sex, physical activities etc.

    - **The UN mandated SDG-2** of " **'Zero Hunger': ending hunger and ensuring access** to nutritious and sufficient food for all" is supposed to be achieved by 2030.
        - This goal works in tandem with many others: <u>Poverty Elimination (SDG1); Good Health and Well Being</u> (SDG3); and the <u>Need for Clean Drinking Water</u> (SDG6).

    - **Similarly other SDG goals** (**SDG4** - Education; **SDG5** - Gender Equality; **SDG8** - Decent Work and Economic Growth; **SDG10** - Reduction of Inequality; **SDG11** - Sustainable Cities and Communities; **SDG16** - Peace, Justice and Strong Institutions; and **SDG17** - partnership for goals also influence <u>consumption patterns and healthy diet choice</u>.

- **Hunger Situation in India**:
    - **Malnourishment** is a major challenge faced by India, <u>especially amongst children below the age of five</u>.
        - **As per NFHS-5**, <u>32% of children were underweight</u>; <u>35% are stunted</u> and <u>19% are wasted</u>.

    - **Global Hunger Index, 2022** has also <u>ranked India **107/121**</u> countries (worse than all our neighbours except **Afghanistan** (109)).
        - **Though India has criticized GHI** on several grounds, but still, it throws some light on the hunger levels in India.
            - GHI is using <u>erroneous measure of hunger</u> (i.e., it is measuring hunger in terms of <u>other variables beyond the lack of food</u>).
            - 3/4 variables are <u>related to children</u> and can't be representative of whole population.
            - The data for <u>undernourished population</u> is based on a <u>poll conducted on a very small size of 3,000</u>.
            - GHI seems to have ignored initiatives like <u>PMGKAY, Anganwadi Scheme, PMMVY</u> etc.
    - **As per a report by UNICEF**: Child Food Poverty, **13 countries across the world** (including India), **more than 40% of children live in severe food poverty**.

- **Key initiatives to fight Hunger Situation in India**:
    - **NFSA 2013** and the Public Distribution System
        - **PMGKAY**
    - **Poshan Abhiyan:** Launched by <u>MoW&CD in 2018</u> is focused on reducing <u>stunting, undernutrition, and anemia (among young children, women and adolescent girls)</u>.

- □ **Integrated Child Development Services (ICDS) Scheme**: Launched in 1975, the ICDS scheme offers a package of six services - Supplementary Nutrition; Pre-School non-formal education; Nutrition and Health Education; Immunization; Health Checkups; and Referral Services.

- □ **Eat Right Movement**: It's an initiative by Food Standards and Safety Authority of India (FSSAI) for citizens to nudge them towards eating right.
- □ **Various initiatives for Poverty Reduction; Health (like Mission Indradhanush); Employment; Environment Protection** etc. also contribute to fighting hunger situation.

- **Other Measures over the years which have contributed to fight against Hunger**:
   - □ **Green Revolution**: It has turned India from a **"Ship to mouth"** economy to the **largest exporter of rice in the world**. It has allowed the successful implementation of PDS, PMGKAY etc.
   - □ **White Revolution**: India has emerged as the largest producer of milk in the world.

- **Causes for high Hunger Levels in India**:
   - □ Hunger is a complex **multidimensional problem**.
   - □ In a 2008 paper, **Hunger in the Contemporary World**, **Amartya Sen** enumerated the **interdependence of food deprivation and hunger on multiple factors**.
      - ▪ **Low Income (Poverty)** - Poverty leads to poor living conditions, less income, insufficient food which eventually leads to malnourishment and hunger.
      - ▪ **Social Factors:**
         - ▪ **Gender Inequality**:
            - • **Inter-Family food distribution rules:** Patriarchy leads to girl child getting food at the last or lesser food.
            - • **Low female literacy and education:** Lack of adequate knowledge amongst mothers regarding nutrition, breast-feeding, and parenting.
      - ▪ **Economic Factors**
         - ▪ Poor Employment
      - ▪ **High Government spending** in non-social sector
         - ▪ **Huge Military expenditure** (as India lives in a very vulnerable neighborhood)

- **Other Factors include**:
   - □ **Poor Administration and Governance**: Corruption; Faulty PDS system; Unidentified hunger (inclusion and exclusion errors due to wrong allocation of BPL cards);
   - □ **Hidden Hunger**: Several types of nutritional deficiencies are occurring due to **poor diet**, diseases, and failure to meet the needs of women during pregnancy and lactation period.

   - □ **Economic and Health challenges** associated with **COVID-19**.
      - ▪ COVID-19 pandemic has exacerbate child undernutrition in general and child wasting in particular.

   - □ **Climate Change and weather extreme** also pose big challenge to India's food system and poverty alleviation targets.

- **Way Forward**:
   - □ **Intensive Hunger Specific Initiatives:**

- Improve the implementation of NFSA by removing all kinds of exclusion errors.
- In Post-Covid scenario, bring back and strengthen functional Anganwadis providing food and other services.
- Mid-day meal scheme should restart with full vigour in schools.
- **Improving Implementation**:
  - **Social Audit**
  - **IT for better monitoring**

- **Focus on other associated issues** like Water, Health, Sanitation, maternal and child health etc.

- **Focus on dietary diversity** -> Encouraging consumption of more diverse range of foods, particularly fruits, vegetables, and protein rich diets.

- **Social Changes**:
  - Addressing gender inequality

- **Accelerated and Inclusive Economic Growth**:
  - **Women's participation rate** in labour force is around 30% currently, which needs to increase. Here focus on literacy, skill development would be important.
  - **Look into the issues of Livelihood**: Expand rural employment guarantee scheme.
  - **Sustainable Agriculture**: Investment, Research, and Innovation for Sustainable Agriculture

- **Reducing food wastage and losses**
- **Adaptation and Mitigation** to climate change.

2. GS3: CYBER SECURITY

1) PYQS OF LAST 22 YEARS

- What are the different elements of Cyber Security? Keeping in view the challenge in cyber security, examine the extent to which India has successfully developed a comprehensive National Cyber Security Strategy (Answer in 250 words)

- Keeping in view India's Internal Security, analyze the **impact of cross-border cyber-attacks**. Also discuss **defensive measures** against these sophisticated attack [10 marks, 150 words]

- Discuss the **types of Cybercrime** and **measures required** to be taken to fight the menace [10 marks, 150 words] [Mains 2020]

- What is **CyberDome project**? Explain how it can be useful in controlling internet crimes in India. [10 marks, 150 words] [Mains 2019]

- Discuss the **potential threat of cyber-attacks** and the **security framework to prevent it**. [10 marks, 150 words] [Mains 2017]

- Considering the **threats cyberspace poses f**or the country, India needs a "**Digital Armed Force"** to prevent crimes. Critically evaluate the **National Cyber Security Policy, 2013** outlining the challenges perceived in its effective implementation. [200 words, 12.5 marks] [Mains 2015]

- **Cyber warfare** is considered by some analysts to be larger threat than even Al-Qaeda or terrorism. What do you understand by **Cyber Warfare?** Outline the **cyber threats which India is vulnerable to** and bring out the **state of the country's preparedness** to deal with the same. [200 words, 10 marks] [CSM 2013]

- What is a malware? [50 words] [CSM 2007]
- What is a firewall? [50 words, CSM 2007, CSM 2002]
- Who are 'hackers' in computer world? [50 words, CSM 2006]
- What is VIRUS? [50 words, CSM 2005]
- What is an 'Internet Worm'? Explain DDoS [CSM 2003]
- How does Computer virus destroy data? [CSM 2000]
- What is computer virus? How does it infect systems?[CSM 1999, 5 marks]

2) BASICS

- Cyberspace is the connected Internet Ecosystem".
    - ▫ Cyberspace today **covers almost every crucial defence and civilian** infrastructure including information technology network, banking and finance, transportation system, water supply etc.
    - ▫ It has also emerged as the **largest unregulated and uncontrolled domain** in the history of mankind.
    - ▫ It is the **fifth potential theatre of warfare** along with land, sea, air and space.
    - ▫ Thus, protecting cyber space has become **a very high priority for every government** in the world.

- **Cyber Crime** is a criminal activity that involves a computer and a network i.e., a **criminal activity on the cyberspace**.
    - ▫ It involves offences committed against people/ organization/ governments with a criminal motive to cause physical or mental harm, or loss to victim directly or indirectly.
    - ▫ It also threatens nation's security and financial health.
    - ▫ Cyber criminals are getting sophisticated with each passing day and are wreaking havoc by defacing websites and stealing confidential and privileged data for financial gain.

- **Cyber Security** is protecting our cyber space (critical infrastructure) from attack, damage, misuse and economic epsionage.
    - ▫ It is a complex issue that cuts across multiple domains and calls for multi-dimensional, multilayered initiatives and responses.

3) GENERAL CYBER SECURITY CHALLENGES

i. **Cyberspace has inherent vulnerabilities** that can't be removed.

- **Innumerable entry points** to internet
  - Even if a few points are vulnerable, the whole system can be cyber attacked.
- The coming up of technologies like **IoT** which connects various 'things' with internet- increases the vulnerabilities of internet.
- **Increasing penetration of Internet** with a large **number of first-time users**.
  - **Increasing connectivity of different sectors ->** more data being stored digitally -> more vulnerability.

ii. **Difficult to identify the source of attack.**
  - For e.g., CIA's UMBRAGE project has advanced capabilities of misdirecting attribution to another nation-state ("**false flag attacks**") by leaving behind false fingerprints.

iii. **Fast evolving technologies**
  - This allows cyber attackers to quickly exploit vulnerabilities. Further in the absence of timely updates, attack technologies surpass the defense technology allowing exploitation of the vulnerabilities.

iv. **Nation states, non-state actors**, and **individuals** are at a <mark>peer level</mark>, all capable of waging attacks.

v. Some countries **promote, shelter and encourage** cyber-crime as a political tactic.

vi. **Cyber criminals (hacking groups have become very organized)**
  - They are part of the underground ecosystem that channels tools, expertise, and infrastructure in criminal operations that extract billions of dollars of profit from data theft, extortion, and fraud.

4) IMPACT OF CYBER ATTACK – DIFFERENT WAYS IN WHICH CYBER ATTACK DAMAGES

- **National Security:** Cyber-attacks pose a major challenge to any country's National Security.
  - » **Cyber Espionage, Warfare, Terrorism** etc. emerged as a new challenge in India's National Security.
    - Cyber-attacks on India originating from China has increased manifold after the increased tensions on the borders.
    - US-Israeli joint efforts had leashed the **Stuxnet Worm in 2010** - which helped it disable several hundred centrifuges at the Iranian nuclear facility in Natanz.
  - » **Disabling of Critical Infrastructure** such as telephone network, satellite system, financial services can be brought by Cyber-attack.
    - For e.g., the **malware 'DTrack'** had breached a system at Kudankulam Power Plant.

- **Economic Loss - Financial Frauds**
  - » Cybersecurity Ventures estimate the global annual cybercrime cost to **be $6 trillion in 2021.**
    - **Information Loss:** The largest cost impact from cybercrime is information loss (39%).
    - **Business Disruption:** Loss (36%)

- **Information Warfare:** It aims to impact the decision-making process of the target's citizenry for advancing particular narratives.
    - » With **Big data, Behavioural and predictive analytics and** AI, the nature of warfare in cyberspace has evolved.
    - » **Sixth Generation Warfare** (6GW) applies 'reflexive control' aided by these developments to target in an individualized manner and change the beliefs of the leadership or citizenry of the adversary through mass data and behavioral analytics.

- **Social Media** has been used for:
    - » **Fake news** - promoting **social tensions and harming national integrity.**
    - » **Radicalization** of youth has been happening through online platforms.
    - » **Honey trapping**
    - » **Data phising**

- **Cyber Hacktivists**
    - » They hack sites and servers to virally communicate the **"message" for specific campaigns**.

- **Violation of Right to Privacy**
    - » Individual's personal data is disclosed on public platforms.

- **Other Crimes:** e.g., Online Abuse, Harassment, Stalking, Child Pornography etc.

5) CYBER SECURITY SITUATION IN INDIA

- **Steady spike of Cyber Security** in the past five years:
    - ▫ As per NCRB, there were 12,317 cases of cybercrime in 2016, which has increased to 50,035 in 2020.
    - ▫ Late CoDS Bipin Rawat had said that cybercrime went up by 500% during the Pandemic.

- **Cybercrime increased drastically** after the **increased border tensions with China**.
    - ▫ Most of these attacks are DDOS, phising, data exfiltration, remote access tool malware and keylogging (tracking every keystroke made by a user).
    - ▫ Government websites and web portals have been the targets in the past too. What is different this time is that attackers appear to be well planned and aimed at extracting information and sensitive data.

6) LAWS, POLICIES, INSTITUTIONS, INITIATIVES TO ENSURE CYBER SECURITY IN INDIA

A) LEGAL FRAMEWORK
- Currently, the **Information Technology Act, 2000** is the primary law for dealing with cyber-crimes in India.
    - » **Section 43 (Data Protection), Section 66 (hacking**), **Section 66B** punishment for illegally possessing stolen computer resource and communication devices, **Section 67** (protection against unauthorized use of data), **Section 69 (Cyber terrorism)**, etc. are some key provisions which cover Cyber Security.

B) NATIONAL CYBER SECURITY POLICY 2013

- **Aim:**
    i. **Protection** of information infrastructure in cyberspace
    ii. **Reduce vulnerabilities.**
    iii. **Build capabilities** to prevent and respond to cyber threats.
    iv. **Minimize damage** from cyber incidents through a combination of institutional structure, people, process, technology and cooperation.

- **Key Provisions**
    a. **Institutional Framework to promote Cyber Security**
        ▫ **National Critical Information Infrastructure Protection Centre (NCIIPC):** it is a 24X7 mechanism to deal with cyber threats and works under NTRO to safeguard critical infrastructure.
        ▫ **CERT-IN** has been designated as nodal agency for coordination of crisis management. It will also coordinate and operationalize sector CERTs.

    a. **Developing Cyber-security Human Resource** (creating a workforce of 5,00,00 professional in 5 years)

    b. **Promote R&D**
        ▫ More Investment; Industry-Academia collaboration; Setting up Centre of excellence in cyber security areas; R&D in cutting edge security tech; focus on indigenous development of cyber security solutions.

    c. **Promoting PPP and collaborative engagements** through technical and operational co-operation
    d. **Each organization to promote cyber security through an information security policy** and **using only certified IT products**.
    e. **Other provisions include** Updation of legal framework; Awareness program on cyber space; Periodic review of the adequacy and effectiveness of cyber security infrastructure etc.

- **Need of Review**
    ▫ **Technological advancements** in the field of Artificial Intelligence, 5G, Internet of Things etc. have made the 2013 policy outdated.
    ▫ **Human Resource Development** has been poor.
    ▫ **Need of Governance Reform**
        » India has 35+ different central bodies to look after cyber issues. Each organization has its own reporting structure and CERT (Indian Computer Emergency Response Team). This **plethora of agency** leads to confusion.
    ▫ **Need of a Unified Cyber Security Framework** across various regulators

    ▫ **Need of a Cyber-Defence Agency** - to implement the cyber defence strategy for national security.
        » This should also provide for **cyber commando forces** to neutralize any cross border cyber terrorism or cyber-attack and help in development of **specialized cyber police cadres** in all state police departments.

▫ **Awareness level** in police and judiciary is still very low about cyber security.

C) VARIOUS INSTITUTIONS AND INITIATIVES:

- **National Security Council (NSC)** usually chaired by the NSA plays a key role in shaping India's cyber policy ecosystem.
  - ▫ **National Information Board**, also chaired by NSA, is meant to be the **apex body to promote cross-ministry coordination** on cybersecurity policymaking.

- **National Critical Information Infrastructure Protection Centre** established under the NTRO in Jan 2014 is mandated to facilitate the protection of **critical informational infrastructure**.

- The **Indian Computer Emergency Response Team** (CERT-IN) is the national nodal agency which responds to various cyber security threats to **non-critical infrastructure**.

- Ministry of Defence (MoD) has established a **Defence Cyber Agency,** a tri-service command of the Indian armed forces to coordinate and control joint cyber operations and craft India's Cyber doctrine.

- **Cyber Swatchta Kendra (Botnet Cleaning and Malware Analysis Centre**): It has been launched for detection of malicious software programmes and to provide free tools to remove the same.

- **Cyber AASHVAST: India's first Cyber Crime Prevention Unit**

- **Other Initiatives to Promote Cyber Security in India**
  1. **Awareness Generation**
     - **Cyber Surakshit Bharat Initiative**
       - It was launched in 2018 to promote awareness about cyber-crimes and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.
     - **PMGDISHA**

  3. All the new government websites and applications are audited prior to hosting and on regular basis after hosting.

  4. **Increased International Cooperation**
     - The second ASEAN-India Track 1.5 Dialogue on Cyber Issues was held in Oct 2020.
     - India also signed Memorandum of Cooperation with Japan in the field of Cybersecurity.
     - **Quad** countries also have agreed for cooperation on Cyber-Security

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7) PROBLEMS ASSOCIATED WITH INDIA'S CYBER SECURITY SYSTEM

1. **Cyber Security Policy, 2013 and IT Act** needs to be updated to ensure that it remains fast tracked.

2. **No Procedure Code for the investigation of Cyber or computer-related offences**:
    - As <u>electronic evidence</u> is <u>entirely different in nature when compared to evidence of traditional crime</u>, laying down standard and uniform procedures to deal with electronic evidence is essential.

3. **Lack of coordination among the various institutions involved in cyber security.**
    - <u>We don't have a unified national cyber security architecture.</u> There are too many agencies which have led to **concerns around effective coordination, overlapping responsibilities** and **lack of clear institutional boundaries and accountability**.

4. **Lack of trained manpower / Lack of focus on cyber security in educational and research institutes.**
    - In June 2023, a <u>report by Team Lease Digital</u> said that <u>India had 40,000 job openings</u> in the field of cyber security, but <u>30% of these vacancies couldn't be filled</u> due to <u>huge skill shortage</u>.

5. **Dependency on ICT Imports**
    - **Mains hardware attacks** can be **Manufacturing Backdoors**, **Hardware tempering** etc.
    - Further, **lack of digital solutions** like <u>data-sharing facilities</u> and <u>social media platforms</u> have adversely impacted nation's self-reliance and cyber security.

6. **Lack of awareness among public** regarding the cyber security and significance of it.
    - According to a survey by <u>security solutions provider **NortonLifeLock**</u>, around **52% adults admitted that they don't know how to protect themselves from cybercrime**.

7. **Rapidly changing technology**

8. **Use of Substandard Devices and rampant use of unlicensed** software increases cyber security vulnerabilities in India.

9. **Lack of private investment**
10. **India's cyber capabilities are mostly defensive and lacks offensive power.**
    - A cyber arsenal is also needed for <u>strategic deterrence</u> and this will also enhance our defensive approach.

11. **Almost Complete absence of Cyber Security Framework** at **state level** in many states
12. **Absence of 'Global Cyber Norms'** which can balance the competing demands of national sovereignty and transnational connectivity.

8) WAY FORWARD AND CONCLUSION

- **Reform policy, law**s - Both Cyber Security Policy 2013 and the IT Act, 2000 don't fully sync with today's cyber threat.
    - The new cyber security policy should also <u>ensure coherence and coordination between various institutions</u>.
    - It's high time that d<u>ata privacy laws **are prioritized by the legislature**</u>.

- **Human Resource Development**
    - **Skill shortage has to be dealt with high priority:**
        - Fill all the relevant position with cyber security experts.
        - States should set up a special cyber police station in each district or range, having technically qualified staff in every police station.

- **Upgrade Cyber Labs**:
    - Cyber forensic labs of states must by upgraded with the advent of new technologies.
    - The state of art, **National Cyber Forensic Lab** and the **Cyber prevention, Awareness and Detection Centre (CyPAD)** of the Delhi Police should also be asked to extend professional help to state labs.

- Focus on **Infrastructure and More R&D** in the sector.
    - Focus on how AI and ML can boost cyber defenses.
    - Promote cutting edge technology growth in the country to **reduce dependency on imports of ICT**.

- **Enhancing Cyber Warfare Capabilities**:
    - These enhancements would be technological, organizational, and human, employed for cyber offence, cyber defence, cyber deterrence, or combination of these.
    - Developing **offensive deterrence capabilities**
        - **Specialized cyber security cells** are needed in police departments of each state.

- **Promote Cyber Hygiene -**
    - **Ensure security in imported ICT devices.**
        - Set up **Trust Centres** (labs) to determine the level of trustworthiness of ICT vendors.
    - **Nurturing young netizens** through **digital civics**. Regular updates of hardwares and softwares, regular password changes etc.

- **Reduce dependency on imported ICT devices.**
    - Promote ICT manufacturing in the country.

- **Promote the role of Private Players**
    - **Encourage startups** in the field of social networking, cloud computing etc.
    - Private sector should get involved in **more industry focused processes** such as the Microsoft-initiated Cybersecurity Tech Accord and the Siemen's led Charter of Trust.

- Increasing **International Cooperation** to develop **Cyber Norms**.
    - Acceding to **Budapest Convention,** or **Convention on Cybercrime of the Council of Europe** (CETs no. 185), which started as a European Initiative but has attracted others, is an option that India should examine.
    - Further, International agreements should provide a binding obligation on '**red lines**' with respect to cyberspace-targets that should be considered illegitimate due to their significance for human life, such as health-care systems, electricity grids, water supply and financial systems.

- **Prepare for implication of Quantum Computing** on Cyber security.

- **Protect the country from informational (6th Generation warfare):** - Measures to reduce foreign data collection; sectoral data localization; Enact the data protection bill; Integrate this modern form of warfare while developing India's security strategy.

Conclusion
- ▫ In India, it is imperative for our national security that cyber networks, software and cyber-physical systems, and platforms should be cyber-secure. This requires a judicious mix of people, policies and technologies, as well as robust Public Private Partnership.

- ▫ Various institutions need to be strengthened to bring in a **much-needed synergy** among various institutions and to work out a coordinated approach to cyber security, including cyber deterrence.

9) CYBER SECURITY THREATS FROM CHINA, AND CHINESE HARDWARE AND SOFTWARE

- **Why in news?**
    - A suspected cyberattack on the AIIMS in Delhi compromised personal health data of millions of patients, which was likely sold off on the dark web (Dec 2022)

- **Example Questions**:
    - "Adequate measures need to be adopted to strengthen India's cyber defence as it has become increasingly susceptible to Chinese Cyber Attacks" Elaborate [10 marks, 150 words]

- In 2018, CERT-IN (Computer Emergency Response Team - India) reported that **China was responsible for 35% of the total number of cyber-attacks** on official Indian website. Military forces suspect that this attack has increased substantially after the Galwan clashes.

- **Recent Example of Chinese Cyber Attacks**:
    - **Cyber-attack on AIIMS** in Dec 2022 which was may have compromised data of 3-4 crore patients.
    - **Attack on Ladakh Power Grid** in April 2022.
    - Earlier in 2021, Chinese state-backed hackers' group had targeted the IT system of two **Indian vaccine makers** - Bharat Biotech and Serum Institute of India (SII)
    - The **Oct 2020**, Mumbai power outage was also a result of multiple malwares deployed by Chinese group **RedEcho**.

- **Various types of Cyber threats from China**:
    - **Direct Cyber-attacks** - Hacking, DDOS, Phising, etc.

    - **Threats from Chinese apps and hardware**

    - **Smart Technology also pose security risks:** SMART Products which encompass the range of everyday technology that is being operated across residential and office spaces in India. These

include <u>CCTVs, air conditioners, refrigerators, coffee machines, printers</u> etc. Even the <u>western produced devices</u> depend on <u>data sensors, modules and transmitters</u>.

- ▪ In UK, a report sent to government explains that these Chinese components <u>can be used to track the movements of intelligence officers</u> and ministers. It can also be used for <u>stifling industrial activities</u>.

- **Key steps taken**:
  - ▫ **Ban on several Chinese apps and technology** due to data leaks, vulnerabilities, and national security risks that they pose.
    - ▪ In 2020, India started banning Chinese applications which <u>now cover more than 250 applications</u>.

  - ▫ **Examples of Chinese firms under wider scrutiny in India**
    - ▪ Exclusion from 5G telecom trials
    - ▪ Increasing restrictions on research collaboration
    - ▪ Income Tax Searches

- **Way Forward**:
  - ▫ **Work on outlining technical evidence** to prove that <u>the attacks are from China</u>.
  - ▫ **Complete analysis of Chinese Products** (Apps, Software, SMART Products) etc being used in India.
  - ▫ **Work on developing competitive replacements** to Chinese firms.
  - ▫ **Expand Cyber Defence and Cyber Offensive Capabilities** to counter these cyber-attacks.
  - ▫ **Other suggestions to strengthen Cyber Security** (already discussed in detail)

10) STATE'S USE OF NON-STATE ACTOR IN CYBERSPACE

- **Example Question:**
    - Without proper legislation, states using non-state actors for cyberwarfare pose a significant threat to governments, businesses, and individuals (Aug 2023)

- **Introduction**:
    - **A Cyber non-state actor** is an entity with **no specific physical territory or territorial sovereignty that operates in cyberspace**. It can include individuals, groups, or organizations that operate independently or in association. Non-state actors can significantly threaten governments, businesses, and individuals.

- **Why do states choose non-state actors?**
    - **Protect themselves**: Though cyberspace ensures anonymity, non-state actors provide additional protection to the states during cyberattacks, as they can **claim plausible deniability** and avoid blame to evade indictment.
        - For instance, North Korea uses **Bureau 121**, a hacking group, to carry out cyberattacks primarily against South Korea while maintaining certain distance from their repercussions.

    - **Other factors** include lack of national capabilities, lack of resources, lack of national talent pool etc.

- **Examples of non-state actors**:

Types	Motives	Examples	Examples of their activities
State-Sponsored hacking groups	Advancing the states' geopolitical agenda as well as accruing financial gain	Lazarus Group: a North Korean-sponsored hacking organisation	A phishing attack on the Bangladesh Bank network to steal US$81 million in 2016.
Cyber mercenaries	Financial gain	Team Jorge: A group of Israeli contractors engaged in malicious cyber activities	Kenya's presidential election campaign rigged by hacking personal chats and contacts of personal aides of President William Ruto to send messages to military commanders and ministers.
Hacktivists	Desire to contribute to social or political change	Ukraine IT Army: Cybersecurity experts who volunteered to attack Russia	Distributed denial of service attacks on 5,500 Russian websites in the initial months of the war.

- **Implications**:

- ▫ Cyberspace and non-state actors have <u>reduced the gap</u> between the <u>well-off country and a developing country</u> in terms of their capability to attack.
- ▫ Non state actors are also used for <u>strengthening cyber defences</u>.

- **Threats**:
  - ▫ The non-state actors also have a very <u>disruptive and destabilizing nature</u>.
  - ▫ They can also be a <u>threat to democratic process</u> - for instance cyber mercenary group <u>Team Jorge</u> claims to have <u>interfered in 27 Presidential-level campaigns worldwide</u> through hacking, disinformation, planting fake intelligence etc.

- **What should be done?**
  - ▫ **International Treaty** - Against using non-state actors for cyber-attacks (use can be allowed for strengthening defences)
  - ▫ **Legislation** is necessary to curtail activities on non-state actors.
  - ▫ **Strengthen own Cyber Offence and Defence Capabilities**.

- **Conclusion:**
  - ▫ As geopolitical rivalries deepen with time, the <u>use of non-state actors is only set to grow</u>. It is important that the <u>nation states come to a international agreement</u> against the use of non-state actors.

11) MAIN TYPES OF CYBER THREATS ON THE BASIS OF MECHANISMS USED

A) MALWARE

Malware (Malicious Software) is any program of file that is harmful to a computer user. It includes computer viruses, worms, Trojan horses and spyware.

- These malicious programs can perform a variety of functions, including **stealing, encrypting or deleting sensitive data**, altering or hijacking **core computing functions** and **monitoring** users' computer activities.

- **Virus**
  - A virus is a malware that can execute itself and spreads by infecting other programs of file. Viruses are typically attached to an executable file or a word document. They often spread via P2P file sharing, infected websites, and email attachment downloads.
  - Once a virus finds its way onto your system, it will **remain dormant until the infected host file or program is activated**, which in turn makes the virus active enabling it to run and replicate on your system.

- **Worm** is a type of malware that can **self-replicate without a host program.** Worms typically spread without any human interaction or directives from malware author.

- **Trojan Horse** is a malicious program that is designed to appear as a legitimate program. Once activated following installation, trojans can execute their malicious functions.

- **Spyware** is a kind of malware that is designed to collect information and data (including intellectual property data) on users and observe their activity without users' knowledge.

- **Ransomware** is a sophisticated malware that bypasses the traditional layers of security and makes the user's computer files inaccessible by either locking them up or encrypting them. The user is then asked to pay a "ransom" to the cybercriminals to regain access to the data.
  - E.g. **WannaCry** (May 2017)
  - Ransomware attacks on AIIMS in Dec 2022.

- **Rootkit** is a type of malware designed to obtain administrator level access to the victim's system. Once installed, the program gives threat actor the root or privileged access to the system.

B) ADVANCED PERSISTENT THREAT (APT)

- An APT is a prolonged and targeted cyberattack in which an intruder gains access to a network and remains undetected for an extended period of time.

- The intention of an APT attack is usually to monitor network activity and steal data rather than to cause damage to the network or organization.

- They typically target organizations in sectors such as national defense, manufacturing and financial industry as these companies deal with high-value information, including IPR, military plans etc.

C) DENIAL OF SERVICE (DISTRIBUTED DENIAL OF SERVICE)

It is an attack in which a <u>malicious bot sends more traffic to a targeted IP address</u> that the programmers who planned its data buffers anticipated someone might send. The target becomes <u>unable to resolve legitimate requests</u>.

D) RANSOMWARE – MORE DETAILS

- **Why in news?**
  - ▫ In Nov 2022, for sometimes, e-services of All India Institute of Medical Sciences (AIIMS) were crippled by what is being suspected to be a ransomware attack.
- **What is Ransomware?**
  - ▫ It is a type of malicious software, used by criminals, to <u>infect a computer system by blocking access to the stored data by encrypting the files</u>. A <u>ransom is then demanded</u> from the owner in exchange of the decryption key.

- **How serious was the AIIMS ransomware attack?**
  - ▫ At least <u>five of the AIIMS' servers</u> that hosted data related to more than three crore patients were compromised.

- **How serious are ransomware attacks?**
  - ▫ Cybersecurity firm **Trellix**, in its <u>third quarter global report</u>, had <u>identified 25 major ransomware in circulation</u>. As per Interpol, **Ransomware was the second highest ranking threat** after money laundering, at 66%. It is also <u>expected to increase the most</u> (72%).

  - ▫ In India, several cases of ransomware attacks targeting commercial and critical infrastructure have been <u>reported in the recent past</u>.
    - » In May 2022, <u>SpiceJet</u> had faced such threat.
    - » In April 2022, <u>Oil India</u>, a PSU was targeted.

E) CRYPTOJACKING

- **Definition:**
  - ▫ It is a <u>cyber-attack wherein a computing device is hijacked and controlled by the attacker</u> and its <u>resources are used to illicitly mine cryptocurrency</u>.

  - ▫ In most cases, the <u>malicious program is installed when the user clicks on an unsafe link</u> or visits an infected website - and unknowingly provides access to their internet-connected device.

- **Why has Cryptojacking incidents gone up?**
  - ▫ The crackdown on other kinds of attacks like <u>ransomware</u> has <u>forced cybercriminals to look for alternative methods</u>.
  - ▫ Cryptojacking <u>involves lower risk and promises **higher returns**</u>.
    - ▪ Unsuspecting users across the world see their devices get unaccountably slower, but it's hard to tie to criminal activity, much less point to the source.

- **Way Forward:**

□ Increase awareness of Cyber Hygiene and enhance cyber security (already discussed in details.

F) ACOUSTIC SIDE CHANNEL ATTACKS
- **Why in news?**
  - □ A research paper titled "A Practical Deep Learning-Based Acoustic Side Channel Attack on Keyboards", published and supported by the ethics committee of Durham University, U.K., revealed that **AI can be used to decode passwords by analysing the sound produced by keystrokes** (Aug 2023)

- **Understanding Side Channel Attacks (SCAs)**:
  - □ SCAs are methods of hacking a cryptographic algorithm based on analysis of auxiliary systems used in the encryption method. It can be done by collections of signals emitted by devices, including **electromagnetic waves, power consumption, mobile sensors as well as sound from keyboards and printers to target device**s. Once collected, these signals are used to interpret signals that can be then used to compromise the security of a device.
  - □ Studies have shown that when a classifier is trained on keystrokes by a nearby phone, it achieves an accuracy of 95%, the highest accuracy seen without the use of a language model.

- **In Acoustic Side Channel Attacks (ASCAs)**, the **sound of clicks** generated by a keyboard is used to analyze keystrokes and interpret what is being types to leak sensitive information.
  - □ These attacks are very dangerous as sound from keyboards are readily available and their misuse is under-estimated by users.
  - □ Penetration of laptops have also made it more risky as same laptop models tends to have the same key making it easier to AI Deep Learning to deal with it.

- **ASCAs** are not new and have been used since 1950s when acoustics emanating from encryption devices were used to crack their security. But, with new technologies like **deep learning** the **threats have enhanced**.

- **How can users protect against ASCAs?**
  - □ No explicit means of defence but some measures like **touch-based typing of passwords** can reduce vulnerability.
  - □ Creating stronger passwords that use a combination of lower- and upper-case letters can solve the problems to some extent.
  - □ Avoid easily recognizable phrases which can make it easier for AI models to predict the text.

1) S&T: CYBER SECURITY: C-DOT

- **Why in news?**
  - C-DOT celebrates its 40th Foundation Day (25th Aug 2023)
- Centre for Development of Telematics (C-DOT) was established in 1984 as an autonomous Telecom R&D centre of DoT, GoI. It is a registered society under the Societies Registration Act, 1860.
- It is chaired by **Ministry of Communication and Information Technology**.
- It is a registered public funded research institute with the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology.
- **Key contribution**:
  - In its initial years, it triggered the telecom boom in the rural India that was responsible for all around socio-economic development.
  - As part of its development process, it also **spawned a wide base of equipment manufacturers and component vendors for the industry**.
- Over the years it has **evolved into full-fledged telecom R&D institution**, that complies with level-5 maturity on CMMI Model and has capabilities to undertake large-scale state of art telecom technologies development programs.
- C-DOT as a torch bearer of indigenous telecom R&D continues to develop latest technology products in areas like Optical, Switching, Wireless, Security and Network Management while also working on futuristic technologies like M2M/IOT, 5G, AI etc.
- It also works towards realizing the objectives of **various flagship programs** of the Government of India that include Digital India, Make In India, Skill India, Startup India, and Smart Cities.

2) S&T: CYBER SECURITY: TRINETRA – ENTERPRISE SECURITY OPERATION CENTRE

- Ministry of communication and information technology has launched TRINETRA on 25th August 2023.
- It is aimed at providing end-to-end security solution to the organizations for detection, analysis and mitigation of cyber security threats.
- It is a combination of multiple security systems like Security Information and Event Management (SIEM), Security Orchestration and Automated Response (SOAR), Data Loss prevention etc.
- It provides 24X7 near real-time actionable cyber security status and detection and resolution of cyber threats (Virus, Malware, Ransomware, Spyware etc.)
- It also performs security evaluation of organization's IT assets by protecting endpoints including PC, Laptop, Servers and VMs by detection, analyses, and mitigation of vulnerabilities and giving AI enabled automated responses to the cyber threats ensuring protection of sensitive data.