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- Making Farmers Self Reliant
- Resilient Health System
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July, 2020

Self Reliant India

Ethical Wealth Creation for A Self-reliant India

- **Self-Reliant citizens:** For Indians to be self-reliant, the social compact between the Government and citizens has in essence, to be one where “government actively supports personal responsibility or community responsibility. Active government support for self-reliant citizens requires our citizens to retain their personal drive and dignity as part of this compact. Therefore, subsidies, especially those that go to the relatively well-off, cannot be consistent with a self-reliant India.
- **Inclusive Growth Through Employment:** Self-reliance can only be achieved through economic policies that increase equality while generating growth. Seeing equality and growth as complements rather than substitutes has to be the transformative change we have to bring in our economic strategy for a self-reliant India.
- **Wealth And Skill Through Private Enterprise And Government:** Self-reliance means recognising the complementary roles of the Government private sector and the government must Specifically, self-reliance cannot be achieved without recognising that market forces and private enterprise can take care of our needs during normal times.
- With the schemes like Jan Dhan Yojana and Swachh Bharat Mission, we have learned how to reduce the risks of failure and increase the chances of success in government programs. Nevertheless, as the role of government in making India self-reliant is pivotal, our efforts have to also focus on increasing the efficiency and efficacy of government, which includes overall governance.
- **Produce for The Bottom:** The business models that Indian firms generate in catering to the needs of the poor can enable them to tap into market in many under-developed economies in Asia and Africa. This, by creating development models that cater to the needs of the poor help others and thereby occupy its rightful place as global economic power.
- **Importance of Agriculture For A Self-reliant India:** Agriculture is crucial to India’s economic transformation. Increasing productivity and output in the agricultural sector would, beyond improving food security and the balance of payments (through reduced food imports and increased exports), sustain agro-processing, the manufacturing of agricultural inputs, and a host of services upstream and downstream from farms, creating employment and boosting incomes across the economy.
- **Self-Reliance is Not Doing Everything Yourself:** As the times we seek help may be the times when we are most vulnerable, self-reliance implies building the necessary capability to be independent at the most vulnerable times. Thus, self-reliance does not imply complacent self-sufficiency, where India cuts itself off from the rest of the world and thereby avoids competing with the best in the world and benchmarking itself against them. Instead, self-reliance requires delineating sectors that are strategically critical to the nation and investing in these sectors so that our dependence during vulnerable times is minimised.

Export Strategy

- The word “Aatmanirbhar” refers to both self-reliance and self-sufficiency. The former has a pragmatic positive connotation aimed at developing capabilities indigenously without shunning imports.
- The latter is unpragmatic, inward looking and has a negative denotation. It is against the Ricardo’s theory of “Comparative Advantage” which holds that international trade is a result of differences in the relative opportunity costs of countries in the production of different goods.
- India is blessed to be part of those supply chains where significant trade is still happening. At the same time, the calamity has taught us a lesson to not be excessively dependent on others for ensuring critical supplies, especially when the sources of such supplies are not fairly distributed.
- Even if domestic production is not the most efficient, we should encourage to provide it scalability to become competitive in the medium to long term. If we want to retain the tag of the “Pharmacy of the World”, we have to produce formulations and Active Pharmaceutical Ingredients (APIs) in our country.
- An effective exports promotion strategy hinges on robust and competitive domestic manufacturing. Hence, we must attain self-reliance for effective export promotion.

- Import substitution, unlike the general perception, is not inward looking in the sense of closing the door to imports. It is focused on developing domestic capabilities and prowess to reduce dependence on imports.
- Many countries constantly monitor the trends of imports to understand the challenges faced in manufacturing such products domestically. Some countries adopt an FDI-tariff linkage which enhances tariff for attracting FDI and encourages foreign suppliers to set up bases in their country to serve their consumers.
- An ecosystem that provides the level playing field must be offered to our manufacturers. This does not only means granting them “deemed export” status but also involves concessional credit to such manufacturers along with competitive electricity tariff and efficient logistics.
- But, tariff hike is not only the strategy. It works only to address the inverted duty structure or for a specific objective and it should have a definite sunset that clause. Otherwise, such tariffs can result in domestic cartelization or monopolies which push prices up, thereby adversely impacting the upstream production.
- Companies must be scaled up to attract investment and, at the same time, ensuring that they don't fall into complacency.
- The top 5 products in global exports, accounting for over 50% of the trade are electrical and electronics products, petroleum goods, machinery, automobile and plastic goods. However, the share of these products in our exports is less than 33%. Our global share in these 5 products is a little over 1% though our share in overall global exports stood at 1.7% in 2019.
- A related issue is the low share of India in high technology exports. High technology exports account for 6.3% of our aggregate exports while this proportion stands at 29% for China and 32% for South Korea.
- The recent initiatives taken to encourage manufacturing diagnostic of electronics, and surgical equipment along with the efforts to attract global FDI will help in correcting this.
- Our expenditure in the Research and Development is amongst the lowest. The fiscal support to R&D in the form of tax deductions has been lowered in the last few years.
- Position of China as the supplier has taken a hit since the outbreak of COVID 19 pandemic, specifically in edible products. This gives an opportunity to India to increase its export footprint. To capitalise on this opportunity, government must provide some mechanism to reimburse the differential price (MSP less the international price) to exporters.
- The path breaking reforms in agriculture would push agricultural exports. Relaxation in the Essential Commodities Act will encourage exporters to procure such products without fear.
- Now farmers can engage with agri processors, exporters and even large retailers for the sale of farm produce at mutually agreed upon prices. Such platforms will also help farmers get information about phyto-sanitary standards which is vital for getting access to advanced economies.
- The late joining of the FTAs, cumbersome customs processes and high logistics cost have contributed to this anomaly. An efficient trade facilitation can integrate into the regional value chain and subsequently into the global value chain for pushing the exports.
- The Government should work towards concluding more FTA/CECA/CEPA with our trade partners to supplement the FDI in exports. It is expected that COVID-19 will hasten the process of early conclusion of India-EU Broad-based Trade & Investment Agreement (BTIA) and Free Trade Agreement (FTA) with Australia and New Zealand besides bilateral trade agreement with USA.
- While we are doing extremely well in IT and ITES, we are much below our potential in tourism, financial services and transport services. In the IT sector also we need to diversify from advanced economies to emerging countries and move up the value chain as we are largely at the low end of the IT segment right now.
- Currently, India spends much more on outbound tourism than what it collects from inbound tourism. India earns only about USD 30 billion through tourism which is a little over 1 per cent of our GDP. We can easily take it to USD 100 billion by 2025.
- Our financial services earnings which stood at USD 5.5 billion in 2018 can easily be taken up to USD 15 billion by 2025.
- To promote growth of accounting and financial services, we should allow FDI in the domestic accounting and auditing sector, introduce a transparent regulatory framework, and ease restrictions on the client base in the accounting and auditing sector.
- For the education sector, foreign universities should be allowed to set up campuses in India, provide easy visa regimes for students and education service providers, remove regulatory bottlenecks, provide recognition to online degrees and set up appropriate evaluation techniques for online courses.
- The current status of India under the WTO subsidy discipline does not grant any leeway to introduce such schemes, however concerted efforts should be made to provide fiscal and non-fiscal relief which cuts down on export costs and adds to profitability.

- Exports have to be treated as a “National Priority” and all stakeholders (central and state government, regulatory and promotional agencies, service providers and entrepreneurs) need to be on the same page to facilitate exports. An institutional set-up to address the problems and challenges faced by exports in the shortest time frame possible is the need of the hour. A three-tier structure with the district, state and central level working on an electronic platform would be ideal and the officers attending such meetings should be empowered to take quick decisions.

JAM Trinity

- The use of the JAM trinity (Jan Dhan bank account for the underprivileged-Aadhaar number Mobile telephony), which has been the cornerstone of the Prime Minister’s attempt to embrace technology in governance at a mass scale has also now gone through its toughest test yet. The promise of easy identification and transfer of government benefits and funds has been tested against the need for rapid delivery during the pandemic.
- The JAM trinity has given a boost to the DBT programme and expanded its coverage from partial to ubiquitous. By eliminating the need for middlemen, JAM has helped minimise avenues of corruption, irregularities and pilferages. It has also promoted the ease of doing business.
- Given the need for physical distancing to curtail the spread of COVID-19, JAM is promoting online transactions among the beneficiaries, instead of physical visits to the banks.
- In the longer run, JAM will make the rural population get acquainted with the concept of ‘saving’ thus contributing to the GDP of the country as a whole.
- Platform like MyGov has been widely appreciated. Social media and online platforms have emerged as key mediums that connect citizens with governments to access the most credible information. Technology is alleviating the pressures placed on the supply chains and public distribution networks. Shop owners, big and small, should invest in digital tools that keep commerce connected, especially in times of crisis.
- The Department of Personnel and Training’s iGOT for training frontline workers against COVID-19. The MHRD Diksha platform and live broadcast of lessons for central-government-run Kendriya Vidyalaya schools using the SWAYAM platform.
- The Center for Global Development has noted that the JAM trinity enables the Indian government to make payments “more effectively and inclusively.” The center has created a JAM Index based on Findex data to rank countries on their use of ID systems, mobile phones, and financial accounts, to effectively make government payments. India and Kenya are two top ranking countries in this index.

Making Farmer’s Self Reliant

- The Government of India has launched a comprehensive crop insurance scheme in 2016 that provides coverage from pre-sowing to post-harvest against natural non-preventable risks.
- ‘Pradhan Mantri Fasal Bima Yojana (PMFBY)’ is a low premium policy in which farmers are required to pay only 2%, 1.5% for and 5% of the sum insured for kharif, rabi and commercial/ horticultural crops respectively. Not only farmers, but tenant farmers and sharecroppers engaged in cultivation of notified crops are eligible for crop insurance policy.
- The Govt. has comprehensively revised the operational guidelines making provision for payment of 12% interest per annum to farmers if claims are not settled within 10 days of prescribed time- limit. A new provision also envisages add-on coverage for damage by wild animals on pilot basis. The scheme envisages increase in coverage from the existing 23% to 50% of Gross Cropped Area in the country.
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- To address the specific concern of small farmers, the government started organising them into Farmer Producer Organisations (FPOs) who have better bargaining power. The major impetus was given in the Union Budget 2019-20 by making budgetary provision for formation of 10,000 new FPOs over the next five years.
- Government hiked Minimum Support Prices (MSPs) at levels of one and half times of the cost of production. Elaborate and effective arrangements are in place for maximum procurement of produce by government agencies at MSP.

- Taking note of large scale indebtedness of farmers, a unique and innovative Kisan Credit Card (KCC) scheme was launched to provide institutional credit to farmers. It supports small and marginal farmers, share croppers, oral lessees and tenant farmers as well.
- Recently, to expand the beneficiary base of KCC, the Government has waived processing fee, inspection and other service charges for short term crop loans up to Rs. 3 lakhs.
- Interest subvention is also provided on such loans for a period of one year in case of timely repayment. Interest rate of 7% per annum gets reduced to 4% in such cases.
- The facility of KCC was extended to dairy farmer and fishers, and recently under 'Atmanirbhar Bharat Package' a special drive is launched to provide KCC to 1.5 crore dairy farmers associated with milk unions and milk producing companies within two months.
- National Agriculture Market or eNAM is a pan-India electronic trading portal that was launched to integrate the existing agricultural mandis on an online platform to realise the vision of 'One Nation, One Market'.
- During COVID-19 lockdown crisis, three new modules of eNAM were launched to facilitate farmers.
 - eNAM enables FPOs to conduct trade of commodities from their own collection centres declared as 'Deemed Market' or 'Sub Market Yards'.
 - Other module facilitated the warehouses for Electronic Negotiable Warehouse Receipts (eNWRs) trading.
 - Logistics module facilitates transportation of commodities from farm to mandis, and from mandis to warehouses or consumption centres.
- With the aim of doubling agricultural exports and integrating Indian farmers and agricultural products with the global value chains, the Government has recently initiated a comprehensive 'Agriculture Export Policy'. Agri cells are also created to promote and facilitate export of Indian agri-produce at new destinations.
- The Government has also raised the Import Duties and provision of 'Minimum Import Price' (MIP) was imposed on selected commodities to protect the domestic growers and their livelihood from cheap import of the commodity.
- As part of the 'Atmanirbhar Bharat Package', the Government has announced an agri-infrastructure fund of Rs. 1 lakh crore that will provide finance to Primary Agricultural Co-operative Societies (PACS), FPOs, agripreneurs, agri-startups etc.
- A cluster-based approach in aspirational districts will be promoted to realise the vision of 'Vocal for Local with Global Outreach'.
- Under Pradhan Mantri Matsya Sampada Yojana, Rs. 20,000 crore has been allocated; of which Rs. 9,000 crore is exclusively dedicated towards infrastructure development. More valued productions, such as cage culture, seaweed farming, ornamental fisheries, will be supported for increasing income of fishers substantially.
- An Animal Husbandry Infrastructure Development Fund of Rs. 15,000 crore is being created to support private investment in dairy processing.
- Pradhan Mantri Kisan Sampada Yojana' is already financing and supporting development of mega food parks, integrated cold chains and infrastructure for agro-processing and value addition. With an outlay of Rs. 4,000 crore, herbal cultivation will be promoted for next two years covering an area of 10 lakh hectare.
- The 'KALIA' scheme, of Odisha, Mukhya Mantri Krishi Ashirwad Yojana of Jharkhand and Rythu Bandhu of Telangana are some of the noted schemes that have shown positive impact on income and livelihood of farmers.
- **Vigyan Prasar:** Vigyan Prasar is an outreach organisation dedicated to ensure that the rural populace is duly benefitted by it. It has produced more than 300 originally-written titles in popular science. With more than 2500 network clubs, mostly in the rural areas, VIPNET (Vigyan Prasar Network Clubs) provides updated information about the developments in science & technology through newsletters, exhibitions, seminars, webinars, etc.

Resilient Health Systems

- India has exhibited consistent progress in ensuring strengthened health systems and infrastructure over the years. The National Health Mission launched in 2005 has provided the much needed national framework for various initiatives and interventions for advancing the public health agenda.
- On the occasion of World Health Day, Mission Indradhanush was rolled out on 7th April 2015 with an aim of Full Immunisation Coverage (FIC). Before 2014, the national immunisation coverage stood at 65%. India set up an ambitious target of achieving 90% FIC by 2020. The Government strengthened the basket of vaccination services via a life-cycle continuum of care approach for both pregnant women and children.
- In 2016, vaccines pertaining to Japanese Encephalitis, Rubella, Inactivated Polio Vaccine (IPV) and Rotavirus were added, and 2017 saw the addition of Pneumococcal Conjugate Vaccine (PCV).
- Pentavalent vaccine (Diphtheria, Pertussis, Tetanus, Haemophilus influenzae type b [Hib] and Hepatitis B) was expanded to all the states in the year 2015.

- As a result of collaboration with different international agencies and extensive intervention, the annual immunisation coverage shot up from 1 % to approximately 6.7% per year in 2016 itself. Mission Indradhanush has been rightly cited as one of the 12 best global health practices in the world.
- To enhance the quality of vaccines and supply chain, the Government effectively introduced the indigenously developed eVIN (Electronic Vaccine Intelligence Network). It seeks to ensure supply of vaccines and cold chain maintenance through technological solutions. The initiative has been successful in saving 90 million vaccine doses with the adherence rate of 99% in maintaining the vaccine supply and temperature norms, thereby improving the coverage and quality of vaccination program in India. eVIN has been successfully piloted by countries like Indonesia, Sudan and Malawi.
- Various initiatives such as Ayushman Bharat, with its twin pillars of Health & Wellness Centres and Pradhan Mantri Jan Arogya Yojana (PMJAY) have bolstered India's march towards achieving UHC.
- Besides reducing out-of-pocket expenditure on medical care and securing health services, these initiatives are also bound to positively impact our realisation of SDGs in general and SDG-3 (Good Health and Well-being) in particular.
- All the key RCH indicator namely MMR, Neonatal Mortality Rate (NMR), IMR, Under-Five Mortality Rate (U-5MR) and TFR etc., have recorded appreciable improvements. India successfully eliminated Maternal and Neonatal Tetanus in April 2015. This was another achievement of the Government after achieving Polio Eradication in March 2014.
- Scaling of Special Newborn Care Units (SNCUs) have been at the forefront of improved newborn and infant healthcare in India. Universalisation of Vitamin K injection at birth, Antenatal Corticosteroids during preterm labour, Kangaroo Mother Care (KMC) and administration of Gentamycin injection to new-borns by ANMs in order to treat new born sepsis; all have boosted the prospects of saving so many new borns and infants in India over the last six years.
- Under Pradhan Mantri Surakshit Matritva Abhiyan, all pregnant women in our country are provided fixed and free Antenatal Care services on 9th of every month with the participation of the private sector.
- NITI Aayog, is implementing the "Transformation of Aspirational Districts" (TADP) Programme. This programme aims to uplift those backward 117 districts in India that are lagging behind in specific development parameters of health and nutrition, education, basic infrastructure etc.
- It is interesting to note that the maximum weightage (30%) amongst the six core thematic areas of this programme has been accorded to health and nutrition.

Effective Resource Management

- In 2019, the World Economic Forum's Risks Report indicated that a global water crisis is the fourth most impactful risk and the ninth likeliest.
- According to the World Bank in 2019, India specifically is one of the most water- stressed countries globally, and NITI Aayog found that many Indian cities were on track to run out of water in the next few years, if not already in the midst of the COVID- 19 crisis.
- The govt. has introduced programmes over the past few years such as Jal Shakti Abhiyan, SBM, Jal Jeevan Mission which seek to prioritise solutions that improve water security and supply and sanitation access.
- These programmes do not only address needs in terms of resource management, but also in terms of the potential to provide livelihoods to a bulging youth population.

CASE STUDY OF BIHAR – HARNESSING SKILLS OF INCOMING MIGRANTS

- According to recent statistics from the Bihar State Disaster Management Department, the state received more than 1.5 million returnees in the state's quarantine centres.
- The Bihar Government is working towards the following two areas:-
- **Map skillsets of all incoming migrants** – At the district level, skill mapping is being done for all the skill migrants to understand what supply exists to meet demands, and estimate employment needs. Initial data, suggests that approximately 50- 70 per cent of the returnees were working in construction industry.
- **Develop comprehensive district employment plan** – The state government is working on developing district employment plans which would include details of both wage employment and self- employment both under the State Rural Livelihood Mission and other development projects. It is also seeking to entice industries to set up in Bihar by providing concessions and promotions under its new Industrial Investment Promotion Policy.
- The Bihar government is also engaged change activities, under the Lohiya Swachh Bihar Abhiyan (LSBA), which is likely to sustain the toilet usage. This regular toilet use by all members of the household would encourage

households to invest in keeping toilet functional and upgrade it at some point. Some of these potential latent employment opportunities can be harnessed by the state towards enterprise development in long run.

- The Government of Bihar is also implementing the ambitious scheme- Har Ghar Nal Ka Jal - under the national umbrella of the Jal Jeevan Mission (JJM), in order to provide functional household tap connections to all households in the state.
- These village and town level schemes require trained plumbers and mechanics available to keep them functional. Similarly, the state government's flagship programme, Jeevika, the state's rural livelihood mission, has a membership of more than 10 million households.
- As part of the 2016 policy to develop local and sustained industries, the state identified four high priority sectors with potential for significant gainful employment:
Food Processing; Leather ; Textile; IT, ITeS; and Electronics System Design and Manufacturing.
- The Bihar government is working to connect them with initial capital sourced from scheme such as Mudra Yojana, and provide them with better transportation access so that they can connect their products from anywhere in the state to the bigger consumer pools in cities.

CASE STUDY OF BIHAR – HARNESSING SKILLS OF INCOMING MIGRANTS

- Under the lead of the Department Panchayat of Panchayati Raj and Drinking Water in Odisha, a two-pronged approach was adopted by the state in four districts including Balangir, started then also before the lockdown: one would ensure that jobs were provided and the other, schemes necessary water security.
- The Odisha Livelihood Mission (OLM) and Buxi Jagabandhu Assured Water Supply community to Habitations (BASUDHA) Scheme promoted access to both livelihood fundamental prospects and WASH services, with MGNREGA's policy to support recruiting manpower.
- The launch of the state-wise BASUDHA in 2017-18, which is aligned with the larger ambit of the Jal Jeevan Mission and sources support from MGNREGA, cemented Odisha's ambition to provide all families with piped water supply.
- The launch of Jal Shakti Abhiyan last year, during which over 250 drought prone districts were targeted through a three-month water conservation campaign, initiated complementary investing in groundwater recharging, rainwater harvesting, borehole repair and maintenance, renovation of water bodies, and so on.
- According to an assessment by IIT, Kharagpur, the convergence measures in Odisha seem to have turned out positive results. The State is continuing to invest in this convergent approach to improve water security while also providing work opportunities.
- This is particularly important now given the in-flow of residents of Odisha who suffered economic downturns in other States due to the fallout from COVID-19, and thus will be looking for prospects while back home.
- Investment in increasing employment demand now will pay off in short and long-term returns, through more generated income that will go towards a family's education, nutritional security, and ability to access more opportunities. Leveraging existing and intersectional manpower needs through various sectors such as WASH, while encouraging community-level ownership will lend to building a more self-reliant Odisha.

Gandhiji' s Approach of Self-Reliance

- Self-reliance is a vision that indicates towards activities that are self- supporting in economic terms and indicate reliance on one's own resources and having means to an end. India had a self-reliant economy and society since the Indus Valley Civilisation, which was based on traditional methods of production, be it agriculture or non-farm practices.
- The Hind Swaraj was the initial treatise that reflected Gandhi's vision about the self sufficiency of villages. His concepts are placed under two categories:-
- **Self-control and moral development:** It was possible through the development of mind, body and soul and gets reflected in the practice of truth, non-violence and non-possession.
- It also empowers individuals to limit their desires and propensity to maximise gains, which in turn goes a long way to create an ecological- environment balance. According to him, "if national life becomes so perfect as to become self-regulated, no representation becomes necessary".
- **Local Governance and Economic Development:** Gandhiji believed in participatory governance and successive linkages of it with agencies above, in the hierarchy. This will help in establishment of an intimate network instead of remote networks with a distant governing body.
- Economic development to him, did not mean about having more, but about being more. His idea of economic development focused on making villages self-reliant.

- He wrote, “Indian villages produced and supplied to the Indian towns and cities all their wants. India became impoverished when our cities became foreign markets and began to drain the villages dry by dumping cheap and shoddy goods from foreign lands”.
- His ideas also got reflected in his concept of Swadeshi. His scheme of village revival spoke about self-sufficiency in cloth and food production. For this he emphasized on weaving and spinning.
- He also stressed on all other crafts that formed a part of the hereditary occupation of the villagers, hence promoting the artisan economy.
- His subsequent writing in the Constructive Programme (1941, revised in 1945) reflected upon his ideas further. The ideas are contained in a booklet that he wrote in 1941, followed by a series of discourses and speeches on the theme. He described Constructive Programme as complete independence through truth and non violent means, with independence of each humble unit without distinction of race, colour or creed. It was a programme of individual change, followed by social change and faith in the following for Poorna Swaraj.
- **Gandhiji on machines:** Gandhiji expressed his aversion to modern machine civilisation and believed that consumption should be limited to objects that could be produced without machinery.
- Machines according to him should not take charge of development because the idea of having machines, to save labour is guided by greed and not philanthropy, is aimed at profit maximisation and leads to concentration of wealth.
- Khadi and other village industries were always in focus within his schemes. According to him Khadi “connotes the beginning of economic freedom and equality of all within the country” and indicated “decentralisation of the production and distribution of the necessaries of life”.
- Features of Self-Sufficient Villages:
 - o Villages becoming small unit of production using labor facilitating machinery.
 - o Protection of artisan economy and dying of traditional handicrafts
 - o Revival of agriculture and allied activities to generate livelihood
 - o Check on village out migration due to seasonal unemployment
 - o Lessening of ecological impact of over utilization of resources.
 - o Utilization of local specificities
 - o Self-sufficiency in terms of power through renewable sources Lessening of development divide
- Inclusive development demands a comprehensive planning with inclusion of elements from the grass root level. The development experience has shifted from a Statist model in the initial decades to gradual withdrawal of the State in the later decades.
- For a diverse country like India, there cannot be a uniform action plan for development. The local specificities, identities and endowments need to be taken into consideration for any development approach. Gandhi mentioned that the Constructive Programme is designed to build the nation bottom up.
- The mission and measures towards self-reliant India with emphasis on the micro, small and medium enterprises align with the vision of Gandhi fundamentally. The revision and roadmap could go a long way in protecting and promoting the interests and earnings of the rural masses.

Swachh And Smart Cities

- Charkha, Mahatma Gandhi’s spinning wheel is a symbol of self-reliance and strength of its own domestic industries. In the 21st century, the lesson of self-reliance is realised again with the COVID-19 epidemic.
- It is evident that when COVID-19 broke out, India used to produce a few thousand PPEs. Now, it produces nearly 300,000 PPEs every single day.
- It is the continuous effort of the government since six years that India ranks 63rd among 190 countries, according to the World Bank Report 2020. India made a leap of 14 places from its earlier rank 77 in 2019. And India has improved its rank in 7 out of 10 indicators.
- Smart Cities Mission (SCM) :It promotes cities that provide core infrastructure and give a decent quality of life to its citizens, and a clean and sustainable environment and application of smart solutions. Many smart cities in India have started to use the Integrated Command and Control Centre (ICCC) built under the Smart Cities Mission to fight against COVID-19.
- **Jal Shakti Mission:** The government has proposed comprehensive measures for one hundred water stressed districts. Safe water mission with a focused approach (Jal Jeevan Mission) and comprehensive sanitation program (Swachh Bharat Mission) have been launched to support the health vision.
- It aims to provide piped water supply to all households. The components of smart water management are: 1) Smart meters & management 2) Leakages identification, preventive maintenance 3) Water quality monitoring.

It also focuses on development of time-bound targets for waste water reuse for industrial and agriculture purposes.

- **Sewage Collection, Treatment and Disposal System:** The government is committed to open defecation free (ODF). Now, more needs to be done towards liquid and grey water management. Focus would also be on solid waste collection, source segregation and processing.
- **Swachh Bharat Mission**
It was launched to accelerate the efforts to achieve universal sanitation coverage and to put focus on sanitation.
- The smart solutions for Swachhata in terms of waste management are: 1. Waste to energy & fuel 2. Waste to compost 3. Waste water to be treated 4. Recycling and reduction of waste.
- The Ministry of Rail ways is the frontrunner of the SBM. It has installed bio-toilets in coached coaches with a coverage of about 99.3%. Indian Railways banned single use plastic material on 2nd October 2019.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** The purpose of AMRUT is to
 - ensure that every household has access to a tap with assured supply of water and a sewerage connection;
 - increase the amenity value of cities by developing greenery and well-maintained open spaces (e.g. parks); and
 - reduce pollution by switching to public transport or constructing facilities for non-motorised transport.
- Earlier, the MoHUA used to give project-by-project sanctions. In the AMRUT, this has been replaced by approval of the State Annual Action Plan once a year by the Central Ministry and the States have to give project sanctions and approval at their end.
- In this way, the AMRUT makes states equal partners in planning and implementation of projects, thus actualising the spirit of cooperative federalism. Mission components of AMRUT Water Supply, Sewerage, Septage, Storm water Drainage, Urban Transport, Green Space and Parks, Reform Management & Support, Capacity Building
- **Swachh Bharat Mission (urban) faces two major challenges:** Disposal of solid waste and Sewerage/liquid waste.
- Disposal of solid waste has three key components - waste collection, transfer of the waste, and lastly, proper disposal at the landfill site. The task of waste collection and its transfer to the landfill site requires both manpower as well as an efficient transportation system.
- The segregation of waste can either be at the source or at the landfill. Segregation at source is more economical.
- Cleanliness is primarily related to the behavioural aspect of individual and the society and its success and the continuation of the Swachhata ideology is totally dependent on the behaviour of the people towards cleanliness.

Digital Defence Against COVID 19

- Digital Technology has been at the forefront of fighting the coronavirus pandemic and prevented health systems from becoming overwhelmed.
- In this context, WHO in 2019, released recommendations for countries to use digital health technology, accessible via mobile phones, tablets and computers, to improve people's health and delivery of essential services.
- **Mobile Applications:** Mobile App based contact tracing has been found to be tremendously useful in identifying potential cases and gathering information about the spread of disease.
- Australia was the first to develop COVIDSafe app that allows health officials to access crucial information about a person's interactions if they contract the virus. Some countries have even gone to the extent of giving paired wristbands to those who are put under disease surveillance and thereafter utilise geofencing technology to help catch violators.
- India has launched its own Bluetooth and GPS enabled contact tracing app, Aarogya Setu. It provides an opportunity to self-assess and actively reach out to health system with one's own status of well-being.
- **Open-sourced Analytics and Modeling Tools:** Rapid data sharing is critical during epidemics and pandemics as it allows for a better understanding of the origins and spread of the infection.
- The placement of the first genome of the 2019-nCoV virus in an open database on 8th January 2020, paved the way for scientists around the world to start working on the development of a treatment or vaccine.
- Open-source technologies can help in improving accessibility of information, formulating open standards that enable all stakeholders to contribute and developing rapid prototypes that can lead to rapid discoveries.
- Responding to concerns about the lack of testing components to test for COVID-19, the Just One Giant Lab developed an open-source coronavirus test methodology to share designs so that certified labs could produce test kits easily.
- Maker's Asylum, a community hackerspace in Mumbai and New Delhi, has designed M-19 face shields for healthcare workers that can be made in just about three minutes by anyone following the guidelines of the prototype.

- Another key innovation has come from a team of researchers at IIT Kanpur; which has developed a full PPE kit that, when mass-produced, would cost less than Rs. 100.
- **Tele-health Technologies:** Telehealth technologies allow patients to be seen and diagnosed remotely by doctors. Scores of countries are now providing virtual care on a war footing.
- Sheba Medical Centre, the largest hospital in Israel, launched a remote patient-monitoring program in an attempt to control the spread of the virus.
- E-Sanjeevani is the Indian teleconsultation service launched by MoHFW during this pandemic.
- **GIS and Smart City's Integrated Control and Command Center (ICCC):** Geographic interpretation and insight are essential in detecting, understanding and responding to the pandemic. GIS helps epidemiologists to map disease occurrence against multiple parameters including demographics, environment, its spread pattern etc. to implement preventive and surveillance measures.
- WHO unveiled its ArcGIS Operations Dashboard for COVID-19, which maps coronavirus cases and total number of deaths by country and other related informations.
- In India too, GIS has been extensively deployed to fight the pandemic. A GIS platform has been developed by an eminent team of researchers in IIT Chennai and integrated with Aarogya Setu to provide extremely important information about the spread of coronavirus.
- ICCC are being used to carry out CCTV surveillance of public places, GIS mapping of COVID-19 positive cases, GPS tracking of healthcare workers, predictive analytics (heat maps) for virus containment across various zones of the city etc.
- Indian cities have also effectively deployed drones to disinfect over-congested slums and colonies. Moreover, police in various states have made effective use of drones to expand surveillance and make live announcements.
- Ministry of Civil Aviation has launched GARUD portal to fast track conditional exemptions given to government agencies for COVID-19 related drone operations.
- Robots have been used by many countries to provide services and care for those quarantined or practicing social distancing. Los Angeles-based Dimer UVC Innovations, has developed germ-killing robot 'GennFalcon' which can be used for sanitising airplanes.
- Humanoids like Sayabot in Kerala are used to raise awareness & automate sanitisation processes.
- 3D printing can play an important role as a disruptive digital manufacturing technology by boosting production and optimising the supply of specialised and critical medical equipments to treat COVID-19 patients.
- HP India responded to the critical need of making ventilators available in large numbers by getting over 1.2 lakh key ventilator parts printed in a short span of time. Bason Machines has delivered more than 12,000 3D-printed face shields in various hospitals in Mumbai.
- Effective citizens government-business partnerships by dissemination of technologies, sharing of expertise, establishment of trust-based models, and revamping procedures in consultation with stakeholders can support government in restarting economy, restoring livelihoods and rebuilding society.
- As the pandemic's prolonged existence necessitates looking beyond short-term measures, it is time for structural and legal framework around increased digitisation to be firmly entrenched in material economy, Government as well as enterprises will have to dive deep into the future of work as remote working across sectors is set to become the new norm. The shift to virtual operations demands not only an accelerated pace of metabolic learning but also scaling up analytics and quality. Innovation has to be both at speed and scale and that is the key to survival of the fittest.

Technology and Learning

- When we use technology in education, technology as such is not as important as the learning of the students. Use of technology must necessarily result into the enhancement of learning. So, it can be said that the educational technology is the efficient way of organising learning. And in this sense, processes and artefacts both become important.
- **SWAYAM Prabha:** It consists of a bouquet of 32 D2H educational TV channels that was launched in 2017 to telecast high-quality educational programs round the clock.
- Considering the success of SWAYAM Prabha channels and the fact that they have a large catchment area, the government has decided to start 12 educational TV channels on DD platforms for classes; dedicating one channel for each class.
- The government is also promoting the use of radio in learning. Community radio and radio streaming on internet (podcasts) have emerged as viable technological solutions for reaching out to hitherto unreached students and teachers in the country.

- SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) is an online digital platform which hosts several courses offered by the best teachers of universities/colleges/schools free of cost to the students living in any part of the country. One needs to pay only for examinations and certificates. Such courses are also known as Massive Open Online Courses (MOOCs).
- In 2015, NCERT and MHRD, launched ePathshala portal and mobile app. This app and portal hosts all text book titles of NCERT as ePubs and flipbooks.
- The Government’s push for “One Nation, One Digital Platform for Learning” has resulted into the creation of Digital Infrastructure for Knowledge Sharing (DIKSHA). The DIKSHA app was launched in 2017.
- Given the huge gap in access to ICT infrastructure in the country, any technology mediated solutions must first seek to bridge the digital divide. Innovations in technology should move in this direction. However, when the pandemic has struck and schools and colleges are closed, we must utilise all our resources at your disposal to ensure that learning happens to children as seamless as possible.
- The draft National Education Policy (NEP) 2019 identifies a few important concerns related to technology integration in education in the country. One such concern is the availability of the local expertise in resolving and maintaining hardware and software at remote locations. As such, it recommends deploying local talents for managing technological issues in schools. In this way, technology use in education has ramifications for the employment at the local level too.

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