



2-Minute Series

A compilation of foundational topics prerequisite for Civil Services

For the Month of

January 2021

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1. Geography

1.1. Circular Bioeconomy

Definition:

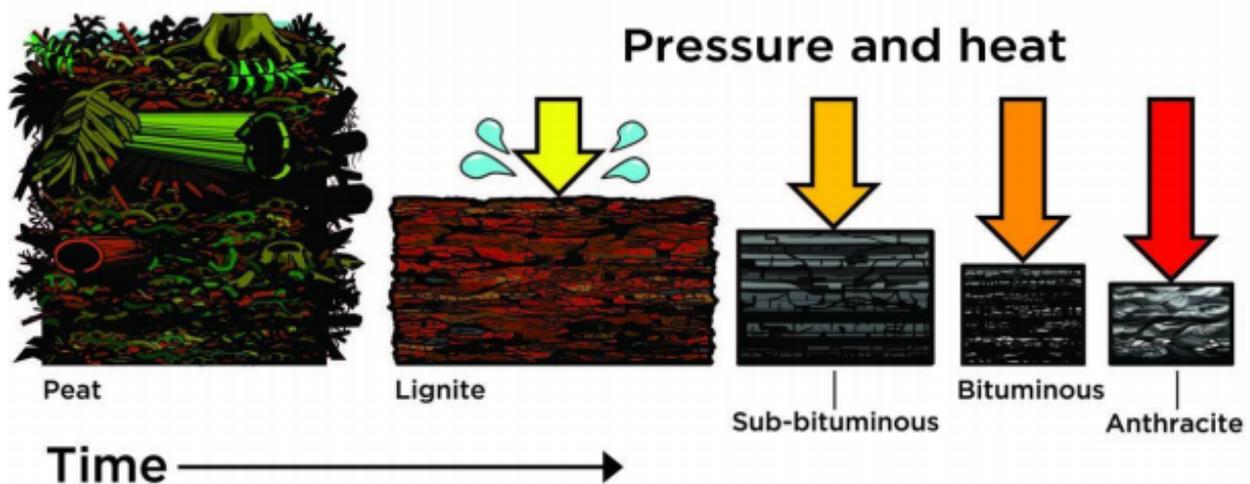
- The “circular bioeconomy” is defined as the intersection of bioeconomy and circular economy.

Bioeconomy

- The bioeconomy means using renewable biological resources (biomass) from land and sea, like crops, forests, fish, animals and micro-organisms to produce food, materials and energy.

Example

Coal



- **Ex:** dead plant matter submerged in **swamp environments** is subjected to the geological forces of **heat and pressure** over hundreds of millions of years. Over time, the plant matter transforms from moist, low-carbon peat, **to coal**, an energy- and carbon-dense black or brownish-black sedimentary rock.
- **Plants – coal** – non-renewable – millions of years to form – not sustainable
- Electricity + products – gases – **global warming**
- Renewable materials – raw material that are replaced at least the amount they are consumed – sustainable – regenerate at steady amounts.
- **Ex:** Tree- Paper

Definition

- The bioeconomy means using **renewable biological resources (biomass)** from land and sea, like crops, forests, fish, animals and micro-organisms to produce food, materials and energy.

Circular Economy

- A circular economy is an industrial system that is restorative or regenerative by intention and design.

- Circular systems employ reuse, sharing, repair, refurbishment, remanufacturing and recycling.
- A circular economy is an economic system aimed at eliminating waste and the continual use of resources.
- Ex: Smart Cities Mission

Circular Bioeconomy

- Circular Economy + Bio - Economy
- A circular bioeconomy offers a conceptual framework for using renewable natural capital to transform and manage our land, food, health and industrial systems, with the goal of achieving sustainable wellbeing in harmony with nature.

1.2.Organic Farming

- Organic agriculture can be defined as "an integrated farming system that strives for sustainability, the enhancement of soil fertility and biological diversity while, with rare exceptions, prohibiting synthetic pesticides, antibiotics, synthetic fertilizers, genetically modified organisms, and growth hormones"
- Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organisation for organic farming organisations established in 1972.

Associated Certification Scheme:

Participatory Guarantee System (PGS)

- It is implemented by the Ministry of Agriculture and Farmers' Welfare.
- PGS is a process of certifying organic products, which ensures that their production takes place in accordance with laid-down quality standards.
- The certification is in the form of a documented logo or a statement.
- All members live close to each other and are known to each other. As practising organic farmers, themselves, they understand the processes well. Because peer appraisers live in the same village, they have better access to surveillance; peer appraisal instead of third-party inspections also reduces costs.
- It is only for farmers or communities that can organise and perform as a group within a village or a cluster of contiguous villages, and is applicable only to farm activities such as crop production, processing, and livestock rearing, and off-farm processing by PGS farmers of their direct products.
- PGS ensures traceability until the product is in the custody of the PGS group, which makes PGS ideal for local direct sales and direct trade between producers and consumers.
- PGS offers every farmer individual certificate, and the farmer is free to market his own produce independent of the group.
- Individual farmers or group of farmers smaller than five members are not covered under PGS. They either have to opt for third party certification or join the existing PGS local group.

Note

- PGS is an internationally applicable organic quality assurance initiative that emphasize the participation of stakeholders, including producers and consumers, and operate outside the framework of third-party certification.
- According to a 2008 definition formulated by the International Federation of Organic Agriculture Movements (IFOAM), the Bonn-based global umbrella organisation for the organic agriculture movement, PGSs are “locally focused quality assurance systems” that “certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange”.
- PGS, according to this definition, is “a process in which people in similar situations (in this case small holder producers) assess, inspect and verify the production practices of each other and take decisions on organic certification.”

1.3. Ayushman Sahara Scheme

- A unique scheme to assist cooperatives play an important role in creation of healthcare infrastructure in the country formulated by the apex autonomous development finance institution under the Ministry of Agriculture and Farmers welfare, the National Cooperative Development Corporation (Major financial institution for cooperatives).
- The NCDC will provide loans of Rs. 10,000 crores to the cooperatives under the scheme.
- NCDC will extend term loans to prospective cooperatives. A fund will be created for the purpose.
- The scheme will provide funds to assist cooperative hospitals. It will also cover health insurance, medical, nursing education and paramedical education.

Examples

- There are about 52 hospitals across the country run by cooperatives. They have cumulative bed strength of more than 5,000. The NCDC fund would give a boost to provision of healthcare services by cooperatives.
- Any cooperative society with suitable provision in its byelaws to undertake healthcare related activities would be able to access the NCDC fund.
- NCDC's scheme is going to be a step towards strengthening farmers welfare activities by the Central Government. The scheme would revolutionize the way healthcare delivery takes place in rural areas.
- It specifically covers establishment, modernisation, expansion, repairs, renovation of hospital and healthcare and education infrastructure.
- This includes financial assistance and working capital to meet operational requirements in health sector.
- The scheme also provides 1% interest subvention to the cooperatives where women are in majority.
- NCDC assistance will flow either through the state governments/ UT administrations or directly to the eligible cooperatives.

National Cooperative Development Corporation (NCDC)

- NCDC was set up under an Act of Parliament in 1963 for promotion and development of cooperatives.

- Since 1963, it has extended around Rs.1.60 lakh crore as loans to cooperatives. (PIB).

Additional Points

- NCDC's scheme aligns itself with the focus of the National Health Policy, 2017, covering the health systems in all their dimensions- investments in health, organization of healthcare services, access to technologies, development of human resources, encouragement of medical pluralism, affordable health care to farmers etc.
- It has a comprehensive approach-hospitals, healthcare, medical education, nursing education, paramedical education, health insurance and holistic health systems such as AYUSH.
- Ayushman Sahakar scheme fund would also assist cooperative hospitals take up medical / AYUSH education.
- In line with National Digital Health Mission, NCDC's Ayushman Sahakar would bring transformation in rural areas. By virtue of their strong presence in rural areas, cooperatives utilising the scheme would bring revolution in comprehensive health care services.

1.4.Blue Dot Network

- Led by the US's International Development Finance Corporation (DFC), the Blue Dot network was jointly launched by the US, Japan (Japanese Bank for International Cooperation) and Australia (Department of Foreign Affairs and Trade) in November 2019 on the side-lines of the 35th ASEAN Summit in Thailand.
- It is meant to be a multi-stakeholder initiative that aims to bring governments, the private sector and civil society together to promote "high quality, trusted standards for global infrastructure development".
- This means that as part of this initiative, infrastructure projects will be vetted and approved by the network depending on standards, as per which, the projects should meet certain global infrastructure principles.
- The projects that are approved will get a "Blue Dot", thereby setting universal standards of excellence, which will attract private capital to projects in developing and emerging economies.
- The proposal for the Blue Dot network is part of the US's Indo-Pacific strategy, which is aimed at countering BRI.
- While Blue Dot may be seen as a counter to BRI, it will need a lot of work for two reasons:
- First, there is a fundamental difference between BRI and Blue Dot – while the former involves direct financing, giving countries in need immediate short-term relief, the latter is not a direct financing initiative and therefore may not be what some developing countries need. "The question is if Blue Dot is offering first-world solutions to third world countries?"
- Secondly, Blue Dot will require coordination among multiple stakeholders when it comes to grading projects. (Note : Remember QUAD)
- Therefore, it remains to be seen how Blue Dot fares in the long run.

2. History

2.1. Nagpur Session (1920) of the Indian National Congress

December 1920 At the Nagpur session of the Indian National Congress

- The programme of non-cooperation was endorsed.
- An important change was made in the Congress creed: now, instead of having the attainment of self-government through constitutional means as its goal, the Congress decided to have the attainment of Swaraj through peaceful and legitimate means, thus committing itself to an extraconstitutional mass struggle.
- Some important organizational changes were made:
 - ✓ a Congress Working Committee (CWC) of 15 members was set up to lead the Congress from now onwards;
 - ✓ Provincial Congress Committees on linguistic basis were organized;
 - ✓ Ward Committees was organized; and entry fee was reduced to four annas.
- Gandhiji declared that if the non-cooperation programme was implemented completely, swaraj would be ushered in within a year.

2.2.5 Important Things about Lord Curzon

1

- Famine of 1899-1900 occurred during Curzon's tenure as Viceroy.
- He appointed:
 - ✓ Famine Commission under Sir Anthony McDonnell.
 - ✓ Commission on Irrigation under Colin Scott Moncrieff.

Other Important Commissions under him

- ✓ Police Commission under Andrew Frazer.
- ✓ Education Commission / Raleigh Commission.

2

- Created the North West Frontier Province in 1901.



3

- Curzon sent a British expedition to Tibet under Francis Younghusband in 1903.
- Curzon was expecting Russian advances from Tibet. Treaty of Lhasa was signed in September 1904.

4

- Curzon presided over the 1905 partition of Bengal.

5

Curzon-Kitchner Controversy

- Lord Kitchener took over as Commander-in-Chief of the British Indian Army in 1902.
- He changed the Indian armed forces from a colonial army meant for annexation into a professional army capable of holding its own in any modern war.
- There was duality of control as Viceroy's Council had a member responsible for the armed forces.
- Kitchner wanted Commander-in-chief to be that member.
- Curzon refused.
- British Cabinet seemed in favour of Kitchner leading to Curzon's resignation.

Extra

- Curzon Oversaw the following important Acts:
 - ✓ Indian Universities Act, 1904.
 - ✓ Indian Coinage and Paper Currency Act, 1899.
 - ✓ Calcutta Corporation Act, 1899.
 - ✓ Ancient Monuments Protection Act, 1904.

Some more

- Following announcement of Partition of Bengal:
 - ✓ Rabindranath Tagore led the marches at many places.
 - ✓ He composed many patriotic songs, most famously 'Amar Sonar Bangla' (now the national anthem of Bangladesh).
 - ✓ Patriotism and Bengali nationalism also showcased in Jatras, or popular theatre.

UPSC & Curzon

UPSC Mains 2020

- Evaluate the policies of Lord Curzon and their long term implications on the national movements. (Answer in 150 words) 10 Marks.

3. Polity

3.1. Right To Protest

- Fight for Independence
- Mohandas Karamchand Gandhi aka Mahatma Gandhi, who is also known as the father of the Indian nation taught the Indians citizens, the power of peaceful protest.
- Minorities, Students, Activists, Farmers.
- Since 'Law and Order' is a State subject, the permissions to organise a protest will vary from state to state.
- Article 19(1)(a) of the Constitution states that right to free speech and expression. It includes that every person has the right to express their personal opinions but subjected to reasonable restrictions.
- Article 19(1)(b) states about the right to assemble peaceably and without arms. Thereby, the right to peaceful protest is bestowed to Indian citizens by our Constitution.
- Article 51A makes it a fundamental duty for every person to safeguard public property and to avoid violence during the protests and resorting to violence during public protests results in infringement of key fundamental duty of citizens.
- Article 19(2) imposes reasonable restrictions on the right to assemble peaceably and without arms and to freedom of speech and expression as none of these rights are absolute in nature.

What are these reasonable restrictions?

- If the security of the state is in jeopardy;
- If the friendly relationship we share with a neighbouring country is at stake;
- If public order is disturbed;
- If there is contempt of court;
- If the sovereignty and integrity of India are threatened.
- Section 144 of the Cr. PC empowers the Magistrate to issue orders in 'urgent cases of nuisance'. It revolves around the idea of unlawful assembly and prevents people from assembling in a particular place to protest or agitate.
- In the case of *S. Rangarajan v. Jagjivan Ram* (1989) 2 SCC 574, the Supreme Court noted, "the problem of defining the area of freedom of expression when it appears to conflict with the various social interests enumerated under Article 19(2) may briefly be touched upon here. There does indeed have to be a compromise between the interest of freedom of expression and special interests. But we cannot simply balance the two interests as if they are of equal weight."
- In *Re-Ramlila Maidan Incident Dt vs Home Secretary and Ors* (W.P Crl No.122 of 2011), the Supreme Court contextualised freedom of speech and expression as the essence of a democratic system. "There could be no expression without these rights. Liberty of thought enables liberty of expression. Attainment of the preambled liberties is eternally connected to the liberty of expression."

3.2.125th Birth Anniversary of Netaji Subhas Chandra Bose

- The Government has decided to constitute a High Level Committee to commemorate the 125th Birth Anniversary of Netaji Subhas Chandra Bose.
- This High Level Committee will decide on the activities for a one year long commemoration starting 23rd January, 2021.
- The Members of the Committee include distinguished citizens, historians, authors, experts, family members of Netaji Subhas Chandra Bose, as well as eminent persons associated with Azad Hind Fauj (INA).
- The Commemoration is being held as a tribute and as a mark of gratitude to the colossal contribution Netaji made to India's freedom struggle.
- The Government has decided to celebrate 23rd January as PARAKRAM DIWAS every year.
- Ministry of Culture has proposed a number of activities and projects for this year-long commemoration.
- The inaugural function of the commemoration will be held at Victoria Memorial in Kolkata on 23rd January 2021.
- A permanent exhibition on Netaji and a Projection Mapping Show will be inaugurated on the occasion.
- A cultural program "AmraNutonJouboneriDoot" will also be held based on the theme of Netaji.
- A commemorative coin and postage stamp will also be released on this day.
- An International Conference 'Re-visiting the legacy of Netaji Subhash in 21st century' and an Artists' Camp are being organized at National Library, Kolkata on the same day.
- Tourism Ministry will be sponsoring this year the National Level indigenous games including Kabaddi Tournament which has been organised for the last 37 years on Netaji's Birth Anniversary in Madhya Pradesh's Narshingpur District by the 'SahyogKrida Mandal'.
- Netaji Football Tournament and Marathons (D/o Sports), Pada Yatras and Cycle Yatras(D/o Youth Affairs), Webinar under "Dekho Apna Desh," Webinar on Netaji's life and incidents in Manipur (Ministry of Tourism), INA tune 'Kadam KadamBadhayeJa' being included in the Beating Retreat Ceremony - 2021 (Ministry of Defence), etc.
- Ministry of Civil Aviation has proposed to paint some of Air India's aircraft with Netaji's images , especially the ones flying to Andaman and Nicobar Islands.
- Ministry of Railways has proposed to name an express train after Netaji.

3.3. One Stop Centre Scheme

- In India, gender based violence has many manifestations; from the more universally prevalent forms of domestic and sexual violence including rape, to harmful practices such as, dowry, honour killings, acid attacks, witch-hunting, sexual harassment, child sexual abuse, trafficking for commercial sexual exploitation, child marriage, sex selective abortion, sati etc.

- Ministry of Women and Child Development (MWCD), has formulated a Centrally Sponsored Scheme for setting up One Stop Centre, a sub - scheme of Umbrella Scheme for National Mission for Empowerment of women including Indira Gandhi Matritav Sahyaog Yojana.
- Popularly known as Sakhi, the scheme is being implemented since 1st April 2015.
- These Centres are being established across the country to provide integrated support and assistance under one roof to women affected by violence, both in private and public spaces in phased manner.

The objectives of the Scheme are:

- ✓ To provide integrated support and assistance to women affected by violence, both in private and public spaces under one roof.
- ✓ To facilitate immediate, emergency and non - emergency access to a range of services including medical, legal, psychological and counselling support under one roof to fight against any forms of violence against women.
- The OSC will support all women including girls below 18 years of age affected by violence, irrespective of caste, class, religion, region, sexual orientation or marital status.
- A woman affected by violence can access OSC in the following manner:
 - ✓ By herself; or
 - ✓ Through any person including any public spirited citizen, public servant (as defined under section 21 of Indian Penal Code, 1860), relative, friend, NGO, volunteer etc. , or
 - ✓ Through Women Helpline integrated with police, ambulance and other emergency response helplines.

Services offered in OSCs

- The Centres will be integrated with a Women Helpline to facilitate access to following services.
 - ✓ Emergency Response and Rescue Services
 - ✓ Medical assistance
 - ✓ Assistance to women in lodging FIR /NCR/DIR
 - ✓ Psycho - social support/ counselling
 - ✓ Legal aid and counselling
 - ✓ Shelter
 - ✓ Video Conferencing Facility

Funding:

The Scheme will be funded through Nirbhaya Fund. The Central Government will provide 100% financial assistance to the State Government /UT Administrations under the Scheme.

Nirbhaya Fund

- Government of India has set up a dedicated fund called Nirbhaya Fund for implementation of initiatives aimed at enhancing the safety and security of women in the country.

- Under the Nirbhaya Fund, the proposed projects should have the features like direct impact on safety and security concerns of women, optimum use of existing infrastructure, innovative use of technology, no duplication of existing government schemes/ programmes, provision for real time intervention as far as possible strict privacy and confidentiality of women's identity and information and defined monitoring mechanism.
- The Central Ministries/Departments, States/UTs, Autonomous and other Government Bodies can submit proposals as per the prescribed procedure.
- As per the guidelines issued by Ministry of Finance, Ministry of Women and Child Development is the nodal authority for appraisal of the schemes/proposals received under Nirbhaya Fund.
- An Empowered Committee of officers (EC) under the Chairperson ship of Secretary, Ministry of Women and Child Development has been set up for appraising various schemes/projects proposed to be funded from the Nirbhaya Fund.

4. Economy

4.1. What is Potential GDP

- Potential output shows the level that could be achieved.
- It is the level of output that an economy can produce at a constant inflation rate.

Can We Produce More than the Potential GDP

- Yes, an economy can temporarily produce more than its potential level of output.
- But it comes at the cost of rising inflation.

WHAT ARE THE FACTORS ON WHICH POTENTIAL GDP DEPENDS

Potential output depends on the:

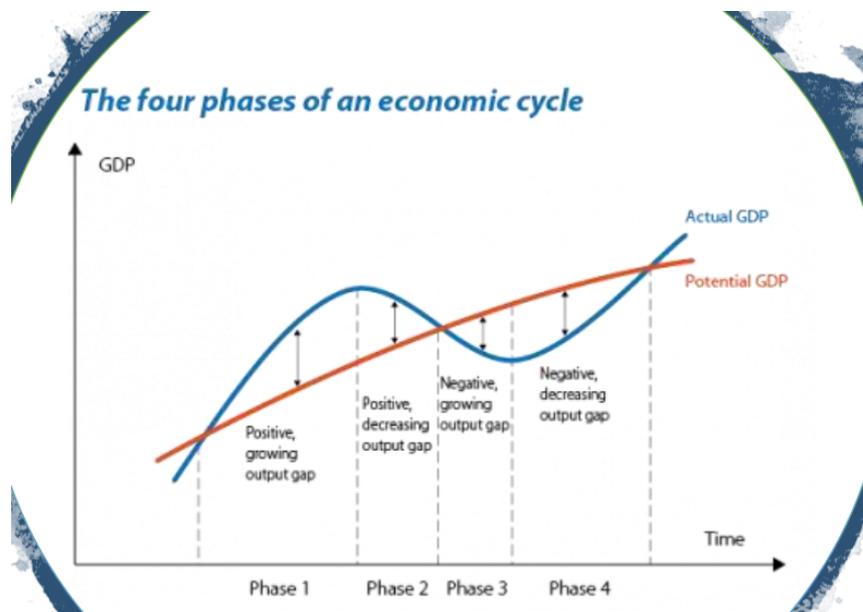
- Capital stock.
- Potential labour force (which depends on demographic factors and on participation rates).
- Non-accelerating inflation rate of unemployment (NAIRU).
- The level of labour efficiency.

Output Gap

- The output gap is an economic measure of the difference between the actual output of an economy and its potential output.
- Just as GDP can rise or fall, the output gap can go in two directions: positive and negative.
- Neither is ideal.

+ve and -ve Output Gap

- A positive output gap occurs when actual output is more than full-capacity output.
- This happens when demand is very high and, to meet that demand, factories and workers operate far above their most efficient capacity.



- A negative output gap occurs when actual output is less than what an economy could produce at full capacity.
- A negative gap means that there is spare capacity, or slack, in the economy due to weak demand.
- An output gap suggests that an economy is running at an inefficient rate—either overworking or underworking its resources.

Use of Potential GDP In Policymaking

- The output gap can play a central role in policymaking.
- For many central banks, maintaining full employment is a policy goal.
- Full employment corresponds to an output gap of zero.
- Nearly all central banks seek to keep inflation under control, and the output gap is a key determinant of inflation pressure.
- Fiscal policy that is expansionary—that raises aggregate demand by increasing government spending or lowering taxes— can be used to close a negative output gap.
- By contrast, when there is a positive output gap, contractionary or “tight” fiscal policy is adopted to reduce demand and combat inflation through lower spending and/or higher taxes.

UPSC & Potential GDP

UPSC MAINS 2020

- Define potential GDP and explain its determinants.
- What are the factors that have been inhibiting India from realizing its potential GDP?

(Answer in 150 words) 10 Marks.

4.2.11 Important Points Swaminathan Report

A Broad set of 11 recommendations

1

- Total five reports submitted. Through December 2004 - October 2006.

2

- 5th report focused on farmer suicides and farmer distress. It then recommends a National Policy for Farmers.

3

- Causes for Farmers' Distress-
 - ✓ Unfinished land reforms.
 - ✓ Quantity and Quality of water.
 - ✓ Technology fatigue.
 - ✓ Access, adequacy and timeliness of institutional credit.

✓ Opportunities for assured and remunerative marketing.

● Important Recommendation-

✓ Agriculture be inserted in the Concurrent List of the Constitution.

4

● Recommendations on Land Reforms-

✓ Distribute ceiling-surplus and waste lands.

✓ Prevent diversion of prime agricultural land and forest to corporate sector for non-agricultural purposes.

✓ Ensure grazing rights and seasonal access to forests to tribals and pastoralists, and access to common property resources.

✓ Establish a National Land Use Advisory Service, which would have the capacity to link land use decisions with ecological meteorological and marketing factors on a location and season specific basis.

✓ Set up a mechanism to regulate the sale of agricultural land, based on quantum of land, nature of proposed use and category of buyer.

5

● Recommendations on Irrigation-

✓ Increase water supply through rainwater harvesting.

✓ Recharge of the aquifer should become mandatory.

✓ "Million Wells Recharge" programme, specifically targeted at private wells should be launched.

6

● Recommendations on Credit and Insurance-

✓ Reduce rate of interest for crop loans to 4 per cent simple, with government support.

✓ Moratorium on debt recovery, including loans from non-institutional sources, and waiver of interest on loans in distress hotspots and during calamities, till capability is restored.

✓ Establish an Agriculture Risk Fund to provide relief to farmers in the aftermath of successive natural calamities.

✓ Issue Kisan Credit Cards to women farmers, with joint pattas as collateral.

✓ Develop an integrated credit-cum-crop-livestock-human health insurance package.

✓ Expand crop insurance cover to cover the entire country and all crops, with reduced premiums and create a Rural Insurance Development Fund to take up development work for spreading rural insurance.

7

● Recommendations on Food Security-

- ✓ Implement a universal public distribution system. Total subsidy required for this would be one per cent of the GDP.
- ✓ Reorganise the delivery of nutrition support programmes on a life-cycle basis with the participation of Panchayats and local bodies.
- ✓ Eliminate micronutrient deficiency induced hidden hunger through an integrated food cum fortification approach.
- ✓ Promote the establishment of Community Food and Water Banks operated by Women Self-help Groups (SHG), based on the principle 'Store Grain and Water everywhere'.
- ✓ Help small and marginal farmers to improve the productivity, quality and profitability of farm enterprises and organize a Rural Non-Farm Livelihood Initiative.
- ✓ Formulate a National Food Guarantee Act continuing the useful features of the Food for Work and Employment Guarantee programmes.
- ✓ By increasing demand for food grains as a result of increased consumption by the poor, the economic conditions essential for further agricultural progress can be created.

8

● Recommendations on Farmers' Suicides-

- ✓ The National Rural Health Mission should be extended to suicide hotspot locations on priority basis.
- ✓ Set up State level Farmers' Commission with representation of farmers.
- ✓ Restructure microfinance policies to serve as Livelihood Finance, i.e. credit coupled with support services in the areas of technology, management and markets.
- ✓ Decentralise water use planning and every village should aim at Jal Swaraj with Gram Sabhas serving as Pani Panchayats.
- ✓ Ensure availability of quality seed and other inputs at affordable costs and at the right time and place.
- ✓ Have a Price Stabilisation Fund in place to protect the farmers from price fluctuations.
- ✓ Need swift action on import duties to protect farmers from international price.
- ✓ Set up Village Knowledge Centres (VKCs) or Gyan Chaupals in the farmers' distress hotspots.
- ✓ Public awareness campaigns to make people identify early signs of suicidal behaviour.

9

● Recommendations on Competitiveness-

- ✓ Promotion of commodity-based farmers' organisations.
- ✓ Improvement in implementation of Minimum Support Price (MSP).
- ✓ Arrangements for MSP need to be put in place for crops other than paddy and wheat.
- ✓ MSP should be at least 50% more than the weighted average cost of production.

- ✓ Availability of data about spot and future prices of commodities.
- ✓ State Agriculture Produce Marketing Committee Acts [APMC Acts] relating to marketing, storage and processing of agriculture produce need to shift to one that promotes grading, branding, packaging and development of domestic and international markets for local produce.
- ✓ Move towards a Single Indian Market.

10

- Recommendations on Employment-
 - ✓ India must seek to achieve two things:
 - ✓ Create productive employment opportunities..
 - ✓ Improve the 'quality' of employment.
 - ✓ The "net take home income" of farmers should be comparable to those of civil servants.

11

- Recommendations on Bio resources-
 - ✓ Preserving traditional rights of access to biodiversity (access to non-timber forest products including medicinal plants, gums and resins, oil yielding plants and beneficial micro-organisms).
 - ✓ Conserving, enhancing and improving crops and farm animals as well as fish stocks through breeding.
 - ✓ Encouraging community-based breed conservation.
 - ✓ Allowing export of indigenous breeds and import of suitable breeds to increase productivity of nondescript animals.

JAN 09, 2021

Swaminathan says MSP better than loan waiver

The protesting farmers, apart from a repeal of the laws, have also demanded a law guaranteeing MSPs calculated using the C2 yardstick. The farmers will hold the next round of negotiations with the Centre on Friday

UPSC & Swaminathan Report

- Countless Questions related with Agriculture in Mains and Prelims.

2018 Mains

3. न्यूनतम समर्थन मूल्य (एम० एस० पी०) से आप क्या समझते हैं? न्यूनतम समर्थन मूल्य कृषकों का निम्न आय फंसे से किस प्रकार बचाव करेगा? (उत्तर 150 शब्दों में दीजिए)
- What do you mean by Minimum Support Price (MSP)? How will MSP rescue the farmers from the low income trap? (Answer in 150 words) 10

2019 Mains

5. जल इंजीनियरी और कृषि-विज्ञान के क्षेत्रों में क्रमशः सर एम० विश्वेश्वरैया और डॉ० एम० एस० स्वामीनाथन के योगदानों से भारत को किस प्रकार लाभ पहुँचा था? (उत्तर 150 शब्दों में दीजिए)

How was India benefitted from the contributions of Sir M. Visvesvaraya and Dr. M. S. Swaminathan in the fields of water engineering and agricultural science respectively? (Answer in 150 words) 10

4.3.Capital Formation

What is Capital Formation

- Seems Slightly Tough But It is Not.
- Capital is the key driver of growth in the economy.
- Investment or Gross Capital Formation (GCF) includes three elements:
 - ✓ Gross Fixed Capital Formation (GFCF)
 - ✓ Change in stocks
 - ✓ Valuables (gold)

Components of Gross Fixed Capital Formation

Components of gross fixed capital formation (Per cent to GDP)

	Government	Household sector	Private sector	Public sector
2012-03-31	3.48	15.75	11.23	3.86
2013-03-31	3.41	14.63	11.79	3.61
2014-03-31	3.53	12.52	11.68	3.56
2015-03-31	3.55	12.06	11.02	3.45
2016-03-31	3.57	9.13	12.01	3.76
2017-03-31	3.76	9.09	12.29	3.40

Source: National Accounts Statistics, various years

GFCF - Gross Fixed Capital Formation

- The most important component is GFCF which means capital expenditure on machinery, equipment and dwellings.

Broad Categories of Fixed Assets

- Broadly two types of fixed assets namely:
 - ✓ Construction and Machinery & Equipment (including transport equipment, software, breeding stock, draught animals, dairy cattle and the like) are covered.

Construction Activity

- It covers all new constructions, major alterations and repairs.

- These could be related with buildings, highways, streets, bridges, culverts, railroad beds, railroads, subways, airports, parking areas, dams, drainages, wells and other irrigation sources, water and power projects, communication systems such as telephone and telegraph lines, land reclamations, bunding and other land improvements; planting and cultivating new orchards (tea, coffee, rubber, mango, cashew nut, areca nut, coconut, citrus, grapes and Sapota plantations); afforestation projects; installation of wind energy systems etc.

Downturn in Investments in Dwellings and Structures

- A sharp downturn in investments in dwellings and structures leads to slowdown in construction sector activities, which then feeds into slowdown in various allied sectors, such as steel and cement.

Components of household sector investment (Percent to GDP)

	Dwellings and buildings	Equipment
2012-03-31	12.85	2.82
2013-03-31	11.61	2.96
2014-03-31	11.11	1.34
2015-03-31	10.24	1.75
2016-03-31	7.27	1.79
2017-03-31	6.77	2.24

Source: National Accounts Statistics, various years

Exceptions

- Construction for military purposes (other than construction or alteration of family dwellings for military personnel), defence equipment, durable goods in the hands of the households and increase in the stocks of defence materials are excluded from the scope of gross capital formation.
- However, capital outlays of defence enterprises on ordinance and clothing factories are included.

Change in Stocks

- Change in stocks during a period of account means the increase in stocks of inventories.

3 stages of Capital Formation

- Creation of Savings
- Effective Mobilization of Savings
- Investment of Savings

Some Important Points to Remember - 1

- The estimation follows the domestic concept, whereby, only additions made to stocks of fixed assets and inventories within the geographical boundary of the country have been taken into account.
- Accordingly, the GCF refers to gross domestic capital formation (GDCAF).

Details

- The estimates of GCF for the economy as a whole, include all relevant items of new capital goods which are produced domestically (exclusive of exports) and new and second-hand imported goods.
- According to internationally accepted accounting principles, imports should include the outlays of the embassies, consulates and other extra-territorial establishments of the government of the given country, on new fixed assets reduced by the net sales of their second-hand and scrapped assets in foreign countries.
- Similarly, the net outlays of foreign embassies, consulates and other diplomatic bodies located in a country, on fixed assets produced within the country, are to be recorded in the exports and not in the gross fixed capital formation (GFCF) of the given country.
- The fixed capital outlays of international agencies located in the country are to be treated in an identical manner.

Some Important Points to Remember - 2

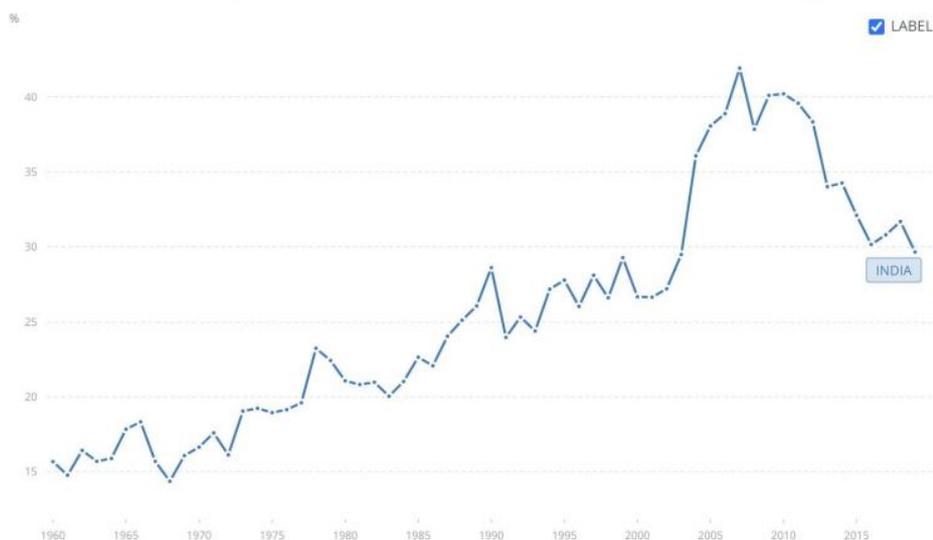
- Additions to non-reproducible tangible assets such as land, mineral deposits and the natural growth of standing timber or crops have not been included in GCF.
- However, outlays on improvement of land and development or extension of mining sites, timber tracts and plantations are taken as part of capital formation.
- The outlays on incomplete construction works incurred during the period are included in the estimates of fixed assets.

Some Important Points to Remember - 3

- Inventories consist of materials and supplies; work-in-progress; finished products; and goods in the possession of producers and dealers.
- Stocks of strategic materials, grains and other commodities of special importance to the nation, in the possession of government are also included in the estimates of change in stocks.

Items	
1	Gross capital formation
1.1	public sector
1.2	private corporate sector
1.3	household sector
1.4	valuables
2	Gross fixed capital formation
2.1	public sector
2.1.1	construction
2.1.2	machinery & equipment
2.2	private corporate sector
2.2.1	construction
2.2.2	machinery & equipment
2.3	household sector
2.3.1	construction
2.3.2	machinery & equipment
3	Change in stock
3.1	public sector
3.2	private corporate sector
3.3	household sector
4	Less consumption of fixed capital
4.1	public sector
4.2	private corporate sector
4.3	household sector
5	Net capital formation
5.1	public sector
5.2	private corporate sector
5.3	household sector
6	Errors & omissions
7	Net capital formation adjusted for errors & omission
8	Gross capital formation adjusted for errors & omission

Recent Trends



- Moderation in GFCF, a measure of fixed asset creation raises concerns about growth of output in the economy.

Other Aspects of Capital Formation

- Capital formation does not only refer to the development of physical goods but also to the development of human capital. Like education, health, developing skills, etc

Important Related Terms

- Capital Output Ratio (COR)
- Incremental Capital Output Ratio (ICOR)
- Which one is better: Low ICOR or High ICOR?

Capital Formation & UPSC

UPSC Mains 2020

- Explain the meaning of investment in an economy in terms of capital formation. Discuss the factors to be considered while designing a concession agreement between a public entity and a private entity. (Answer in 250 words) 15 Marks.

5. Environment

5.1. National Action Plan for Vulture Conservation 2020-2025

Introduction

- India has nine species of vultures in the wild. These are the-
 - ✓ Oriental White-backed Vulture (*Gyps bengalensis*)
 - ✓ Slender billed Vulture (*Gyps tenuirostris*)
 - ✓ Long billed Vulture (*Gyps indicus*)
 - ✓ Egyptian Vulture (*Nephron percnopterus*)
 - ✓ Red Headed Vulture (*Sarcogyps calvus*)
 - ✓ Indian Griffon Vulture (*Gyps fulvus*)
 - ✓ Himalayan Griffon (*Gyps himalayensis*)
 - ✓ Cinereous Vulture (*Aegypius monachus*)
 - ✓ Bearded Vulture or Lammergeier (*Gypaetus barbatus*).

The population of three species i.e.

- ✓ White-backed Vulture
- ✓ Slender billed Vulture
- ✓ Long billed Vulture
- In the wild has declined drastically over the past decade.
- The decline of *Gyps* genus in India has been put at 97% by 2005.
- The International Union for Conservation of Nature (IUCN) has declared all these three species in its highest risk category -Critically Endangered.

Importance of Vultures

- The ecological, social and cultural significance of vultures in India may be summed up as -
 - ✓ Scavenging on animal carcasses of animals and thereby helping keep the environment clean
 - ✓ Disposal of dead bodies as per the religious practices of the Parsi community.
- Removal of a major scavenger from the ecosystem will affect the equilibrium between populations of other scavenging species and/or result in increase in putrefying carcasses.
- In the absence of carcass disposing mechanisms, vulture declines may lead to an increase in the number of putrefying animal carcasses in the country side.
- In some areas the population of feral dogs, being the main scavenging species in the absence of vultures, has been observed to have increased.

- Both increases in putrefying carcasses and changes in the scavenger populations have associated disease risks for wildlife, livestock and humans.
- In the absence of any alternative mode of disposal of animal carcasses, they continue to be disposed off in the open, and with increasing numbers of feral dogs, there is increased risk of spread of rabies, and livestock borne diseases like anthrax.
- The decline in vultures has also affected the traditional custom of the Parsis of placing their dead in the 'Towers of Silence' for vultures to feed upon.

Threat to Vultures

- Neck drooping' was first observed in Keoladeo National Park, where birds would exhibit this behaviour for protracted periods over several weeks before collapsing and falling out of trees, at the point of, or just prior to death.
- Visceral gout, an accumulation of uric acid within tissues and on the surfaces of internal organs, was observed in 85% of dead vultures found. Death was caused by renal failure, Experiments showed that captive vultures are highly susceptible to Diclofenac, and are killed by kidney failure within a short time of feeding on the carcass of an animal treated with the normal veterinary dose.

Action Plan for Vulture Conservation 2020 - 2025

- The action plan was approved by the National Board for Wildlife (NBWL) October 5, 2020. An earlier one was formulated in 2006 for three years.
- The new plan has laid out strategies and actions to stem the decline in vulture population, especially of the three Gyps species:
 - ✓ 1. Oriental white-backed vulture (*Gyps bengalensis*)
 - ✓ 2. Slender-billed vulture (*Gyps tenuirostris*)
 - ✓ 3. Long-billed vulture (*Gyps indicus*)
- This would be done through both ex-situ and in-situ conservation.
- The plan has also suggested that new veterinary non-steroidal anti-inflammatory drugs (NSAIDs) be tested on vultures before their commercial release. NSAIDs often poisons cattle whose carcasses the birds pray on.

Features

- Important objectives for the Action Plan for Vulture Conservation 2020-2025 (APVC) are:
 - ✓ Prevent the poisoning of the principal food of vultures, the cattle carcasses, with veterinary NSAIDs, by ensuring that sale of veterinary NSAIDs is regulated and is disbursed only on prescription and by ensuring that treatment of livestock is done only by qualified veterinarians.
 - ✓ Carry out safety testing of available molecules of veterinary NSAIDs on vultures. The new molecules should be introduced in the market only after they are proved to be safe following safety testing on vultures.
 - ✓ The Drugs Controller General of India must institute a system that automatically removes a drug from veterinary use if it is found to be toxic to vultures. Such a system would ensure that drugs other than diclofenac that are toxic to vultures like aceclofenac and ketoprofen are banned for

veterinary use.

- ✓ Conservation breeding of red-Headed vultures and Egyptian vultures and the establishment at least one vulture-safe zone in each state for the conservation of the remnant populations in that state. It is proposed to set up one centre each in Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu, which will cover most parts of the country.
- ✓ Four rescue centres have been proposed for different geographical areas like Pinjore in the north, Bhopal in Central India, Guwahati in Northeast India and Hyderabad in South India.
- ✓ Coordinated nation-wide vulture counting, involving forest departments, the Bombay Natural History Society, research institutes, non-profits and members of the public.
- ✓ A database on emerging threats to vulture conservation, including collision and electrocution, unintentional poisoning, etc.

5.2. Jal Shakti Abhiyaan

- It is a time-bound, mission-mode water conservation campaign.
- It ran in 2 phases in 2019: During Monsoon and During Retreating-Monsoon. (In 2020: Combined with various MNREGS works because of Covid-19).
- It was meant for all States and Union Territories.

Jal Shakti Abhiyaan Undertaken By

- DEPARTMENT OF DRINKING WATER AND SANITATION (MINISTRY OF JAL SHAKTI)
- During the campaign, officers, groundwater experts and scientists from the Government of India worked together with state and district officials in India's most water-stressed districts for water conservation and water resource management.
- The JSA aims at making water conservation a Jan Andolan through asset creation and extensive communication.

Water-stressed Districts

- Districts with critical or over-exploited groundwater levels as per the Central Ground Water Board (CGWB) 2017.

JSA For Other Districts

- For states without critical and over-exploited groundwater levels, districts with the least availability of groundwater in comparison to the rest of the districts in the state have been selected.

Five target interventions

- It is to be done by focusing on:
 - ✓ Accelerated implementation of five target interventions.

Intervention Areas



Water conservation and rainwater harvesting



Renovation of traditional and other water bodies/tanks



Reuse and recharge structures



Watershed development



Intensive afforestation

Special Interventions Areas

Special Intervention Areas



Block and District Water Conservation Plan

Development of Block and District Water Conservation Plans (To be integrated with the District Irrigation Plans)



Krishi Vigyan Kendra Mela

Krishi Vigyan Kendra Melas to promote efficient water use for irrigation (Per Drop More Crop), and better choice of crops for water conservation



Urban Waste Water Reuse

In urban areas, plans/approvals with timebound targets to be developed for waste water reuse for industrial and agriculture purposes. Municipalities to pass by-laws for the separation of grey water and blackwater



Scientists and IITs

Scientists and IITs to be mobilised at the national level to support the teams



3D Village Contour Mapping

3D Village Contour Maps may be created and made accessible for efficient planning of interventions

Jal Shakti Abhiyaan & UPSC

UPSC Mains 2020

- What are the salient features of the Jal Shakti Abhiyan launched by the Government of India for water conservation and water security? (Answer in 150 words)10 marks.

5.3.Himalayan Serow

Introduction

- A Himalayan serow has been sighted for the first time in the Himalayan cold desert region.

What is a Himalayan Serow?

- A biologist has described a Himalayan serow as resembling a cross between a goat, a donkey, a cow,

and a pig.

- It's a medium-sized mammal with a large head, thick neck, short limbs, long, mule-like ears, and a coat of dark hair.
- They are herbivores, and are typically found at altitudes between 2,000 metres and 4,000 metres (6,500 to 13,000 feet).
- It is considered a flagship species due to its specialized habitat requirements of dense and undisturbed forests.
- They are known to be found in eastern, central, and western Himalayas, but not in the Trans Himalayan region.
- There are several species of serows, and all of them are found in Asia.
- The Himalayan serow, or *Capricornis sumatraensis* thar, is restricted to the Himalayan region.
- Taxonomically, it is a subspecies of the mainland serow (*Capricornis sumatraensis*).

Why in news?

- The animal was spotted near Hurling village in Spiti, Himachal Pradesh.
- Spiti lies in the cold mountain desert region of the western Himalaya, and its valley floor has an average elevation of 4,270 metres above sea level, making the sighting special as Serows are generally not found at this altitude.
- This is the first recorded human sighting of the serow in Himachal Pradesh.
- The animal has been spotted a few times earlier in the state, but that has always been through camera traps.
- The animal has also been spotted in the Rupi Bhaba Wildlife Sanctuary, and in the higher reaches of Chamba.
- The Sanctuary is locally well known for its extensive alpine pastures as well as the numerous treks, trails and passes that connect it with the neighboring Great Himalayan National Park and Pin Valley National Park.

Conservation Status

- According to the International Union for Conservation of Nature (IUCN), Himalayan serows have experienced significant declines in population size, range size and habitat in the last decade, and this is expected to continue due to intensive human impact.
- Previously assessed as 'near threatened', the Himalayan serow is now been categorised as 'vulnerable' in the IUCN Red List of Threatened Species.
- It is listed under Schedule I of The Wildlife Protection Act, 1972, which provides absolute protection.
- CITES - Appendix I

6. Science & Technology

6.1.COVID-19 Vaccination in India

- COVID-19 vaccination drive will begin on Jan 16
 - ✓ Priority given to healthcare and frontline workers (around 3 crore), followed by those above 50 years of age and the under-50 population groups with co-morbidities (27 crore).
 - ✓ People with active infection or associated symptoms not advised to come to vaccination camps. They may seek vaccine 14 days after symptoms abate.
 - ✓ Taking vaccine is entirely voluntary
- India has approved two vaccines – Covishield and Covaxin – for emergency use
 - ✓ Both are two-dose vaccines.
 - ✓ Both are easy to store as they require to be kept at 2-8 degree Celsius. Most vaccines commonly used in India are kept at this temperature range.

CoWIN App

- Covid Vaccine Intelligence Network is repurposed from the e-VIN platform that will provide realtime information of vaccine stocks, their storage temperature and individualised tracking of beneficiaries.
- Currently self-registration is not allowed on the application.
- At a later stage of implementation, Co-WIN will also be available as an application or as a website in multiple Indian languages so that beneficiaries can access it to keep track of their own progress and be connected organically to the system, if questions were to arise. It will also be a tool for others to “register” for a vaccine once the first line of targeted beneficiaries is cleared.

Covishield

- Developed by Oxford University scientists in collaboration with pharmaceutical company AstraZeneca.
- Its trial in India undertaken by Serum Institute of India (SII). SII is also manufacturing the same for mass vaccination drive.
- Developed using the adenovirus that causes common cold infections among chimpanzees. Its genetic material is same as that of the spike protein of SARS-CoV-2 coronavirus.
- It is developed using a weakened version of adenovirus.
- Efficiency pegged at 70 per cent (far below than the vaccines developed by Pfizer-NBiotech and Moderna, but above the qualifying efficacy benchmark of 50 per cent set by several countries)

Covaxin

- Developed by Bharat Biotech in collaboration with ICMR.
- Trial is in final stage.
- Developed using dead coronavirus (inactivated vaccine).

- No efficacy rate made public as of now.

6.2.Nanotechnology

- It is the term given to those areas of science and engineering where phenomena that take place at dimensions in the nanometre scale are utilised in the design, characterisation, production and application of materials, structures, devices and systems.
- It involve the ability to see and to control individual atoms and molecules.

Applications

- It is being used in a big way in cell phones and computers.
- Has a great scope in medicine-
 - ✓ Drug delivery mechanism.
 - ✓ Nano nose to detect cancer by analysing breathing.
 - ✓ Artificial skin made through nanotechnology that leads to regeneration of natural skin.
 - ✓ Bandage made of silver nano particles that cures burns.
- Solar energy fields.
- Space science.
- Nano laser in optical communication to transfer large data rapidly.
- Nanoscale nutrients for agricultural applications, food packaging, disease mechanisms and regenerative medicine, and nano toxicity.

Challenges

- Not very economical to serve the common man.
- Lack of optimal research by the academia.

Nanotechnology and UPSC

Mains

- What do you understand by nanotechnology and how is it helping in health sector?

Preliminary

- With reference to carbon nanotubes, consider the following statements:
 - ✓ They can be used as carriers of drugs and antigens in the human body.
 - ✓ They can be made into artificial blood capillaries for an injured part of human body.
 - ✓ They can be used in biochemical sensors.
 - ✓ Carbon nanotubes are biodegradable.
- With reference to the use of nanotechnology in health sector, which of the following statements is/ are correct?
 - ✓ Targeted drug delivery is made possible by nanotechnology.

- ✓ Nanotechnology can largely contribute to gene therapy.
- There is some concern regarding the nanoparticles of some chemical elements that are used by the industry in the manufacture of various products. Why?
 - ✓ They can accumulate in environment and contaminate water and soil.
 - ✓ They can enter the food chains.
 - ✓ They can trigger the production of free radicals.