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YOJANA SUMMARY

AN INITIATIVE BY THE PRAYAS INDIA

THE PRAYAS IAS





Summary of Yojana

January 2021

Theme: India @ 75

Table of Contents

Democracy, Polity and Governance	2
Industry@75.....	4
Successful Endeavour in Space	6
Fiscal Federalism	10
Cinema for a New India.....	13
Agriculture: The Road Ahead.....	16



Democracy, Polity and Governance

- India is the largest democracy in the world. We adopted a Constitution of India on November 26 November, 1949 opting federal form of Government with the Preamble, “Sovereign, Socialist, Secular, Democratic Republic.”
- Our Constitution in its Preamble aspires to build a Sovereign, Socialist, Secular, Democratic Republic dedicated to ideas of justice, liberty, equality and fraternity.

Democracy

- It is a system of Governance which is supposed to allow extensive representation and inclusiveness of as many people and views as possible to feed into the functioning of a fair and just society.
- Democratic ideals represent various aspects of the broad idea of “Government of the people, by the people and for the people.” They include political characteristics that can be seen to be intrinsically important in terms of the objective of democratic social living, such as freedom of expression, participation of the people in deciding the factors governing their lives, public accountability of leaders and an equitable distribution of power.
- Therefore, when we say Indian democracy, we mean not only that its political institutions and processes are democratic but also that the Indian society and every Indian citizen is democratic, reflecting basic democratic values of equality, liberty, fraternity, secularism and justice in social sphere and individual behavior.
- Democratic Governance is a condition in which the promise of justice, liberty and equality enshrined in the Constitution is realized in a democratic political framework, where the Government is sensitive to the people’s identities, aspirations and needs and where people feel secure and content.

Challenges to democracy

- **Corruption**
 - The biggest challenge and threat that our democracy is facing in India today is the rampant corruption. In spite of establishing various agencies to contain/ check, the most dignified symbol of Indian democracy has now become diluted.



- Corruption continues to exist in covert and overt ways at all three levels – political, bureaucratic and corporate sector. One can see the nexus between politicians, bureaucrats and industrialists which has resulted in corruption and corrupt practices.
- Corruption is a sign of political instability and institutional decay, challenging seriously the validity and propriety of governance.
- **Criminalisation of politics**
 - Criminalisation has also tarnished the image of Indian electoral politics in the present situation.
 - Glaring example is that criminalization of politics means to use politics or political power for immoral gains.
 - Therefore, criminalization of politics is totally opposite of democratic set up. Here, our voters, political parties and the law and order machinery of any State of the country are all equally responsible for this.
 - It is quite painful to know the unholy nexus between politicians, civil servants and business houses during last few years to influence on public policy formulation and governance.
- **Disunity among different communities**
 - The greatest threat to the Indian democracy and polity today is disunity among the different communities of the country.
 - Unity or disunity existing at a particular moment is also always an issue. It is a fact that during pre-independent period, Hindus and Muslims of India were fairly united.
 - If the status quo is again now maintained, Indian Democracy, Polity and Governance will be meaningful.

Conclusion

- At this critical juncture, we the people of India need dedicated, selfless and honest administrators in order to see the real democracy, polity and good governance.
- All the citizens of our country should always remember that India is a nation of “Unity in Diversity”.
- We all should always unitedly uphold the value of “Democracy, Polity and Governance.”



Industry@75

- Industrial growth in India has not been easy, it has gone through various phases of development over the years. The policies of the British encouraged the imports of their goods and exports of raw materials from India.
- But soon after Independence, things started changing, and through the subsequent five-year plans government shifted its focus on industrialization.
 - The first 5 year plan mainly focused on the development of both the private and public sectors, the second plan on Mahalanobis Model gave priority to Industrialisation.
 - The third plan along with the first and second ones helped build up the capital goods industries in India.
 - Between 1965-1980, industrial growth saw a decline mainly due to the negligence of the consumer goods sector in the first three plans.
 - But between 1980-1991, industries recovered from downfall due to an increase in the productivity of Indian industries and improvement in manufacturing and capital goods sector.
 - Post 1991 economic liberalisation of India, many reforms were brought which helped shape the future of industries in India.

Current Scenario

- India's Ease of Doing Business rank according to the 'World Bank's Ease of Doing Business Report 2020 is 63rd among 190 countries. This is a jump of 79 positions from 142nd in 2014 to 63rd in 2019.
- On the other hand Foreign Direct Investment inflows between April 2014-September 2019 stood at \$319 bn which is nearly 50% of total FDI inflow in the last 20 years. In 2020-21 the total FDI inflow of \$35.73bn is the highest ever for the first 5 months of a financial year. FDI in India is estimated to reach \$100 billion inflow per annum by 2022.
- The startup culture in India has seen massive growth with more than 40,000 startups recognized till December 2020 by Department for Promotion of Industry and Internal Trade under the Start-Up India scheme. The government's flagship initiatives like Atal Innovation Mission have helped advance India's position in the Global Innovation Index from 81 in 2015 to 48 in 2020.
- National Institution for Transforming India (NITI Aayog) is playing a big role in tackling development challenges in the country through policy advocacy.



- 115 districts have been identified across the nation as aspirational districts and are being ranked on a real time basis based on 49 indicators from the 5 identified thematic areas – Health and Nutrition, Education, Agriculture and Water Resources, Financial Inclusion and Skill Development and finally Basic Infrastructure.
- In 2019, December it had released the second edition of the Sustainable Development Goals (SDG) India Index and an online dashboard to track the progress on 17 SDGs of all the States and UTs on a set of 100 National indicators.
- The Digital India campaign launched in 2015 has ensured the creation of a digitally empowered society and knowledge economy.
 - Development of broadband highways, universal access to mobile connectivity, public internet access programmes, e-governance among others have seen considerable growth with Aadhaar, Smart Cities Mission, BHIM UPI, RuPay, GSTIN, GeM, DigiLocker coming under the aegis of the Digital India programme.
 - Through the Bharat Net programme which is also the world's largest rural broadband connectivity programme, 2.5 lakh gram panchayats are being connected by a fiber-optic network.
 - India's Aadhaar has become the world's largest biometric database with almost 125 crore Aadhaar cards being issued so far.
- According to the 2019 global Multidimensional Poverty Index India has lifted 271 million people out of poverty between 2006 and 2016.
- Mudra loan scheme, launched in 2015 by providing credit up to Rs. 10 lakh to non-farming and non-corporate micro and small enterprises has helped enable every last mile financier to lend credit to all types of businesses in the country.
- The recent Agriculture sector reform bills passed by the government will further facilitate farmers by providing them new markets, advantages of technology, and helping bring investments and double their income by 2022.

Way Forward

- Today, India faces some major challenges like tackling the Covid-19 pandemic, cross-border terrorism, and competition from global markets. But it is important to not that India is dealing strategically with all these challenges as it has especially dealt with the pandemic better than any country in the world.
- We have the highest recovery rates of around 95% and a plan in place to distribute vaccines to all of our citizens. India manufactures more than 60% of all vaccines sold across the globe and today is the most



sought after destination for manufacturing Covid-19 vaccines. The world's largest distributor of vaccines – Serum Institute of India is also located in India.

- Today, Artificial Intelligence, Machine learning, and Big Data are setting the path for the future and India is not far away.
- Through the SWAYAM portal, the government is bridging the digital divide for students who have limited access to the digital revolution and have not been able to join the mainstream of the knowledge economy.
- Under the 'Make in India' initiative the Micro, Small and Medium Enterprises contribution to the GDP is being targeted to be increased to 50 percent from the existing 30 percent which will create 5 crore jobs in the next few years.
- Seeing the pace of development in India we are hopeful that we will overcome all the challenges that our country is facing today and create a "New India" by 2022 where Industrial sector will play a major role in this transformation.

Successful Endeavour in Space

- The Indian space programme has come a long way in the 57 years since its inception. From a fledgling Sounding Rocket Launch Facility established in the early 1960s in Thumba near Trivandrum, it has matured into a giant world-class space power.
- Today, ISRO sprawls across the country with huge launch stations, tracking centers, R&D facilities and manufacturing and data processing units, all engaged in highly sophisticated and complex technological activities.

Chronology of Space Development

- The 60s
 - The Indian space programme began in a modest way in 1962 with the formation of the Indian National Committee on Space Research (INCOSPAR).
 - The formal beginning of the Indian space programme can be traced to the launch of a Nike-Apache sounding rocket on November 21, 1963 from Thumba, then a fishing hamlet near Thiruvananthapuram, Kerala.
 - In 1969, the Indian Space Research Organisation was formed which is ubiquitously known as ISRO.
- The 70s:



- India's first satellite Aryabhata was launched on April 19, 1975 from a launch centre in the former Soviet Union. It laid firm foundation for the later immensely successful satellite programme.
- Bhaskara 1 and 2, the two experimental earth observation satellites provided the rich experience and the confidence to build complex operational remote sensing satellites.
- APPLE, India's first experimental communication satellite was launched by European Ariane rocket.
- ISRO conducted two significant experiments in 70s – SITE and STEP- to obtain hands-on experience on the utilization of satellites for television broadcasting and telecommunication.
- ISRO developed its first Satellite Launch Vehicle SLV-3.
- The 80s:
 - These were the times for experimentation for the launch vehicle technologies when it endeavoured to demonstrate the country's ability to develop ASLV, a more capable launch vehicle compared to SLV-3.
 - INSAT-IB, India's first multipurpose operational satellite launched in 1983.
 - In 1988 IRS-1A the first operational satellite built in India started imaging the earth from orbit.
- The 90s:
 - ISRO began building INSAT-2 series of multipurpose satellites indigenously.
 - At the same time, systematic usage of imagery from our remote sensing satellites for tasks like crop yield estimation, ground water and mineral prospecting, forest survey, urban sprawl monitoring and wasteland classification and fisheries development began.

Current Scenario

- Indian National Satellite (INSAT) system today is one of the largest domestic communication satellite systems in Asia-Pacific region.
- High throughput satellites such as GSAT-11, GSAT-29 and GSAT-19 are supporting the “Digital India” campaign by boosting the broadband connectivity to the rural and inaccessible Gram Panchayats in the country.
- Till now, ISRO has developed five launch vehicles – SLV-3, ASLV, PSLV, GSLV and GSLV Mk III (LVM3).
- Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages. On Feb 15, 2017, PSLV created a world record by successfully placing 104 satellites in orbit during a single launch.



- GSLV Mk III, India's fifth generation satellite launch vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage. It is designed to carry 4 ton class of satellites into Geosynchronous Transfer Orbit or about 10 tons to Low Earth Orbit (LEO)
 - LVM3-X/ CARE Mission was the first experimental suborbital flight of GSLV Mk II in 2014.
- India's Reusable Launch Vehicle Technology Demonstrator (RLV TD) was successfully flight tested in May 2016.
- The first experimental mission of ISRO's Supersonic Combustion Ramjet (SCRAMJET) engine towards the realization of air breathing propulsion system was also successfully conducted in August 2016. With this India became the fourth country to flight test the SCRAMJET engine.



Various Projects of ISRO

- After Aryabhata which was India's first satellite, ISRO launched the Space Capsule Recovery Experiment – 1 (SRE-1) with its scientific experiments that orbited the earth for 12 days.
- Launched by PSLV on Oct 22, 2008, the 1380 kg Chandrayaan-1 spacecraft was successfully navigated to the Moon in three weeks.



- Launched by PSLV on November 5, 2013, the 1340 kg Mars Orbiter Spacecraft encountered Mars on Sept 24, 2014. With this ISRO has become the fourth space agency to successfully send a spacecraft to Mars orbit.
- AstroSat launched by PSLV in Sept 2015, is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously.
- The Chandrayaan-2 mission, India's second mission to the moon was successfully launched on July 22, 2019.
- ISRO has successfully established and operationalized Navigation with India Constellation (NavIC) which provides highly accurate Position, Navigation and Time information to users in India and its surroundings.
- Through GPS Aided GEO Augmented Navigation (GAGAN) ISRO is providing Satellite based Navigation services with accuracy and integrity required for civil aviation application and to provide better Air Traffic Management over Indian Airspace.
- The Human Space Flight Centre (HSFC) was constituted in ISRO in January, 2019 for implementing the vision on human space flight programme.
- ISRO successfully proved a crucial technology element of Human spaceflight in July 2018 – The Pad Abort Test (PAT) which is the first in the series of test to qualify the Crew Escape System (CES).

Way Forward

- Recently, the space sector was opened to promote, handhold, regulate and authorize private enterprises and start-ups to undertake space activities by creation of the Indian national Space Promotion and Authorization Center (IN-SPACe). This will enhance the diffusion of space technology and boost space economy within the country.
- The Indian space programme has many challenges ahead. There are plans to build heavier and more capable and efficient satellites.
- And, space science missions like Chandrayaan-3, Aditya-L1, Mission to Venus to further explore the solar system, are in progress. Pursuit of research and development activities pertaining to small satellite launch vehicle, air breathing rocket propulsion and demonstration of reusable rocket technology are also progressing.
- Thus, Indian space programme implemented by ISRO has enabled the pursuit of various frontier areas of space research besides facilitating the country's overall development and technological advancement.



Fiscal Federalism

- Fiscal Federalism refers to the financial relations between the country's Central Government and other units of Government. It essentially represents how expenditure and revenue are allocated across different layers of Government administration.
- Fiscal federalism helps Government realize cost efficiency by economies of scale in providing public services, which correspond most closely to the preference of the people.

Evolution of Fiscal Federalism

- In India, fiscal federalism as it stands today, is a result of historical evolution which originated in pre independence India.
- The evolution of fiscal federalism in India has its roots from 1858, when the British Government assumed direct sovereignty over the Indian territory. \
- Substantive efforts in the freedom struggle led to the British Government's declaration in 1917 of gradually introducing responsible Government in India.
- This was followed by the Government of India Act, 1919 based on Montagu Chelmsford reforms which introduced a system of diarchy, dividing the administrative subjects and sources of revenue into two categories – Central and Provincial.
 - The first category was administered by councilors, appointed by the crown.
 - The second was administered by Ministers who were chosen by the Governor from the elected members of the provincial legislature.
 - Though the system of fixed grants from central revenues was continued which led to increase in horizontal imbalances amongst provinces, but it also gave thrust to the process of decentralization.
- In 1927, Simon Commission reviewed the Government of India Act, 1919 and recommended the establishment of a federation of Indian States and provinces.
 - Based on its recommendations the Government of India Act, 1935 was brought forth which established a federal system with Provinces and Indian States as two distinct units.
- Thus, the Act of 1919 and Act of 1935 established a basic structure of fiscal federalism in India, where Act of 1919 provided for a separation of revenue heads between the Centre and the Provinces, and the Act of 1935 allowed for sharing of Centre's revenues and for the provision of grants-in-aid to Provinces.

Federal Character of Public Finance in India



- The Seventh Schedule of the Constitution demarcates the powers and functions of the Union and the States, viz., Union List, State List and Concurrent List.
- The Constitution also specifies taxation powers of both the Centre and the State and the principles governing the sharing of revenue and certain other resources.
- Post implementation of Goods and Services Tax (GST) which is shared between Centre and States, Central Government retains the exclusive right for income tax while States have the right to collect stamp duty, excise duty on alcoholic beverages, etc.

Central Transfers to States

- In India, in order to correct the vertical and horizontal imbalance and for equitable and efficient development, the Central Government transfers funds to State Governments as General Purpose transfers and Specific Purpose transfers.
 - The General Purpose transfers are untied funds devolved to the State Governments via the Finance Commission.
 - Remaining Central transfers to States are in the form of Specific Purpose Transfers which may also be termed as tied transfers, as these transfers are tied for specific purposes mostly in social sector areas such as health, education, labour, skill development etc.



Transfers of Resources to Local bodies

- It was only after 73rd and 74th Constitutional Amendment Acts passed in 1992, the two tiered Indian federal structure evolved into three-tiered structure giving constitutional status to the rural and urban local bodies respectively.
- Article 243 (I) and Article 243 (Y) necessitated constitution of State Finance Commissions at regular interval of five years, to decide distribution of net proceeds of taxes between State and Panchayats, determination of taxes, duties, etc. to be assigned to Panchayats and Municipalities.

Current Scenario



Last few years witnessed certain major pronouncement which brought about structural changes in the Centre-State financial relations:

- **Increase in untied funds devolved to States:**

- In the 13th Finance Commission, with restructuring of Centrally Sponsored schemes the share of non FC transfers increased to around 32%.
- However, following the recommendation of 14th Finance Commission to increase the share of union tax proceeds from 32% to 42%, the biggest increase ever, the share of FC grants in total transfers increased to 74%.
- This whopping increase of 10% in the share of union tax proceeds underpins the objective of greater fiscal autonomy to States.

- **Rationalisation of Centrally Sponsored Schemes:**

- The most recent rationalization took place in 2016 based on the recommendation of the sub-group of Chief Ministers on Rationalisation of Centrally Sponsored Schemes (CSS).
- Based on its recommendations the number of Centrally Sponsored Schemes were reduced from 66 to 28.
- The funding pattern of core schemes was changed for large States to 60:40 (Centre : State) from 70:30 earlier.

- **End to Centralised Planning Era and Discretionary Grants:**

- Plan and Non Plan distinction in the budgeting was done away with by the Union Budget 2017-18.

- **Introduction of GST:**

- The Constitution now with Article 279A, provided for creation of a GST Council which is a joint forum of the Union and States entrusted with the responsibility of making recommendation on GST rates, taxes, etc. which resonates cooperative federalism.

Way Forward

- The challenge of striking balance between efficiency and equity has always been a critical aspect in federalism. Meeting the aspiration of States is the foremost priority of Indian fiscal federalism.
- The recent experience of tackling Covid crisis is a successful example of how Centre and States have worked together to fight the pandemic which has created havoc throughout the world.
- Centre and State relations have important fiscal implications for country finances such as sharing ratio of total debt among centre and state, fiscal marksmanship, empowerment of rural and urban local bodies, rationalization of subsidies and user charges reforms in order to restrict fiscally unproductive policies.



- With constantly changing economic conditions, development of new technologies and an evolving new governance structure, new reforms are required in public financial management system both at Centre and State level, effective management of Centrally Sponsored Schemes, efficient government procurement policy, transparent financial reporting, uniform accounting procedures, Direct Benefits Transfer and integrated list of beneficiaries across States.
- There must be mechanisms in place to reward best performers, be it States or districts or even at block levels.
- Two way communication channels need to remain open all the time so that the issues get resolved quickly and development is not hampered.
- Only then the vision of a developed India can be realized in its truest sense.

Cinema for a New India

- Cinema is an art form – basically an art of story-telling – fiction or non-fiction. As a medium, it's the strongest and the most popular one compared to any other medium of communication.
- Yet, it is the one which has remained the most neglected art form since the Independence of our nation.

Background

- The initial years of post-Independent India were invested in pressing issues of education, agriculture and development for obvious reasons. Therefore, the steel frame of the Indian Administrative Service had very little time for training in the arts and culture.
- This compounded the problem for even seasoned politicians. There was none to suggest them of the transformative power of cinema in building a new India and imbuing its citizenry with character.
- Cinema took a back seat because of the overwhelming impression prevailing then was that it was a medium of entertainment and that it could not be seen in any other way.
- The fact that it could be utilized for nation building was beyond imagination for policymakers. Even the training academies meant for the all India services and even State services never utilized cinema or any creative medium for that matter as a form of training the mind to improve understanding of the policy makers and bureaucrats regarding various aspects of human lives.
- India could not profit from the most medium of learning the way nations, mostly in Europe, have. Cinema has hitherto remained as one of the most unattended aspects in our country.



Ancient to Medieval – Power of Storytelling

- Unfortunately, a nation that has a proud and varied history of least 5,000 odd years have failed to cultivate in its people the power of storytelling, an art form so central to our civilization.
- In ancient times, kings used to keep raconteurs who would regularly narrate stories to them. It was not just a form of entertainment for the rulers. These stories would help them understand and navigate human and societal complexities. Stories would keep their ears on the ground on the practical realities of life in one's own kingdom and best practices of others. This practice would also help them mature as rulers while allowing them to introspect their follies.
 - For eg, the Mahabharata, Ramayana and the Bhagwat Gita had been the most sought after sources these story tellers used to employ to sensitize kings and emperors on human realities, on right and wrong, just and unjust, good and evil, humanity and inhumanity, etc.
- Many Muslim rulers of India with their initial invasive tendencies had sobered down after listening to the fables and stories of this land – mainly Mahabharat, jataka tales, etc.
 - Akbar is a prime example of this. Arguably among the greatest Mughal rulers, he had inducted Birbal (Mahesh Das) into the panel of his nine advisers – purely for his (Birbal's) creative ability, intelligence, quick thinking, wit, his understanding of folk tales, and his expertise on religious epics besides poetry and literature.
 - One of the main reasons of Akbar becoming very close to Birbal was the Emperor's growing realization in the potency of the method employed by the former and the gems hidden in the realities of ancient India.
 - He gained substantial maturity in solving his court problems, formulating policies, etc., by regularly interacting with Birbal on the innumerable stories and fables told by him during their association.
 - He could gain a perspective of the other which shaped his perception of realities and all human situations around him.
 - Even though Birbal died much before Akbar, his stories worked as stimulus for Akbar's spiritual thinking for the rest of his life making him one of the most generous thinkers among the Mughal emperors.
- The tradition, one assumes, was not confined to the kings and his courtiers. The plebian also had their Birbals, and they, too, hugely benefitted from the gems floating around them.

Modern times- Importance of Regional Cinema



- Even though modern India has a more powerful medium of telling stories in the form of cinema, yet the stories and their sensitivities are missing.
- Therefore, also missing is the benefit that the masses could have derived from this powerful tool. Instead, what we have in the form of stories today are issues devoid of any sense and sensibilities but episodes steeped in senseless commercialism. For well over a hundred years, we have wasted an opportunity to educate and sensitise generations on the important issues of life.
- What we now have are stories which by and large stress on a monolith and homogenous entity called India than relishing its diversity. The beauty of regional cinema, better termed as real cinemas as it tries to tell stories of the real India, has been given a quiet burial by an insensitive masses and government policies, influenced as they are by dollops of money and marketing power.
- This juggernaut has made the masses allergic to cinemas from other regions, and even at times from their own.
- These regional creations reinforces Mahatma Gandhi's concept of Swaraj, "Know your land, know your resources". It is only the regional cinema that drives home this Gandhian legacy. They generally showcase stories of a particular state or the region. It has been the best knowledge source for generations to know their country. Sadly, we could never develop ways and means to make people take interest in this direction.
- Films like Satyajit Ray's Pather panchali are not regional wonders alone. It has gone a long way in improving India's image as a creative nation.
- The bottom line is: The concept of cinema that India and majority of Indians relish in the form of Bollywood has done the biggest harm to Indian cinema and the art of storytelling. It has destroyed the identity of India while depicting a misleading representation of India in the country and to the world at large.

Way Forward

- Despite all this, there is still hope of a resurrection. Cinema as an art form is a part and parcel of the greater family of creativity, i.e., art and culture.
- As a nation, we need a mature national policy on art and culture that drives home the benefit of the medium that educates and make people mature and not one that just entertains.
- Because cinema is an expensive art, it is vulnerable to the lure of money, and unscrupulous individuals and corporate houses. Hence, the need of the hour is to revamp and strengthen institutions of creative arts allowing them the freedom to flourish within the ambit of the Constitution.



Agriculture: The Road Ahead

- Indian Agriculture is a vital sector of the national economy with bulk of the population engaged in crop agriculture and allied fields.
- India has 1.3 billion people or approx.. 17.9% of the global population which lives on 2.4% land and 5% water resources of the world.
- With 11% of total global agriculture, India ranks second in the world in agriculture production as the leading producer of several commodities including food grains, cotton, cane, horticultural crops, dairy, poultry, aquaculture and spices.
- Except vegetable oils, India is not only self sufficient but now planning for surplus management of agricultural produce.

Future challenges

- The growing population poses a challenge to food and nutritional securities when there is pressure on land due to urbanization, improved standard of living, changed food habits etc., generating great demand for diversified agricultural commodities.
- These challenges are further exacerbated by declining soil health, low nutrient content, occurrence of new biotic stresses and frequent droughts and floods due to climate change.
- In recent years, the unprecedented change in the climatic conditions has posed a serious threat to crop, animal and fish productivity. Climate change will impact the lives of the people in India mainly due to erratic rainfall as nearly 62% cultivated land is rain-fed.
- According to UNICEF, India was at 10th spot among countries with highest number of underweight children and at 17th position for highest number of stunted children in world in 2019.
- To meet these challenges, it is estimated that the country must prepare for increasing land productivity by 4 times, water productivity by 3 times and labour output by 6 times. All this has to be achieved with low carbon emission technology, no ecological footprints but simultaneously doubling the farmers income.
- Today's paradox is that on one hand the country is planning for management of surplus production, but on the other the farmers are driven to poverty as they are unable to get sufficient returns of their produce.

The Road Ahead: Way Forward

- **Technology Innovation**



- In India, several molecular breeding products have been commercialized in the field successfully and farmers are taking advantage of this technology.
- The genome editing technology CRISPR-Cas 9 is being used to overcome myriads of intractable problems and could be a game changer in mitigation of the effects of climate change.
- The country is preparing guidelines for the safe use of gene-edited products. Thus, the country shall be benefitted once scientists are given freedom to commercialise the products of modern breeding. Such policies need to be in place in the road ahead.
- Besides the seed technologies, refining integrated crop management systems like resource conservation, innovations in irrigation application, sustainable intensification, prevention of post harvest losses, new crop protection techniques and modern communication tools including social media, ICT etc. are important for mitigating the challenges of future agriculture.
- A related development is mechanization for precision of farm operations and labour saving. Micro-irrigation systems are also finding large scale acceptance as they not only save water but also double the yields.
- Additional sensor technologies have potential to use optimum inputs of nutrients and water.
- Saving the harvested produce itself in addition to food availability and hence harvesting technologies of fruits and vegetables, storage, logistic and financing infrastructure should become priorities in India.

- **Investment in Research and Development**

- R&D in India after independence has helped rise the per capita production and has gone a long way easing the pressure on meeting the food and nutritional requirement.
- Unfortunately, the system is under stress with lack of clarity on focus and financial resources.
- R&D have potential to mitigate the challenges posed by climate change, biodiversity, small farming issues, and market reforms for the benefit of farmers.
- The internal rate of return on investment in agricultural research is estimated to be more than 42%, which is much higher than any other sector,.

- **Policy Options**

- The Government of India for the first time introduced the long pending reforms in agricultural marketing through the legislation of three major bills – Farmers Produce Trade and Commerce (Promotion and Facilitation) Act 2020 (Trade and Commerce Act), Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 (Contract Farming Act) and has made necessary amendments to the Essential Commodities (Amendment) Act, 2020.



- These policy changes are hailed as revolutionary as the farmers are freed from the designated markets and are free to sell their produce anywhere to get the maximum price.
- Introducing a competition in sale of produce, the farmers will be benefitted. The Contract Farming Act provides for them to enter into agreements with Companies, retailers, agri firms, etc. which they can produce the crop for an agreed price so the current volatility in market will not affect the prices that the farmers are entitled to under the contract.
- If the impending challenges before increasing productivity and profitability are to be mitigated, then like the current marketing reforms some policies including input management, risk management, extension service changes and higher productivity policies need to be properly placed.
- The agriculture policies must accelerate all-round development and economic viability in comprehensive terms. The country must alter the policies from input-intensive to technology and skill-intensive modes.

Conclusion

- India has done a remarkable job in enhancing the agricultural production in nearly all the key areas. However, the current challenges are looming large over the coming years as the population is increasing.
- The country needs to step up production of many commodities by around 30% to feed the expected 1.7 billion people by 2050. Naturally strengthening research and development and innovations to create new technology will be an important step for Indian agriculture as a road ahead.
- Simultaneously like the current reforms in farm produce marketing, series of policy changes needed to give emphasis on technology and skill intensive agriculture. Suitable policy reforms will certainly act as the confidential building mechanism amongst all the stakeholders of agriculture.