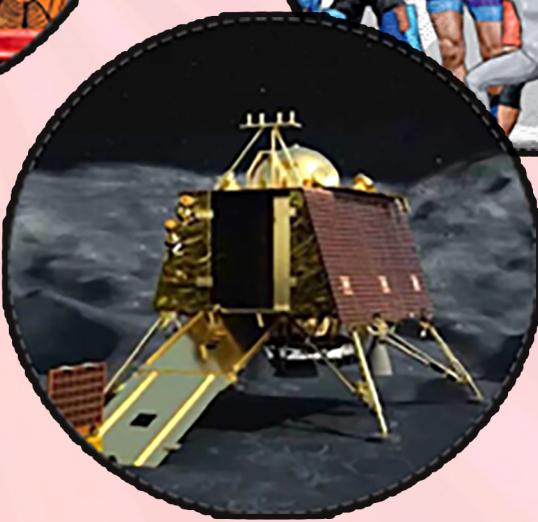


CRUX | SUMMARY

YOJANA & KURUKSHETRA

JAN. 2023 to JULY 2023

Exclusively for UPSC CSE MAIN 2023-2024



Topics/Issues Covered

Millets / Youth and Sports / Union Budget / Start-Up India / Techade / India Gifting Holistic Well Being To the World / Cooperation to Prosperity / Renewable Resources / Panchayati Raj / Rural crafts / Water conservation / Sustainable agriculture development

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INTERNATIONAL YEAR OF MILLETS 2023

India's effort has resulted into United Nation's declaration of year 2023 as International Year of Millets (IYM). India is on the way to become the global hub of millet production with more than 80% of Asia's share of production of millets. India is the world's largest producer of millets, accounting 20% of global production and having average yield of 1237 kg/hectare more than global average of 1229 kg/hectare. Government of India has declared to celebrate the IYM as a *Jan Andolan* so that Indian millets, recipes and value-added products are accepted globally. The top five state producing millets are Rajasthan, Karnataka, Maharashtra, Uttar Pradesh and Haryana.

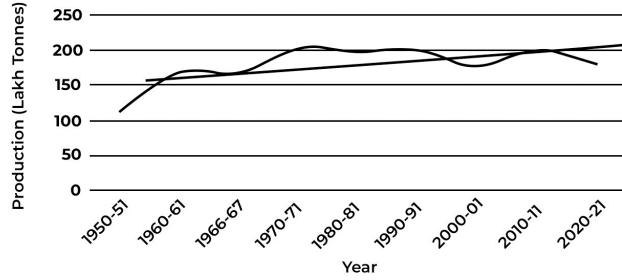
Millet production in India

According to World Food Programme, there are an estimated 1.2 billion people who consume millet as part of their diet.

Millet production has been stable over the past few years, with an estimated production of 28 million metric tons in 2020.

India is the largest producer of millet, followed by Niger and China.

Production Trends of Millets in India



The Food and Agriculture Organisation (FAO) has held that it would raise the awareness about production of millets in its member nations. Once in life-time event of COVID-19, the ill-effects of climate change have led to the challenge of food and nutrition security across world. Millets, which are drought proof crop and nutrient rich crop can solve this problem.

IYM 2023 aims to contribute to the UN 2030 Agenda for Sustainable Development, particularly SDG 2 (Zero Hunger), SDG 3 (Good health and well-being), SDG 8 (Decent work and economic growth), SDG 12 (Responsible consumption and production), SDG 13 (Climate action) and SDG 15 (Life on land).

Benefits of Millets:

- **Support climate-resilient agriculture** - Millets are hardy species, which can tolerate water stresses, at the same time they can help in carbon sequestering.
- **Contributes to food security and nutrition** - Millets can be grown in water scarce dry regions; they are also nutrient rich compared to any other grains.
- **Millets can be important part of a healthy diet** - Millets are good sources of minerals, dietary fibre, antioxidants and protein. With a low glycaemic index, they are a good option for people with high-blood sugar. Millets are also gluten-free and an excellent and cost-effective source of iron for iron-deficient diets. As whole grains, each variety of millets provide different amounts and types of fibre. Dietary fibre has a role in regulating bowel function, blood sugar and lipids, and satiation.
- **Greater consumption of millets can offer opportunities to smallholder farmers to improve their livelihoods.**
- **Greater trade in millets can improve the diversity of the global food system** - This not only improve the decent work and economic growth (SDG 8) but also the sustainable consumption and production (SDG 12) in the world.

Although millets were grown and used in Indian Subcontinent since ancient times, its use decreased significantly since green revolution came to India. Many ancient Indian texts cite cultivation and use of millets, many songs and couplets are written on millets.

Over the years due to a multitude of factors. Socio-economic dynamics resulting from the hardy nature of the crop, relegated them to be the grain of the poor. In many

places the use of millets is systematically discouraged from cultivation; for example, *Kodo Kotki Hatao Soyabean Lagao* (Remove Kodo and Little millets and grow soyabean) was a famous slogan from 2000s undivided Madhya Pradesh.

Nutrition from millets

- Apart from being inexpensive and easier to grow, they are a rich source of many vitamins, minerals, and fibre.
- Niacin, a type of Vitamin B found in millets is useful in energy production, and nerve health and keeps the digestive tract healthy.
 - The magnesium, Zinc, and fibre found in millets make it an excellent food for blood sugar regulation, especially for PCOD and Diabetes. Folic acid helps with iron assimilation and improves skin, health, and fertility.
 - The absence of gluten makes it simple to digest. The cereal primarily contains unsaturated fat, which has a low-fat content. Given its lower glycemic response or reduced capacity to spike blood levels, it helps diabetics maintain blood sugar levels. Millets are one of the most nutrient-dense cereals.

Climate suitable for Millets Cultivation:

Millets are often grown in tropical and subtropical regions at an altitude of 2,100 m. Being a heat-loving plant, 8-10° C is the required minimum temperature for germination. Ideal growth temperature for millets is between 26-29° C for optimum production and crop yield. Sandy, loamy, and alluvial soils with good drainage are the best types of soil for them.

Nutrient management in organic millet cultivation

Unlike regular cereals, production of millets does not require chemical fertilisers. Farmers on an increasing scale are using organic fertilisers, green manures, efficient crop cycles, integrated nutrient and pest management etc. Millet farmers frequently succeed in enhancing the physical and chemical characteristics of the soil for sustained productivity by using techniques like:

1. Using organic material, such as compost, vermicompost, farm yard manure, and bio-fertilisers, to preserve soil organic matter and deliver nutrients.
2. Using cover crops to recycle soil nutrients and biologically fix nitrogen from the atmosphere.
3. Planting green manure legumes in situ or using green leaf manuring and incorporating them into the soil.
4. Intercropping or growing multiple crops simultaneously.
5. Rotation of crops.
6. Management of crop residues.

Application of organic matter to the soil

- **Manures:** although, application of manures is beneficial, for millets applying phosphorus to soil may not fetch optimal result as millets are unable to extract phosphorus from manures. Hence excess phosphorus can lead to runoff waste.
- **Compost:** Composting makes the organic material lean and nutrient rich. It kills some diseases and weed seedlings and it is also easier to handle than bulk organic matters.
- **Cover crop:** In organic farming, cover crops can be a sustainable and affordable source of nutrients by supplying plants' needs for micronutrients, phosphorus and potassium.
- **Green manures:** green manures like Leguminous plants, which make up the majority of green manures grown in fields, are often integrated into the soil once they have grown sufficiently. *Sunhemp, dhaincha, pillipesara, cluster beans, and Sesbania rostrana* are the most significant crops for producing green manure
- **Crop rotation:** crop productivity, nutrient availability, insect control, nutrient usage efficiency and soil physical qualities can all be improved through crop rotation.

Consumption habits of millets in North-east

- **Zan:** The millet flour dish is favourite dish in Arunachal Pradesh
- **Apong:** *Apong* and *Madua Apong* are two popular beverages in Arunachal Pradesh, made up of rice. It is taken by *Adi* and *Nyishi* tribes. It is important to *Adi* tribes' shamanic practices, ritualistic principle and folklores. It is also served during *Adi* tribes' *Solung* festival in the month of September.

Millet as a part of the Food basket

- Millets were included in government of India's **POSHAN Abhiyan**.
- The **POSHAN 2.0**, which was launched in 2021 also included millets and emphasized on popularizing millets in local recipes.
- Under **POSHAN maah** or National nutrition month every September, ministry of Women and Child Development encourages the use of millets in local recipes and ways to enhance the share of millets in Supplementary nutrition Programme of Anganwadi Services.

Initiatives towards making IYM 2023 a success

- Government embarked on nationwide *Jan Andolan* to popularize use of millets.
- Millets have been showcased in various reputed events like India International Trade Fair, Dubai Expo and Surajkund Mela, etc.

- Over 500 startups are working in millet value chain while the Indian Institute on Millet Research has incubated 250 startups under **RKVY-RAFTAAR**.
- More than Rs. 6.2 crores have been disbursed to over 66 startups while about 25 startups have been approved for further funding.
- Food Safety and Standards Authority of India (FSSAI) is actively spreading awareness of the health benefits of the miracle crop by celebrating “*Recipe Ravivar*” every Sunday on social media platforms where each month is dedicated to a specific variety of millet.
- The Government of India has launched a set of seven sutras in the run-up to IYM 2023 and has allocated different government departments for the same.
- The seven sutras outline areas in the enhancement of production/productivity, and health benefits, value addition, processing, and recipe development, entrepreneurship/startup/collective development, awareness creation-branding, labelling and promotion, international outreach, and policy interventions for mainstreaming.

Startups making millets popular

India, which is the largest producers of millets and 3rd largest destination of startups of the world sees the perfect marriage between both. More and more startups are coming forward to make the IYM 2023 a success globally.

Case studies:

- According to the **Indian Council of Agricultural Research (ICAR)**, more than a thousand startups are working on coarse grains in the country.
- **Hyderabad-based Indian Institute of Millet Research (IIMR)** has set up a technology incubator **NutriHub** with the help of the Department of Science and Technology (DST) to promote millets. Here, people are trained for startups.
- Dozens of startups have successfully launched their millet-based food products in the market under the guidance of IIMR.
- Startups are provided grants of upto Rs 25 lakh under the Government's **Rashtriya Krishi Vikas Yojana (RKVY-RAFTAAR)**.
- The Government is also enabling startups for the export promotion of value-added products like noodles, pasta, breakfast-cereal mix, biscuits, cookies, snacks, and sweets in the **Ready to Eat (RTE)** and **Ready to Serve (RTS)** categories. For this, the Ministry of Commerce has made necessary policy amendments.
- Most of these startups procure coarse grains directly from farmers. After processing them, they prepare products and sell them online and offline.

- An Agri startup from Tamil Nadu has launched many products, including South Indian dishes using millets, such as dosa, pongal, and rava dosa.
- Another startup from Hyderabad has come up with multi-millet noodles.
- *Pani poori* is a famous street food from India, a Vijayavada based startup has prepared it using multi-millets.

Overview of millet processing

Millets are processed in traditional methods in semi-arid regions, where they are primarily grown for human consumption. Traditional methods are laborious, monotonous and manual. Traditional techniques that are commonly used include decortication (usually by pounding followed by winnowing or sometimes sifting), malting, fermentation, roasting, flaking, and pounding. These methods are mostly labor-intensive and give a poor-quality product.

Indian Institute of Millets research (IIMR) is developing modern methods for food processing and value additions like- dehulled millet, semolina or suji, flakes, extruded products (vermicelli and pasta), biscuits, millet-rich multigrain roti and millet-rich multigrain flour to improve the nutritional quality.

Importance of processing intervention

One of the major reasons of less popularity of millets consumption is lack of their ready-to-use and ready-to-eat alternatives. Processing reduces this hindrance, at the same time increasing millets' self-life and taste. The manual de-husking of millets is the reason for poor quality of millet flours, this is being reduced by IIMR's intervention through automatic, mechanical de-husking process. At IIMR, an attempt has been made to create demand for millet through processing interventions by diversifying its food uses; integrating all functions from on-farm production to consumption in a 'production to consumption' value chain.

Processing of value-added products from millets

- Value addition in food processing has a high degree of interdependence with forward and backward linkages and hence can play an important role in accelerating economic development.
- Value addition has many consumer benefits such as simple, low-cost processing and packaging technologies which can improve the shelf life and storage quality of food and preserve many of the health-promoting compounds.

Conclusion: Millets are said to be the forerunner of the evergreen revolution and therefore, also can be referred to as Miracle Grains and a boon to the region.

YOUTH AND SPORTS

(YOJANA FEBRUARY 2023)

India has **one of the youngest populations** in the world with **27.2 percent** of the nation's population belonging to the 15-29 years age group. A demographic dividend of this magnitude has the capability to uplift the nation and raise living standards for all.

Today, universities and educational institutions are upgrading their sports infrastructure, thereby enabling the youth to actively participate in the FIT India movement to lead a fit and healthy lifestyle on the lines of the inspirational slogan '**Fitness Ka Dose, Aadha Ghanta Roz**'.

Sports, Education and Youth development

More than 23 lakh school going children in the age group of 5-18 years have been assessed using the **Khelo India Mobile App**. More than **82,000 physical education teachers** have been trained to assess the sporting prowess of children.

One of the key pillars of the Khelo India Scheme is to make quality sports infrastructure equitably accessible to the citizens. To ensure the same, **MoYAS has sanctioned 294 sports infrastructure projects** across the country, amounting to close to Rs 2,500 crore.

The various initiatives under the **Khelo India** scheme including the establishment of district-level Khelo India Centres, **Khelo India State Centres of Excellence**, organising annual Khelo India Games (Youth Games, University Games, Winter Games, etc.), community coaching development programmes (**e-Khelpathshala**), promotion of women's participation in sports through women sporting leagues in various sporting disciplines, large-scale sports & fitness promotion events through the FIT India programme.

Launching FIT India

The launch of the **FIT India movement on 29 August 2019** by the Hon'ble Prime Minister with a goal to make fitness an integral part of our daily lives, has been a symbol of the paradigm shift in our approach towards sports. Regular exercise and participation in sports provide a variety of **positive social and health effects**. It affects **physical fitness directly**, but it also instils good lifestyle choices in kids and young adults, encouraging them to **stay active and fight non-communicable diseases**.

The **goals and objectives of this are:**

- To promote fitness as easy, fun and free.
- To spread awareness on fitness and various physical activities that promote fitness through focused campaigns.
- To encourage indigenous sports.
- To make fitness reach every school, college/university, panchayat/village, etc.
- To create a platform for citizens of India to share information, drive awareness and encourage sharing of personal fitness stories.

Initiatives

- 1. Samagra Shiksha Scheme:** The Centrally Sponsored Scheme of Samagra Shiksha has been aligned with the policy. Under the scheme, sports grant on an annual basis has been provided to all government schools.
- 2. FIT India School Movement:** The FIT India Mission encourages schools to organise a FIT India School Week in the month of November/December.
- 3. FIT India School Week:** In order to raise fitness awareness among children and also their parents, teachers, and school personnel, FIT India School Week was launched in 2019. The first FIT India School Week had participation from over 15,000 schools.
- 4. Fit India Quiz:** It was introduced in 2021 as a celebration of "Azadi ka Amrit Mahotsav", with the goal of strengthening its presence in schools and spreading the FIT India message to school children.
- 5. FIT India Freedom Run 3.0:** The Ministry of Youth Affairs and Sports announced the commencement of FIT INDIA FREEDOM RUN 3.0. To make it a movement of the people, the Department of Sports has created a rating system based on the resources offered in the FIT India Schools.
- 6. Football for Schools programme:** The ambitious FIFA-UNESCO programme. Football for Schools (F4S) aims to help 700 million students around the world with their education, development, and empowerment. By integrating football-related activities into the educational system, in collaboration with the necessary

authorities and stakeholders, it aims to increase access to football for both boys and girls around the world.

Sports, Health and Youth

The leading health body, the **World Health Organization** has established a **Sports and Health programme** to capitalise on the potential of people to lead healthy lives through promoting participation in sports and working with the sports community.

The **Ministry of Youth Affairs & Sports (MoYAS)** released a Draft National Youth Policy (NYP) in April 2022 with a 10-year vision for youth development, aligning with the Sustainable Development Goals (SDGs). **Education; employment & entrepreneurship; youth leadership &**

development; health, fitness & sports; and social justice are the five focus areas.

Sports in the Draft National Youth Policy

The draft National Youth Policy released in 2022 envisages a 10-year youth development vision, which again includes sports on the priority list.

As a national programme for sports development in the country, a national scheme like 'Khelo India' has been launched.

It gives opportunities to the youth to regularly get involved in sports like football and hone their talent.

Young footballers of our country also aspire to play in the FIFA World Cup someday.

Box 1: Government Initiatives which aim at Healthier Youth

Sl. No	Programmes/ Initiatives	Features
1.	Kashtriya Kishor Swasthya Karyakram (RKS)	<ul style="list-style-type: none"> The programme's main strength is its health promotion approach. The focus of the programme is shifted from the clinic-based approach to prevention and promotion and reaching the adolescents in their own environment which includes their communities or families or schools.
2.	Adolescent Friendly Health Clinics (AFHC)	<ul style="list-style-type: none"> It includes all health issues from sexual and reproductive health to injuries, violence, substance abuse, nutrition, NCDs, etc. The components of AFHC are acceptable, equitable, accessible, appropriate, comprehensive.
3.	Peer Education Programme	<ul style="list-style-type: none"> The selected peer educators have to ensure that the adolescents benefit from RKS. These peer educators are called 'Saathiya'. Four peer educators (two boys and two girls) are selected per village/1000 population'ASHA habitation to reach out to adolescents.
4.	Menstrual Hygiene Scheme	MOHFW launched a scheme for promotion of menstrual hygiene in adolescents. It mainly focuses on increasing the awareness, increasing access and usage of sanitary napkins along with its safe disposal.
5.	Health and Wellness Centres under Ayushnian Bharat Programme	The HWCS promote a comprehensive health approach by preventive and promotive interventions.
6.	FIT India	This initiative is aimed at adoption of healthier lifestyle in youth by getting involved in sports and other related activities.
7.	Other Health Programmes	Various health programmes like National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke. (NPCDCS), Reproductive, Maternal, Newborn, Child Plus Adolescent Health (RMNCH+A), National AIDS Control Programme (NACP), National Mental Health Programme (NMHP) and others also strive in improving youth health.

CONCLUSION

The sporting landscape in India has **changed enormously in recent years**. Today, sport is an important component of the socio-economic development of a country. India is a **storehouse of talent**, especially in the field of sports. All these recent initiatives have provided much-needed systemic interventions and a change of mindset concerning sports. The Government has been playing a **crucial role in promoting sports and fitness in the country**. A holistic approach of the Government towards sports and emphasis on fitness is going to change the way India takes its sports and games.

UNION BUDGET

(Yojana March 2023) & Budget for Rural India 2023-2024
(Kurukshestra March 2023)

LAYING THE FOUNDATION FOR INDIA'S AMRIT KAAL

The Union Budget is a key policy document that outlines the priorities of the Government, for the immediate and the long term, in the tandem with domestic and global economic realities. With a rising profile on the global stage and India assuming the G20 Presidency, the country is set to embark on its journey into the 'Amrit Kaal'.

The Budget 2023-24 has put '*Saptarishi*' at its center for a push to construct world class infrastructure and inclusive development. (Inclusive development; reaching to the last mile; infrastructure and investment; unleashing the potential; green growth; youth power; financial sector).



Union Budget 2023-24 envisages to-

- Increase Capital Expenditure (Capex) outlay by a massive 33 per cent and hence providing a 'crowding in effect' for private sector participation.
- Larger share of Capex is allocated for capital investment in Road, railways and defence infrastructure.
- A 50 years interest free loan scheme is provided for state for capital investment, which raises the share of capital investment to the GDP by 4.5 pe cent in totality.
- Reform in Urban governance and tax collection; emphasis on expansion of urbanization; provision of Urban Infrastructure Development Fund (UIDF) to fund the shortfall in development of urban infrastructure in tier 2 and tier 3 cities.
- Simplification of compliance norms by deleting more than 39,000 compliances and ending 1400 archaic laws, which the Budget further pushes to reform by introducing various reforms.
- Special emphasis on MSME sectors through-
 - Udyam portal for providing IT infrastructure and other tax related help.
 - Vivad se Vishwas I and II for relief to MSME sectors.
 - A revamped credit guarantee scheme of 9,000 crores to provide 2 lakh crores of collateral free credit to small businesses.
- Emphasis on environmentally friendly development scheme by implementing India's 'Panchamitra promise' and following India's 'Lifestyle for Environment or LiFe' strategy.
- Transformation to greener economy through programmes like National Green Hydrogen mission; Green Credit Programme; PM-PRANAM and GOBARdhan scheme.
- Amplifying the already booming IT infrastructure and digital revolution in India through UPI and other initiatives.

TOWARDS COOPERATIVE FISCAL FEDERALISM

The announcements in the Union Budget 2023-24 and several initiatives taken in recent years depict the Union Government's unwavering quest to promote this cooperative fiscal federalism in India.

Unfolding of a new era of cooperative fiscal federalism:

There is a radical shift towards cooperative fiscal federalism. The annual transfers from the Union to the States have increased from **4.7 per cent** of the Gross Domestic Product (GDP) in the financial year 2013-14 to **6.7 per cent** of GDP as per revised estimates of 2021-22. The share of states to the divisible pool of taxes and duties is raised to 41% (after adjusting 1 % for UT of J&K and Ladakh). The Centre is -

1. Supporting states to raise their **Capital Expenditure** during COVID years, while in recent Budget a massive amount of **1.3 lakh crore** is provided to state for capital expenditure.
2. Guiding states to take a fiscal consolidation path during and after pandemic years and also allowing states to raise their borrowing limit by 2 per cent of their respective state GDP in 2021-22.
3. Supporting states budget during pandemic years by providing borrowing windows to fill the shortfall in GST compensation.

BLUEPRINT FOR AN INCLUSIVE AND EMPOWERED BHARAT

The thrust of the Union Budget 2023-24 as mentioned in government's 'Saptarishi strategy' is on broad based development, taking welfare to last mile and inclusive development, which provides a blueprint for an inclusive and empowered Bharat.

The Budget 2023-24 is lauded as 'Budget for all'. It has following provisions for each and every sector.

- Budget showed the resilience of Indian economy amidst global uncertainty.
- India's GDP is projected to grow by **7% in FY23** and **6-6.8 % by FY24**.
- Fiscal deficit is on the path of consolidation to **5.9% of GDP** for FY 2023-24.
- The positive growth is driven by strong domestic consumption, improved balance sheet of corporates, huge capital push by government and huge FDI inflow in the economy.

- Capital expenditure is increased in Budget **2023-24** by 33% from previous years.
 - This has the potential for multiplier effect of 2.95 and huge possibility of employment.
- The agriculture field is seeing digital infusion and raise in credits in farming and allied sector.
- India is leading the world in promotion of millet production and consumption.
- The environmentally friendly policies like GOBARdhan scheme, where setting of 500 new "**Waste to Wealth**" plants will provide green energy to farmers.
- Ensuring the social welfares like providing toilets to eliminate open defecation, access to tap water, electricity, LPG cylinders, healthcare, and bank accounts reached every citizen of country.
- Through the significant expansion of its welfare programs, India is now aspiring to achieve 100% saturation.
- The budget 2023-24 also announced programmes related to empowerment of women and youth. This includes empowering the 81 lakh women led SHGs by helping them in branding and marketing; Mahila Samman Bachat Patra scheme; PM Kaushal Vikas Yojana 4.0 and Amrit Peedhi Programme etc.

SOCIAL SECTOR ALLOCATIONS: ENDEAVOUR FOR EFFECTIVE OUTCOMES

Strengthening and expanding the social sector in the country has always been the priority of the government and this reflects in this year's budget as well.

Social sector outlays

- Since 2015-16, the **per capita income** has more than doubled to Rs **1.97 lakh**.
- Expenditure for the sector has witnessed significant increase from **Rs 3.53 lakh crore** in 2015- 16 to **Rs 7.9 lakh crore** in 2022-23.
- Since 2014- nearly 11.7 crore household toilets are created; 9.6 crore LPG connections are given; 47.8 crore of Jan Dhan banks accounts are opened; 11.4 crore farmers are given incentives under PM Kisan Nidhi; 44.6 crore people are brought under insurance cover.

Health

- Expenditure on health as percentage of GDP increased from 1.4 per cent in 2019-20 to **2.1 per cent 2022-23**.
- A new initiative is proposed in budget to **eliminate anaemia by 2047**.
- A special scheme namely **Sickle Cell Anaemia Elimination Mission** would be launched.

- The Government has also announced the establishment of 157 new nursing colleges in co-location with the existing 157 medical colleges established since 2014.
- It is also proposed to launch a new programme during 2023-24 to promote research and innovation in pharmaceuticals.

Nutrition

- The **aspirational blocks programmes**, that is launched in this year's budget would also include a nutritional aspect.
- Proposed Rs 15,000 crore **Development Action Plan for the Scheduled Tribes** would also provide nutritious food to vulnerable tribal groups (PVTGs).
- **Shree Ann Yojana** in the Budget is another important step for promoting nutrition.
- The Integrated Child Development Scheme (ICDS), now known as Saksham Anganwadi and POSHAN 2.0, is allocated Rs 20,554 crore.
- Another important initiative, Pradhan Mantri Poshan Shakti Nirman (the mid-day meal scheme) has been provided a budgetary allocation to Rs 11,600 crore.

Education and skilling

- For promoting good governance, attention has also been paid to the skilling of government officers and staff under the **Mission Karmayogi**.
- Focus would also be on training of teachers through **District Institutes of Education and Training**.
- To further boost reading habits a **National Digital Library for children and adolescents** is proposed to provide quality books in various local languages.
- Budget has also proposed to set up three **centres of excellence for Artificial Intelligence (AI)** at the top educational institutions.
- Pradhan Mantri Kaushal Vikas Yojana 4.0 will be launched to skill lakhs of youth within the next three years.
- The **PM Vishwakarma Kaushal Samman (PM VIKAS)** would enable artisans and craftspeople with focus on quality, scale and reach of their products while integrating them with the MSME value chain.

Green growth

- Expanding the idea of Lifestyle for Environment (LiFE), India is moving forward firmly for the 'Panchamrit' (five nectar elements for India's climate action) and net-zero carbon emission.
- The **National Green Hydrogen Mission**, with an outlay of Rs 19,700 crore is planned with a target to reach an annual production of 5 MMT by 2030.
- Banks and other financial institutions would also be encouraged to launch a **Green Credit Programme**,

which would be notified under the Environment (Protection) Act.

- Central and State Government Departments are also being encouraged to scrap old vehicles.
- **PM PRANAM**, a new scheme, is also being launched to incentivise States/UTs to promote usage of alternative fertilizers.
- 500 'waste to wealth' plants would be established under GOBARdhan scheme to promote circular economy.

Agriculture and Cooperation

- The agriculture credit target is increased to **Rs 20 lakh crore** with a focus on animal husbandry, dairy and fisheries.
- An investment of Rs. 2,516 crores has been proposed in the budget in order to strengthen the cooperative institutions and Rs 63,000 **Primary Agricultural Credit Societies (PACS)**.
- An agriculture accelerator fund would be established to encourage agri-start-ups promoting entrepreneurship by youth in rural areas.
- **Atmanirbhar Clean Plant Program** would be launched at an outlay of Rs 2,200 crore to boost availability of disease-free, quality planting material for high value horticultural crops.

Efficiency and Convergence

- With the rise in allocations for several specifically focused schemes, the Budget has rationalised allocation for ongoing generic programmes.
- There is an urgent need to make social sector spending more efficient and effective.
- While the **JAM trinity** (Jan-Dhan Aadhaar Mobile) for Direct Benefits Transfer (DBT) has resulted in a significant reduction in leakages, a similar innovative approach may be essential to drive efficiency to achieve the desired levels of outcomes with same/reduced spending.

INCLUSIVE DEVELOPMENT AND MODERNIZATION OF AGRICULTURE

Inclusive growth of agriculture will ensure economic growth of the country and well-being of farmers. There are many provisions in the Budget that will ensure inclusive growth in agriculture and allied sectors, modernisation and economic empowerment of farmers.

Crop Reforms and access to the market

- **Shree Ann Yojana** is proposed to promote the cultivation use of millets.

- Government has proposed in budget to develop **Hyderabad-based ICAR's Indian Millets Research Institute** as a Centre of Excellence.
- Enhancing productivity of cotton has been proposed in the Budget.
 - Cotton is grown on the largest land segment in India.
 - It is grown on 136 lakh hectare of land which is about 36% of the total cotton cultivation area of the world.
 - However, India's per hectare cotton productivity is very poor - at 36th place in the world.
- *Atmanirbhar Swachh Paudh Karyakram* (Atmanirbhar Bharat Horticulture Clean Plant Programme) will provide support for cultivation of disease-free, high-quality plants.

Technological development and modernization

- Government of India is also implementing a **Digital Agriculture Mission** (2021-25) in which efforts are being made to develop, popularize and use of AI, IoT, Block Chain and Drone technologies.
- An extensive database of farmers across the country is also being developed so that all benefits of various schemes should reach them immediately, with transparency and minimum cost.
- An **Agriculture Accelerator Fund** with the investment of Rs 500 crore (for five years) has been proposed in the budget to promote entrepreneurship in rural areas.

Resource and Facilities

- The limit of agricultural loan has been raised to Rs 20 Lakh to facilitate easy institutional loans to small and marginal farmers.
- Rs 23 thousand crore has been provided for enhancing **Kisan Credit card** facilities which have been proved quite beneficial to small and marginal farmers.
- Computerisation of 63 thousand Primary Agriculture societies with an investment of Rs 2516 crore has already been initiated.
- Creating a national database of cooperative societies has also been proposed in the budget.
- Development of a large decentralised grains' warehousing system through cooperatives has also been proposed.
- A special programme in the agriculture sector **PM-PRANAM** has been initiated this year which provides for land's improvement, nourishment and rejuvenation.

Allied areas

- In this budget, the budget allocation for Animal Husbandry and Dairy Department's allocation has

been raised to Rs 4328 crores, 40% higher than the revised estimates of the last year.

- Efforts are being made to fight the menace of '**Lumpy Skin**' and '**African Swine diseases**' in livestock.
- The finance minister has also declared start of a new co-scheme with an investment of 6,000 crore.
 - '*Pradhan Mantri Matsya Kisan Sah Yojana*' (PM Fishery Farmers' Co-scheme) envisages efforts to raise income of fishermen, fish sellers and marginal and small vendors in this area.

BANKING: FOCUS ON NEW RESPONSIBILITIES AND GOOD GOVERNANCE

The General Budget 2023-24 for the banking sector can be analysed by dividing it into five parts:

- New savings schemes and changes in existing savings schemes
- Sources of Government Borrowing
- Campaign to promote digital transactions
- Loan for a specific sector
- Reforms in banking governance

Deposit Schemes

- '**Azadi ka Amrit Mahotsav Mahila Samman Bachat Patra**' is announced in this year's budget.
- The interest rate for January-March, 2023 under **Senior Citizen Savings Scheme** is 8 percent.

Sources of government borrowing

- Net market borrowing from dated securities has been estimated at Rs 11.8 lakh crore against a fiscal deficit of Rs 17.87 lakh crore in the Union Budget 2023-24.
- All 12 public sector banks and major private banks are currently profitable.

Promoting digital transactions

- Approval has been granted for giving Rs 2600 crore to banks for the current financial year to promote Point-of-Sale (POS) and e-commerce transactions using RuPay Debit cards and low-value BHIM-UPI transactions (P2M).
 - In 2022, digital transaction showed a **76 percent** increase in transactions and **91 percent** in value.

Sector-specific loans

- The agricultural loan target has been increased to **Rs 20 lakh crore**, focusing on animal husbandry, dairy, and fisheries.
- About **86 percent** of small farmers in the country had significantly benefited from the Kisan Credit Card (KCC).

Reforms in Banking Governance

- The budget has proposed some amendments to the Banking Regulation Act, Banking Companies Act and Reserve Bank of India Act to improve the banking system and increase investor protection.

STRENGTHENING THE FINANCIAL SECTOR

The Budget 2023-24 laid a blueprint for India@100. The inclusive Budget focused on growth and employment generation besides boosting infrastructure and development through self-reliance, transparency and digitalisation.

- The setting up of **Post Office Banking** as core banking in **1.5 lakh Post Offices** and **75 Digital Banking units (DBUs)** in **75 districts by SCBs** is empowering the rural consumers with financial liquidity and mobility via JAM Trinity.
- Digitalisation for India@100** will help generate wealth, bring ease of doing business, improve livelihood through enhanced employment, double farmer income through DBT at MSP and induce efficiency in currency markets.
- The budget aims to provide the means to strengthen the social safety net through **Mahila Samman Bachat Patra**.
- The budget provides for meeting the need for a **National Financial Information Registry** to serve as the central repository of financial and ancillary information.
- A business-friendly environment that is compliance-friendly is being established, with more than **39,000** compliances have been reduced and over **3,400** legal provisions have been decriminalized.
- Several initiatives have been taken in **GIFT IFSC** to make India a financial hub for international transactions and promote international business and trade.
- The Budget proposals for the GIFT IFSC are an essential step in the direction of strengthening trade and open economy frameworks.
 - **Data Embassies** would further strengthen the process of Transparency and Accountability.
- The MSME sector receives an equity infusion of Rs 9,000 crores in the corpus and an additional **collateral free guaranteed credit of Rs 2 lakh crore**.
 - Further, the cost of the credit will be reduced by about **one per cent**.

BUDGET EMPOWERS INDIA'S GEN-Z

One of the top priorities of this year's budget is youth empowerment. The Union Budget 2023-24 has emphasised '**'Amrit Peedhi'**' as a priority under the '**'Saptarishi'**' guiding through the Amrit Kaal- '**Youth Empowerment**' is one of the top priorities in this year's budget.

Tapping the Demographic Dividend

The **median age** in our country is **28.4**, this is 38 in China and 47 in Germany. The rural youth population is 65 per cent of the total population.

- The population bulge with young people has produced a demographic dividend providing an unprecedented economic development trajectory.

Aspirational Budget for Skill-based Training for Youth

- This year's Union Budget is a strategic step as skill development and vocational training will be fundamental in creating a world class workforce.
- The budget proposes launching **Pradhan Mantri Kaushal Vikas Yojana 4.0** within the next three years.
- Additionally, **30 Skill India International Centres** shall be set-up in different States to impart world class skill training.

Highest Allocation for Educating the Young

- The 2023-24 Budget for the Ministry of Education is Rs 1,12,898.97 crores.
 - It is the highest allocation so far.
- NEP aspires to create an entrepreneurship culture by enabling students to get experiential learning and vocational training.
- There is also a proposal for setting up a **National Digital Library and physical libraries** at Panchayat and ward levels.

Highest Ever Budget allocation to Youth Affairs and Sports

- More than Rs 1000 crore has been allocated to the '**'Khelo India'**' campaign for developing sports facilities and resources, grassroots-level talent identification, infrastructure building, and creating an overall sports culture providing equal opportunities to women, the divyang and the rural youth.

Supporting India's Startup Ecosystem and Youth-led Entrepreneurship

- Many young entrepreneurs are now exposed to early-stage incubation support through **Atal Tinkering Labs** in schools which is crucial to boost entrepreneurship from a young age.
- India is the hub of the Startup ecosystem in the world,

ranking third with more than 91,000 DPIIT- recognised startups and **108 unicorns worth 30 billion dollars**; this has been manifested only by the contribution of India's youth.

- Government is to create **100 labs** for the development of **5G apps** in leading engineering institutions to give a fillip to the tech-enabled startups.

Youth Power - One of the 7 Top Priorities

- Yuva Shakti is the prime driver for nation building. Our youth are mindful of the critical challenges related to sustainable development; they are now more sensitized and have increased commitment to social, economic and environmental issues.
- Policy-makers must create an enabling ecosystem for new generation entrepreneurs who can become job providers.

SKILLS, EMPLOYMENT AND HUMAN RESOURCE DEVELOPMENT

According to **World Economic Forum's** report, by 2025 due to automation and economic uncertainty, **85 million jobs** to be displaced and **97 million** new ones to be created.

The evolving skilling ecosystem

- The NEP 2020 aims to integrate vocational education into mainstream education in a phased manner by the creation of a **National Higher Education Qualification Framework (NHEQF)**, which will be coordinated with the **National Skills Qualification Framework (NSQF)** for ease of mobility between streams.
- The policy has planned vocational skill exposure starting from the middle and secondary grades through internship opportunities with indigenous artisans, craftsmen and blue-collared professionals.
- The increments in the budget outlay (**8.3% rise in the Education sector and around 85% in skill development**) clearly indicates the focus of the current government on supporting youth to be gainfully employed and in ensuring sustainable livelihoods.

Recent Reforms in Skilling and Employment Landscape

- The journey of bringing the 'Neither in Employment, Education & Training' (NEET) candidates to recognised Pradhan Mantri Kaushal Kendra (PMKK), Jan Shikshan Sansthan (JSS), and National Institute of Electronics and Information Technology (NIELIT) centers is a positive move that will augment the training and skilling ecosystem of the country and take it to the next level.
- The government's announcement of **30 India International Skill Centers** is apt and timely.

➤ These centers could act as mediums for learners to gain internationally acceptable skills and increase their competitiveness.

- The newly-announced scheme in the Union Budget 2023-24, *PM Vishwakarma KAushal Samman (PM VIKAS)* is a welcome move that will enable traditional artisans and craftspeople to improve the quality, scale and reach of their products, integrating them with the MSME value chain.
- FICCI has been working in this space for a few years through its initiative of '*VIRASAT: The Heritage*'.
- "*Make AI in India and Make AI work for India*": is a great promise to our youth that conveys that the future skills are digital, and their focus should be on acquiring these skills.
- The allocation of Rs 440 crores for **National Apprenticeship Training Scheme (NATS)** in this year's Budget for equipping technically qualified youth with practical knowledge and skills is a landmark decision.
- Further, the flagship programmes- Skill Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) and Skill Strengthening for Industrial Value Enhancements (STRIVE) will continue to support and make the national skilling framework more robust.

Human Resource Development: The Fulcrum of Change

- The government's focus on transforming the District Institutes of Education and Training (DIET) into Centers of Excellence will provide the much-needed 21st century readiness.
- The **Digital Library** announced in the Union Budget 2023-24 is a reform measure that will bring learning at the doorstep for 'Neither in Employment, Education & Training' (NEET) population.
- The PMKVY 4.0 aims to prepare a workforce skilled in new-age skills like coding, AI, robotics, mechatronics, IOT, 3D printing, drones, etc.

FISCAL DEFICIT POLICY SHIFT AND SUSTAINABLE DEVELOPMENT

The extent and magnitude of fiscal deficit is determined by two components: revenue deficit and capital expenditure. In the **Budget 2023-24**, the proposed fiscal deficit is **5.9 per cent of GDP** while it is **6.4 per cent for FY 2022-23**.

- Considering the post-Covid impact, global headwinds, Russia Ukraine war, and other geopolitical tensions, trading on a fiscal deficit of 5.9 per cent is not too high, yet will remain a cause for concern.

Table 1: Estimated Fiscal Deficit (FD) as per cent of GDP

Year (BE)	2005-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Fiscal Deficit (%)	4.4	4.3	3.8	3.3	2.5	6.8	5.5	4.6	5.1	4.8	4.1	3.9	3.5	3.2	3.3	3.5	6.8	6.4	5.9	

Fiscal Deficit and Capital Expenditure Trade-off

- In spite of the well-placed FRBMA-2003, recommended fiscal deficit of 3.0 per cent of GDP is still a target even after 20 years.
- It may be due to a lack of seriousness or various macroeconomic disturbances and economic instabilities.
- However, to reduce its ill effects, government has found an alternative of higher capital expenditure in recent years.
- To lessen the negative impact of the fiscal deficit, the government has planned for higher capital expenditure of Rs 10 lakh crore, which is 33 per cent higher than last year's figure and 3.3 per cent of GDP.

- This will be almost three times the outlay in 2019-20. The overall 'Effective Capital Expenditure' of the Centre is budgeted at Rs 13.7 lakh crore, which will be 4.5 per cent of GDP.
- In this Budget, more fiscal freedom has been given to all the states and accordingly each state has been allowed to have the leverage of a fiscal deficit of 3.5 percent of their SGDP.

Revenue Deficit and Sustainable Path

- The government has proposed a tight revenue deficit of 2.9 percent for FY 2023-24 compared to 3.8 per cent in FY 2022-23, despite various pressing needs of social sectors, welfare schemes, food and fertiliser subsidies, etc.
- The sustained decrease in revenue deficit over the recent years is undoubtedly a welcome step for fiscal stability and consolidation.

Table 2: Estimated Revenue Deficit (RD) as per cent of GDP

Year (BE)	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Revenue Deficit (%)	2.5	2.7	2.1	1.5	1.0	4.8	4.0	3.4	3.4	3.3	2.9	2.8	2.3	1.9	2.2	2.3	2.7	5.1	3.8	2.9

Source: Author's Compilation from Budget Document of GoI

- Based on the recommendations of the **Expenditure Reforms Commission**, all the expenditures, particularly revenue expenditure are reprioritised and rationalised which is very much visible in the budget provisioning.

The higher the ratio, the higher is the expenditure rationalisation and strong revenue base.

- The ratio of **revenue receipts to revenue expenditure (RRE)** needs to be evaluated in consideration with Centre and States financial relation and transactions.

Higher **capital expenditure (Capex)** will stimulate private sector investment. It will give a big push to the economy through its multiplier effects and thereby help in attaining the roadmap for India@100.

- the ratio of **capital expenditure to the fiscal deficit (Capex-FD)** broadly measures how much of borrowed resources are used for financing the capital expenditure.

Table 3: Fiscal Sustainability Indicators

S.N.	Particulars / FY	2021-22	2022-23	2023-24	Impact/Outcome
1	Fiscal Deficit (%)	6.8	6.4	5.9	Positive
2	Revenue Deficit (%)	5.1	3.8	2.9	Positive
3	RRE (Ratio of RR to RE)	67.8	67.9	75.2	Encouraging
4	Capital Expenditure (lakh crore)	5.54	7.5	10	Encouraging
5	Capex-FD (Ratio of Capex to FD)	37.4	41.5	56.0	Positive
6	Tax to GDP (%)	9.9	10.7	11.1	Positive

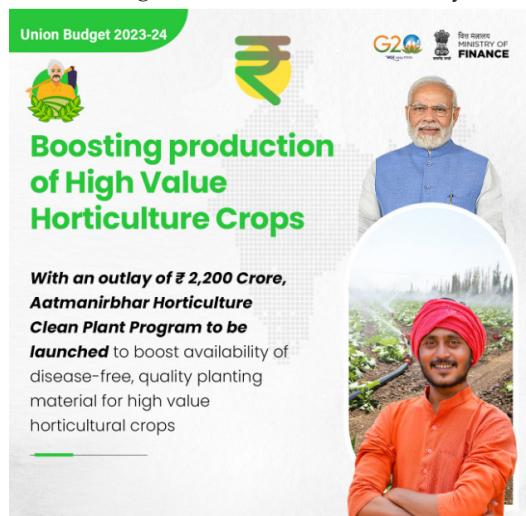
Source: Author's Compilation from Budget Document of GoI

Conclusion: Budget 2023-24 is the first to be presented in India's **Amrit kaal**. It sets the stage for sustained and sustainable economic growth of the country that ensures affordable and high-quality living standard of its citizens, when country will be enjoying its centenary of independence.

AGRICULTURE AND ALLIED SECTOR

Small farmers will benefit substantially from the budget. At the same time, emphasis has been laid on **promoting the agriculture sector by linking agriculture with modern practices** following Prime Minister Modi's vision so that farmers get extensive benefits in the long run.

- The credit target for animal husbandry, dairy, and fisheries has been **increased to 20 lakh crores**.
- The total budgetary allocation of the **Ministry of Agriculture and Farmers Welfare** is Rs. 1.25 lakh crore this time, which will undoubtedly prove to be a milestone with infrastructure growth in rural India.
- The government is using technology to take development initiatives in every sector. A **Digital Agriculture Mission** has thereby been initiated.
- Natural farming is being transformed as a mass movement in the country by the Prime Minister, and to **promote it, Rs. 459 crores** have been allocated in this budget.
- In agriculture-allied sectors, the new sub-scheme of **Prime Minister Matsya Sampada Yojana** will be initiated with a targeted investment of Rs. 6 thousand crores, so that fish farmers, fish sellers, and **related micro and small-scale industries** become more efficient.
- The government has set a target of providing all facilities related to agriculture to small and medium farmers by aggregating them through **Farmer Producer Organisations (FPOs)**. For this, 10,000 new FPOs are being formed across the country.



- Food and nutritional security are one of the priorities of the government for which the budget provision has been increased to Rs. 1623 crore, while under the government's ambitious scheme, **Pradhan Mantri Kisan Samman Nidhi (PM-Kisan)** budget provision of Rs. 60 thousand crores have been made.
 - The budget provision of Rs. 5,300 crores have been made for **Bhadra Project** to provide sustainable micro irrigation and fill up surface drinking water tanks.
 - With the motto of '**Sahakar Se Samriddhi**', the government wants to **promote a cooperative-based economic development model** which will significantly increase the farmers' income.
 - The higher allocation of resources for rural **employment initiatives, crop husbandry, including farming and the raising of livestock, poultry and other activities, food storage and warehousing and rural housing** indicate India's resolve to transform rural areas into growth engines.
 - The Budget, considered the absorption capacity of implementing States/UTs and allocated **Rs. 60,000 crores to MGNREGA** and **Rs. 14,129 crores to National Rural Livelihood Mission**, the two existing wage and self-employment programmes towards building quality and productive community assets and enterprises.
- NLM has two important self-employment schemes: Deen Dayal Upadhyaya Grameen Kaushal Yojana (DDU-GKY) and

Deendayal Antyodaya Yojana - National Rural Livelihood Mission (DAY-NRLM).

- In order to achieve the **expected goals of the government** (regarding farmer's income and profits), we need to ensure **active participatory actions towards:**
 - ◆ reducing water stress by comprehensive water planning;
 - ◆ promoting natural and organic farming practices;
 - ◆ ensuring balanced use of fertilizers;
 - ◆ strengthening operation green initiatives though promotion and nurturing of Farmer Producer Organisations (FPOs), cooperatives and other rural collectives in agriculture, dairy and fisheries;
 - ◆ establishing and enhancing agri-logistic facilities like agri-warehousing, cold storage, refer vans;
 - ◆ mapping and geo-tagging existing agri-logistics and ensuring viability funding for setting up such infrastructure at taluka level through public-private partnerships;
 - ◆ enhancing holding capacity and reducing logistic costs of farmers through construction and operation of community-led village storages.

- The Budget vowed to ensure creation of grain storage capacity in each panchayat through **Primary Agricultural Credit Societies (PACS)**.
- The recent initiatives of the **Ministry of Cooperation** for growth of cooperative businesses include computerisation of 63,000 with an investment of Rs. 2,516 cr.; creating national cooperative database; popularising the **model bye-laws of PACS** amongst States to transform them into multi-purpose Cooperatives with multi-dimensional business activities, etc.

Overall, with the all-round measures being taken to make Indian agriculture more advanced and farmers prosperous and the mantra of **Jai Jawan-Jai Kisan-Jai Vigyan-Jai Anusandhan**, golden chapters will certainly be written from the Amrit Mahotsav to Amrit Kaal of the country's independence.

RURAL DEVELOPMENT

Rural development has always been the top priority of policymakers in a country like India where nearly two-third of total population and **more than 70 percent of the workforce reside in rural areas**.

The **Ministry of Rural Development** has been assigned the responsibility to promote welfare activities in rural India. It takes steps to increase livelihood opportunities, providing social safety nets and improving infrastructure in rural areas for their rapid growth.

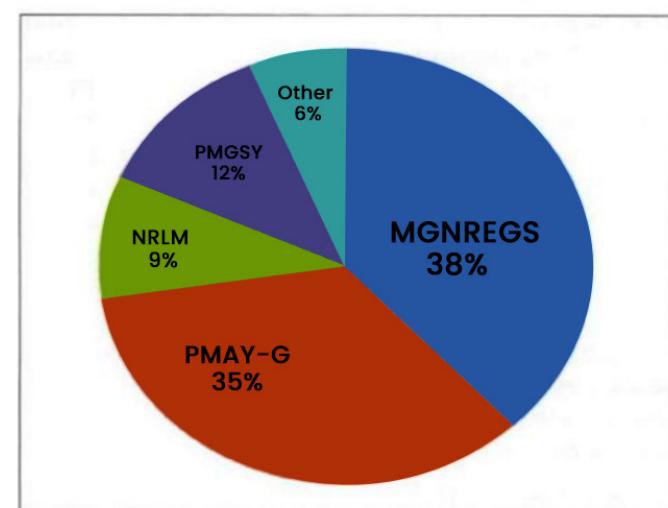
- The Ministry of Rural Development has been provided the **seventh highest allocation across all Ministries** in the Union Budget for the financial year 2023-24.
- The budget allocation to all centrally sponsored schemes for rural development went up from **Rs. 1,08,175 crores** to **Rs. 1,57,545 crores** witnessing a growth rate of **7.84 percent per annum during the last seven years**. But it **came down by 13.02 percent** in **2023-24** as compared to the previous year.

Table 2: Budget Allocation to Centrally Sponsored Schemes for Rural Development

Scheme	2017-18 (A)	2018-19 (A)	2019-20 (A)	2020-21 (A)	2021-22 (A)	2022-23 (RE)	2023-24 (BE)	(Rs. Crore)
MGNREGS	55166	61815	71687	111170	98468	89400	60000	4.40
PMAY-G	22572	19308	18116	19269	30057	48422	54487	19.54
PMGSY	16862	15414	14017	13688	13992	19000	19000	3.03
NRLM	4327	5783	9022	9208	9383	13336	14129	17.21
NSAP	8694	8418	8692	42443	8152	9652	-	7.52
SPMRM	553	433	304	369	150	989	-	8.55
All Centrally Sponsored Schemes	108175	111842	121839	196147	160433	181122	157545	7.84

Source: Ministry of Rural Development, Demands for Grants, 2019-20 to 2023-24.

Total Allocation to Centrally Sponsored Schemes (2023-24 BE)



Source: Ministry of Rural Development, Demands for Grants, 2023-24

Mahatma Gandhi National Rural Employment Guarantee Scheme

- It seeks to strengthen the livelihood resource base of the poor by providing **100 days of guaranteed wage employment per year** to every rural household whose adult members volunteer to do unskilled manual work. Presently, it **covers all the rural districts (716)** of the country.
- Under this scheme during the year 2022-23, **assets worth Rs. 7.10 crore** were created through the generation of **253.11 crore person days** benefiting 5.82 crore households up to February 10, 2023.

Pradhan Mantri Awas Yojana- Gramin

- This scheme, aims at providing financial assistance to the rural poor for the **construction of pucca houses of 25 sq. mt. with all basic amenities** (piped drinking water, electricity connection, LPG gas connection, etc.).
- A **total of 2.83 crore houses** have been sanctioned and **2.14 crore** have been completed by February 10, 2023, under the Scheme.

Pradhan Mantri Gram Sadak Yojana

- The primary objective of the scheme is to **promote economic activities in rural India** by providing all-weather road connectivity to the **eligible unconnected rural habitations**.
- Since, the inception of the scheme, a **total of 1,74,029 works with a road length of 7,25,774 kilometres** were constructed till 10 February 2023.

National Rural Livelihoods Mission

- It aims at **creating diversified and gainful self-employment** to the rural poor through sustainable livelihood enhancements and improved access to financial services. Presently, the scheme covers 737 districts spread over 2,68,675 Gram Panchayats and 7,40,845 village of the country.

National Social Assistance Programme

- The major schemes under this programme include **Indira Gandhi National Old Age Pension Scheme, Indira Gandhi National Widow Pension Scheme, Indira Gandhi National Disability Pension Scheme, National Family Benefit Scheme and Annapurna Scheme**.

Shyama Prasad Mukherji Rurban Mission

- It aims at **developing cluster of villages** that preserve and nurture the essence of rural community life with focus on equity and inclusiveness without compromising the facilities perceived to be essentially urban in nature.
- The **main objective is to bridge the rural-urban divide viz; economic, technological and those related to modern facilities** for stimulating local economic development with emphasis on employment generation in rural areas. The mission has a target to **create 300 Rurban Clusters**.

CONCLUSION

- To conclude, **balanced regional development** with a focus on rural areas has always been at the top of the development agenda in India. The **Government's initiatives towards more inclusive growth, social protection, and gender-responsive development** will certainly pave the way for journey of the country to become the third largest economy in the world by 2027.

Start-Up India

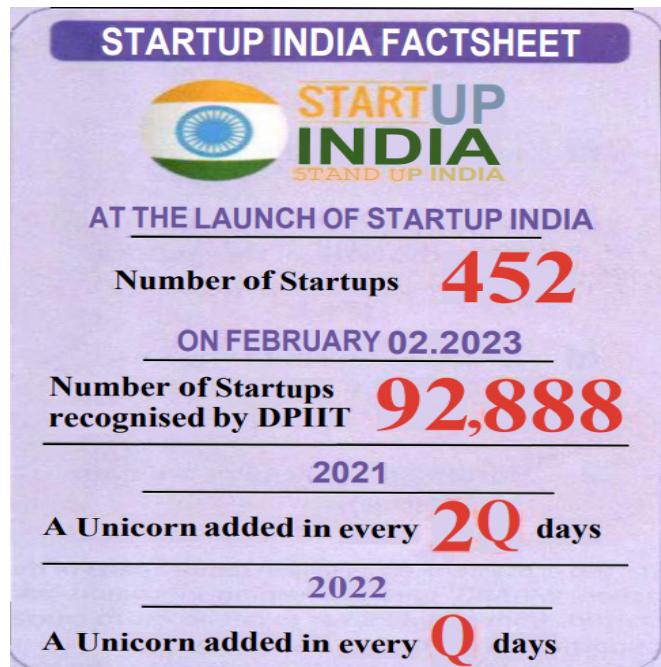
Yojana (April 2023)

Today the world is rapidly ageing, but India is still young and going to remain youngest until 2047. Out of 1.4 billion human resources, about a billion Indians are under the age of 35 years. Our Average is 29.

To ensure that India fully reaps the benefit of its demographic dividend, the Government of India is planning & executing policy meticulously. Startup India

has been decisive & phenomenal among the series of interventions by the Government of India for making India's youth the best in the world.

- Launched on the 16 January 2016 as a clarion call to the innovators, entrepreneurs, & thinkers of the nation to lead from the front in driving India's sustainable economic growth and creating large-scale employment opportunities.



3 KEY PILLARS OF SUPPORT



- The Government of India has been able to bring capital investment as well as the best innovative practices from around the world to India. Out of the \$950 billion in FDI received since independence, **\$532 billion came in the last 8 years or so**.
- With the initiatives like **Digital India**, **broadband connectivity in villages** drove the growth of the startup ecosystem, especially in remote parts of the nation. **'MAARG' portal** is helping innovators and startups from remote areas to get access to crucial opportunities and funding ecosystems.

By 2047, 20 percent of the world's middle class will be in India. It means that in the next 25 years, there will be an entirely new Urban population that will need A to Z of things including housing, infrastructure, food, education, water, health, entertainment, social security, etc. **Young entrepreneurs** have a myriad of sectors to innovate in and positively disrupt the market.

- In the **Union Budget 2023-24**, the finance minister talked of making India a knowledge-based digital economy. Under the **Pradhan Mantri Kaushal Vikas Yojana**, skilling and training will be given for artificial intelligence, coding, 3D printing, and the Internet of Things.
- A total of **30 Skill India International Centres**, **3 Centres of Excellence for Artificial Intelligence**, and **100 labs for the development of 5G applications** will be opened in the country.

- To facilitate the use of data arising from Indian digitization, the Government is soon going to introduce the **National Data Governance Policy**.
- According to a **NASSCOM report**, the IT industry posted a 15.5 percent YoY growth for FY22. It further added that the tech sector revenue surpassed USD 200 billion.
- We are witnessing increased demand and development in various tech sub-sectors such as **AI, blockchain, XaaS, platformisation, cloud computing, cybersecurity, hyper-scale computing, IoT, machine learning, and supply chain** which can be leveraged by startups.

NATIONAL LOGISTICS POLICY: A BOON FOR STARTUPS

- The policy aims to **lower the cost of logistics** from the **existing 13%-14% range** and bring it on par with other developed countries. The NLP's transformational capacities further increase when combined with previous connectivity and infrastructure improvement schemes like **Gati Shakti, Sagarmala, and Bharatmala**.

DEFENCE & SPACE SECTOR

- The country, which was the biggest defence importer for decades, is today exporting defence equipment to 75 countries around the world. The country's defence exports have **increased 6 times in the last 5 years**. The government launched the **Innovations for Defence Excellence (iDEX) framework** with the goal of encouraging innovation and technology development in the **Defence and Aerospace sectors**.

AGRICULTURE STARTUPS

- The Agricultural Budget which was less than Rs. 25,000 crores in 2014 have been increased to more than **Rs. 1,25,000 crores today**. The introduction of accelerator funds for agri-tech startups is not only creating digital infrastructure but also preparing funding avenues.

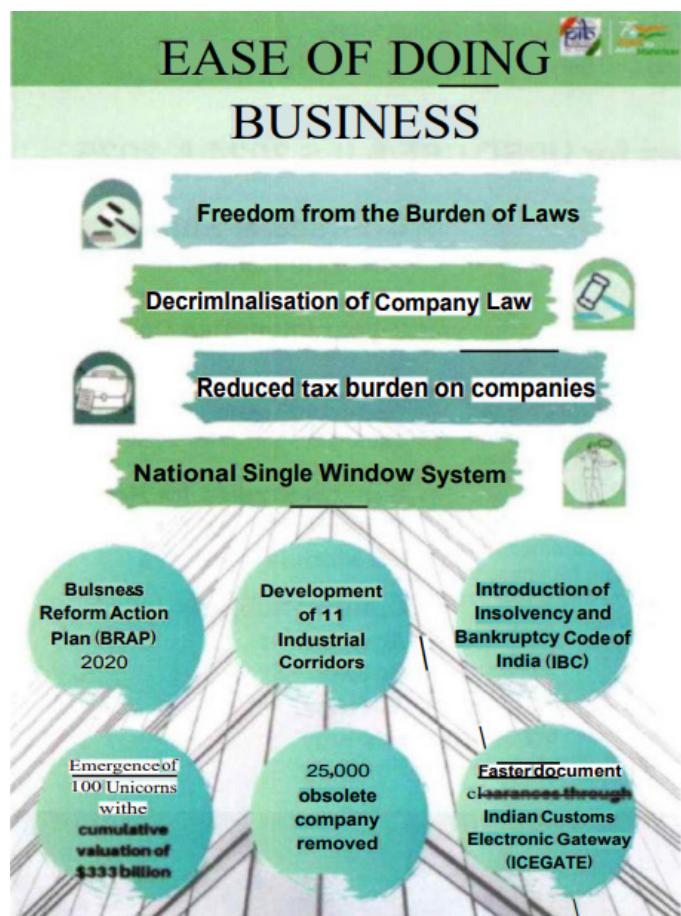
STARTUP INDIA ACTION PLAN: FOUNDATION OF INDIAN STARTUP ECOSYSTEM

From about **500 startups in 2016 to over 92,000 recognised startups** in February 2023, India's startup ecosystem growth story has become a globally renowned case of structured development and evolution of an ecosystem and community. The complex opportunity of the Indian startup ecosystem lies in the standard lifecycle of a startup: **ideation, validation, early traction and scaling**.

Under our Startup India initiative, we have adopted this approach by the way of introducing the National Startup Advisory Council (NSAC), **chaired** by the **Hon'ble**

Minister of Commerce and Industry.

- Programmes such as **MAARG National Mentorship Program, Incubator Capacity Development Program, Startup India Investor Connect portal, Adoption of NavIC Grand Challenge, Startup Champions 2.0, etc.** are all ideated and incubated by this Council.
- The institutionalization of the **Startup20 Engagement Group** within G20 provides us with another opportunity to lead from the front, unite the world to support the entrepreneurship ecosystem, and take our startups to a global stage.



Startup20 Engagement Group.

With India's G20 presidency, the global startup ecosystem is on the cusp of a new dawn as the Global Twenty has agreed to India's proposal to create the **Startup20 Engagement Group**. It must be acknowledged that this is not the first-time startups are on the G20 agenda.

Goals of Startup20

- The **overarching goal of Startup20** is to propose a policy framework that achieves two objectives simultaneously:
 - harmonisation of global startup ecosystems to facilitate their collaboration, and

- doing so without compromising the national ecosystems 'freedom to grow in whatever way they see fit.
- To accomplish its goals, Startup20 has formed **three Task Forces** that focus on critical areas vital to the development of a thriving startup ecosystem. **Foundation and Alliances, Finance, and Inclusion and Sustainability** are among the Task Forces.

STARTUP²⁰ **G2C**

Foundation and Alliances Task Force

Focus areas

- 01 Harmonize the global Startup ecosystem
- % 02 Set up a global knowledge repository/hub
- 03 Create Bilateral and Multilateral collaborations
- ₹ 04 Global access to markets and talent for startups
- 05 Recommend supportive policies for governments

Task Force 3
inclusion & Sustainability

Create equal opportunity for startup founders irrespective of gender, race, class, creed.

Create avenues for startups to follow sustainable practices to develop innovative solutions.

STARTUP 20x

- In addition to welcoming the G20 economies to Startup20, the unique, bottom-up, and generative platform, **Startup20x was launched**.
- Startup20x is **designed to harness such bottom-up voices** and, in addition to the expert-led forum that the Task Forces will provide, inform global startup policy. It will achieve this goal by **inviting startup ecosystems** around the world to co-brand and share their content on a global scale. To **distribute the content**, the platform has partnered with several channels.

STARTUP²⁰ **G2C**

Task Force 2 Finance

Develop funding opportunities for startups.
Provide stability in startup investments at global, regional and national levels.

The Indian Space Research Organisation (ISRO) has been at the forefront of space technology and exploration since its inception. By using its critical resources, ISRO produced significant advances in space technologies throughout the years, positioning India as a major player in the global space arena. ISRO's 53-year journey has seen amazing developments, from its beginnings in Thumba to Space transportation, infrastructure, science, applications, human exploration, robots, artificial intelligence, and quantum technologies are all examples of this.

SPACE TRANSPORTATION SYSTEM

- In 1970's, the development of **solid-propulsion-based Sounding Rockets** capable of putting 30 kg of payload at 120 km of altitude marked the beginning of the space transportation system.
- It was followed by the creation of **first generation launch vehicles**, namely **Satellite Launch Vehicles (SLV)** and **Augmented SLV (ASLV)** with liquid-propulsion technology.

- The integration of solid and liquid propulsion, as well as the development of various crucial technologies, resulted in the development of the **Polar Satellite Launch Vehicle (PSLV)**, with the capability of placing a 1700 kg payload into polar orbit.
- The indigenous development of a **cryogenic propulsive engine** was a key technological leap in the construction of third generation rockets, namely, **GSLV** launch vehicles capable of delivering a 2000 kg payload in **Geo-Synchronous Transfer Orbit (GTO)**.
- The development of a more advanced launch vehicle, namely **Launch Vehicle MK3 (LVM3)**, was required for the launch of high-throughput communication satellites.
- LVM3 has a **payload capacity** of 4000 kg and is powered by the world's third largest solid boosters, high-capacity liquid and cryogenic engines.
- The **Small Satellite Launch Vehicle (SSLV)** was recently introduced by ISRO. It is a three-stage launch vehicle designed for quick turnaround, capable of launching a 500 kg satellite into a 500 km planar orbit.

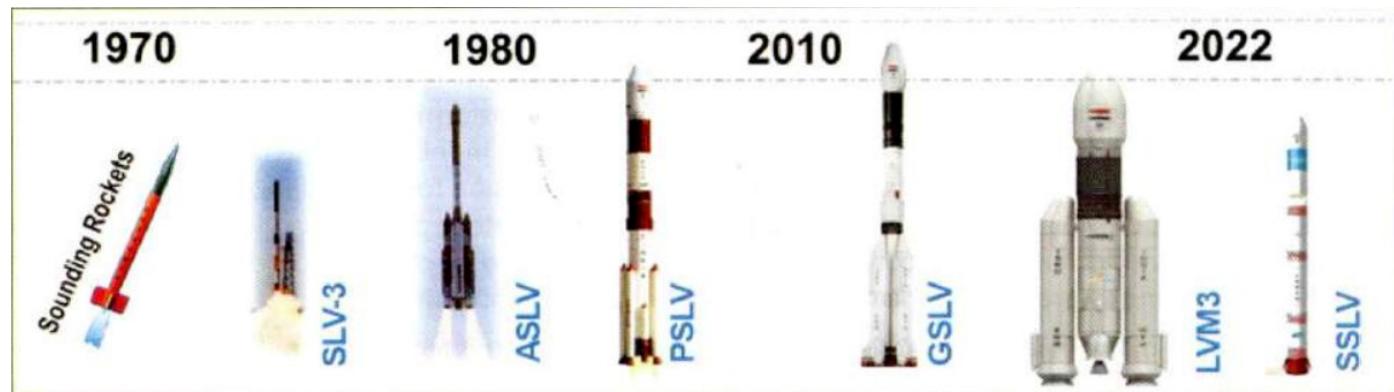


Figure 1: Evolution of ISRO rockets

LATEST SPACE TECH INNOVATIONS

- Reusable Launch Vehicles (RLV) and Air Breathing Propulsion
 - ISRO is developing **reusable launch vehicles**, air-breathing two-stage to-orbit vehicles, and scramjet engines for future space transportation systems that are cost-effective. ISRO recently made a big advancement in RLV technologies by demonstrating the autonomous landing of a winged vehicle on a runway with an RLV landing experiment (RLV-LEX).
- Its current focus is on the development of crucial technologies towards the realisation of the Hypersonic Air Breathing Vehicle with **Airframe Integrated System (HAVA)**, a vehicle-integrated scramjet engine.
- Space Robotics and 3D Printing

- In addition to the humanoid robot **Vyommitra**, ISRO has worked on landers and rovers for the **Chandrayaan-3 mission** as well as on-orbit satellite refuelling. They are also investigating 3D printing in space.
- **PSLV Orbital Experimental Module (POEM)**
 - The fourth stage of the PSLV has been used by ISRO in an inventive way to conduct research experiments under the name POEM. It offers a microgravity platform for carrying out many kinds of scientific investigations in space. Academic institutions and businesses have the option to use this distinctive and affordable platform to carry out their space-based investigations.
- **Quantum Communication**
 - With the development of crucial technologies like entangled-photon sources and polarisation correction methods, ISRO has successfully demonstrated free-space quantum communication over a 300 m distance.
- **Space Data Economy and Smart Cities**
 - Supply chain management, smart manufacturing, and smart cities all benefit from the use of space data in conjunction with Artificial Intelligence and Machine Learning.
- **Societal Applications and Spin-offs**
 - Technological developments in the space industry have influenced everyday life in the form of medical ventilators, microprocessor-controlled limbs, and ventricular assist systems.
- **Growing Private Sector Participation**
 - Nongovernmental organisations are encouraged to participate in space sector reforms, which promote a vibrant space ecosystem and advance science and technology.

Thus, the field of space technology has seen extraordinary levels of innovation in recent decades, and ISRO has served as a major organisation in **unravelling the mysteries of the cosmos** and furthering human understanding. Looking ahead, developments in space technology will definitely pave the way for new discoveries and advancements, opening up new horizons for exploration and improving our grasp of the universe.

LEVERAGING TECHNOLOGY FOR TRANSFORMING HEALTHCARE

Digital health is a broad multidisciplinary framework that includes software, hardware, and services on a single platform. The use of technology interventions for providing healthcare solutions and empowering healthcare seekers and providers (including individuals,

community or professional caregivers, doctors, the paramedical workforce, and the pharmaceutical and medical device industries) with a focus on better quality, higher efficiency, and easy access to healthcare services is referred to as digital health.

- **Telemedicine** is the provision of health services where a critical factor is distance by all health care professionals using information and communication technologies for the exchange of reliable information for the diagnosis, treatment, and prevention of illness and injuries, research and evaluation, and for the continuing education of health care professionals, all in the interest of improving the health of individuals and their communities.
- **MobileHealth or mHealth:** In some nations, including India, field-level healthcare workers employ mobile devices like tablets with pre-loaded customised software programmes.
- The **Internet of Medical Things (IoMT)** has combined medical devices and applications that connect to health IT systems that use diverse networking technologies to improve communication between doctors and patients, to reduce the risk of exposure to contagious diseases, and to collect data at the user level.

INDIA LEADS THE WAY- DIGITAL HEALTH INITIATIVE DRIVING CHANGE

Some of the key features of the digital interventions launched by the Government of India are **inclusiveness, multilingual platforms, scalability, and interoperability**. Over a billion individuals have benefited from these.

The following are some of the initiatives that have seen a vast acceptance among people, accompanied by innumerable advantages.

Ayushman Bharat Digital Mission (ABDM)

- Launched by the Prime Minister in September 2021.
- It aspires to create the foundation for the nation's integrated digital health infrastructure and envisions an infrastructure for that purpose.
- These digital highways will bridge the gap that currently exists between the many healthcare ecosystem stakeholders.
- By offering a variety of data, information, and infrastructure services and properly utilising open, interoperable, standards-based digital systems, ABDM proposes to develop a seamless online platform while ensuring the security, confidentiality, and privacy of personal health information.
- An important part of ABDM is **ABHA (Ayushman Bharat Health Account)**. The ABHA is a 14-digit

number that will uniquely identify a beneficiary as a participant in India's digital healthcare ecosystem.

2. (CoWIN) system

- On January 16, 2021, the Covid Vaccine Intelligence Network (CoWIN) system was launched.
- It has served as the technological backbone for India's Covid-19 vaccination initiative, which has so far administered over 220 crore doses.
- The primary elements of the CoWIN platform are as follows: (i) blended registration- Beneficiaries can register online or in person at the Vaccination Centre. (ii) Beneficiaries can schedule appointments online at their convenience. (iii) Vaccination Schedule Tracking (iv) Instant Digital Vaccination Certificate with Certificate Correction Utility (v) Multilingual Portal in 12 Languages (vi) A mobile application for vaccinators' convenience (vii) Vaccine stock management (viii) Advance publication of vaccine schedules (ix) Real-Time Dashboards (x) Adverse Event Following Immunisation (AEFI) tracking (xi) Tracking of digital Covid-19 vaccination certificates; and (xii) Facility-specific coverage.

3. Tele-MANAS: Tele Mental Health Assistance and Networking Across States

- It was launched on October 10, 2022.
- It aims to provide free telemental health services, such as counselling, integrated medical and psychosocial interventions via video consultations with mental health specialists, e-prescriptions, follow-up services,

and links to in-person services, to remote areas and vulnerable populations in particular.

- The programme aims to provide specialised care by connecting Tele-MANAS with other services such as the national teleconsultation service, e-Sanjeevani, Ayushman Bharat Digital Mission, mental health professionals, Ayushman Bharat Health and Wellness Centres, and emergency psychiatric facilities.

4. Ni-kshay 2.0 Portal

- In September 2022, the President of India announced the **Pradhan Mantri TB Mukt Bharat Abhiyan- Ni-kshay 2.0**, a digital platform for community assistance for tuberculosis patients.
- As of 3 March 2023, over 13.25 lakh TB patients were on TB therapy at the Ni-kshay portal, with 9.69 lakh TB patients consenting for adoption.

5. Health Technology Assessment (HTA)

- It is an institutional framework established by the Department of Health Research (DHR) to enhance the process of transparency and evidence-informed health decision-making.
- It assesses the appropriateness and cost effectiveness of existing and emerging health technology in the country.
- Since its inception in 2017, it has provided evidence-based decision making to the Union Health Ministry, Ayushman Bharat-PMJAY, and various states.

INDIA GIFTING HOLISTIC WELL BEING TO THE WORLD

Yojana (June 2023)

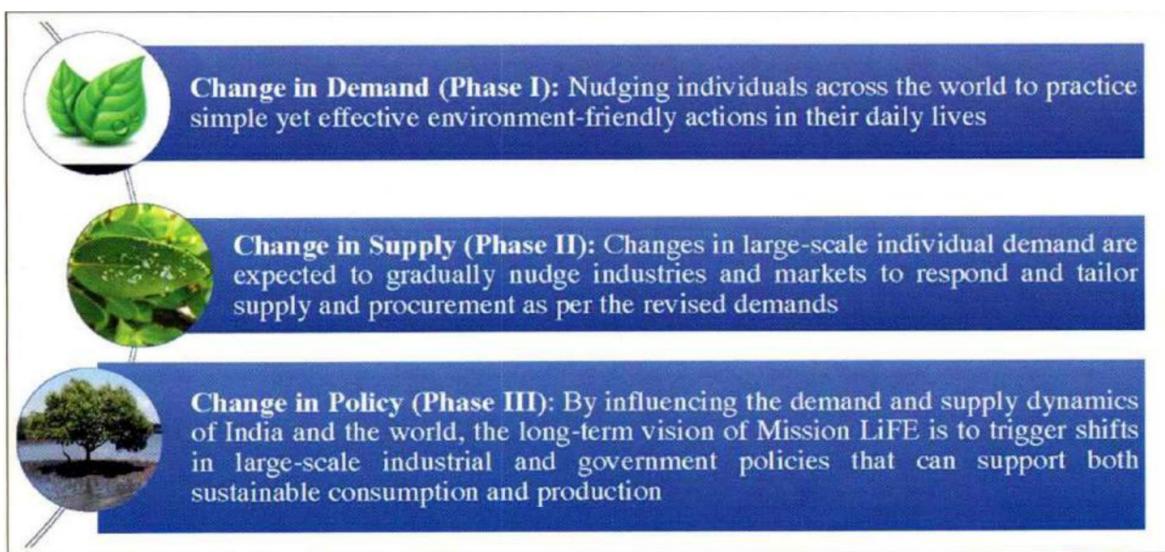
WHAT IS MISSION LIFE?

- Mission LiFE is an India-led global mass movement to nudge individual and community action to protect and preserve the environment.
- At the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Glasgow, India shared the mantra of LiFE - Lifestyle for Environment - to combat climate change.
- India is the first country to include LiFE in its Nationally Determined Contributions (NDCs).

Objectives of Mission LiFE

- It seeks to translate the vision of LiFE into measurable impact.
- It is designed with the objective to mobilise at least one billion Indians and other global citizens to take individual and collective action for protecting and preserving the environment during 2022-2027.

Mission LiFE: Three core shifts towards sustainability



DIRECT BENEFIT TRANSFER IN INDIA

The DBT was originally envisaged as a scheme, where the welfare benefits provided by the Government are directly

credited to the bank or postal account of the accurately identified beneficiary. The DBT in India not only entails cash support to eligible beneficiaries but also in-kind transfers to them, covering over 300 Central and more than 2000 State schemes.

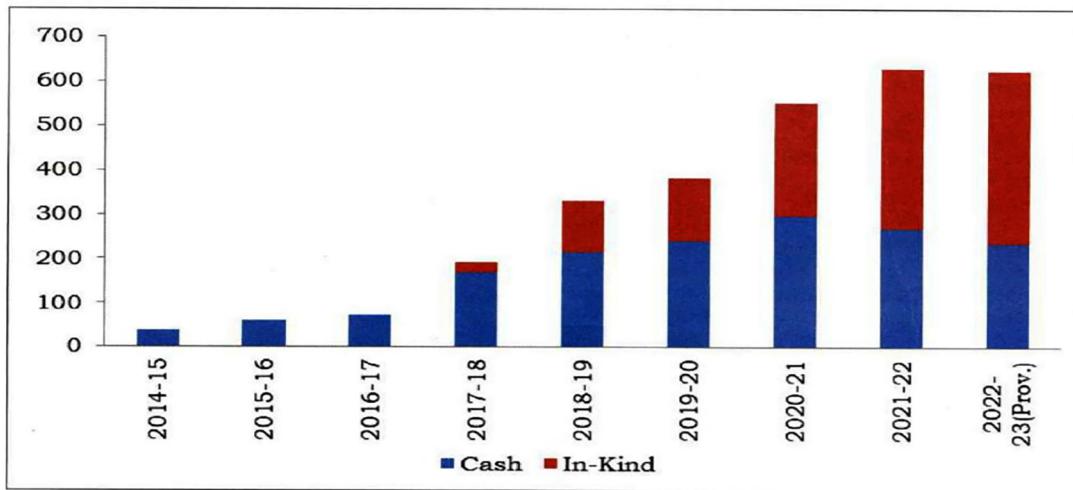
Whereas the first set of support entails transfer of assistance in the respective bank accounts of the beneficiaries, the second bucket of schemes involves provision of in-kind goods and services to intended beneficiaries.

- The common theme is the use of electronic-ID Aadhaar for identifying and authenticating the intended beneficiaries.

Progress of DBT in India

- DBT in India has been recognised to bring all-round inclusivity and efficiency by experts from various fields.
- The World Bank (2022) also recognised the need for countries to back the DBT-styled public interventions into action plans for disaster resilience.
- The positive impact of DBT in India on the economic and social position of women within and beyond their households.

Figure 1: Total fund transfer in Central schemes (in Rupees thousand crore)



World praises India's DBT

- India's Direct Benefit Transfer has been a force multiplier in facilitating the transfer of social safety net payments directly from the government to beneficiaries' bank accounts, helping reduce leakages, curb corruption, and provide a tool to effectively reach households to increase coverage.
- The IMF has hailed DBT for being a logistical marvel at how these programmes that seek to help people who are at low-income levels reach literally hundreds of millions of people.

- The World Bank also lauded the scale at which DBT impacts people's lives - 'Helped by digital cash transfers, India managed to provide food or cash support to a remarkable 85% of rural households and 69% of urban households'.
- At the same time, DBT and accompanying governance reforms have been estimated to save the Government of India cumulatively a sum of Rs 2.23 lakh crore up till March 2021 or close to 1.1% of GDP.

7

COOPERATION TO PROSPERITY

Yojana (July 2023) & Kurukshetra (January 2023)

WHAT IS A COOPERATION?

Cooperation is defined as a group of people who have one or more similar economic demands and voluntarily choose to combine their resources--both human and material--and use them for mutual gain through a democratically managed enterprise.

Cooperation is a type of economic structure based on specific life ideals. It is a voluntary and democratic human association founded on equality of control, opportunity, and distribution equity. Furthermore, it stands for the promotion of producers' and consumers' joint interests. All economic enterprises are for profit, and profit is their main goal. However, cooperation provides services to its members without the sole purpose of profit.



Figure 1: Seven Golden Principles of Cooperation

What are the Constitutional Provisions for a Cooperative Society?

- i. Article 19(1)(c) of the Constitution of India states that - All citizens shall have the right to form associations or unions [or co-operative societies].
- ii. Directive Principles of State Policy (DPSP) 43B- Promotion of cooperative societies — The State shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies.
- iii. Part IXB of the Constitution of India grants constitutional status to cooperative societies and contains provisions for their democratic functioning.



WHAT IS A COOPERATIVE SOCIETY?

An autonomous open and voluntary association of persons of the weaker section of the society, to meet their common socio-economic and cultural needs and aspiration through a jointly owned and democratic control enterprise in accordance with the cooperative values and principles.

National Cooperative Database

The primary goal and purpose of building National Cooperative Database is to have Information based Decision Support System.

- Taking the cooperatives movement in the country to a new level by strengthening grassroots-level reach and coordination of activities across sectors.
- Promoting cooperatives-based inclusive and sustainable model of economic development.
- Easing operational processes.

Nurturing Cooperatives

Despite the fact that these cooperatives have been in existence for more than a century, the overall picture was not particularly pleasing. The creation of a distinct '**Ministry of Cooperation**' (MoC) by the Union Government on 6 July 2021 with the goal of achieving '*Sahakar se Samriddhi*' was a momentous decision to further promote cooperatives as a truly people-based movement reaching up to the grassroots.

This was seen as a massive step towards bolstering the nation's cooperative movement and recognising the power of our cooperatives, which place people before capital and operate as people-centric businesses. This Ministry provides a separate administrative, legal, and policy framework to support the development of cooperatives and make them more competitive. Such an alteration in structure is the need of the hour to transform cooperatives into a viable and thriving business model in the existing socio-economic environment.

Since inception, the Ministry has been successful in obtaining approval for significant policies, including bringing cooperative societies on the GeM platform, computerisation of Primary Agriculture Credit Societies (PACS), strengthening multi-state cooperative societies, etc., with the aim of boosting cooperative development efforts. Not only this, MoC has also actively collaborated with stakeholders in gathering, compiling, analysing, and resolving a variety of problems and concerns ' to improve the business climate for the cooperative sector, streamlining processes for '**Ease of Doing Business**'.

Cooperatives played a significant role in developing an economic model for rural development. The establishment

of MoC, a reviving step by the Government will certainly bring transparency and expand the reach of cooperatives to the grassroots across the country.

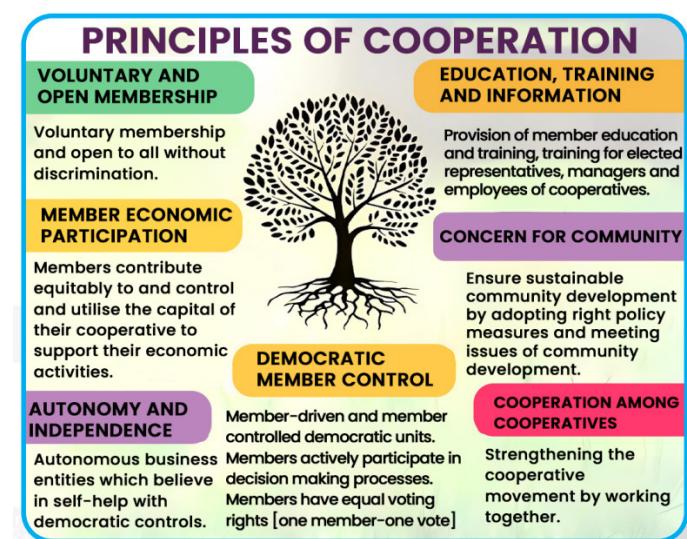
Overview of the cooperative movement

- India is home to 8.54 lakh cooperatives present in 98% of the villages and has 29 crore members. 80% of these cooperatives are non-credit cooperatives and 20% are credit cooperatives.
- The first recognition of the cooperative movement started in 1904 with the promulgation of the Cooperative Credit Societies Act.
- After the MacLagan Committee Report on Cooperatives (1914-15), the cooperative movement underwent a transition from primarily focusing on providing relief to becoming a movement with the aim of improving socio-economic welfare.
- Post-independence, the cooperative movement received due recognition in the perspective plans of the Government of India.

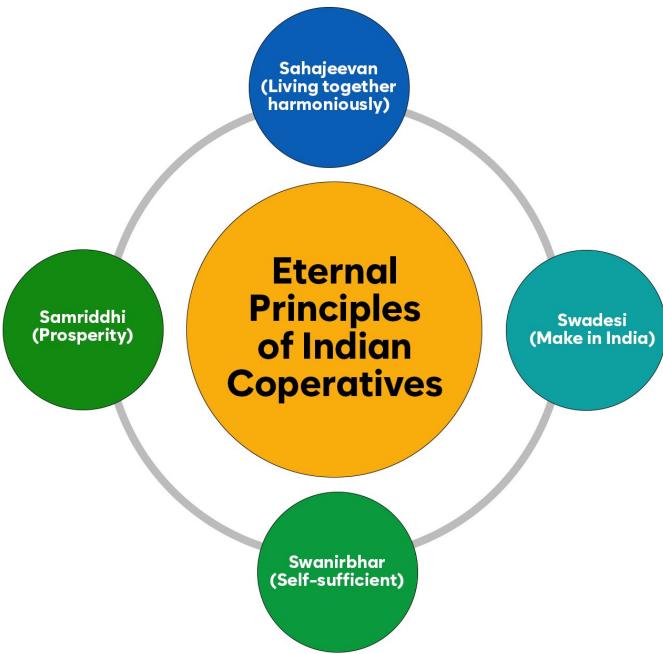
Principles of Indian Cooperatives

Indian cooperatives prioritise people over capital and function as **people-centric**

organisations. These bring collective cohesiveness, community business sense, and enhanced social bonding by adhering to **seven golden principles** of cooperation.



Cooperation has enormous abilities to ensure all-inclusive economic growth. E.g., Anand Milk Union Limited (Amul) by forming farmer cooperatives for the production and marketing of milk through collectivised efforts which made Amul a global dairy brand by duly justifying the **eternal principles of Indian Cooperatives**.



Addressing hurdles and challenges through appropriate policies and effective government interventions is necessary to unleash the full potential of cooperatives. This can be achieved by utilizing the 4Ps and 4Es framework.



GOVERNMENT COMMITMENTS TO INDIAN COOPERATIVE MOVEMENTS

- Cooperative 'SQUAD':** The government has formulated a plan which prioritises and explores new emerging areas for cooperatives through the 'SQUAD' framework.



- National cooperation policy:** Suresh Prabhu committee has been set up to formulate an all-inclusive policy for the uniform cooperative movement.
- Strengthening Primary Agriculture Credit Societies (PACS):**
 - Model By-laws for PACS:** 22 states have adopted model-by-laws to enhance operational efficiency, transparency, and responsibility towards collective community development.
 - PACS as Common Service Centres (CSC):** PACS can register as CSCs to diversify their business for self-sustenance.
 - Integrating PACS with FPOs:** This will help PACS to extend their scope of activities and take up high-income enterprises like beekeeping, mushroom cultivation, etc.
 - PACS in the Oil and Energy Business:** PACS can avail licenses for petrol and diesel dealerships and LPG distributorships, and they will also be engaged in the implementation of various renewable energy schemes.
- National Cooperative University:** It will help to establish a comprehensive, integrated, and standardized structure of cooperative teaching and training and meet the demand for capacity building of the existing workforce.
- Cooperative database:** The Ministry of Cooperation is developing a comprehensive cooperative database to capture authentic and updated data on cooperatives of all sectors to support policy formulation.

Cooperatives' contributions will have a multiplier effect on the goal of building a five trillion-dollar Indian economy while increasing farmer income. The actual realisation of the *Sahakar se Samriddhi* vision is dependent on community business units effectively tapping into

the natural potential of people's collective activity while adhering to the underlying concept of the cooperative-based model for socioeconomic advancement.

COOPERATIVE ENTREPRENEURSHIPS FOR ECONOMIC DEVELOPMENT

Cooperative movements and entrepreneurship are historically rich and diverse in India. Cooperative entrepreneurship focuses on quality employment generation, wealth creation, and optimum use of available resources at the community level.

Cooperative Entrepreneurship

- Cooperative entrepreneurship is a form of collective or joint entrepreneurship.
- A 'cooperative entrepreneur' is purely a social leader with a vision to develop strong methods for democratically managing company operations rather than for personal gain.
- Cooperative leaders are determined and committed to their work, have the ability to innovate and 'think outside the box,' and are prepared to take risks.
- Democratic governance based on one person, one vote, and equality are the pillars of governance of cooperatives.
- Solving community problems, and observing sectoral trends are two effective methods for fitting chances for the creation of cooperatives.

Objectives and Significance of Cooperative Entrepreneurship

- Focuses on quality employment generation
- Wealth creation
- Optimal use of available resources at the community level
- Potential to deliver goods and services at the grassroots
- Social bonding and cohesion
- Control and dignity of the workplace

In India, cooperatives account for:

- 19% of our agricultural financing
- 35% of fertiliser distribution and 30% of fertiliser production
- 40% of sugar production
- 13% of wheat procurement and
- 20% of paddy procurement

Throughout the country, numerous cooperative business models exist to meet the needs of both members and non-members.

- The World Cooperative Monitor 2022 includes sixteen Indian cooperatives in the 'Turnover over GDP Per Capita' category. This includes:

- Indian Farmers Fertiliser Cooperative Limited, New Delhi (IFFCO)
- Gujarat State Cooperative Milk and Marketing Federation, Anand, Gujarat
- Seven state cooperative banks e.g. Kerala, Maharashtra Karnataka and Pradesh, etc.

VIBRANT TOMORROW THROUGH COOPERATIVES

Cooperative movement, which first evolved in Europe came to India in early 20th century and the post independent India saw the robust growth in the cooperative movement. On the broad basis, cooperatives societies in India could be divided in 6 categories:

1. Cooperative farming societies, also called Farmers Service Societies (FSS)
2. Cooperative credit societies, also called Primary agriculture cooperative credit societies (PACS)
3. Producers' cooperative societies
4. Marketing cooperative societies
5. Housing cooperative societies
6. Consumers' cooperative societies

Cooperatives help rural economy in the following ways-

- They provide credit facilities to the farming sector. The FSSs and PACSs are basic units for capital infusion on ground level. (Credit that they get from district central cooperative banks)
- Housing cooperatives provide houses to poor at affordable prices.
- Consumer cooperatives provide consumer goods to poor at affordable price.
- Cooperatives help small businesses, especially to assist rural youth entrepreneurs, in two ways. On one hand, they provide them raw material on cheaper rates and on the other hand, they provide them a platform to sell their produce.

Impact of cooperative societies

Sr. No.	Sectors	Impact of cooperatives
1.	Dairy Sector (White Revolution)	Nearly 190000 dairy cooperatives are active, e.g., AMUL
2.	Farm Sector (Green Revolution)	Farm cooperatives for capital infusion, seed cooperatives, fertilizer cooperatives etc.
3.	Sugar Sector	The cooperatives had increased the capital investment to Rs. 600 million by 1993 and by eight times by 2009.
4.	Agro-processing and spinning mills	Cooperative manufacturing industries i.e., sugar mills, oil mills, ginning and pressing mills, spinning mills etc. have brought revolutionary changes in rural areas as they are responsible for confidence building among the farmers, modernisation of agriculture, enhancing the income levels and standard of living of the farmers.
5.	Banking and Finance	There is a network of PACSs, RRBS, Commercial banks etc., which distributes finances through cooperatives.

SUSTAINABLE DEVELOPMENT THROUGH RENEWABLE RESOURCES

As per Brundtland report Sustainable development is defined as 'the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' As the world is developing leaps and bounds the energy needs of world is also increasing exponentially. This requires world to see more greener solutions using renewable energy sources.

Energy Sector

- The use of renewables has tremendous scope in energy sector. As of today, India is consuming about **9000 billion** units of energy for various purposes.
- About 47% of the total energy is sourced from coal and lignite, 31% from crude oil, about 15% from

electricity (hydro, nuclear and other renewable sources) and 8% from natural gas. (**Energy Statistics, 2022**).

Impact of Fossil Fuels

- The 2022 report of the Lancet Countdown on Health and Climate Change: Health at the Mercy of Fossil Fuels says that use of fossil fuels in future may eradicate any efforts of ending hunger. Hence, use of fossil fuels in long-term may not be sustainable.
- India, pledges to reduce its carbon intensity by **45% from 2005 level by 2030** in its Nationally Determined Contributions (NDCs).

Renewable Energy

- Today, India is the world's third largest producer of renewable energy, with about **42%** of our installed electricity capacity coming from non-fossil fuel sources.

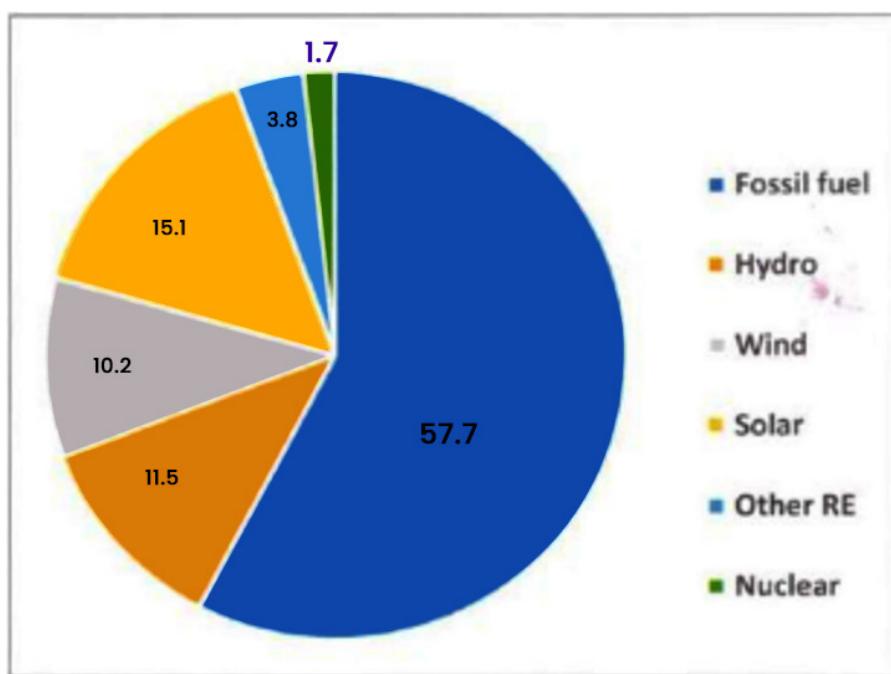


Fig 1: Source-wise generation of electricity in % (Energy Statistics, 2022)

Solar Power:

- According to the Ministry of New and Renewable Energy (MNRE), estimates 5000 trillion kWh energy is incident over India's land area every year, with most parts receiving **4-7 kWh per sq. m per day**.
- Estimates by National Institute of Solar Energy suggest that covering 3% of the waste land area with solar photovoltaic modules can generate about **748 GW** power.
- In 2010, Government of India launched **National Solar Mission (NSM)** with active participation of States to promote sustainable growth while addressing the energy security challenges.

Wind Power:

- The study of **National Institute of Wind Energy (NIWE)** identified wind potential of Gujarat, Maharashtra, Rajasthan, Tamil Nadu, Madhya Pradesh, Andhra Pradesh and Karnataka at 100 m above ground level (agl) is **293 GW** and the potential at 120 m agl is **652 GW**.
- India, having a natural advantage of 7500 km long coast line, has the potential of harnessing offshore wind energy.
- The NIWE has identified potential zones for offshore wind energy of **36 GW** and **35 GW** off the coasts of **Gujarat and Tamil Nadu** respectively.

Hydropower:

- Since March 2019 Government of India has been recognising Large Hydro Power Projects (LHPs) including Pumped Storage Projects (PSPs) having capacity of more than 25 MW as part of renewable energy.
- According to the assessment made by Central Electricity Authority (CEA), India has the potential of economically exploitable hydro-power to the tune of 1,48,700 MW.
- If the probable capacity of pumped storage of 94000 MW and that of about 6700 MW from small, mini and micro hydel projects are considered, India's hydro power potential will be about 2,50,000 MW.

Bio Fuels:

- Ethanol is a renewable fuel that can be made from various plant materials, collectively known as 'biomass'.
- The National Policy on Biofuels announced in 2018 is aimed at accelerated promotion of biofuels with indicative targets of achieving **20%** blending in Petrol and **5%** blending in diesel by **2030**.

Green Hydrogen:

- The hydrogen produced from splitting of water molecule through electrolysis process using currents generated from renewable sources are known as green hydrogen.
- The **National Hydrogen Mission** aims to make India a green hydrogen hub which will help in meeting the target of production of **5 million tonnes** of green hydrogen by **2030** and the related development of renewable energy capacity.

Ocean and Geo-thermal:

- Ocean energy refers to energy derived from Wave Energy, Tidal Energy, and Ocean Thermal Energy Conversion.
- The estimated theoretical power potentials for Tidal and Wave energy are **12,455 MW** and **41,300 MW** respectively.
- Geothermal Energy is a source of heat stored in the earth's crust, which is manifested on surface as hot springs.
- In India, **Geological Survey of India (GSI)** has estimated that a tentative power potential of **10 GW** could be extracted from geothermal energy.

Cochin International Airport Limited (CIAL) has successfully turned itself into a fully solar powered airport.

Food Security and Renewables:

- The food security is very much linked to higher farm productivity, which itself is linked to higher irrigation facilities, which is why ground water is being extracted uncontrollably in India.
- The decline of ground water table leads to the consumption of more energy every year to meet the irrigation requirements.
- Use of renewables plays a major role in ensuring gains for the water-energy-food nexus.

Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan Yojana (PM-KUSUM):

- It was launched in 2019.
 - The scheme has three components-
1. Addition of **10000 MW** of solar capacity through installation of small solar power plants of capacity up to 2 MW.
 2. Installation of **2.0 million** standalone solar powered agricultural pumps, and
 3. Solarization of **1.5 million** existing Grid-connected Agriculture Pumps.

International Solar Alliance (ISA): At present, 110 countries are signatories to the ISA Framework Agreement, of which 90 countries have become members by completing the procedure of ratification.

The impediment of popularization of renewable sources are its high-cost maintenance. Perhaps India can bring a confluence of all the G20 nations on the need for R&D in this aspect, so that renewable energy source use become more prevalent.

INDIA- A GREEN HYDROGEN GLOBAL HUB

- **Grey hydrogen** is hydrogen created from fossil fuels, and it accounts for the vast majority of hydrogen produced today.
- **Brown hydrogen** is made from coal, and the emissions are released into the atmosphere.
- **Blue hydrogen** is hydrogen produced from fossil fuels with carbon capture and storage possibilities.
- **Green hydrogen** is hydrogen that is produced entirely from renewable energy sources. In the final step, renewable energy-generated electricity is used to split water into hydrogen and oxygen.

National Green Hydrogen Mission: The National Green Hydrogen Mission has been approved by the Union Cabinet. The Mission would begin with a Rs. 19,744 crore investment to build up Green Hydrogen production and utilization across several industries while aligning with global trends in technology, applications, policy, and regulation.

- The nodal agency is the Ministry of New and Renewable Energy, which will provide scheme guidelines for the execution of the various components.

The Mission will also assist India in exporting high-value green products, making it one of the first major economies to industrialize without the need to "carbonize." India's specific advantage in terms of low-cost renewable electricity, combined with fast lowering electrolyser prices, can make green hydrogen not just cost-effective when compared to fossil-fuel-based hydrogen, but also when compared to green hydrogen produced globally.

By 2030, the Mission is expected to produce the following results:

- Green hydrogen production capability of at least 5 MMT (Million Metric Tonnes) per year, with an accompanying renewable energy capacity expansion of around 125 GW in the country.
- Total investment exceeds Rs. 8 lakh crores.
- Over 6 lakh new jobs would be created.

- Over Rs. 1 lakh crore in total reduction in fossil fuel imports.
- Annual greenhouse gas emissions are reduced by roughly 50 million tons.

The Mission will provide two unique financial incentive mechanisms aimed at domestic manufacturing of electrolyzers and production of Green Hydrogen under the **Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)**. In addition, the Mission will fund prototype projects in emergent end-use industries and production paths.

Green Hydrogen Hubs will be identified and created in regions capable of supporting large-scale hydrogen generation and/or usage.

The mission offers experimental projects to replace fossil fuels and fossil fuel-derived feedstocks with Green Hydrogen and its derivatives, such as-

- Steel manufacturing is one of the potential industries where Green Hydrogen could replace fossil fuels. According to the **National Steel Policy 2017**, natural gas is a cleaner alternative to reaching India's Paris Climate Agreement target of decreasing the carbon intensity of GDP.
- Given the benefits of hydrogen for heavy-duty, long-distance vehicles, several routes have been designated as Hydrogen Highways.
- Shipping and port operations are two significant industries that will likely drive future Green Hydrogen demand and commerce.

Green hydrogen is expected to play an important role in India's energy transition, notably in the decarbonization of difficult-to-abate industries. A step in this direction is the National Green Hydrogen Mission. The Mission is expected to support the deployment of the Green Hydrogen ecosystem as well as to provide opportunities for innovation and investment along the Green Hydrogen value chain, resulting in investments, jobs, and economic growth.

DECARBONIZATION OF TRANSPORT SECTOR

The race to limit the global temperature rise to less than 1.5 degrees Celsius requires huge carbon cut in each and every sector. The transport sector, which is one of the biggest contributors of ground level carbon emissions can act as the torchbearer of fight against carbon emission.

- In India, the average carbon footprint is 0.56 tonnes per year, compared to the global average of 4 tonnes.
- In the next 30 years, India's transportation demand is predicted to expand 2.7 times.
 - Electric vehicles (EVs) offer a greener transportation system that is considerably superior to vehicles powered by internal combustion engines (ICEs).

A carbon footprint is the total greenhouse gas emissions caused by an individual, event, organization, service, place or product, expressed as carbon dioxide equivalent.

Today, the lifetime emissions of EVs are 19-34 percent lower than those of ICE vehicles.

- The Indian automotive market is very different from the rest of the developed world, where four-wheelers dominate personal mobility.
- Bus transportation accounts for 38% of passenger kilometers in India, but accounting for only about 3.5 percent of total registered vehicles. Two-wheelers account for 76-80% of all registered automobiles in India.
- The majority of people rely on public transportation, two-wheelers, and three-wheelers for transportation. As a result, FAME II concentrated on these three elements. Sales have grown dramatically once the redesigned FAME II was released in June 2021.

FAME

- FAME II (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles) is a scheme developed by the Government of India to encourage the development of electric vehicles.
- This program was created to help meet the goals of the National Electric Mobility Mission Plan (NEMMP).
- FAME's Phase I lasted from 2015 to 2019, while Phase II began in 2019 and is projected to be completed by 2022.

MITIGATING ENVIRONMENTAL ISSUES

As per World Energy Outlook (2021) of International Energy Agency, the current share of India in global primary energy consumption is 6.1 per cent.

If the subsidies and impacts of fossil fuels are addressed in energy policies, then the renewable energy technologies could be used more rapidly.

India's Policies on Climate Change:

- In 2008, National Action Plan on Climate Change (NAPCC) was prepared which has eight missions as a multi-pronged, long-term and integrated approach to address climate change.
- Long-Term Low-Carbon Development Strategy submitted by India under United Nations Framework Convention on Climate Change (UNFCCC) focus on the rational utilisation of national resources with due regard to energy security.
- The Climate Change Action Plan (CCAP) launched during the 12th Five Year Plan with an outlay of Rs. 290 Cr. to build capacity and support implementation of relevant climate change related actions at the national and State level.
- National Adaptation Fund for Climate Change (NAFCC) was established in 2015 with the aim of meeting the cost of adaptation for climate change.
- At COP 26 of UNFCCC held in Glasgow, India presented 'Panchamrit' of India's climate action. These were:
 1. India will get its non-fossil energy capacity to **500** gigawatts (GW) by **2030**,
 2. India will meet **50** percent of its energy requirements from renewable energy by 2030,
 3. India will reduce the total projected carbon emissions by **one billion tonnes** from now onwards till 2030,
 4. By 2030, India will reduce the carbon intensity of its economy by **less than 45** percent and
 5. By the year **2070**, India will achieve the target of **Net Zero**.

PUBLIC AWARENESS ABOUT RENEWABLE ENERGY SOURCES

Policy and Guidelines

- As per the Annual Report of 2021-22, a comprehensive policy framework on Renewable Energy Research and Technology Development Programme is in place to support Research and Development in the new and renewable energy sector, including associating and supporting Research and Development carried out by the industry for market development.
- The policy framework provides guidelines for project identification, formulation, monitoring, appraisal, approval, and financial support.

Special Schemes

- **National Solar Mission** to produce 40 GW Grid connected Rooftop projects and 60 GW large and medium size land-based solar power projects (a total 100GW solar energy).
- The **Pradhan Mantri Kishan Urja Suraksha evam Utthan Mahabhiyaan (PM-KUSUM)** aims to add 30800 MW solar capacity by 2022.
- The **National Mission on Strategic Knowledge for Climate Change** is another initiative to make people aware.

- **Hariyali Green**, a women-led initiative, aims to provide access to clean energy technologies and boost livelihood prospects at the household level in rural India. Their ambition is to build 100 Green Villages by 2025.

- **Distributed Renewable Energy (DRE) Encourages Rural Women's Microenterprise:** The new policy encourages women to employ DRE livelihood technologies by providing access to capital for entrepreneurs and end users. This will help women SHG members create new jobs and scale their existing enterprises by utilizing DRE technology.

- **Resilient Rural Health Systems for Women:**

- According to a 2021 study, a lack of stable electricity in healthcare facilities is connected with a 64% decline in child deliveries, reducing women's access to safe healthcare.
- Renewable energy can help remote hospitals by providing continuous power and improving basic and critical-care services.

- **Clean energy access equals Better Education and Health Care:**

- According to the **World Health Organization (WHO)**, dirty cooking fuels cause 500,000 deaths in India each year.
- According to the **International Energy Agency (IEA)**, the average firewood load carried by women for several miles' everyday ranges between 25 and 50 kg.

RENEWABLE ENERGY TRANSFORMING RURAL WOMEN

In rural India, renewable energy has been a boon for women, and has the potential to be revolutionary for India's economy, agriculture, job market, and especially for women.

- Energy availability for rural households contributes to a rise in women's non-farm self-employment.
- Reliable energy access also gives women more time to attend skill training sessions in order to seek a job or establish their own business.
- **Surya Mitra's skill development program:** During the screening process, individuals from rural areas are given special consideration.

EMPOWERING PANCHAYATI RAJ INSTITUTIONS

With **6.50 lakh villages** and 65 per cent of population living in villages, India's development agenda is rural development. Panchayati Raj Institutions (PRIs) are the pillars of democracy. PRIs ensure social and political empowerment of the people of about **2.6 lakh Panchayats with 31.5 lakh elected representatives**, out of which about **46 percent** are women.

Capacity Building of Panchayati Raj Institution (PRIs):

Ministry of Panchayati Raj (MoPR) is implementing the Centrally Sponsored Scheme of **Rashtriya Gram Swaraj Abhiyan (RGSA)** since 2018-19. So far **1.42 crore participants** including ERs, Panchayat functionaries and other Stakeholder have been **trained**. In 2022-23 alone an amount of Rs. 610.05 crore has been spent on capacity building of PRIs.

Thematic Gram Panchayat Development Plan (GPDP):

Since Panchayats are constitutionally **mandated** to prepare their **developmental plan**, MoPR has taken a novel initiative of adopting thematic approach for **localisation of Sustainable Development Goals (LSDGs)**. Therefore 17 SDGs have been mapped into **9 themes** for preparation of targeted developmental plan by pulling resources and converging activities of Central and State Governments. These 9 themes are:

- Healthy Village
- Child-Friendly Village
- Water Sufficient Village
- Clean and Green Village
- Village with Self-Sufficient Infrastructure
- Socially Just and Socially Secured Villages
- Village with Good Governance
- Women Friendly Village
- Poverty Free and Enhanced Livelihoods Village

National Panchayat Awards:

The National Panchayat Awards have been **aligned with nine LSDG themes** since 2022. It enables theme-wise

ranking of all Gram Panchayats, Block Panchayats and District Panchayats on the basis of performance.

The awards will be conferred under the categories of **Deen Dayal Upadhyay Panchayat Satat Vikas Puraskar** for the performance under individual LSDG theme and **Nanaji Deshmukh Sarvottam Panchayat Satat Vikas Puraskar** for the aggregate performance under all 9 LSDG themes.

e-Governance and ICT Initiatives: A Simplified Work Based Accounting Application, e-Gram was launched in 2020 to **strengthen e-Governance** in the PRIs. MoPR has integrated **e-GramSwaraj with PFMS** to ensure better financial management of PRIs.

Over 2.55 Lakh Gram Panchayats or equivalent bodies have prepared their Gram Panchayat Development Plans (GPDP) for 2022-23 and **90% of the Gram Panchayats** are successfully making **online transactions** using eGSPi.

The **e-Gram SWARAJ** is also being integrated with **Government e-Market place (GeM)** to enable seamless procurement and accounting. AuditOnline Application has been developed to allow online audit of Panchayat accounts and enhance transparency and accountability. For 2019-20, **all the States except Arunachal Pradesh**, have completed the target of auditing 25 per cent Gram Panchayats.

Citizen Charter Campaign: MoPR carried out Citizen Charter campaign under the aegis of **Meri Panchayat, Mera Adhikaar Jan Sevaayein Hamare Dwaar**, in sept, 2021 with an intent to making the Panchayats and their elected representatives directly accountable to the people.

Common Service Centres (CSCs): CSC act as **single access points** for delivery of all **digital services** in Gram Panchayats and generate opportunities of employment by promoting rural entrepreneurship.

SVAMITVA Scheme:

(Survey of Villages and Mapping with Improvised Technology in Village Areas) is implemented by MoPR to provide the '**Record of Rights**' to village household owners possessing houses in inhabited rural areas in villages and **issuance of property cards** to the property owners. As on 1st March 2023, drone survey has been completed in 2.32 lakh villages.

Aim of Ministry of Panchayati Raj at Amrit Kaal

- Vibrant Gram Sabha to realise the dreams of 'Gram Swaraj'
- Adequate devolution of Funds, Functions and Functionaries (3Fs) to the Panchayats to attain localization of Sustainable Development Goals.
- Provision of Panchayat-Secretariat/Gram Sachivalaya to all Panchayats.
- Ensuring Financial Instruments to the Panchayats like market borrowing.
- Strengthening of Statutory Standing Committees of Gram Panchayats to achieve SGDs.
- Bridging the Rural - Urban divide to ensure ease of living and Quality of life.
- Master Spatial Plans for Gram Panchayats clearly demarcating areas for agriculture, residence, markets, parks, water bodies, industries, institutional areas etc
- Adequate Own Sources of Revenue (OSR) for the GPs to make them self-reliant.
- Effective Disaster Management Plan for Gram Panchayats.
- Energy empowerment of villages through Gram Urja Swaraj.

GOOD GOVERNANCE AT GRASS-ROOT LEVEL

- **Gram Panchayat Development Plan (GPDP):** It was launched with a mandate to prepare the Panchayat Development Plan (PDP) for economic development and social justice utilising the resources available to them.
- GPDP should be comprehensive and based on participatory process involving the Gram Sabha, and in convergence with schemes of all related Central Ministries related to **29 subjects listed in the 11th Schedule of the Constitution**. The guidelines for preparing the GPDP has been issued by Ministry of finance.
- **Rashtriya Gram Swaraj Abhiyan (RGSA):** The 'Transformation of Aspirational Districts' program that aims to quickly and effectively transform selected districts was launched in **2018**. It aims to bring people propelled development at the ground level.
- These districts were selected on parameters like poverty, public health, nutrition, education, gender,

sanitation, drinking water, livelihood generation which are in sync with **Sustainable Development Goals (SDGs)** and fall within the realm of Panchayats.

- **SVAMITVA (Survey of Villages And Mapping with Improvised Technology in Village Areas):** Launched in 2020, The scheme aims to revolutionise property record maintenance in India. It aims to provide rural people with the right to document their residential properties so that they can use their property for economic purposes.
- **e-Panchayat:** The e-Panchayat scheme aims to bring transparency and efficiency to the functioning of Panchayati Raj institutions through the use of technology. It provides a platform for online reporting, monitoring, and management of Panchayat activities.
- **Deen Dayal Upadhyay Panchayat Sashaktikaran Yojana (DDUPSY):** The DDUPSY scheme was launched in 2014 to **strengthen Panchayati Raj institutions** by providing them with the **necessary resources and capabilities** to undertake their constitutional duties. The scheme aims to empower Panchayati Raj institutions to undertake planning, implementation, and monitoring of development programs.
- **Swachh Bharat Abhiyan:** Launched in 2014, aims to make India clean and open-defecation free. The scheme focuses on creating a **culture of cleanliness** and **promoting the use of toilets in rural areas**. Panchayati Raj institutions play a crucial role in the implementation of the scheme at the grassroots level.

SVAMITVA Scheme for Providing Property Validation

The absence of quality land records specifically affects the ability of marginal farmers to gain access to credit from formal institutions. This suppressing a significant channel of credit and capital to the agricultural sector which impacts the economic prospects of poor farmers and consequently the agrarian sector as a whole.

To resolve this issue, government launched '**SVAMITVA Scheme**' in 2021. It aims to provide an **integrated property validation solution for rural India**, engaging the latest drone surveying technology, for demarcating the inhabitant (Abadi) land in rural areas.

This scheme is a collaborative effort of the **Ministry of Panchayati Raj**, State Panchayati Raj Departments, State Revenue Departments, and the **Survey of India**.

THE POTENTIAL OF THE RURAL CRAFT

India has a rich tradition of rural crafts passed down from generation. These crafts are a source of livelihood for many rural communities, provide opportunities for skill development and entrepreneurship, thus increasing the potential to contribute significantly to the economy.

According to the **Annual Report 2020-21 released by the Ministry of Textiles**, the exports of handicrafts from India have been flourishing in recent years. The government has taken various measures to boost the exports of handicrafts, including setting up export promotion councils, participating in international trade fairs and exhibitions, and providing financial assistance to artisans.

One District One Product (ODOP):

The eight craft villages that have been selected under Linking Textile with Tourism initiative are as follows:

1. **Raghurajpur (Odisha)**
2. **Tirupati (Andhra Pradesh)**
3. **Vadaj (Gujarat)**
4. **Naini (Uttar Pradesh)**
5. **Anegundi (Karnataka)**
6. **Mahabalipuram (Tamil Nadu)**
7. **Taj Ganj (Uttar Pradesh)**
8. **Amer (Rajasthan)**

- One District One Product (ODOP) is one such rural development program initiated by the Government to promote traditional industries and handicrafts in every district of the country.
- The program aims to create employment opportunities and enhance the income of rural artisans and

entrepreneurs while also preserving traditional crafts and skills.

- By promoting local products and preserving traditional crafts and skills, the program can enhance the income and standard of living of rural communities while also contributing to the country's overall development.

Linking rural craft with tourism:

- Rural crafts can be a significant attraction for tourists visiting India. The government can incentivise local communities to offer homestays and community tourism experiences generating income and employment opportunities.
- Rural tourism can also promote sustainable development by preserving and promoting traditional crafts and skills, supporting local agriculture and food production, and promoting eco-tourism activities.
- The government has identified **eight craft villages** nationwide under the **'Linking Textile with Tourism' initiative** to promote crafts and tourism at a single location. The aim of this initiative is to bring together the rich cultural heritage of India's traditional crafts and the growing tourism industry.

Ek Bharat Shrestha Bharat:

The pledge to embody the philosophy of 'Ek Bharat Shrestha Bharat' can also promote intercultural exchange and understanding as travellers from different regions of the country explore rural India's diverse and rich cultural traditions.

To achieve this goal, all stakeholders must develop sustainable tourism practices that benefit the local communities and preserve the environment.

Role of G20 in providing global recognition to rural craft:

- The G20 can help provide Indian handicrafts with **better access to international markets**. This could be done by reducing trade barriers, simplifying customs procedures, and promoting trade fairs and exhibitions.
- The G20 can provide **financial assistance** to these artisans in the form of loans, grants, and subsidies, which can help them invest in new technologies, expand their product range, and increase their production capacity.

- The G20 can also invest in skill development programs for Indian artisans.
- The G20 can work with the Indian government to strengthen the **country's intellectual property laws** and enforcement mechanisms, which would help protect the designs and techniques used by Indian artisans.
- Finally, the G20 can leverage its soft power to promote Indian handicrafts globally. For E.g.:
 - The **Saras Aajeevika Mela** is an annual event organised by the Ministry of Rural Development, to showcase and promote rural livelihoods and products.
 - The **Suraj Kund Crafts Mela** showcases the rich cultural heritage of India and provides a platform for artisans, craftspeople, and performers from all over the country to display their skills and creations.
 - **Aadi Mahotsav**, the mega National Tribal Festival, celebrates the spirit of tribal culture, crafts, cuisine, commerce, and traditional art in an effort to present tribal culture on a national scale. It is a yearly project of the **Ministry of Tribal Affairs' Tribal Cooperative Marketing Development Federation Limited (TRIFED)**.

Other initiatives for promoting rural craft:

- The United Nations World Tourism Organization has chosen **Telangana State's Pochampally Village** as one of the top tourist destinations (UNWTO).
- Pochampally sarees are made using a unique dyeing technique, which involves tying individual yarns in a particular pattern before they are dyed.
- The Pochampally Handloom Park, which was established in 2018, is a major attraction for tourists visiting the village.

BETTING BIG ON BAMBOO

Bamboo, also referred to as **green gold**, has unlimited potential and its usage to create eco-friendly products. Today, the king of the grass family is being used in new ways. From bottles and biomass pellets to tableware and toothbrushes, bamboo is proving to be a versatile product, which can be bent, split or compressed to make different kinds of products.

Green Gold: India's Bamboo Wealth

- India's bamboo resources are the world's second-largest, with around 136 species. Forest Survey of

India, 2021 estimates show that Madhya Pradesh has the maximum bamboo-bearing area followed by Arunachal Pradesh, Maharashtra and Odisha.

- India is exporting bamboo and bamboo products to over 154 countries.
- In India, there are more opportunities to capitalise on market potential by increasing production and establishing the right value chain environment.

National Bamboo Mission: Helping Realise the Commercial Potential

- The Department of Agriculture and Farmers Welfare is implementing the Restructured National Bamboo Mission (NBM) since 2018-19 for the development of a complete value chain of the bamboo sector.
- It focuses on linking growers with consumers, starting from planting material, plantation, creation of facilities for collection, aggregation, processing, marketing, micro, small & medium enterprises, skill development and brand-building initiatives in a cluster approach mode.
- The NBM is implemented through State Bamboo Missions and Bamboo Technology Support Groups.
- Till now, the restructured NBM has helped establish 416 product development and processing units for developing the bamboo value chain.
- The NBM also has the critically important component of propagation and cultivation under which financial assistance is provided for establishing bamboo nurseries and plantations in non-forest government as well as private farmlands.
- The NBM has identified ten commercially important bamboo species for promoting quality bamboo plantation.

Interventions of Government, Corporate Sector and NGOs:

- Office of Development Commissioner (Handicrafts) under the Ministry of Textiles of India, implements various schemes for the development of artisans, like, the **National Handicraft Development Programme** and **Comprehensive Handicrafts Cluster Development Scheme**.
 - These schemes emphasise an integrated approach to the development of handicrafts in a holistic manner and aim to provide sustainable livelihood opportunities to the artisans.
- '**Shilp Guru' Awards** and **National Awards** are given by the Ministry of Textiles, to give recognition to legendary crafts persons, for their excellence in craftsmanship and valuable contribution to the Indian handicrafts and textiles sector.

- **TRIFED** a national-level apex organisation functioning under the administrative control of the Ministry of Tribal Affairs, undertakes activities for retail marketing development of tribal handicrafts and handloom products.
 - **Antaran Initiative of Tata Trusts**, supports India's traditional artisans in finding new markets and customers and addresses the challenges mentioned above.
 - Gamosa artisans of Assam, Venkatagiri Sarees and Kondapalli toy manufacturers of Andhra Pradesh, and Gopalpur Tussar Fabric and Ikat sarees weavers of Odisha have been beneficiaries of the Antaran initiative.
 - The community, Craft and Heritage division of the **Indian National Trust for Art and Cultural Heritage (INTACH)** works with craft clusters to develop community-based enterprises.
- It works on reviving and promoting dying skills. It assists artisan groups in finding lucrative outlets for their products and provides marketing linkages and platforms.

Conclusion

The artisan economy is all-pervasive and crucial for inclusion, as it mainly comprises women and marginalised groups. It can act as a big source of livelihood after agriculture.

In the age of digital Darwinism, online visibility (including the use of e-commerce) is critical to optimise the latent potential of the sector. NGOs are also creating an impact in the crafts sector by bridging the distance between creating products and earning a business.

Measures such as the announcement to establish 'Unity Malls' pan India, in Union Budget 2023, for strengthening platforms like 'Crafts villages' are much needed.

FOSTERING WATER MANAGEMENT FOR FOOD SECURITY

The global food system and its sustainability are faced with a number of issues as a result of the growing demand on natural resources, particularly land and water. In the coming years, one of the key elements in ensuring water security and achieving the SDGs will be water management.

Need for Water Management & Conservation

- Water is a critical component of agricultural output and food security.
- Agriculture is the world's largest water user, accounting for over 70% of all surface and groundwater withdrawals through irrigation.
- Rainfed farming generates 60% of the world's food while using just 80% of the cultivated land. Irrigated farming delivers 40% of global food output on 20% of the land (FAO, 2021).
- In India, agriculture consumes 80-90 percent of overall water consumption, while half of the agricultural land is still rainfed.
- Irrigation improves agricultural yields by 100 to 400% in most cases.
- In India, net irrigated agriculture covers 75456 thousand hectares, while gross irrigated agriculture covers 112229 thousand hectares (DE&S, 2023).

The Government of India has implemented a number of projects to conserve water and increase production while using less water. Some of them are given below-

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) - It is a centrally sponsored scheme that was launched in 2015 and uses source generation, distribution, administration, field application, and extension efforts to provide an entire end-to-end solution for irrigation.

Per Drop More Crop (PDMC) - In 2015, PDMC was launched as a part of PMKSY. From 2022-23 PDMC is being implemented under Rashtriya Krishi Vikas Yojana (RKVY). The micro-irrigation technologies that PDMC specialises in include sprinkler and drip irrigation systems. The GoI offers subsidies through this scheme to other farmers and small and marginal farmers at a rate of 45% and 55% of the suggested unit cost, respectively.

Sahi Fasal Campaign - A component of the National Water Mission, launched in 2019 by the Ministry of Jal Shakti. The "Sahi Fasal" programme was launched to motivate farmers in water-stressed regions to cultivate crops that are not only healthy and nutrient-dense but also economically rewarding, compatible with the region's agro-climatic-hydro features, and environmentally responsible.

Bhartiya Prakratik Krishi Padhati (BPKP) - This scheme promotes Natural Farming. It is estimated that Natural Farming requires 50 to 60 percent less water and electricity and reduces methane emissions. The BPKP advocates natural farming, a traditional farming-based, diversified farming system devoid of chemicals that combines crops, trees, and cattle with functional biodiversity. The objectives of the scheme include reducing agricultural costs, restoring the soil ecosystem, and ensuring environmental sustainability.

Through numerous ongoing programmes, including the **National Food Security Mission (NFSM)**, **Rashtriya Krishi Vikas Yojana (RKVY)**, **Mission for Integrated Development of Horticulture (MIDH)**, **National Mission on Oilseeds and Oil Palm (NMOOP)**, **National Mission for Sustainable Agriculture (NMSA)**, and **Rainfed Area Development**, the Ministry of Agriculture and Farmers' Welfare has made concerted efforts to encourage the diversification of agricultural and horticultural crops in accordance with local needs.

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SUSTAINABLE AGRICULTURE DEVELOPMENT

Kurukshetra (July 2023)

TECHNOLOGIES FOR SUSTAINABLE AGRICULTURE DEVELOPMENT

Agriculture is the backbone of the Indian economy, employing more than half of the country's population. India's traditional agricultural methods are frequently unsustainable and have a severe impact on both the environment and public health. Therefore, to ensure agriculture's long-term viability in India, sustainable agricultural practices are essential.

The World Bank estimates that 42.1% of Indians were employed in agriculture as of the year 2020. 54.4% of the workforce is employed by the industry and services sectors, which together account for more than 80% of the nation's gross value added.

Sustainable Agriculture - Sustainable agriculture is a farming method that considers the soil, the environment, and the community's long-term health. It is critical to meet rising food demand while protecting natural resources for future generations.

Role of Technology in Developing Sustainable Agriculture

- **Precision Farming:** It involves sensors, GPS mapping, and data analytics to monitor and optimise crop performance. By using precision farming techniques, farmers can reduce the use of fertilisers and pesticides, improve water management, and increase yields.
- **Agroforestry:** It is a land-use integrated management system that combines trees and shrubs with crops and livestock to create a more sustainable and productive farming system and helps in soil conservation, biodiversity conservation and carbon sequestration.
- **Vertical Farming:** It cultivates crops in stacked layers, under controlled conditions which helps increase local food production while reducing water conservation and optimise resource utilisation.
- **Hydroponics:** It involves growing plants in nutrient-rich water without soil. This approach can allow for year-round crop production.
- **Renewable Energy-based:** Renewable energy can be used to power farming operations. This approach can

reduce greenhouse gas emissions and dependence on fossil fuels.

- **Robotics and Automation-based:** These can help reduce labour costs, improve crop yields.

CLIMATE-SMART AGRICULTURE (CSA):

As defined by the World Bank, 'Climate-smart agriculture (CSA) is an integrated approach to managing landscapes – cropland, livestock, forest and fisheries, that address the interlinked challenges of food security and climate change.'

- Climate-Smart Agriculture (CSA) seeks to promote long-term agricultural sustainability by addressing climate change and environmental concerns.
- The goals of CSA are primarily three-fold:
 - **Increased productivity** - According to a 2020 World Bank estimate, approximately 690 million people, or 8.9 percent of the global population, are hungry, an increase of nearly 60 million from 2015. Saving this population from starvation in the first place and providing them with the essential nourishment are the two key factors of enhancing agricultural output productivity.
 - **Enhanced resilience** - Developing crops that can withstand extreme weather conditions such as drought and flooding, as well as pests, diseases, and other climate-related risks and shocks; and improving capacity to adapt and grow in the face of longer-term stresses such as shortened seasons and erratic weather patterns are the major goals of enhancing resilience.
 - **Lower emissions** - Agriculture is a major contributor to global warming. As a result, it is critical for climate-smart agriculture to find strategies to cut emissions per kilo of food produced, avoid deforestation, and identify techniques to absorb carbon from the atmosphere.
- To address the effects of climate change on agriculture, resilient crop types must be developed.

- Climate-smart crops should be able to withstand a variety of threats such as pests, frosts, and extreme weather events.
- To make climate-smart crop types available to farmers, efficient production and distribution are required.

To mitigate the impending impact, the Government has taken many initiatives, some of which are as follows:

- **National Innovation on Climate Resilient Agriculture (NICRA):** Launched in 2011 with a Rs. 350 crore investment to improve the resilience of Indian agriculture to climate change. Dedicated to the advancement of climate-resilient technologies and practices.
- **National Mission on Sustainable Agriculture (NMSA):** The NMSA works through the adoption of a sustainable development pathway by gradually transitioning to environmentally friendly technology, the use of energy efficient equipment, natural resource conservation, integrated farming, and so on. In addition, the NMSA strives to promote location-specific improved agronomic practices such as soil health management, increased water usage efficiency, chemical judiciousness, and crop diversity.
- **National Adaptation Fund for Climate Change (NAFCC) –** It was formed to cover the costs of climate change adaptation for India's states and union territories that are particularly vulnerable to the detrimental effects of climate change. This Scheme was implemented in 2015-16 primarily to support real adaptation measures aimed at limiting the negative consequences of global climate change in a variety of industries, including agriculture.
- **Climate Smart Village (CSV):** This is an institutional strategy to testing, implementing, modifying, and promoting CSA at the local level, as well as improving farmers' ability to adapt to climate change. CSVs were first tested in two Indian states: Haryana's Karnal district and Bihar's Vaishali district, before spreading to Punjab, Andhra Pradesh, and Karnataka.
- **Paramparagat Krishi Vikas Yojna (PKVY):** It is an expanded component of Soil Health Management (SHM) that was launched in 2015 under the NMSA with the goal of supporting and promoting organic farming through the adoption of an organic village by cluster approach, which results in improved soil health.
- **Biotech-KISAN:** It is a scientist-farmer partnership initiative for agriculture innovation that was started in 2017 with the goal of connecting science laboratories with farmers to identify creative ideas and technologies to be utilised at the farm level. So far, 146 Biotech-KISAN Hubs have been built under this

scheme, spanning all 15 agroclimatic zones and 110 aspirational districts in the country.

- **Sub-Mission on Agro-forestry:** Launched in 2016-17 with the objective of planting trees on farm bunds and aims to bring sustainability in agriculture and mitigate the impact of climate change.
- **National Livestock Mission:** Launched in 2014-15 with a focus on livestock development through sustainable approach and aims to protect the natural environment, conserve animal biodiversity, and ensure farmers' livelihood.
- **National Water Mission (NWM):** Launched to ensure Integrated Water Resource Management (IWRM) for conserving water sources and minimizing wastage. Aims to optimize Water Use Efficiency (WUE) by 20% including the agriculture sector.

DRYLAND FARMING

Dryland farming is a difficult practice that necessitates an awareness of local climate and soil conditions, the selection of appropriate crops, and the application of relevant technologies.

Dryland farming is the production of crops under natural rainfall circumstances with little or no irrigation.

- Dryland areas are distinguished by low rainfall ranging from 375 mm to 1125 mm, which is irregularly distributed, highly erratic, and unpredictable.
- Because of their reliance on rainfall, these places are less productive and economically vulnerable, making them more vulnerable to environmental pressures and shocks.
- The soils in these places are often poor or deteriorated, with limited water retention capacity and numerous nutrient deficits.
- The distribution of rainfall over the crop cycle is typically unbalanced, with crops receiving a lot of rain when it isn't needed and not enough when it is.
- Dryland areas are frequently more vulnerable to drought and drought-like conditions due to poor soil structure and depleted ground water tables.

Distribution and Contributions

- In India, terms like dry farming, dryland farming, and rainfed farming are often used interchangeably, but technically they are a bit different depending on the quantum of rainfall.

➤ **Dry farming:** Practiced in areas with an annual rainfall of less than 750 mm and a crop growing season under 200 days.

➤ **Dryland farming:** Cultivation in regions with rainfall ranging from 750 mm to 1150 mm, including semi-arid areas.

- **Rainfed farming:** Crop cultivation without irrigation in areas receiving rainfall around 1150 mm, mainly in humid and sub-humid regions.

#Note: Major Crops are **Millets, oilseeds, pulses, maize, cereals, cotton etc.**

Supporting Schemes - Per Drop More Crop, Soil Health Card, and Paramparagat Krishi Vikas Yojana etc.

CONCLUSION:

The Indian government has actively begun the process of assessing the impact of climate change on agriculture, supplemented by robust actions. India's fertiliser policy has grown positively by increasing crop yield and productivity. The additional food grain output of 13.66Mt

using fertilisers averted the conversion of 11.48 million hectares of forest area to farmland, resulting in a reduction of GHG emissions of 13.66 Mt in 2013.

In addition, neem coated urea has lowered fertiliser input costs, enhanced nutrient usage efficiency, and reduced GHG emissions.

There has been a concerted push in India to promote Zero Budget Natural Farming (ZBNF). It provides a commercially feasible and environmentally benign option, as well as better climatic adaptation than conventional agriculture. The area under agroforestry is increasing, resulting in more carbon fixation and lower GHG emissions.