



YOJANA



SPECIAL ISSUE

JANUARY 2021

A DEVELOPMENT MONTHLY

INDIA@75

75 years of Independence

M Venkaiah Naidu

Democracy, Polity & Governance

Dr Najma Heptulla

Industry@75

Suresh Prabhu

Successful Endeavour in Space

Dr K Sivan

NEW INDIA

Education

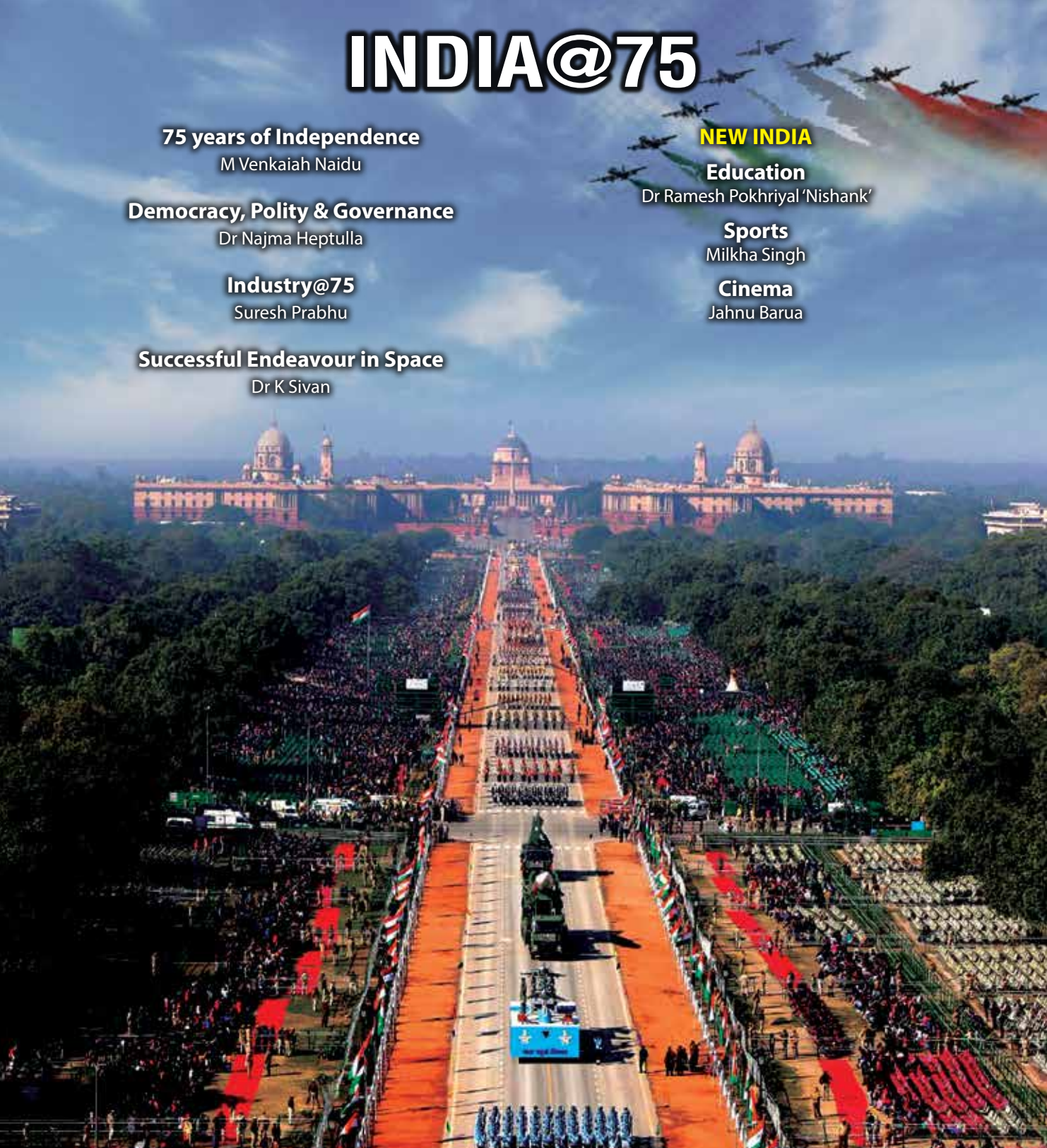
Dr Ramesh Pokhriyal 'Nishank'

Sports

Milkha Singh

Cinema

Jahnu Barua





सत्यमेव जयते

राष्ट्रपति
भारत गणतंत्र
PRESIDENT
REPUBLIC OF INDIA

MESSAGE

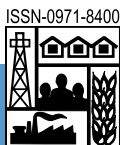
I congratulate Directorate of Publications Division, Ministry of Information and Broadcasting, Government of India for bringing out a special issue of Yojana magazine. This special issue with the theme India @75 being published in the month of January 2021 is especially relevant as it would be deliberating on various issues relevant in the contemporary times.

I am happy to know that the monthly journal, Yojana which started its publication in 1957 has gradually increased its coverage and is now published in 13 languages. This theme based journal is highly valued by scholars, planners, and policymakers for its in-depth analysis of socio-economic topics of the day, and aims to celebrate the Spirit of India by highlighting the contributions of various sectors and its people. It is encouraging that the magazine gives different shades of opinion and views on all types of issues containing articles on Rural Economy, Urban Infrastructure, Climate Change, Disaster Management and so on. I hope that this collectible issue of Yojana will be extremely valuable for its subscribers and readers.

I congratulate the entire Publication Division of Ministry of Information & Broadcasting and wish bright future of Yojana Magazine.

(Ram Nath Kovind)

New Delhi
October 21, 2020



*Let noble thoughts come to us from all sides
Rig Veda*

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YOJANA seeks to provide a vibrant platform for discussion on matters of social and economic development of the country through in-depth analysis of these issues in the wider context of government policies. Although published by the Ministry of Information and Broadcasting, Yojana is not restricted to expressing the official point of view.

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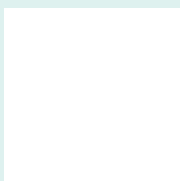
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SUBSCRIPTION-RELATED DETAILS : Page-71



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YOJANA is published in Assamese, Bengali, English, Gujarati, Hindi, Kannada, Malayalam, Marathi, Odia, Punjabi, Tamil, Telugu and Urdu.



Inbox



My best wishes for the success of the launch of the magazine Yojana on India@75.

Ratan N. Tata
Former Chairman, Tata Sons



My best wishes for a great success for this edition of Yojana on India@75.

Narayana Murthy
Founder, Infosys Limited



My best wishes to you and the Yojana team.

Anand Mahindra
Chairman, Mahindra Group

life and I was thrilled to find such important detailed information regarding government and its policies towards re-starting the economy after Covid-19 in a single place which otherwise is very difficult to gather from daily newspapers. This magazine is both a time saver and a strong opinion developer for aspirants like me. Thank you.

– **Mohammed Usama**
Bangaluru, Karnataka
Email: usamaliberty@gmail.com

Broader Perspective

I am an ardent follower of Yojana. I really appreciate every single topic that covers all the necessary points. The language is also easy to understand and anyone can refer to this magazine. As a UPSC aspirant I know the importance of reading this, as it gives us broader perspective towards every single issue. Highly recommended. Thank you.

– **Subhashree**
Berhampur, Odisha
Email: subha.mishra1994@gmail.com

Yojana is a Lighthouse

Being a UPSC aspirant, Yojana is an indispensable part of my preparation. Every publication of Yojana deals with essential topics that are well-conceived, well-knitted, and well-written. This magazine gives me enough confidence to go about any topic with much ease. For me, Yojana is like that lighthouse amidst this vast ocean of preparation that guides me immensely and persistently.

– **Shalini Mondal**
Bandel, Hooghly
Email: shalini.mondal94@gmail.com

Rivers of Our Nation

I am a regular reader of Yojana since last two years. All editions are really important and based on society issues. As we all know, fresh water scarcity is a major issue and the only way out is to make people aware about current situation and possible solutions. The rivers of our country can be a solution but they are polluted. I would request you to publish an edition on “rivers of our nation” and specially Ganga, so we can make this water issue, a people’s movement.

– **Ram Kumar, Delhi**
Email: itsramk97@gmail.com

November Issue

I am thankful to the team of Yojana. The magazine helps me develop an intellectual way of dealing with various topics. The November issue with articles on agriculture, migration and sustainable development is a must-read.

– **Ravi Solanki**
Email: ravitilaksolanki@gmail.com

Strong Opinion Developer

I picked up Yojana November 2020 issue for the first time in my

Issue on Science and Technology

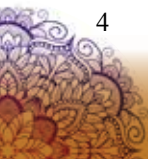
I am a civil services aspirant. The recent issues of Yojana match with UPSC CSE syllabus. It has become an indispensable source for an aspirant. Please continue with this initiative and also release a magazine on recent developments in science and technology in coming months. Thanks and keep up the good work.

– **Mohd Sufiyan**
Dehradun, Uttarakhand
Email: sufiyan.mohammad94@gmail.com

Suggestion on Topics

Thank you for providing genuine and authentic data on current topics and I would like to thank the entire Yojana team for providing diverse topics. I would like to suggest a few topics—environment, biodiversity, climate change, animal safety, committees on wildlife protection, and marine ecosystem. This will be immensely beneficial for all of us. Thank you.

– **Pawan Kumar**
Nashik, Maharashtra
Email: pcashok0@gmail.com





India@75

India is built on hopes, aspirations and dreams of over 1.3 billion citizens. Providing avenues and opportunities through policy initiatives, planning and effective implementation can work as a catalyst in building a New India. This transformation is envisaged on the pillars of Aatmanirbhar Bharat, Sabka Saath Sabka Vikas, Sabka Vishwas, Digital India and Skill India among many others.

Our independence was the result of efforts by thousands of freedom fighters. We are indebted to the great souls like Mahatma Gandhi, Babasaheb Bhim Rao Ambedkar, Sardar Patel, and numerous visionaries who dedicated their life towards the cause.

This issue reflects upon the trials and tribulations over these 75 years and the road ahead towards being an economic powerhouse, with a robust infrastructure leading to a \$5 trillion economy.

As an ode to this glorious journey, a 75-week long celebration to commemorate India@75 will kick-start this year. This issue of Yojana is a tribute to the Spirit of India in each sphere of life. It highlights the contributions of various sectors and its people during these 75 years.

We have tried bringing out a collectible issue and are extremely grateful to our esteemed authors who have taken out time to share their views and vision on the subject. This is probably the first time when the likes of the President, Vice President, Governor of a State, present and former Union Ministers, ISRO Chief, Milkha Singh, Jahnu Barua along with the best minds of other fields have written together for a journal. This desk was fortunate to have the opportunity to weave them as a collective vision for the New India they dream of.

The world has entered a new decade. With expectations of healing this year of the pandemic, this is the opportune time for India to be at the forefront in leading the global and regional strategies, strengthening the 'Brand India' through Make in India, Invest in India, ease-of-doing business, better infrastructure, Digital India, being vocal for local and by projecting India's soft power including spiritual & cultural connect, Yoga, heritage-tourism and Cinema globally.

Public participation is the key to success of any initiative. Swachh Bharat is a recent example and its phenomenal feat is due to the fact that from a Government-led initiative, it transformed into a people-led movement, a jan andolan of its own sorts.

The India we see today will surely be different from the India our grandchildren will get. The onus is on us to handover a country which they shall be proud of—a blend of modernity and tradition, infrastructure and services, growth and opportunities, development and sustainability, self-sufficient and imbibing worldview, intellectual and rational.

“Let noble thoughts come to us from all sides.”

□



75 years of Independence

M Venkaiah Naidu

India is on the cusp of a major transformation. Our aim is to build an ecosystem where everyone can reach his or her full potential and lead a fulfilling and meaningful life. The youth should be at the forefront of fighting social evils like corruption, casteism, communalism and gender discrimination. They should take lead in the transformation of nation today. India needs to grow at a rapid pace to raise the standard of living of the people.



The year 2021 is going to be a special one as we will be entering the 75th year of our independence. This is a significant milestone in the journey of our republic and is an opportunity for reflection and introspection on our past achievements and future challenges.

After centuries of subjugation and struggle, when India attained independence on August 15, 1947, it was a new dawn filled with hope and promise of a better future. But challenges were enormous—poverty, illiteracy, malnutrition, and lack of any worthwhile industrial and scientific base, to name a few.



The author is the Vice President of India. Email: vpindia@nic.in



India@75 : Iconic Images



India@75 : Iconic Images

Today, we have come a long way since those days of want and scarcity. India is recognised as an emerging world power. We are the third largest economy in terms of Purchasing Power Parity. The day may not be far when we regain our past glory of the times when India was known as Vishwa Guru and was home to great philosophers like Patanjali and Shankaracharya, doctors like Charaka and Sushruta, mathematicians like Aryabhatta and Varahmihir. Referring to this rich legacy, Sardar Vallabhbhai Patel had said, “There is something unique in this soil, which despite many obstacles has always remained the abode of great souls.”

It was under the leadership of the great souls like Mahatma Gandhi, Sardar Patel, Netaji Bose, Veer Savarkar that our freedom struggle was fought. As we seek to

transform India into a developed and prosperous nation, their lives and thoughts continue to inspire us.

With a median age of less than 30 years, India is a young nation in an aging world. This youthful energy needs to be channelised constructively for nation building. If our youth are sufficiently motivated and equipped with necessary skills, they can become change-makers of the society. I would remind them the inspiring words of Swami Vivekananda who had said, “They say, ‘Have faith in this fellow or that fellow’, but I say, ‘Have faith in yourself first’ ... The history of the world is the history of a few men who had faith in themselves.”

The youth should be at the forefront of fighting social evils like corruption, casteism, communalism and gender



discrimination. They should take lead in the transformation of nation today.

India needs to grow at a rapid pace to raise the standard of living of the people. But this growth has to be inclusive. This growth has to be environment-friendly and sustainable. We are duty-bound to leave a liveable planet for our future generations. Our ancient culture teaches us to live in harmony with nature and all other beings. I have often said that that we must preserve our culture and protect nature in order to have a bright future.

Our development model should also be balanced. We should strive to bridge the disparities that still exist among people, communities or regions. We should endeavour to bridge the rural-urban divide and the emerging digital divide.

It is true that the governments alone cannot fulfil all these tasks. Private sector will also have to join hands. Public-Private Partnership is the way forward for India's development.

Equally important is people's participation in the developmental programs. The success of Swachh Bharat Mission has amply demonstrated that government programs should become mass movements, owned and led by the people.

The ongoing Covid-19 pandemic has disrupted the normal course of life and has put tremendous stress in our lives. But good news is the manner in which we have carefully calibrated our collective response to the pandemic. Our resolve and resilience have made us endure the negative impact and prompted us to tap into our innate strengths to meet the challenge. We are also turning this threat into an opportunity by moving towards *atma nirbharta* or self-reliance.

India is on the cusp of a major transformation. Our aim is to build an ecosystem where everyone can reach his or her full potential and lead a fulfilling and meaningful life.

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return to our normal routine soon.

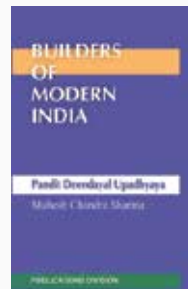
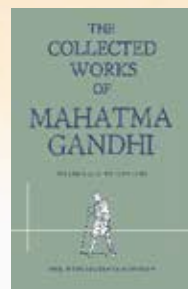
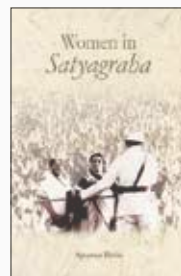
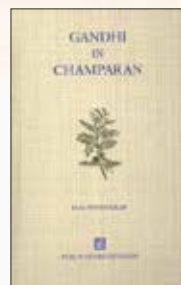
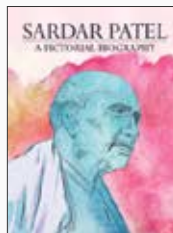
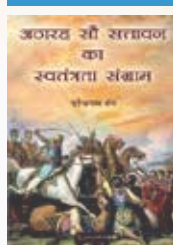
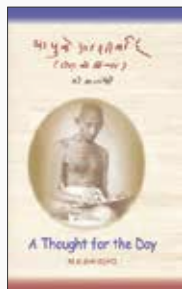
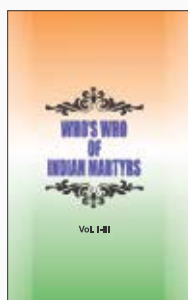
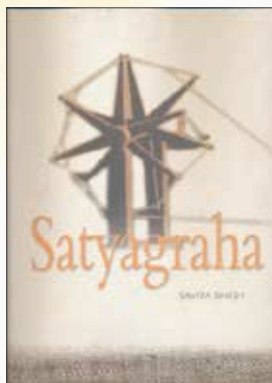
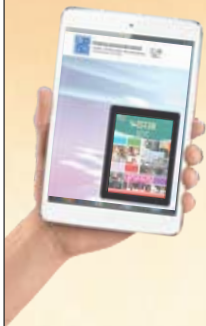
India is a vibrant parliamentary democracy that is emerging as an important player on the world stage and continues on its developmental journey with greater confidence, competence and commitment.

My best wishes to Yojana and the Ministry of Information & Broadcasting for bringing out this Special Issue on India@75. □



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Democracy, Polity & Governance

Dr Najma Heptulla

Democratic ideals represent various aspects of the broad idea of “Government of the people, by the people and for the people.” They include political characteristics that can be seen to be intrinsically important in terms of the objective of democratic social living such as freedom of expression, participation of the people in deciding the factors governing their lives, public accountability of leaders and an equitable distribution of power.

India is the largest democracy in the world. We really feel proud of it. While India was under the British dominion, our leaders and freedom fighters, after various fights, revolutionary activities, battles and relentless movements, sacrifices and bloodsheds of the people of India endeavouring to achieve and restore a free India, centuries together, we

became a free India. After much discussion and debates, our forefathers and pro-founder laboured in drafting a Constitution in the form and style of federalism, a Union Government in the Centre and provincial Governments (State Assemblies or Assemblies of the Union Territory). Amidst the complicacies, pluralistic diversities, differences and confrontations, we ultimately adopted a Constitution

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

For nearly seventy years, we have been witnessing the conduct of successful elections, peaceful changes of Government at the Centre and in the States, exercising freedom of expression, movement and religion by the people of the country. However, unfortunately, people of the country, more often than not, experience rampant inequalities, injustice or non-fulfillment of social expectations as assured in the Indian Constitution. Therefore, the original concept, public perception and philosophy behind the term “Democracy” has been degraded because of the misuse, abuse and misinterpretation of the same to fulfil ulterior motives of the vested interests.

Democracy as a system of Governance is supposed to allow extensive representation and inclusiveness of as many people and views as possible to feed into the functioning of a fair and just society. The definition of

Amidst the complications, pluralistic diversities, differences and confrontations, we ultimately adopted a Constitution of India on November 26, 1949, opting federal form of Government with the Preamble, “Sovereign, Socialist, Secular, Democratic Republic”.

democracy is incomplete unless it is defined in social and individual contexts. Nevertheless, in the recent years in our country, it becomes phenomena that the attitudes and behaviour of the politicians and elected persons and the actions of the political parties, their way of functioning, organisation and the modes of campaigns dilute the concept and philosophy of “Democracy”. We have seen and experienced the news of muscle power, money power and worthless propaganda being publicised as their means and ways. Large-scale

false promises by the candidates and political parties are also vividly visible in their election rallies and manifestoes. Even after the elections, the practices of unnecessary and unreasonable horse-trading have also been alarmingly increasing during the last few years.

Democratic ideals represent various aspects of the broad idea of “Government of the people, by the people and for the people.” They include political characteristics that can be seen to be intrinsically important in terms of the objective of democratic social living, such as freedom of expression, participation of the people in deciding the factors governing their lives, public accountability of leaders and an equitable distribution of power. Therefore,



India@75 : Iconic Images



when we say Indian democracy, we mean not only that its political institutions and processes are democratic but also that the Indian society and every Indian citizen is democratic, reflecting basic democratic values of equality, liberty, fraternity, secularism and justice in social sphere and individual behaviour.

Democratic Governance is a condition in which the promise of justice, liberty and equality enshrined in the Constitution is realised in a democratic political framework, where the Government is sensitive to the people's identities, aspirations and needs and where people feel secure and content. Only then the meaning of democratic governance will be honoured.

The biggest challenge and threat that our democracy is facing in India today is the rampant corruption. In spite of establishing various agencies to contain/check, the most dignified symbol of Indian democracy has now become diluted. Today, corruption in public life has been a major concern in India. Corruption continues to exist in covert and overt ways at all three levels— political, bureaucratic and corporate sector. One can see the nexus between politicians, bureaucrats and industrialists which has resulted

in corruption and corrupt practices. The high level of corruption in India has been widely perceived as a major obstacle in improving the quality of governance. In fact, corruption is a sign of political instability and institutional decay, challenging seriously the validity and propriety of governance.

Apart from rampant corruption, criminalisation has also tarnished the image of Indian electoral politics in the present situation. Glaring example is that criminalisation of politics means to use politics or political power for immoral gains. Therefore, criminalisation of politics is totally opposite of democratic values and has no place in a democratic set up. Here, our voters, political parties and the law and order machinery of any State of the country are all equally responsible for this. It is quite painful to know the unholy nexus between politicians, civil servants and business houses during the last few years to influence on public policy formulation and governance.

The crisis of governance in India has been taking place very frequently. As a matter of fact, it is a consequence of the breakdown of democratic institutions and the emergence of an unholy nexus between inefficient, corrupt civil servants and vote-hungry politicians. To have/establish a

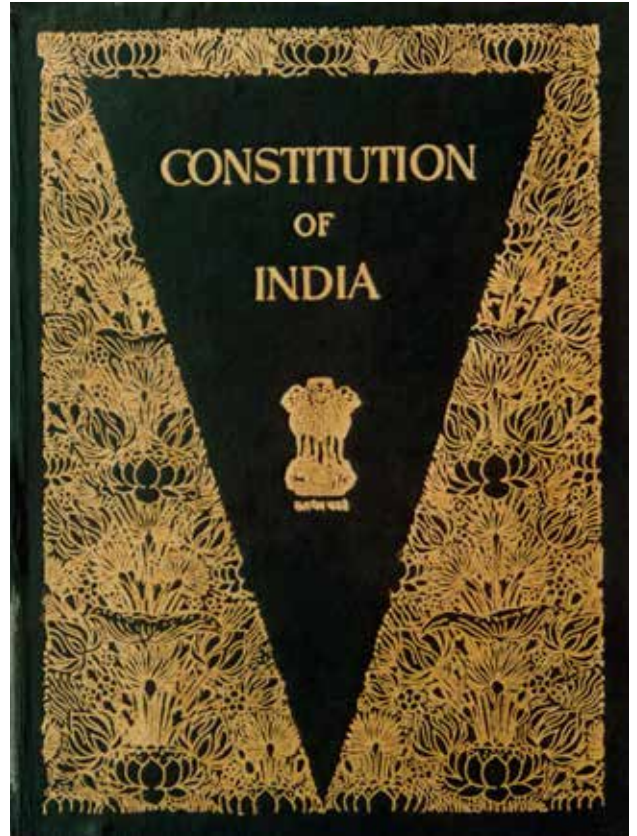




Democracy as a system of Governance is supposed to allow extensive representation and inclusiveness of as many people and views as possible to feed into the functioning of a fair and just society.

good governance does not occur by chance. It is associated with responsible political leadership, enlightened policy-making and a civil service imbued with a professional ethos. To have a good governance is a collective effort and not individual. However, a team of dedicated and honest public leaders from every field is quite indispensable at this critical juncture. The presence of a strong civil society including a free press and independent judiciary are also the pre-conditions for such good governance. It must be demanded by citizens and nourished explicitly and consciously by the Nation-State.

In addition to the above highlighted points pertaining to good governance, the greatest threat to the Indian democracy and polity today is disunity among the different communities of the country. Unity or disunity existing at a particular moment is also always an issue. It is a fact that during pre-independent period, Hindus and Muslims of India were fairly united. If the status quo is again now maintained, Indian Democracy, Polity and Governance will be meaningful. At this critical juncture, we the people of India need dedicated, selfless and honest rulers/administrators in order to see the real democracy, polity



and good governance. All the citizens of our country should always remember that India is a Nation of “Unity in Diversity”. We all should always unitedly uphold the value of “Democracy, Polity and Governance”. □

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Industry@75

Suresh Prabhu



India, being the world's largest democracy has seen a rapid transformation in recent times. We are one of the world's youngest democracy but still among the fastest-growing nations. India has doubled its GDP to nearly \$3 trillion within a decade and is currently the world's sixth-largest economy, and is expected to touch the USD 5 trillion mark in the coming years and progress as a key economic engine in Asia.

With the recent inauguration of the New Parliament Building on December 10, 2020, which also marks our 75 years of Independence, we are moving towards creating a New India by 2022 which would be Aatmanirbhar Bharat (Self-reliant India). Under the able leadership of PM Narendra Modi, India is witnessing the next level of governance and transformation which has never been seen in the entire history of the country. With the "Minimum Government, Maximum Governance" model along with the concept of cooperative federalism, PM Modi is leading India to new heights amidst various challenges including Covid-19.

Industrial growth in India has not been easy, it has gone through various phases of development over

the years. The advent of Britishers in India led to the decay of the Indian handicraft industry and machine-made goods started flooding into the Indian markets post-Industrial revolution in Britain. The policies of the British encouraged the imports of their goods and exports of raw materials from India. But soon after Independence, things started changing, and through the subsequent five-year plans government shifted its focus on industrialisation. The First Five-year Plan mainly focused on the development of both the private and public sectors, the second plan on Mahalanobis Model gave priority to Industrialisation. The third plan along with the first and second ones helped build up the capital goods industries in India. Between 1965-1980, industrial growth saw a decline mainly due to the negligence of the



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consumer goods sector in the first three plans. But between 1980-1991, industries recovered from downfall due to an increase in the productivity of Indian Industries and improvement in manufacturing and capital goods sector. Post-1991 economic liberalisation of India, many reforms were brought which helped shape the future of industries in India.

India's Ease of Doing Business (EoDB) rank according to the 'World Bank's Ease of Doing Business Report 2020' is 63rd among 190 countries. This is a jump of 79 positions from 142nd in 2014 to 63rd in 2019. Among 10 parameters for measuring EoDB, rapid changes have been brought especially in issuing construction permits where India's ranking has improved from 184 in 2014 to 27 in 2019, and ease of getting electricity where the ranking has improved from 137 in 2014 to 22 in 2019.

On the other hand, Foreign Direct Investment (FDI) inflows between April 2014 - September 2019 stood at \$319 bn which is nearly 50% of total FDI inflow in the last 20 years. During FY 2020-21, the total FDI inflow of \$35.73 billion is the highest ever for the first five months of a financial year. Recently, the government has also approved 100 percent FDI through the automatic route in coal mining, 100 percent FDI through the direct route in contract manufacturing, and 74 percent through automatic route in the Defense sector. FDI in India is estimated to reach \$100 billion inflow per annum by 2022. This will further boost our domestic manufacturing and will also help in employment generation.

The startup culture in India has seen massive growth with more

than 40,000 startups recognised till December 2020 by the Department for Promotion of Industry and Internal Trade (DPIIT) under the Start-Up India scheme launched in 2016. Thousands of young people are aiming to become young entrepreneurs with a wide number of events being organised regularly through Startup India Initiative including boot camps, hackathons, and online competitions. The government's flagship initiatives like Atal Innovation Mission (AIM), have helped advance India's position in the Global Innovation Index from 81 in 2015 to 48 in 2020. Through this initiative, the promotion of a culture of innovation and entrepreneurship across the length and breadth of our country has been started right from school education through setting up of 4870+ operational Atal Tinkering Labs in 660+ districts impacting around 2.5 million students.

National Institution for Transforming India (NITI Aayog) is playing a big role in tackling development challenges in the country through policy advocacy. 115 districts have been identified across the nation as aspirational districts and are being ranked based on progress being made (delta ranking) on a real-time basis based on 49 indicators from the 5 identified thematic areas — Health

The startup culture in India has seen massive growth with more than 40,000 startups recognised till December 2020 by the Department for Promotion of Industry and Internal Trade (DPIIT) under the Start-Up India scheme launched in 2016.

& Nutrition, Education, Agriculture & Water Resources, Financial Inclusion & Skill Development, and Basic Infrastructure. In December 2019, NITI Aayog had released the second edition of the Sustainable Development Goals (SDG) India Index and an online dashboard to track the progress on 17 SDGs of all the States and Union Territories (UTs) on a set of 100 National Indicators. India has made considerable progress especially in SDG 6: Clean water and sanitation by constructing over 11 crore toilets to become open defecation-free (ODF) in five years through Swachh Bharat Abhiyan launched in 2014. PM Modi was conferred the "Global Goalkeeper" award by the Bill and Melinda Gates Foundation in 2019 for this campaign which was also marked Mahatma Gandhi's 150th birth anniversary.

The Digital India campaign launched in 2015 has ensured the creation of a digitally empowered society and knowledge economy. Development of broadband highways, universal access to mobile connectivity, public internet access programmes, e-governance among others have seen considerable growth with Aadhaar, Smart Cities Mission, BHIM UPI, RuPay, GSTIN, GeM (Government e-Marketplace), DigiLocker coming under the aegis of the Digital India programme. Through the Bharat Net programme which is also the world's largest rural broadband connectivity programme, 2.5 lakh gram panchayats are being connected by a fiber-optic network of which around 1,48,000 connections have been achieved so far. India's Aadhaar has become the world's largest biometric database with almost 125 crore Aadhaar cards being issued so far and is playing a



pivotal role in preventing leakages via its integration with the Direct Benefit Transfer (DBT) scheme. Apart from this, through schemes like Jan Dhan Yojana launched in 2014 by the government, 41.38 crore beneficiaries have banked so far with Rs. 130,932.33 crore Balance in beneficiary accounts. Bill Gates recently hailed India's Inclusion policies and called UPI and Aadhaar a phenomenal system that has drastically reduced the cost of money distribution among the poor. According to the 2019 global Multidimensional Poverty Index India has lifted 271 million people out of poverty between 2006 and 2016. Mudra loan scheme, launched in 2015, by providing credit up to Rs. 10 lakh to non-farming and non-corporate micro and small enterprises has helped enable every last mile financier to lend credit to all types of businesses in the country. Pradhan Mantri Kisan Samman Nidhi Yojana launched in 2019 is providing Rs. 6,000 per year as minimum income support to all farmers. The recent Agriculture sector

reform bills passed by the government will further facilitate farmers by providing them new markets, advantages of technology, and helping bring investments and double their income by 2022.

The Digital India campaign launched in 2015 has ensured the creation of a digitally empowered society and knowledge economy. Development of broadband highways, universal access to mobile connectivity, public internet access programmes, e-governance among others have seen considerable growth with Aadhaar, Smart Cities Mission, BHIM UPI, RuPay, GSTIN, GeM (Government e-Marketplace), DigiLocker coming under the aegis of the Digital India programme.

India's Global stature has improved considerably with its recent election as Chair of the World Health Organization's Executive Board in May 2020 and being elected as a non-permanent member of the United Nations Security Council (UNSC) for a two-year term in June 2020. India is emerging as a global power and is scheduled to host the G20 in 2023. Also, in June 2020, US President Donald Trump had invited PM Modi to attend and be part of G7 as he wanted to expand G7 with about 10-11 members which would give India a chance to expand its economy rapidly.

Today, India faces some major challenges like tackling the Covid-19 pandemic, cross-border terrorism, and competition from global markets. But it is important to note that India is dealing strategically with all these challenges as it has especially dealt with the pandemic better than any country in the world. We have the highest recovery rates of around 95% and a plan in place to distribute





vaccines to all of our citizens. India manufactures more than 60% of all vaccines sold across the globe and today is the most sought-after destination for manufacturing Covid-19 vaccines. The world's largest distributor of vaccines - Serum Institute of India (SII) is also located in India. Aatmanirbhar Bharat economic stimulus relief package of 20 lakh crore amounting to 10% of GDP was released this year to fight the pandemic. 80 crore people were given free food grains till November 2020 under PM Garib Kalyan Yojana and 20 crore women Jan Dhan holders were given Rs. 500 per month for 3 months. MNREGA wage rate was increased to Rs. 202 per person per day and is benefiting 13.62 crore families. The new National Education Policy (NEP), 2020 will make India a global knowledge superpower. Today, Artificial Intelligence, Machine learning, and Big Data are setting the path for the future and India is not far away. Through the SWAYAM portal, the government is bridging the digital divide for students who have limited access to the digital revolution and have not been able to join the mainstream of the knowledge economy. Under the 'Make in India' initiative the Micro, Small, and Medium Enterprises (MSME) contribution to the GDP is being targeted to be increased to 50 percent from the existing 30 percent which will create 5 crore jobs in the next few years.

In my tenure as a Union Minister holding different portfolios with active support from PM Modi have brought many changes.

As a Union Minister for Commerce and Industry between 2017 to 2019

- New Industrial Policy: Proposed and finalised the policy through Nation-wide consultations with various stakeholders.
- Boosting domestic manufacturing at the district level to achieve USD 5 trillion economy.
- Trade promotion: Taking steps towards a more focused approach

India's Global stature has improved considerably with its recent election as Chair of the World Health Organization's Executive Board in May 2020 and being elected as a non-permanent member of the United Nations Security Council (UNSC) for a two-year term in June 2020.

towards export promotion.

- Pivoting multilateralism on India.
- Investment Promotion.
- Technology and Innovation.
- Boosting the Start-up ecosystem.
- Forward-looking Policy Making.

As a Union Minister for Civil Aviation between 2017 to 2019

- Policy Making: Released India's first-ever National Air Cargo Policy, Maintenance, Repair and Overhaul (MRO) Policy, National Green Aviation, Policy and Drone Policy.
- Promotion of the aviation industry: Drove the implementation of the regional connectivity scheme or UDAN - More than 12 lakh passengers flown under UDAN till 31st January 2019. In 28 months of UDAN, 69 unserved airports, 31 helicopters, and 6 water drones were awarded. Facilitating the implementation of setting up water aerodromes across five states in the country.

As a Union Minister for Railways between 2014 to 2017

- Customer Focus: Historically known to be less responsive towards customers, changed the approach of Indian Railways from "Passengers" to "Customers".
- Planning and Investment: Effected a paradigm shift in Railways project financing by

leveraging Extra Budgetary Resources including various innovative measures.

- Infrastructure Creation: Led Railways to achieve a quantum jump in infrastructure creation spending and improving connectivity.
- Sustainability: Effectively made sustainability an integral part of Railways strategy.
- Governance and Transparency: Staunch advocate for transparency, leveraged technology and delegation to improve governance in Railways.

As a current Prime Minister's Sherpa to G7 and G20, I am shaping the official agenda of the Government of India on key issues for G7 & G20 Summit and in a short span have engaged with global leaders/thinkers and led delegations across the globe. I have recently joined Rishihood University as its Founding Chancellor and also have launched "The Cooperative Development Forum (CDF)" with seven prominent cooperative leaders who will work towards promoting cooperative movement in the country and boost the rural economy and "The India Bamboo Forum (IBF)" where a voluntary group of 55 committed leaders in the bamboo sector will promote entrepreneurship, research, and trade of high-quality bamboo products in a sustainable manner.

Seeing the pace of development in India under PM's leadership, I am hopeful that we will overcome all the challenges that our country is facing today and create a "New India" by 2022 where Industrial sector will play a major role in this transformation. □

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Education for New India

Dr Ramesh Pokhriyal 'Nishank'

Education develops cognitive, social and soft skills including cultural awareness and empathy, perseverance and grit, teamwork, leadership, communication, among others. Thus by 2022, New India will provide a strong foundation for an education system based upon the principles of accessibility, equity, quality, affordability and accountability. The education of New India will enable learners to foster character-making while preparing for gainful and fulfilling employment.

From ancient times, our education system has focused on the pursuit of knowledge (gyaan), wisdom (Pragya), and truth (Satya) as the highest human goal. Institutes such as Takshashila, Nalanda, Vikramshila, Vallabhi had set the highest standards of multi-disciplinary teaching and research; while fostering 'internationalisation at home'. India has been honoured as the land of prodigious scholars such as Charaka, Susruta, Aryabhata, Varahamihira, Bhaskaracharya, Brahmagupta, Chanakya, among several others. Their contribution has been appreciated and valued across the globe; ushering the rich legacies to the world knowledge system.

However, sadly the essence of the Indian education system was crushed

in the following eras. Dharampal ji in his book, *"The Beautiful Tree-Indigenous Indian Education in the Eighteenth Century"* radically appraised the education system under Britishers. He mentioned that with the coming of Britishers in India; the

indigenous institutes became extinct by the late 19th century. The British schools catered to very few. According to the 1879-80 Report of the Director of Public Instruction for the Madras Presidency, the total number of educational institutions were 10,553.



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The education imparted focused mainly on reading, even the skills of writing and arithmetic were cultivated in few. The system was entirely alien and rootless as wished by Lord Macaulay. The irrelevancy of the education system then burdened the education post-independence too. Forlornly, we began the journey of Free India with a relatively low level of attainment of education. Back then we had only 17 universities and 636 colleges and 1,90,441 schools. The standard of education was unsatisfactory with too much emphasis on English and too little on Indian languages – estranged from Indian Knowledge system. The situation called for a radical reconstruction of education for the nation to progress.

The concerns were widely addressed in several commissions and committees, like the University Education Commission (1948-49), Secondary Education Commission (1952-53), National Education Policy (1968), National Commission on Teachers (1983-85), National Policy on Education (1986), modified in 1992 (NPE 1986/92) and National Curriculum Framework (2005). Significant development has been made post the enactment of the Right of Children to Free and Compulsory Education Act 2009. The literacy rate presently stands to 74.04%

For the first time India is among the 50 countries with a rank of 48 in the Global Innovation Index, India stood at 81st position in the year 2015. Even in the Employability Rankings 2020, India has improved its ranking from 23 in 2010 to 15 in 2020 even as developed countries like the UK and US varsities showed a decline.

as compared to 14% at the time of Independence. The present education has 15,50,006 schools, 9,416,895 teachers and 24,78,53,688 students at the school level while there are 993 Universities, 39,931 Colleges and 10,725 Stand Alone institutes as per AISHE report 2018-19; making India the second-largest education system in the world. It is under the dynamic leadership of the Prime Minister, the higher education institutes have been able to excel across the globe.

As per the latest edition of the Quacquarelli Symonds (QS) World University Rankings in comparison to 21 institutions in 2019, the latest edition has seen 26 Indian departments entering the top-100 list for their subjects. Moreover, QS has also seen an increase in the number of Indian programs ranking among the global top 50. Further, for the first time India is among the 50 countries with a rank of 48 in the Global Innovation Index, India stood at 81st position in the year 2015. Even in the Employability Rankings 2020, India has improved its ranking from 23 in 2010 to 15 in 2020 even as developed countries like the UK and US varsities showed a decline.

As a step forward, augmenting the progress achieved in the past years, the Ministry of Education has introduced





the National Education Policy. The policy is introduced in response of the changes that have happened in the past three decades post the last Education Policy. It aims to cater to the many growing developmental imperatives of this country on the one hand, while creating a just and equitable society on the other. As PM has said, “We are a forward-looking civilisation and a vibrant democracy that looks to interact with other countries to build a better world.” The policy stands true to this vision and thereby proposes revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the global aspirational goals of 21st century education, while remaining consistent with India’s traditions and value systems. It lays special emphasis on the development of the creative potential of each individual, in all its richness and complexity with global mindset. It has the power to make Aatmanirbhar Bharat while being reliable support to the world.

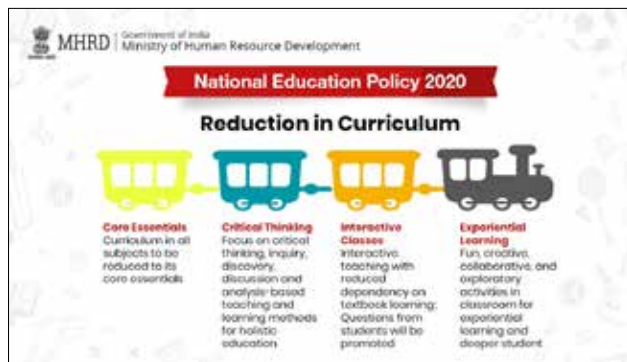
The NEP will enable students to move towards ‘learning to learn’, with the spirit of critical inquiry, problem solving and creativity. Students will be provided with a platform to evolve themselves in a culture of multidisciplinary education and innovation. Along with science and mathematics, the curriculum and vocations will equally include arts, crafts, humanities, games, sports, languages, literature, culture, and values. This

The NEP will enable students to move towards ‘learning to learn’, with the spirit of critical inquiry, problem solving and creativity. Students will be provided with a platform to evolve themselves in a culture of multidisciplinary education and innovation.

will enable holistic and well-rounded development of students nurturing realisation and liberation of the self. The education of New India will enable learners to foster character-making while preparing for gainful, fulfilling employment. Education will develop both—cognitive, social and emotional skills—also referred to as ‘soft skills’ including cultural awareness and empathy, perseverance and grit, teamwork, leadership, communication, among others. Thus

by 2022, New India will provide a strong foundation for an education system based upon the principles of accessibility, equity, quality, affordability and accountability.

Surely, the nation is set to bring a significant transformation in the history of the education system under the leadership of PM. I am sure we will be able to achieve the first milestone towards India becoming a Vishwa Guru in 2022 while we celebrate the 75th anniversary of India’s victorious Independence. All glories to his enigmatic and inspirational vision who has been the constant force behind the formulation and implementation of the National Education policy vision. □





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Successful Endeavour in Space

Dr K Sivan

The Indian space programme implemented by ISRO has enabled the pursuit of various frontier areas of space research besides facilitating the country's overall development and technological advancement. Today, ISRO sprawls across the country with huge launch stations, tracking centers, R&D facilities and manufacturing and data processing units, all engaged in highly sophisticated and complex technological activities.

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

Notwithstanding its presence as one of the strong space faring nations today, the Indian space programme began in a modest way in 1962 with the formation of the Indian National Committee on Space Research (INCOSPAR), barely five years after the launch of the Earth's first artificial satellite Sputnik-1, that heralded the space age. This farsighted critical decision and the later perseverant philosophy of the people who steered the programme, facilitated India to master space technology.

The formal beginning of the Indian space programme can be traced to the launch of a Nike-Apache sounding

rocket on November 21, 1963 from Thumba, then a fishing hamlet near Thiruvananthapuram, the capital of Kerala. Later, Thumba became an international sounding rocket launching facility and such rockets were launched for upper atmospheric, geomagnetic and space research by many countries.

It was at this time Dr Vikram Sarabhai, the architect of the Indian space programme, set up a Space Science and Technology Centre at Thumba for the development of technologies necessary for space research. In 1969, the Indian Space Research Organisation, better known



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by its ubiquitous acronym ISRO, was formed. Today, with a total work force of over 18,000, ISRO's establishments are functioning in many parts of the country with each concentrating on a specific area. The country's public as well as private sector industries are playing a crucial role in our space programme. Besides, academic institutions have also contributed to the Indian space endeavour.

The 70s were the learning phase during which many experimental satellites were built, including India's first satellite Aryabhata, which was launched on April 19, 1975 from a launch centre in the former Soviet Union. Aryabhata laid firm foundation for the later immensely successful Indian satellite programme. Bhaskara 1 and 2, the two experimental earth observation satellites, provided the rich experience and the confidence to build complex operational remote sensing satellites. Today, India is a world leader in the satellite-based remote sensing area.



Additionally, APPLE, India's first experimental communication satellite, though launched by the European Ariane rocket, reached its final geosynchronous orbital home in June 1981 with the help of a rocket motor developed in India. Aryabhata, the two Bhaskaras, as well as APPLE were launched free of cost, which reflects India's successful international space cooperation policy. In the recent past, India has not only flown foreign scientific instruments on-board Indian spacecraft but has also launched them.

APPLE Satellite

Besides taking a leap into the domain of satellites, ISRO conducted two significant experiments in the 70's – SITE and STEP – to obtain hands-on experience on the utilisation of satellites for television broadcasting and telecommunications. And, it was in this decade that ISRO developed its first Satellite Launch Vehicle SLV-3, which had its successful launch on July 18, 1980 thrusting India into the select league of six countries with the capability to launch satellites on their own.

The 1980s were the times for experimentation for the launch vehicle technologies when it endeavoured to demonstrate the country's ability to develop ASLV, a more capable launch vehicle compared to SLV-3. During the same period, INSAT-1B, India's first multipurpose

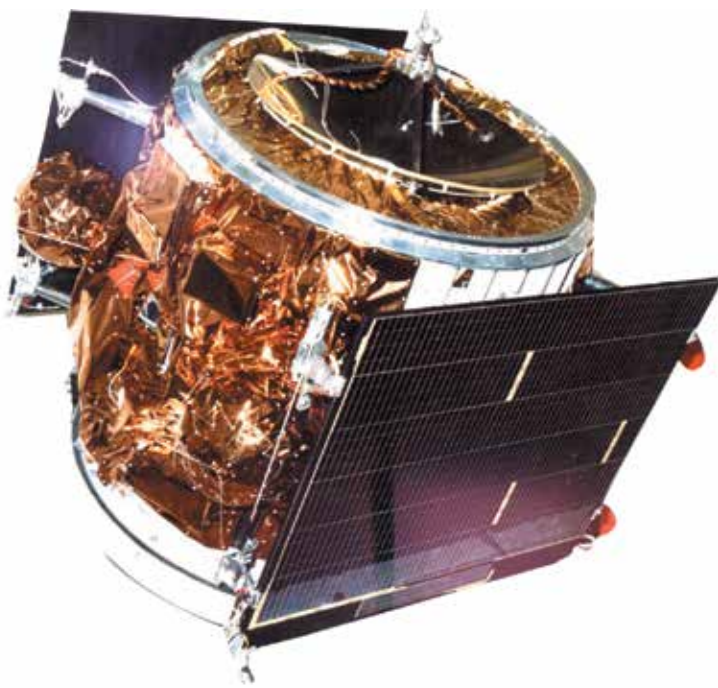
operational satellite launched in 1983, demonstrated its ability to bring about a rapid and major revolution in India's telecommunications, television broadcasting and weather forecasting fields. Today, communication satellites are an integral part of our economic infrastructure.

An indication of India's ability to design, build and maintain a complex remote sensing satellite was demonstrated in 1988 when IRS-1A, the first operational satellite built in India started imaging the earth from orbit. The images sent by that satellite circling the Earth from its 900 km high polar orbit were utilised in such diverse fields like agriculture, ground water prospecting, mineral survey, forestry, etc.

During the 1990s, ISRO began building INSAT-2 series of multipurpose satellites indigenously. At the same time, systematic usage of imagery from our remote sensing satellites for tasks like crop yield estimation, ground water and mineral prospecting, forest survey, urban sprawl monitoring and wasteland classification and fisheries development, began.

Today, India has a fleet of advanced remote sensing satellites equipped with high resolution and multispectral cameras dedicated to the themes of cartography, resource survey and ocean and atmospheric applications. Apart from these polar orbit-based observation satellites, weather watching satellites INSAT-3D and INSAT-3DR – circling the earth in the 36,000 km high geosynchronous orbit, are providing valuable inputs to weather forecasting. Apart from these satellites, the Indian National Satellite (INSAT) system today is one of the largest domestic communication satellite systems in Asia-Pacific region. The INSAT system with over 300 transponders in the C-band, Extended C-band, Ku-band, Ka/Ku band and S-band provides services to telecommunications, television





ons. Cryogenic technology involves storage of liquid hydrogen and liquid oxygen at very low temperatures. Materials used to operate at these very low temperatures, chilling processes, interplay of engine parameters make the development of cryogenic stage a very challenging and complex task. With the successful qualification of the indigenously developed Cryogenic Upper Stage (CUS) in the GSLV-D5 flight on January 5, 2014, ISRO demonstrated its mastery of cryogenic rocket propulsion. From January 2014, the vehicle has achieved six consecutive successes.

GSLV Mk III, India's fifth generation satellite launch vehicle has two solid strap-ons, a core liquid booster and a cryogenic upper stage. The vehicle is designed to carry 4 ton class of satellites into Geosynchronous Transfer Orbit (GTO) or about 10 tons to Low Earth Orbit (LEO). LVM3-X/ CARE Mission, the first experimental suborbital flight of GSLV Mk III December 18, 2014 and injected the Crew Module Atmospheric Re-entry experiment (CARE) in December 2014. CARE module began its return journey and a little later, re-entered the earth's atmosphere. It was successfully recovered over Bay of Bengal about 20 minutes after its launch. Subsequently, after two successful developmental flights and with the successful injection of Chandrayaan-2 in to Earth Parking Orbit in July 2019, GSLV Mk III successfully entered into its operational phase.

Besides these, India's Reusable Launch Vehicle Technology Demonstrator (RLV TD) was successfully flight tested in May 2016 and several critical technologies were successfully validated. The first experimental mission of ISRO's Supersonic Combustion Ramjet (SCRAMJET) engine towards the realisation of air breathing propulsion system was also successfully conducted in August 2016. With this, India became the fourth country to flight test the SCRAMJET engine.

broadcasting, radio networking, satellite newsgathering, societal applications, weather forecasting, disaster warning and Search and Rescue operations. High throughput satellites such as GSAT-11, GSAT-29 and GSAT-19 are supporting the "Digital India" campaign by boosting the broadband connectivity to the rural and inaccessible Gram Panchayats in the country. The transponders on these satellites will bridge the digital divide of users including those in Jammu & Kashmir and North Eastern regions of India.

Perfecting the launch vehicle technology is an immensely difficult and challenging task. Thus, only a few countries possess it. Till now, ISRO has developed five launch vehicles (SLV-3, ASLV, PSLV, GSLV and GSLV Mk III which is also known as LVM3) and mastered the technology of rockets that use solid, liquid as well as cryogenic propellants.

India developed its first launch vehicle SLV-3 in the 70s and persevered to perfect its second generation launch vehicle ASLV during the 80s and early 90s. PSLV, India's first launch vehicle capable of

launching large satellites, had its first successful flight in 1994.

Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages. With 49 successful flights over the years, PSLV has emerged as the reliable and versatile workhorse launch vehicle of India. In fact, it has launched 328 foreign satellites as on November 7, 2020 and has carved out a niche in the commercial satellite launch arena. On February 15, 2017, PSLV created a world record by successfully placing 104 satellites in orbit during a single launch. Well, as numbers go, it was undoubtedly a record, but the real significance of it is the immense confidence reposed by foreign countries, including the USA, in the capability of ISRO. This success was the result of meticulous planning and flawless execution of the mission by ISRO.

Launch of 104 Satellites by PSLV-C37

Geosynchronous Satellite Launch Vehicle Mark II (GSLV Mk II) is fourth generation launch vehicle having three stages (including the cryogenic upper stage) with four liquid strap-



Indian space programme has always focused towards the development and utilisation of the space technologies to achieve overall development of the country. Despite its emphasis on applications, ISRO has pursued many space science projects in earnest to perform meaningful exploration of space. India's first satellite Aryabhata was a scientific satellite.

After Aryabhata, ISRO entered into the realm of science missions again with a unique mission which caught the attention of the world was Space Capsule Recovery Experiment-1 (SRE-1). Launched by PSLV in January 2007, SRE-1 with its scientific experiments orbited the Earth for 12 days and was successfully deorbited and recovered over Bay of Bengal. This proved several technologies necessary for reusable launch vehicles and human spaceflight.

The space science missions of India—Chandrayaan-1, Mars Orbiter Mission, Astrosat and Chandrayaan-2—have caught the attention of millions

Dr Vikram Sarabhai, the architect of the Indian space programme, set up a Space Science and Technology Centre at Thumba for the development of technologies necessary for space research.

In 1969, the Indian Space Research Organisation, better known by its ubiquitous acronym ISRO, was formed.

of Indians as well as the outside world.

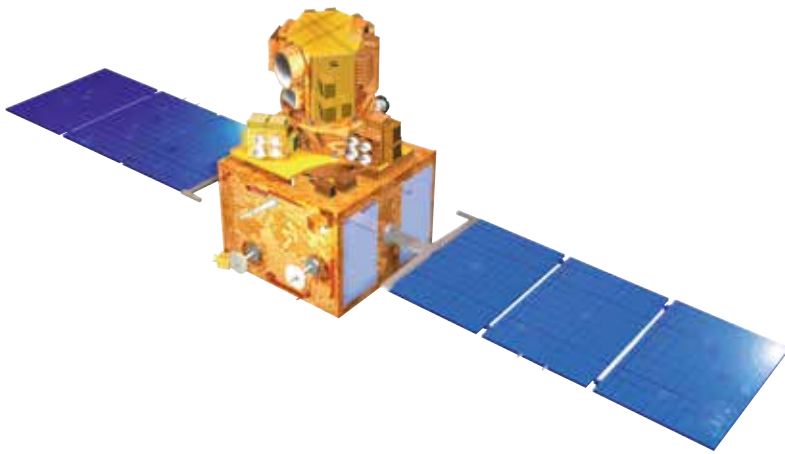
Launched by PSLV on October 22, 2008, the 1380 kg Chandrayaan-1 spacecraft was successfully navigated to the Moon in three weeks and was put into an orbit around the moon. On November 14, 2008, when a TV set sized 'Moon Impact Probe' separated from Chandrayaan-1 spacecraft and successfully impacted on the surface of the moon, India became the fourth

country to send a probe to the lunar surface after the United States, the Soviet Union and Japan. Later, when Chandrayaan-1 conclusively discovered water molecules on the lunar surface, it was widely hailed as a path-breaking discovery.

Encouraged by the success of Chandrayaan-1, ISRO endeavoured to realise Mars Orbiter Mission, for demonstrating India's capability to build, launch and navigate an unmanned spacecraft to Mars. Launched by PSLV on November 5, 2013, the 1340 kg Mars Orbiter Spacecraft encountered Mars on September 24, 2014. With this, ISRO has become the fourth space agency to successfully send a spacecraft to Mars orbit. Achieving success in the first mission itself is yet another accomplishment of ISRO.

AstroSat launched by PSLV in September 2015, is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously. AstroSat





the series of test to qualify the Crew Escape System (CES). The Pad Abort Test flight was a demonstration of the capability of CES to evacuate the crew in case of a contingency at launch Pad. With this, India has become the fourth country in the world to acquire this vital technology after the USA, Russia and China.

Towards capacity building in human resources and to meet the growing demands of the Indian Space Programme, the Indian Institute of Space Science and Technology (IIST), a deemed university, was established at Thiruvananthapuram in 2007. The institute offers Bachelor's Degree in Space Technology with specialisation in Aerospace Engineering and Electronics & Communication and Masters Programme in areas of space technology.

Recently, the space sector was opened up to promote, handhold, regulate and authorise private enterprises and start-ups to undertake space activities by creation of the Indian National Space Promotion and Authorization Center (IN-SPACe). This will enhance the diffusion of space technology and boost space economy within the country.

The Indian space programme has many challenges ahead. There are plans to build heavier and more capable and efficient satellites. And, space science missions like Chandrayaan-3, Aditya-L1, Mission to Venus to further explore the solar system, are in progress. Pursuit of research and development activities pertaining to small satellite launch vehicle, air breathing rocket propulsion and demonstration of reusable rocket technology, are also progressing.

Thus, Indian space programme implemented by ISRO has enabled the pursuit of various frontier areas of space research besides facilitating the country's overall development and technological advancement. □

recently made a major breakthrough by discovering one of the earliest galaxies in extreme-Ultraviolet light.

The Chandrayaan-2 mission, India's second mission to the moon, was successfully launched on July 22, 2019. Chandrayaan-2 Orbiter spacecraft was placed in its intended orbit. The eight instruments onboard the Orbiter are continuously providing useful science data which will enrich our understanding of the moon's evolution and mapping of the minerals and water molecules in Polar regions.

Having successfully built many communications, meteorological (weather monitoring), remote sensing and scientific satellites, ISRO has successfully established and operationalised Navigation with Indian Constellation (NavIC) which provides highly accurate Position, Navigation and Time information to users in India and its surroundings. Global Standards body 3rd Generation Partnership Project (3GPP), which develops protocols for mobile telephony, has approved NavIC. Major mobile chipset manufacturers such as Qualcomm, MediaTek, Broadcom, Allstar have incorporated NavIC in their releases. Using these chipsets, Xiaomi and OnePlus have already released mobile handsets with processors enabled to receive NavIC signal and other OEM's are slated to follow suit.

Further, through GPS Aided GEO Augmented Navigation (GAGAN),

ISRO is providing Satellite-based Navigation services with accuracy and integrity required for civil aviation applications and to provide better Air Traffic Management over Indian Airspace.

Apart from this, ISRO has also facilitated students in building/launching satellites for various applications. So far, 10 student satellites have been launched by ISRO.

The "Gaganyaan Programme" approved by the Government of India in 2018 is a point of inflection in the growth profile of India's space endeavour, marking a seminal foray into the new age of human space exploration. The Human Space Flight Centre (HSFC) was constituted in ISRO in January, 2019 for implementing the vision on human space flight programme. HSFC is entrusted to implement the Gaganyaan programme and to act as the lead centre for the sustained and affordable human spaceflight activities. The Gaganyaan project has the objective of demonstrating human space flight capability to Low Earth orbit (LEO) with 3 crew members for 5-7 days in orbit and safely recovers them after the mission.

ISRO successfully proved a crucial technology element of Human spaceflight in July 2018—The Pad Abort Test (PAT), which is the first in

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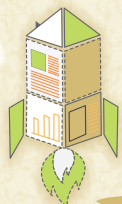
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Fiscal Federalism

Amitabh Kant

With constantly changing economic conditions, development of new technologies and an evolving new governance structure, new reforms are required in public financial management system both at Centre and State level. In India, fiscal federalism as it stands today, is a result of historical evolution which originated in pre-independence India. Over time, through various commissions, committees and parliamentary enactments, a rigid unitary system with immense scope of discretionary power to the Central Government was transformed into a constitutionally regulated federal system.

Evolution of Fiscal Federalism

‘Fiscal Federalism’ refers to the financial relations between the country’s Central Government and other units of Government. It essentially represents how expenditure and revenue are allocated across different layers of Government administration. Fiscal federalism helps Government realise cost efficiency by economies of scale in providing public services, which correspond most closely to the preference of the people. Evolution of Fiscal Federalism can be traced back to 18th century when Alexander Hamilton in his federalist papers, written in 1780s, stated that a Multi-layered Government (Federal) permits various functions to be assumed by different layers, potentially improving the efficiency of Government since different activities have different optimal scales.

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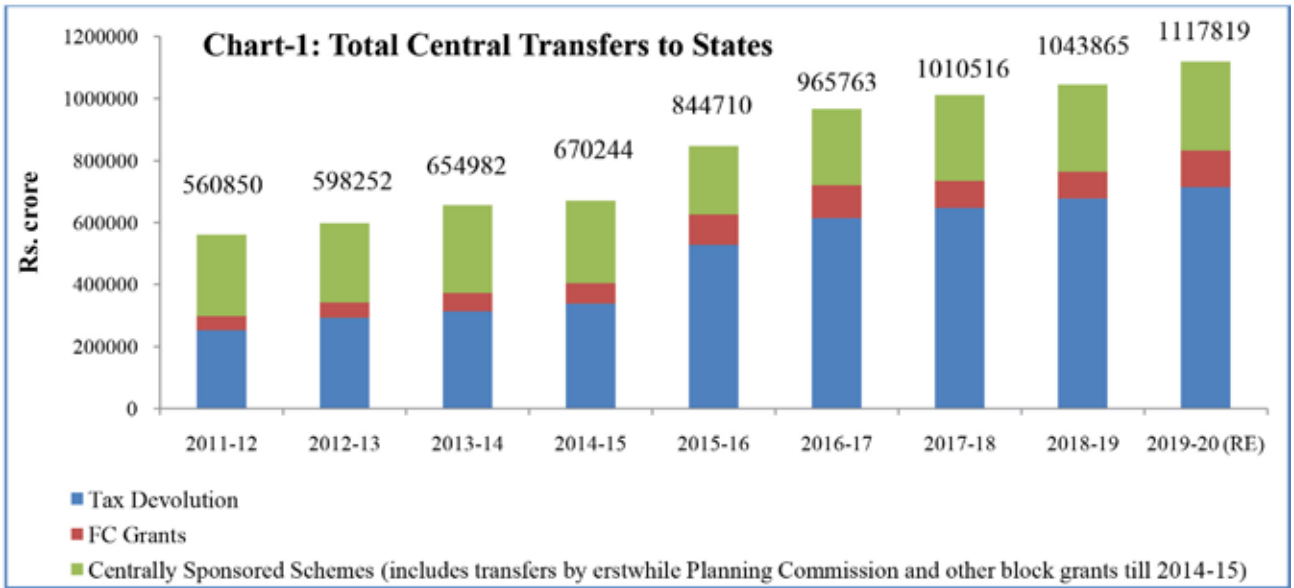
scope of discretionary power to the Central Government was transformed into a constitutionally regulated federal system. The evolution of fiscal federalism in India has its roots from 1858, when the British Government assumed direct sovereignty over the Indian territory. At that time, there was no standardised system of accounting and annual budgets did not exist. Central Government retained the entire control on finances and made grants of money at its discretion to meet the demands of local governments. Local Governments collected revenue as agents of Central

Government resulting in no direct interest in the result of collection. However, the need to decentralise the financing system was an inevitable necessity in a country as diverse and vast as India.

Substantive efforts in the freedom struggle, led to the British Government’s declaration in 1917 of gradually introducing responsible Government in India. This was followed by the Government of India Act, 1919 based on Montague Chelmsford reforms, which introduced a system of diarchy, dividing the



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Source : PFMS Website

administrative subjects and sources of revenue into two categories – Central and Provincial. The first category was administered by councillors, appointed by the crown. The second was administered by Ministers who were chosen by the Governor from the elected members of the provincial legislature. Though the system of fixed grants from central revenues was continued which led to increase in horizontal imbalances amongst provinces, but it also gave thrust to the process of decentralisation.

In 1927, Simon Commission reviewed the Government of India Act, 1919 and recommended the establishment of a federation of Indian States and provinces. Thereafter, the Expert Committee of 1931 with Lord Viscount Peel as the Chairman, examined the fiscal relations between the Centre and Provinces and suggested sharing of income tax between Centre and Provinces while fixing the share of Provinces for a period of five years. Based on these recommendations, the Government of India Act, 1935 was brought forth which established a federal system with Provinces and Indian States as two distinct units.

Thus, the Act of 1919 and Act of 1935 established a basic structure of

fiscal federalism in India, where Act of 1919 provided for a separation of revenue heads between the Centre and the Provinces, and the Act of 1935 allowed for sharing of Centre’s revenues and for the provision of grants-in-aid to Provinces. At the time of Independence in 1947 when India was beset with multiple problems including partition, refugee crisis, fledgling institutions and ill-equipped colonial machinery, the vision and pragmatic approach of Sardar Vallabhbhai Patel helped in unification of more than 560 princely States with the Union of India, laying the foundation for a Federal structure in India.

The Federal Character of Public Finance in India

The Constituent Assembly had significant debates on the federal nature of Indian constitution. Federalism became an essence of the

Fiscal federalism helps Government realise cost efficiency by economies of scale in providing public services, which correspond most closely to the preference of the people.

Constitution. This was explained by Dr. B.R. Ambedkar in these eloquent words — *“The Draft Constitution is Federal Constitution in as much as it establishes what may be called a Dual Polity. This Dual Polity under the proposed Constitution will consist of the Union at the Centre and the States at the periphery each endowed with sovereign powers to be exercised in the field assigned to them respectively by the Constitution.”* The Indian Constitution adopted in 1950, defines India as ‘*Secular, Federal, Socialist Union of States.*’ Both Centre and State have separate legislative, executive and judicial arms. The Seventh Schedule of the Constitution demarcates the powers and functions of the Union and the States viz, Union List, State List and Concurrent List. The subjects in Union List include atomic energy, defence, national highways, railways, airways and those having significant scale of economies. The subjects in the State list include matters with significant developmental potential within the States. The Constitution also specifies taxation powers of both the Centre and the State and the principles governing the sharing of revenue and certain other resources. Post implementation of Goods and





the form of Centrally Sponsored Schemes (CSS). Up till 2014-15 the developmental plan transfers made by the erstwhile Planning Commission also constituted tied transfers. The Planning Commission transfers included formula-based transfers of Normal Central Assistance and discretionary transfers such as Special Plan Assistance, Assistance for Externally Aided Projects, etc. The responsibility of funds allocation is now entrusted to the Ministry of Finance.

Transfers of Resources to Local Bodies

The devolution of powers to the states without any further decentralisation at the level of sub state (local) government bodies was very weak before the 1990s. It was only after 73rd and 74th Constitutional Amendment Acts passed in 1992, the two tiered Indian federal structure evolved into three-tiered structure giving constitutional status to the rural and urban local bodies respectively. Under CAA, the State legislatures are expected to devolve responsibilities, powers and authorities to the Panchayats and Municipalities in order to bring about greater decentralisation and to increase the involvement of the community in implementing schemes, bringing transparency in decision-making, ensuring accountability and monitoring of outcomes. Article 243 (I) & Article 243 (Y) further necessitated constitution of State Finance Commissions at regular interval of five years, to decide distribution of net proceeds of taxes between State and Panchayats, determination of taxes, duties, tolls etc. to be assigned to Panchayats and Municipalities, grant in aid to be provided to the Panchayats and Municipalities.

Redefining Fiscal Federalism to Ensure Better Utilization of Funds

Federalism has evolved over time in light of contemporary needs

Services Tax (GST) which is shared between Centre and States, Central Government retains the exclusive right for income tax (corporates and individuals) while States have the right to collect stamp duty, excise duty on alcoholic beverages, registration/commercial use of vehicles, and a few other minor taxes.

Central Transfers to States

India is not unique in this sense as intergovernmental transfer is a common feature in many countries that have a federal structure and even in unitary systems transfer from union to local governments is ubiquitous. In India, in order to correct the vertical and horizontal imbalance and for equitable and efficient development, the Central Government transfers funds to State Governments as General Purpose transfers and Specific Purpose transfers. The General Purpose transfers are untied funds devolved to the State Governments via the Finance Commission. Finance Commission that constitute substantial share of the total central transfers, is appointed every five years since 1951 under Article 275-278 of the Constitution with the purpose of addressing the horizontal and vertical imbalance. It recommends the criteria for devolution of central taxes to States and the principles

for distribution of grants-in-aid. So far, fourteen Finance Commissions have completed their term and 15th Finance Commission has already made recommendations for 2020-21. Remaining Central transfers to States are in the form of Specific Purpose Transfers which may also be termed as tied transfers, as these transfers are tied for specific purposes mostly in social sector areas such as health, education, labour, skill development etc. that govern a part of national development agenda and cut across state boundaries. These transfers are made by the concerned Central Ministries/Departments in

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and development priorities. While the basic principle of federalism remains the same, a number of developments over the years such as, liberalisation in 1991, introduction of VAT in 2005 and more recent changes like introduction of GST in 2017, scrapping of Planning Commission and constitution of NITI Aayog in 2015 and also rationalisation of Centrally Sponsored Schemes, have led to increased devolution of untied funds which has constantly changed the Centre-State fiscal relations.

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

(I) Increase in untied funds devolved to States: Finance Commission (FC) transfers, comprising tax devolution and grants to the States, have remained the major source of transfers to the States. These transfers increased from 60.1 per cent of total transfers in the award period of the FC-VIII to 68.6 per cent in the award period of the FC-X and remained stable till the award period

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of the FC-XII. In FC-XIII, with restructuring of Centrally Sponsored schemes the share of non FC transfers

increased to around 32%. However, following the recommendation of FC-XIV to increase the share of union tax proceeds from 32% to 42%, the biggest increase ever, the share of FC grants in total transfers increased to 74%. This whopping increase of 10% in the share of union tax proceeds underpins the objective of greater fiscal autonomy to States, thereby enabling them to design their own expenditure priorities and undertake State-specific development schemes, based upon their own assessment.

Apart from the structural changes in the intergovernmental transfers, the quantum of central transfers to States which rose from Rs 5.61 lakh crore in 2011-12 to Rs 6.71 lakh crore in 2014-15, increased significantly to Rs 11.18 lakh crore in 2019-20. This has provided a significant leeway to the States to enhance their developmental expenditure.

(II) Rationalisation of Centrally Sponsored Schemes: Over time, following the recommendations of important Committees/ Sub-Groups the total number of Centrally Sponsored Schemes has evolved over time, from 190 at the end of Fifth Plan to 360 at the end of 9th Plan, to 66 at the beginning of 12th Plan. The most recent rationalisation took place in 2016-17 based on the recommendations of the sub-group of Chief Ministers on Rationalisation of Centrally Sponsored Schemes (CSS). Based on the recommendations of the report submitted by the Sub-group formulated under NITI Aayog, the number of Centrally Sponsored Schemes were reduced from 66 to 28, the funding pattern of core schemes was changed for large States to 60:40 (Centre:State) from 70:30 earlier; the flexibility for States to use funds as per their local needs and requirements within schemes was increased from 10% earlier to 25%; each Ministry/Department along with NITI Aayog were recommended to evolve transparent criteria for allocation under each scheme and



INDICES LAUNCHED BY NITI AAYOG



NITI Aayog was entrusted with carrying out third party evaluation to improve efficiency of expenditure and to improve outcomes.

(III) End to Centralised Planning Era and Discretionary Grants: Plan and Non-Plan distinction in the budgeting exercise was done away with by the Union Budget 2017-18. With increase in general devolution and untied transfers, discretionary transfers such as additional central assistance, special plan assistance, special central assistance granted by the erstwhile Planning Commission were discontinued.

(IV) Introduction of Goods and Services Tax (GST): One of the biggest fiscal reforms in independent India was introduction of Goods and Services Tax. The Constitution now with Article 279A, provided for creation of a GST Council which is a joint forum of the Union and States entrusted with the responsibility of making recommendation on GST rates, taxes, cesses, exemptions etc. This unique institution has been working in an exemplary manner resonating cooperative federalism where Centre and States jointly decide on the taxes and related matters.

(V) Outcome Based Budgeting: An important expenditure reform was introduced in 2017-18 with the formulation of output outcome

framework for 68 Ministries/ Departments along with the Union Budget document. Data Monitoring and Evaluation Office (DMEO) of NITI Aayog and Public Finance (States) of Ministry of Finance are key coordinators in finalising and monitoring this framework. It is an important transition from mere outlays of schemes to result-oriented outputs and outcomes.

Role of NITI Aayog in Strengthening Federalism

NITI Aayog substituted erstwhile Planning Commission with effect from January 1, 2015, and has since engaged itself in strengthening cooperative and competitive federalism for rapid

economic transformation. NITI Aayog recognises the fact that the States are the economic growth engines and are equal partners in national development.

On the premise that strong States make a strong nation, a number of initiatives have been taken by NITI Aayog to foster cooperative federalism through structured support initiatives and mechanisms of engagement with the States/ UTs on a continuous basis. These include meetings between Prime Minister/Cabinet Ministers with all Chief Ministers; sub-groups of Chief Ministers on subjects of national importance; sharing of best practices; policy support and capacity development of State/ UT functionaries; launching of the Aspirational Districts Programme for development of backward districts; theme-based extensive engagements in various sectors; framing model laws for land leasing and agriculture marketing reforms; and area- specific interventions for North Eastern, Himalayan States and Island development.

The Governing Council of NITI Aayog, comprising Chief Ministers of all the States and Union Territories with Legislatures and Lt. Governors of other Union Territories provides a platform whereby the Centre and





the States – Team India – can come together to resolve differences, and chart a common course to progress and prosperity. So far, five meetings of the Council have been held.

Apart from designing strategic and long-term policies and programmes for the Government of India, NITI Aayog has been providing relevant technical advice to the Centre, States and UTs. NITI Aayog has also established models and programmes for development of infrastructure and to reignite and establish private-public partnership, such as the Centre-State partnership model: Development Support Services to States and Union Territories (DSSS); and the Sustainable Action for Transforming Human Capital (SATH) programme.

Further, with the aim of correcting regional developmental imbalance, NITI Aayog has taken special steps for areas requiring special attention and support, such as those in the north east, islands and the Himalayas. NITI has constituted special forums to identify these States' specific constraints and formulate special policies to ensure sustainable development while protecting the abundant natural resources in these regions.

In a unique initiative, NITI Aayog has endeavoured to promote competitive federalism by facilitating improved performance of States/UTs by encouraging healthy competition through transparent ranking in various sectors along with a hand holding approach. Some of the indices launched by NITI Aayog include Education Index; Health Index; Composite Water Management Index; SDG Index; and Delta Rankings for Performance of Aspirational Districts. Dynamic real time based portals have been put in place to facilitate States/UTs to feed data and monitor their performance in various sectors vis-à-vis other States/UTs, including third party validation of data. Once districts

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compete amongst themselves, States would emerge stronger and when States compete amongst themselves, nation becomes stronger. This is one of the key elements of governance in a pursuit towards transforming India. This will help us weaken the tendency for 'competitive populism' and replace it with 'competitive good governance'.

Going Forward

The challenge of striking balance between efficiency and equity has always been a critical aspect in federalism. Meeting the aspiration of States is the foremost priority of Indian fiscal federalism. One of the greatest achievements in the realm of Centre-State relations is that States are seen as drivers of not only the country's growth, but also improving the lives of the citizens across the country. The recent experience of tackling Covid crisis is a successful example of how Centre and States have worked together to fight the pandemic which has created havoc throughout the world. Likewise, steps have also been taken for localisation of Sustainable Development Goals so as to identify specific steps at the sub-national levels.

Centre and State relations have important fiscal implications for country finances such as sharing ratio of total debt among centre and state, fiscal marksmanship, empowerment

of rural and urban local bodies, rationalisation of subsidies and user charges reforms in order to restrict fiscally unproductive policies.

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

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The views expressed are personal.

Public Health Innovation

Prof (Dr) Balram Bhargava

For a sustainable and effective model for Health for All, maintaining synergy between cost, quality and access to essential health care services is crucial. Alongside efforts to strengthen primary health care, raise public health expenditure and provide greater financial coverage, we also need an enabling environment for public health innovation through collaborative action to provide affordable tools to those who need it the most. Unless everyone is protected, no one is left behind for essential health care, we cannot dream of achieving the target of 'Health for All'.

In the wake of the Covid-19, public health has been brought to the forefront. Amidst the ongoing challenges of mitigating the pandemic, one thing has become clear — the need for affordable and accessible health care for all. As the pandemic has taught us, diseases know no boundaries, and do not restrict themselves to a particular set of people, nation or community. Unless everyone is protected, no one is left behind for essential health care, we cannot dream of achieving the target of 'Health for All'. That is why, now more than ever, there is a critical need to spotlight the conversation around 'Health for All'.

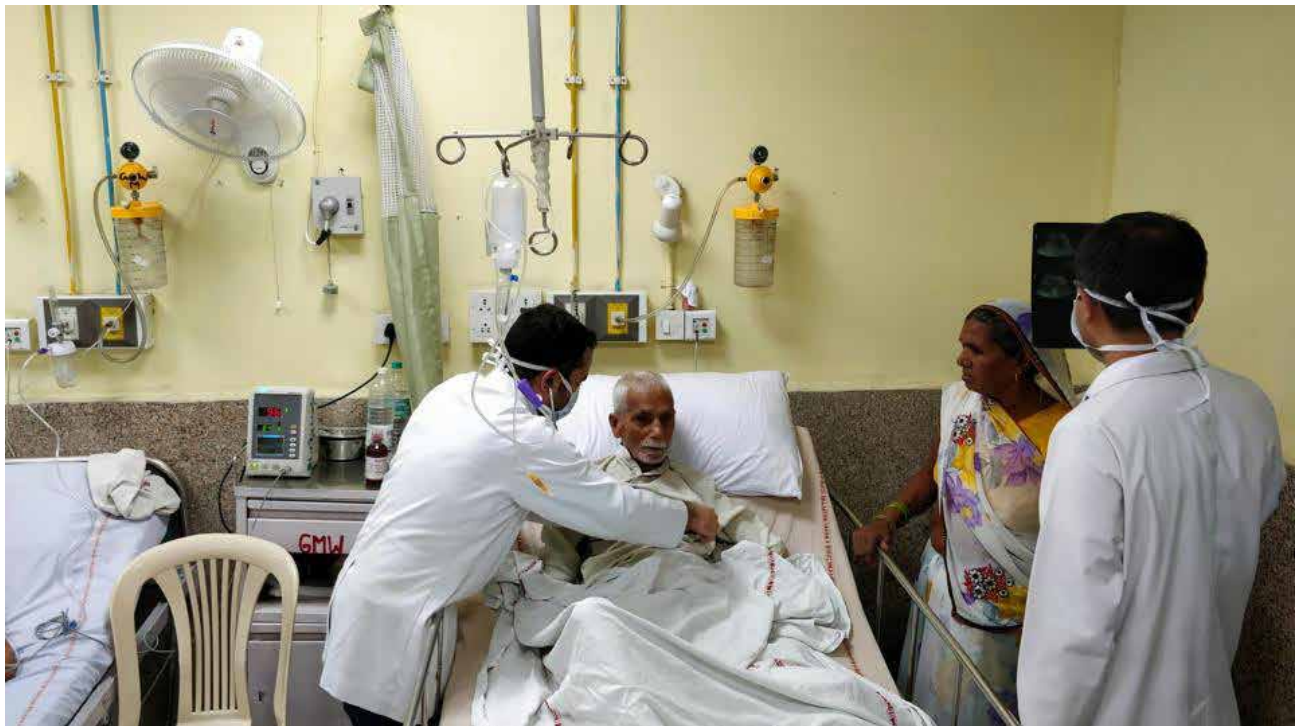
The idea behind 'Health for All' is intrinsically interlinked with the idea of Universal Health Coverage (UHC) which envisages, that everyone, everywhere, has access to essential health care services without facing financial hardship— meaning that people are protected from the financial consequences of paying for costly health care that might push them into poverty. This concept is also outlined in the Sustainable Development Goals (SDGs)— to which India is a signatory—given the interdependence of health and global development. SDG 3 aspires to ensure health and well-being for all, along with tackling epidemics and selected communicable diseases by 2030. It also aims to achieve universal health coverage and provide access to safe and effective medicines and vaccines for all.

In a country like India, with a population of over 1.3 billion people, providing affordable health care in an equitable way comes with its own set of challenges. Accessibility and affordability of health care, particularly, is a serious preposition for the vast majority of the

population, especially at the tertiary level. Recognising this gap, the Government of India in 2018 introduced the Ayushman Bharat programme—the largest such health care programmes in the world, with the aim to bolster the two pillars of Health for All—strengthening primary health care and providing health coverage. Under this programme, 1.5 lakh health and wellness centres are being set up to provide comprehensive primary health care to the community, including providing essential drugs and diagnostic services free of cost. Additionally, the programme also provides health coverage for the bottom 40% of people in the country, who are most likely to face financial hardships while accessing quality health care services. Currently, in the context of the pandemic, the scheme is being utilised to provide free testing and treatment for its 53 crore beneficiaries. DHR-ICMR is supporting Ayushman Bharat and ensuring a sustainable and cost-effective model through its ongoing programmes like health technology assessment, standard treatment workflows (STWs) and national list of essential medicines, diagnostics and assistive technologies. These programmes



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would serve as an important tool in prioritising national health spending and providing a uniform guideline to ensure quality health care services across the nation.

While initiatives like Ayushman Bharat are indeed a step in the direction of achieving UHC, the improvement of overall health indicators could be attributed to the development of health infrastructure and services provided to the citizens irrespective of economic status. Numerous programmes have been designed to address health issues under the wider umbrella of National Health Mission by the Government of India. Besides the improvement of the health sector, the emphasis has been on improving the availability and access to services catering to the basic needs of people such as sanitation (Swachh Bharat Mission), sewage treatment, clean drinking water among others.

Along with it, the Universal Immunisation Programme, which is one of the largest health programmes of the world has achieved stellar results such as the eradication of smallpox and polio along with ensuring coverage to millions of people in the over 3 decades of its functioning. Ayushman Bharat is also the most ambitious health missions ever to support in achieving Universal Health Coverage. Moreover, various National programs on health ranging from Reproductive, Maternal, Neonatal, Child and Adolescent health

(RMNCAH), nutritional programmes, communicable and non-communicable diseases to health system strengthening programs have been designed and implemented by the Health Ministry which cover a wide range of health care needs of the population and focus on improving various aspects of a person's health and well-being, all of which are fundamental for improving life expectancy in India.

Apart from the above, there is an increasing focus on curbing old existing diseases such as TB and Malaria through the various programmes and policies in India. Prime Minister gave a clarion call to end TB and Malaria by 2025 and 2030 respectively and launched the National Strategic Plans (NSP) to this end. It is critical to note that 2025 is five years ahead of the global target of TB elimination by 2030.

Another significant, but often undermined, component of "Health for All" is innovation in public health research, driven by public-private partnerships. Innovation, particularly in the development of indigenous solutions, is essential to develop affordable health care products and services. Nowhere is this better illustrated than in the context of the current pandemic, where India has been leading the way in innovating for affordable solutions to mitigate the pandemic and provide access to health care services to all. For instance, the

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Indian Council of Medical Research (ICMR) developed and validated the indigenous Covid Kawach Elisa test for antibody detection of the virus, which can be produced at lower manufacturing cost and makes it easy to use in resource-limited settings. Similarly, we have seen similar innovation in the space of research and development for Covid-vaccines, development of affordable PPE kits, masks, ventilators, respiratory aids, etc.—all aimed at ensuring that tools to tackle the pandemic reaches the greatest number of people. These are also the positive steps towards the Aatmanirbhar Bharat.

In this regard, the role of multi-sectoral partnerships and collaboration cannot be undermined; taking cue from the recent inter-sectoral partnership in ramping up the Covid-19 testing infrastructure in the country. In January 2020, India had only one laboratory testing for Covid-19, at the National Institute of Virology, Pune. The scaling up of testing laboratories started with a network of 106 ICMR-funded Viral Research and Diagnostic Laboratories, (VRDLs), which already had the capacity to conduct testing for viruses similar to SARS-CoV-2. Subsequently, the testing was initiated in

During national lockdown, the services of the Ministry of Civil Aviation under 'Mission Lifeline Udan' were availed. They carried ICMR consignments of diagnostic material across the country. Doorstep deliveries were coordinated with several courier companies and state governments.

partnership with laboratories under organisations like Council of Scientific & Industrial Research (CSIR), Department of Biotechnology (DBT), and Defense Research Development Organization (DRDO), Ministry of Human Resource & Development (MHRD), Medical Colleges and private laboratories. Private laboratories that had approval from the National Accreditation Board for Testing and Calibration Laboratories (NABL) were also allowed to conduct Covid-19 testing at their diagnostics labs. Currently, India has more than 2100 laboratories across the country which are conducting Covid-19 tests. ICMR has established testing labs even in the remotest parts of the country. Lab has been established at an altitude of 18 thousand feet in Leh, Union Territory of Ladakh and in Port Blair, Andaman & Nicobar. During national

lockdown, the services of the Ministry of Civil Aviation under 'Mission Lifeline Udan' were availed. They carried ICMR consignments of diagnostic material across the country. Doorstep deliveries were coordinated with several courier companies and state governments. As the lab network expanded, a need was felt to rope in India Post, which has country wide operations, to streamline





the flow of supplies to the last mile. From initial days of 1000 tests per day India is now conducting more than 14 lakhs tests per day. This is an unparalleled achievement in the history of the Indian health system.

Indeed, there is a need for greater involvement of the private sector in taking an active role in driving innovation and initiatives that support the goals of UHC and Health for All. In a country like India, where advanced and specialised health care continues to be a privilege for many, private-public partnerships can play a key role in ensuring that quality health care is made affordable and accessible for all. The National Health Policy (2017) envisages the attainment of the highest possible level of health and well-being for all at all ages, through a preventive and promotive health care orientation in all developmental policies, and universal access to good quality health care services without anyone having to face financial hardship as a consequence. This would be achieved through increasing access, improving quality and lowering the cost of health care delivery. And, as the Covid-19 pandemic has clearly shown us, technology can also play a significant role in this regard. Digital transformation of health services can lend a positive

push towards health care delivery, health promotion and prevention, therefore encompassing all aspects of universal health care. The new Science, Technology and Innovation Policy currently in progress will also be a guiding document in attaining the health for all.

ICMR is striving hard to provide research support to national programs to achieve the targets as set under National Health Policy and United Nations Sustainable Development Goals (SDGs) towards Universal Health Coverage (UHC) as well as to tackle emerging and re-emerging infections and newer health challenges towards a healthy and happy India.

For a sustainable and effective model for Health for All, maintaining synergy between cost, quality and access to essential health care services is crucial. Alongside efforts to strengthen primary health care, raise public health expenditure and provide greater financial coverage, we also need an enabling environment for public health innovation through collaborative action to provide affordable tools to those who need it the most. Only then we will be able to ensure that no one is left behind when the next public health crisis strikes. □

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Infrastructure Development

G Raghuram

Regulatory infrastructure has come a long way, both through instruments and institutions. There are eight dimensions that enable infrastructure development: Project Structuring, Project Evaluation: Financial, Economic and Risks, Sourcing of Funds, Tendering and Bidding Process, Agreements, Project Management, Post-Project Issues, and Regulation and Dispute Resolution. This article examines how infrastructure development has changed over the years along these dimensions.

We have come a long way in provisioning of infrastructure since Independence. We are not yet where we can be, but better mechanisms have been created for faster infrastructure development. In many domains, we have made the visioning of what needs to be done a better combination of top down and bottom up, with more decision-making at decentralised levels rather than just top down (based on the concept of Five Year Plans).

The recently announced National Infrastructure Pipeline (NIP) by the Ministry of Finance envisages an investment of Rs 111 lakh crore in infrastructure in the six fiscal years until 2020-25, compared to the investment of Rs 57 lakh crore in the preceding seven fiscal years.

Over the past twenty-five years, we have also actively brought in Public Private Partnerships (PPPs), not just for financial additivity, but for increased stakeholding to deliver higher quality customer-oriented infrastructure. PPPs have two critical players: the public side, called the

Authority and the private side, called the Concessionaire. The share of private investment out of the Rs 57 lakh crore was 27%. Our expectations at the turn of the millennium were an optimistic 40%. For the future, the NIP expects a more realistic 21%.

For the purpose of this paper, we will look at all infrastructure as meaning those economic activities that support a whole host of many other activities that improve quality of life and economic development, while at the same time embracing social inclusion and sustainability with nature. Further, the challenges are even more when such economic activities are capital-intensive. At a generally accepted level, infrastructure sectors are those that address energy, communication, transportation, housing, water, and sanitation. Many of these have also to be developed in a manner that they synergise while serving a context like urban, rural, industrial, export-import.

While share of PPPs in infrastructure development is significant, direct investment by government and



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execution through contracts has been and will continue to be the major share. Over the years, the Government has tried to create a larger vision by having infrastructure projects listed under grander schemes, like the National Highways Development Project, Pradhan Mantri Gram Sadak Yojana, Sagar Mala, National Infrastructure Pipeline, etc.

Based on my study of various projects, there are eight dimensions that enable infrastructure development: Project Structuring, Project Evaluation: Financial, Economic and Risks, Sourcing of Funds, Tendering and Bidding Process, Agreements, Project Management, Post-Project Issues, and Regulation and Dispute Resolution. We will examine how infrastructure

To enable ‘inclusion,’ especially where affordability for some user segments was an issue, many sectors have come up with a structuring that recognises the need for subsidy. The telecom sector created a Universal Obligation Fund, by sourcing a percentage of commercially viable calls into this fund, from which subsidies would be provided for the rural and remote segments. Aviation tried to do it by having a cross-subsidy model, forcing every airline to follow ‘route dispersal guidelines’.

development has changed over the years along these dimensions.

Project Structuring

To enable greater focus, and to facilitate PPPs, we had to ‘unbundle’ activities, either vertically or horizontally or both, and in some cases, even ‘bundle.’ The power sector is a good example. Electricity Boards were vertically unbundled into Generation, Transmission and Distribution Companies. Distribution Companies further got horizontally unbundled, on a regional basis. Roads got ‘bundled’ with other activities to increase scope for revenue generation like food courts, petrol pumps and even real estate development, the last one being at Yamuna Expressway. Airports development is ‘bundled’ to



Towards \$5 Trillion Economy





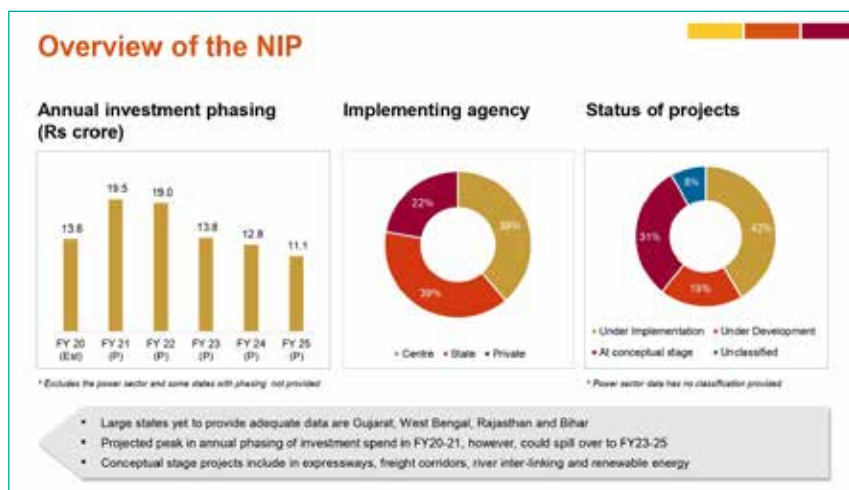
include both aeronautical and non-aeronautical activities, the latter with a broad connect with the airport user. The real question and continuing struggle has been to determine what is ‘appropriate bundling’.

To enable ‘inclusion,’ especially where affordability for some user segments was an issue, many sectors have come up with a structuring that recognises the need for subsidy. The telecom sector created a Universal Obligation Fund, by sourcing a percentage of commercially viable calls into this fund, from which subsidies would be provided for the rural and remote segments. Aviation tried to do it by having a cross-subsidy model, forcing every airline to follow ‘route dispersal guidelines’. This was not different from the implicit cross subsidies that public sector was always forced to do (Railways is an example, where freight cross-subsidises passenger). This did not work very well, until the ‘under-served’ routes were bid out as a separate package, with bids going on least subsidy basis. In contrast,

in the ongoing bidding for PPPs in the passenger train operations, scope has not been provided for subsidy-based bids. The real question is, if subsidy-based bids are allowed, and the discovery is through a competitive process, whether the public sector would have been able to offer as much output with the ‘subsidy’ amount, as the private sector can leverage and offer.

In the road sector, initial PPP structuring was attempted on the Build-Operate-Transfer model.

When projects were not taking off, a capital subsidy based bid model was structured, called Viability Gap Funding. This made the road sector take off. But then, as more and more projects started getting vulnerable to toll revenue-based risk, a structuring called Hybrid Annuity Model was brought in, where the concessionaire was no longer vulnerable to toll-based revenue risks, but had to build (and hence take on construction risks) and maintain the roads for an annuity income. Bidders were



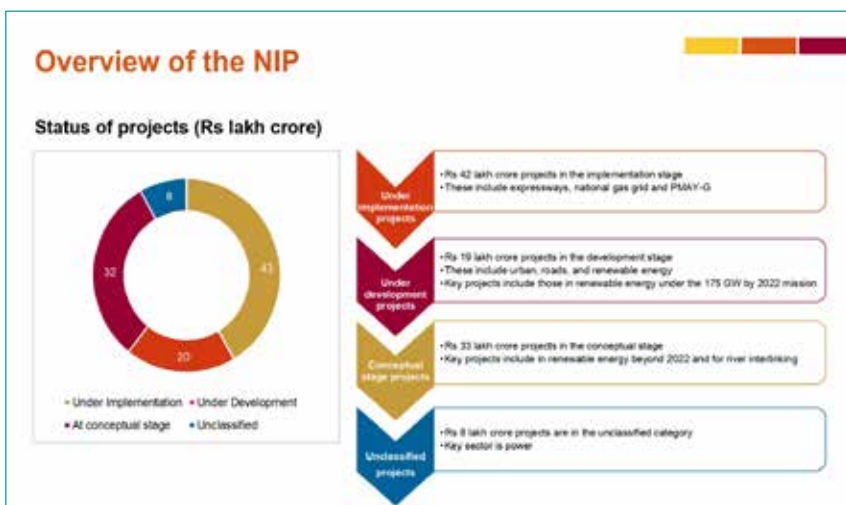


awarded projects-based lease annuity requirements. Roads that were already reasonable were offered on a Toll Operate Transfer model, where the bidder was not subject to construction risks, but only revenue risks.

Dealing with competition has been handled differently in different sectors. Airports have protected the market for a developer, by giving the first right of refusal, should another airport be planned in a 150 km vicinity. On the other hand, terminals at ports are bid out in a manner that there is competition from at least two private players for a terminal category. So also, in the context of warehousing (example of Rajasthan State Warehousing Corporation) where after a 40% capacity was bid out to a private party, the same party was not eligible to bid for the next lot.

Project Evaluation: Financial, Economic and Risks

Projects have moved from being evaluated just financially—often without a revenue model, to economic evaluation with externalities (also called social cost benefit analysis) to evaluations that include identification of risks and risk mitigation/management plans. The road sector is a good example, where initially only budgetary



The currently ongoing privatisation of certain Passenger Train Operations is an example of openness, transparency and responsiveness. Professional transaction advisors have come in (also by a transparent selection process), to help manage the transaction process.

support was sought, and there was no revenue model. Then financial models became more important, along with social cost benefit analysis, and then a risk management plan.

Sourcing of Funds

Starting from just budgetary support, to private funding, to revenue models, to partial government support through viability grants, various sources of funding have come to play. Equity by promoters, third party equity, bank financing, insurance and pension funds, multilateral agency funding, foreign direct investments – varied forms of financing have emerged. With this, due diligence practices have become more rigorous, making project evaluations more meaningful.

Tendering and Bidding Process

Over the years, the documentation and processes have gotten more structured. The documentation brings multiple stakeholders together, and with a focus on anticipating issues. The bidding process is also more consultative, and manages expectations. The currently ongoing privatisation of certain Passenger Train Operations is an example of openness, transparency and responsiveness. Professional transaction advisors have come in (also by a transparent selection process), to help manage the transaction process. Bid criteria have evolved over time to get better alignment between the promoter and project expectation, as well better risk allocation, transparency and monitorability. Ports moved from





royalty to revenue share, to enable better risk allocation. Airports have moved from revenue share to per passenger fee, to enable better monitoring. Roads have moved from concession period to viability gap funding/lump sum payments to revenue share to annuity receipts.

Agreements

This is a critical area, which binds (and regulates) the relationship between the authority and concessionaire. Over a period of time, agreements have gotten sharper on competition, scope increase, other revenue sources, tariff setting, ownership and change in ownership, common use versus captive use, targeting the poor and dealing with consequent financial non-viability, and conditions for step in, termination or transfer. This has resulted in the recognition and need for more careful thought on outcome specifications, time frames, review triggers, termination conditions, and internal consistency.

Project Management

While greater professionalism and technologies have come in, vulnerability to land acquisition and

environmental clearances have affected this. Construction management has evolved as a discipline, with professionals being trained at the post-graduate level. Its importance is critical in India, since a lot of construction has to happen under ‘brown field’ conditions, with having to continue serving ongoing users.

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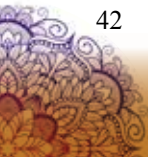
Post-Project Issues

Facilitating the concessionaire to face operating challenges has increased over time. Post-project ownership is an important issue, where the original goals of competition or conflict of interest need to be considered, while at the same time providing a healthy platform for buy and sell of concessions.

Regulation and Dispute Resolution

This space has changed quite significantly over the years. Many regulatory institutions have been set up—The Telecom Regulatory Authority of India, the Central and State Electricity Regulatory Commissions, Tariff Authority for Major Ports, and Airport Economic Regulatory Authority. There is also an Appellate for each regulator, so that appeals against any regulator’s act can be heard and resolve. And then there is the judiciary. However, not all aspects and sectors are covered.

Over the years, we have identified that licensing, environment, safety, security, tariff, service levels and dispute resolution are areas that need regulation, since these are areas of





market failure. Robust competition can address some of these to varying levels, like say tariff and service levels, where regulation may not be required or ‘light touch’ regulation may be required. Environmental issues are being addressed through lawmaking and rules by empowered ministries. While we are still discovering whether we have done enough for the protection of the environment, the procedural issues and bureaucratic delays have often come for flak.

There are still under-regulated areas like Railways and Road Safety. Ideally, a regulator should be empowered sufficiently, that they can be proactive in formulating regulations, of course through a transparent process.

Many projects have got stalled, primarily due to disputes. Land acquisition and Environmental Clearances are major reasons. ‘Subsequent Regulation,’ especially in the context of environment, has caused problems too. Inflexibilities in Concession Agreements have often made negotiating on the table worthless, with the only recourse being courts.

Conclusion

Apart from being responsible for envisioning infrastructure, Government will continue to be the major financier and executor (through contracts) of projects.



PPPs and ability to think of commercialising infrastructure have provided a new platform for developing infrastructure. The idea of balanced risk allocation (allocate risks to the party which can bear it best) has gained traction. Concession Agreements have yet to mature by providing trigger-based review mechanisms.

Conflicts of interest have been recognised: policy maker versus regulator, regulator versus operator, policy maker versus operator, level playing field with a strong incumbent, though need to be

addressed. Telecom is a sector where, over the years, these conflicts have been addressed through structural reforms, with much value being derived for the fast development of the sector. On the other hand, Railways have not yet addressed this, leading to slower development of the sector. A potential conflict of interest arising is where an ‘authority’ has been allowed to bid for new ‘PPP’ projects, the specific instance being the Airports Authority of India (AAI) bidding for airports. AAI is not only an ‘authority’ in airports, but also an operator, and a monopoly service provider of air traffic control.

The project structuring, risk allocation, CA, and regulatory outlook are still vulnerable to crony capitalism. Transparency, mature media attention and regulatory oversight can address this. Regulatory infrastructure has come a long way, both through instruments and institutions. However, further progress is required to cover more domains, strengthen staffing, independence and processes.

We have come far, but have a long way to go. □



Towards \$5 Trillion Economy



Sports and its Role in the Making of the New India

Milkha Singh

It's a well said fact that a healthy mind resides in a healthy body. Sports provides that necessary exercise to keep the blood flowing and the body healthy. It builds character and helps develop the human capital of a nation. A person learns how to handle adversity and yet succeed through perseverance. Sports teach an individual decision-making and humility too. And if one just looks at the economic success of some of the most powerful and successful nations in the world, one can see that they have a strong sporting culture.

Whenever I wake up in the morning, I thank God for whatever he has given me and a lot of it is thanks to sports. I have been very fortunate and have seen and met all our Prime Ministers and Presidents of modern India and from what I have seen from the partition days, till now, makes me feel very proud of what India has achieved. And one can see that as our sports awareness has increased, so has the National Pride and the spirit of teamwork and achievement. There seems to be a correlation.

Well let me clarify. I am a firm believer that sports are very essential for Nation Development for many reasons and let me elaborate on them a bit.

Biologically, our bodies are designed for physical exercise, like the hunters and gatherers in the past, and we need that exercise to have our vital organs function optimally. Development has seen people reduce physical exercise and this has caused diseases to multiply. It's a well said fact that



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a healthy mind resides in a healthy body, and a country with such a young population as ours is, needs a healthy population to be productive as against spending money on health care. Sports provides that necessary exercise to keep the blood flowing and the body healthy. And I am delighted to see that awareness of sport increasing in India.

In fact I was particularly delighted

when I saw the efforts of the current government to promote fitness through Yoga. It is quite heartening to see our own Prime Minister practice it and also promote it so extensively across the country.

While writing an article recently, I came across this quote from PM Modi during the launch of a sports initiative in which he stated, "Sports should be an integral part of our

The author is a legendary athlete fondly known as 'The Flying Sikh'. One of India's greatest sports icons, he represented India in three consecutive Olympics and won individual athletics gold in Commonwealth Games. Shri Singh has dedicated his life to sports and is a recipient of Padma Shri. Email: digraj@hotmail.com



I believe that sport builds character and helps develop the human capital of a nation. A person learns how to handle adversity and yet succeed through perseverance. Sports teach an individual decision-making and humility too. And if one just looks at the economic success of some of the most powerful and successful nations in the world, one can see that they have a strong sporting culture. And thanks to the recently enhancing of sports consciousness in India I am confident that it will certainly lead to more effective and resilient human capital.

everyday life. Some people think that sports are important only for physical well-being; I feel sports are important for overall development of an individual. We are a large and diverse nation. Sports can be a great means of national integration. From sports, we learn sportsman spirit and that acts as a lubricant in our social life. More than winning, sports helps you learn to deal with defeats.”

I was delighted to read these comments from him and his demonstrated efforts to promote it. I believe that sport builds character

and helps develop the human capital of a nation. A person learns how to handle adversity and yet succeed through perseverance. Sports teach an individual decision-making and humility too. And if one just looks at the economic success of some of the most powerful and successful nations in the world, one can see that they have a strong sporting culture. And thanks to the recently enhancing of sports consciousness in India I am confident that it will certainly lead to more effective and resilient human capital.

I would also like to add that top sportsmen going out and representing their countries successfully operate as brand ambassadors of goodwill for the country. They bring laurels to the nation and also help build national pride. I remember the pride all Indians felt when Abhinav Bindra and Col. Rajyavardhan Singh Rathore won their Gold and Silver medals in the Olympics or when P.V. Sindhu got the nation together while we watched with bated breath her finals in the Olympics. When the Indian Cricket team does well, the nation





Many of my friends who head big industries have said that when they hire sportsmen, they find that they handle pressure better, are better at decision-making and bounce back faster from setbacks. So overall, the increased awareness of sports and fitness contributes towards a healthier and resilient nation with more pride and attitude of a winner. All these elements have led to what we call the New India. And sports have contributed towards it.

Sports have been a boon for my family as well. I feel it's a blessing that we have prospered as a family. Thanks to sports. And one day, India with a healthy population, attitude, and determination will re-attain its pre-colonisation glory. And sports will have played a part in it. We must not forget, we are the land of Arjuna, Acharya Dronacharya, Guru Gobind Singh and Sri Krishna. Weren't they exceptional sportsmen? And didn't it help them? Yes, it did! □

gets together, and it's not just for that moment. The effects of that coming together last for some time, for sure.

What has also been heartening to see recently is that top sportspeople are getting their dues in terms of what they earn and the recognition they deserve. It's the only way to inspire youngsters to enter sport—

when they see their idols and heroes treated like heroes and not live as penniless paupers as many of our old sportspeople. It encourages more youngsters and kids try out sport and while not everyone is going to be a winner, but they will have winning habits which will help them succeed in different parts of life.

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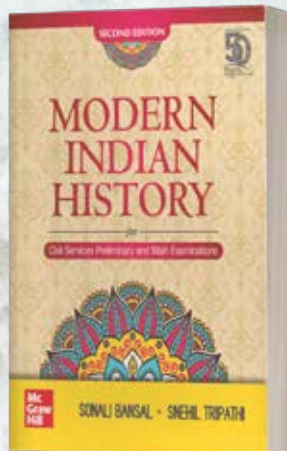
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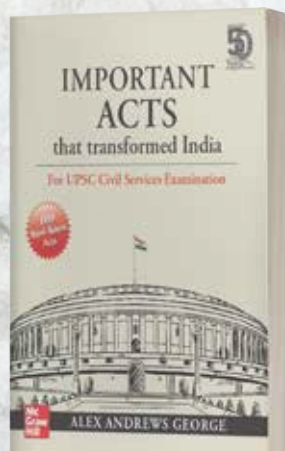
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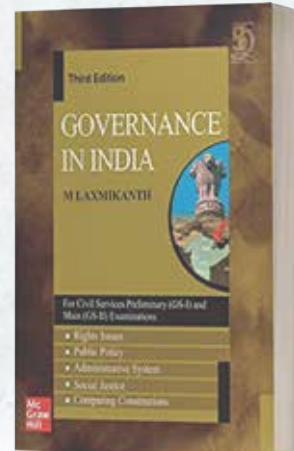
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Cinema for a New India

Jahnu Barua

The framers of India's Constitution, the best in the world, had divided its governing system into three important constituents: legislature or policymakers, bureaucrats or executives and the judiciary. Out of the three, the first two have a decisive role in shaping the destiny of our people and the nation. It is their understanding of a particular issue or aspect that is vital in effective policy making and its implementation. It is their understanding that makes or mars any lofty objective irrespective of its intent. Chances are that when the basics and values of a particular aspect are understood well, a policy will go a long way in building a nation. It is here that I believe our legislators and bureaucrats have failed to connect themselves with the policy related to the medium of cinema and its role in a country like India.

Cinema is an art form – basically an art of storytelling – fiction or non-fiction. As a medium, it's the strongest and the most popular one compared to any other medium of communication. Yet, it is the one which has remained the most neglected art form since the Independence of our nation. Not that it was any different before 1947, but since the policy framers were Colonial masters, it would be naïve to expect them to be bothered about it.

The initial years of post-Independent India were invested in pressing issues of education, agriculture and development for obvious reasons. Therefore, the steel frame of the Indian Administrative Service had very little time for training in the arts and culture. This compounded

the problem for even seasoned politicians. There was none to suggest them of the transformative power of cinema in building a new India and imbuing its citizenry with character.

Cinema took a back seat because the overwhelming impression prevailing then was that it was a medium of entertainment and that it could not be seen in any other way. The fact that it could be utilised for nation building was beyond imagination for policymakers. Even the training academies meant for the all India services and even State services never utilised cinema or any creative medium for that matter as a form of training the mind to improve understanding of the policy makers and bureaucrats regarding various aspects of human lives. The results are for all to see.



The author is an award winning filmmaker conferred with Padma Shri and Padma Bhushan for his exemplary contribution to Indian Cinema. Email: jahnuarua@gmail.com



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India could not profit from, what I call, the most powerful medium of learning the way nations, mostly in Europe, have. Cinema has hitherto remained as one of the most unattended aspects in our country.

Storytelling Tradition - Power of a Story

Unfortunately, a nation that has a proud and varied history of at least 5,000-odd years have failed to cultivate in its people the power of storytelling, an art form so central to our civilisation. In ancient times, kings used to keep raconteurs who would regularly narrate stories to them. It was not just a form of entertainment for

the rulers. These stories would help them understand and navigate human and societal complexities. Stories would keep their ears on the ground on the practical realities of life in one's own kingdom and best practices of others. This practice would also help them mature as rulers while allowing them to introspect their follies and foibles. For example, the *Mahabharata*, *Ramayana* and the *Bhagwat Gita* had been the most sought-after sources these storytellers used to employ to sensitise kings and emperors on human realities, on right and wrong, just and unjust, good and evil, humanity and inhumanity etc.





Many Muslim rulers of India with their initial invasive tendencies had sobered down after listening to the fables and stories of this land – mainly Mahabharata, jataka tales, etc. Akbar is a prime example of this. Arguably among the greatest Mughal rulers, he had inducted Birbal (Mahesh Das) into the panel of his nine advisers – purely for his (Birbal's) creative ability, intelligence, quick thinking, wit, his understanding of folk tales, and his expertise on religious epics besides poetry and literature. One of the main reasons of Akbar becoming very close to Birbal was the Emperor's growing realisation in the potency of the method employed by the former and the gems hidden in the realities of ancient India.

He gained substantial maturity in solving his court problems, formulating policies, etc., by regularly

interacting with Birbal on the innumerable stories and fables told by him during their association. He could gain a perspective of the other which shaped his perception of realities and all human situations around him.

Even though Birbal died much before Akbar, his stories worked as stimulus for Akbar's spiritual thinking for the rest of his life making him one of the most generous thinkers among the Mughal emperors.

The tradition, one assumes, was not confined to the kings and his courtiers. The plebian also had their Birbals, and they, too, hugely benefitted from the gems floating around them.

Even though modern India has a more powerful medium of telling stories in the form of cinema, yet the stories and their sensitivities are missing. Therefore,





also missing is the benefit that the masses could have derived from this powerful tool. Instead, what we have in the form of stories today are issues devoid of any sense and sensibilities but episodes steeped in senseless commercialism. For well over a hundred years, we have wasted an opportunity to educate and sensitise generations on the important issues of life.

The stories Birbal used to narrate were not necessarily from the region that Akbar had ruled. They came to Birbal from all parts of the then India and nearby geographical tracts. They spoke of humanity and not regions, and reflected sensitivities rather just valour or bravado. They impressed upon in Akbar's mind the image of a secular Hindustan, and shaped his policies accordingly.

What we now have are stories which, by and large, stress on a monolith and homogenous entity called India than relishing its diversity. The beauty of regional cinema, what I would term as real cinemas it tries to tell stories of the real India, has been given a quiet burial by an insensitive masses and government policies, influenced as they are by dollops of money and marketing power. This juggernaut has made the masses allergic to cinemas from other regions, and even at times from their own. What could be more unfortunate than this: A Punjabi or a Gujarati is hardly expected to take any interest whatsoever in an Assamese or Odiya film? In the same vein, an Assamese or a Bengali is unlikely to be passionate about a Malayalam, Gujarati or a Marathi film?

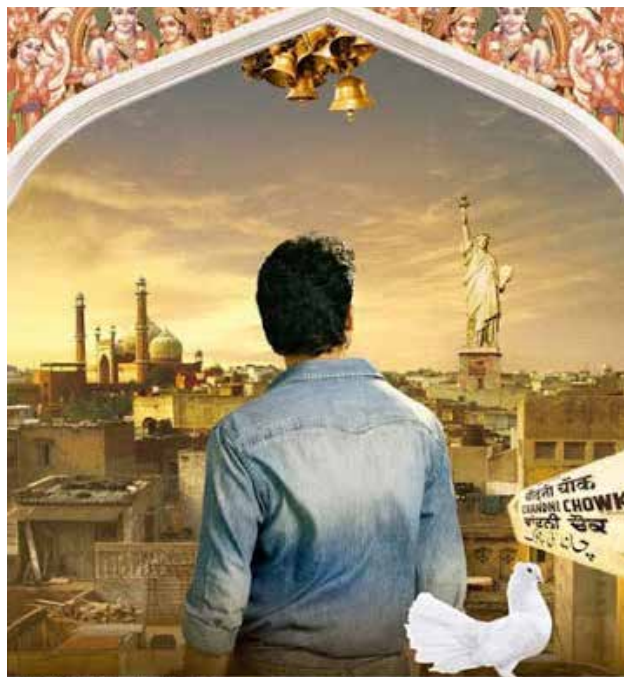
These regional creations, in my view, reinforces Mahatma Gandhi's concept of Swaraj, "Know your land, know your resources". It is only the regional cinema that drives home this Gandhian legacy. They generally showcase stories of a particular state or the region. It has been the best knowledge source for generations to know their country. Sadly, we could never develop ways and means to make people take interest in this direction.

Films like Satyajit Ray's *Pather Panchali* are not regional wonders alone. It has gone a long way in improving India's image as a creative nation. Can anyone think of its equivalent in modern day India? Yet, the disparity is so stark between these two binaries.

The bottom line is: The concept of cinema that India and majority of Indians relish in the form of Bollywood has done the biggest harm to Indian cinema and the art of storytelling. It has destroyed the identity of India while depicting a misleading representation of India in the country and to the world at large. Sadly, such is its spell that our policy makers and bureaucrats, too, have fallen for it.

All is not Lost

Despite all this, there is still hope of a resurrection. Cinema as an art form is a part and parcel of the greater family of creativity, i.e. art and culture. As a nation, we need a mature national policy on art and culture that drives home the benefit of the medium that educates and make people



mature, and not one that just entertains. Because cinema is an expensive art, it is vulnerable to the lure of money, and unscrupulous individuals and corporate houses. Hence, the need of the hour is to revamp and strengthen institutions of creative arts allowing them the freedom to flourish within the ambit of the Constitution.

An unbiased analysis of the lost years and an open mind towards healthy criticism will take us a long way forward. Our history has examples galore of how patronage from the state led to flourishing of people's art: the real art and culture without any royal insignnia.

Is not it a shame that a nation that makes the most number of films is not being talked about seriously in the creative world? My experience in different Indian embassies and Indian consulates is worth mentioning here. Since embassies are looked upon as a representation of the country, it is very important for us to showcase creations that will allow foreigners to connect with our country. What I have found in the last 40 years of my travel to various countries is that our embassies mostly showcase films that cater to our Diasporas. Thereby, we continue to reinforce the misrepresentation of India in the name of 'Bollywood'. Now when I compare this to the work that cultural institutions from Germany, France, Britain, and even Poland are doing in our country, I am left with no doubt whatsoever that it is the absence of orientation among those manning Indian embassies that has led to the present crisis. Any attempt to turn films into vehicle for propaganda, as some nations have found out, backfires.

In the ultimate analysis, cinema is not a tool for politics and propaganda but a tool that enhances character and creativity, a tool that has the power to unite humanity, a medium modern India so desperately needs. □





Agriculture: The Road Ahead

*Dr C D Mayee
Bhagirath Choudhary*

India has done a remarkable job in enhancing the agricultural production in nearly all the key areas. However, the current challenges are looming large over the coming years as the population is increasing. Naturally strengthening research and development and innovations to create new technologies will be an important step for Indian agriculture as a road ahead.

Indian Agriculture: A Success Story

Indian Agriculture is a vital sector of the national economy with bulk of the population engaged in crop agriculture and allied fields. India has 1.3 billion people or

approximately 17.9% of the global population which lives on 2.4% land and 5% water resources of the world. Despite being highly populous, India has made remarkable strides in agricultural production since

independence. Contrary to popular perception, India's agriculture is a grand success story. With 11% of total global agriculture, India ranks second in the world in agriculture production as the leading producer of several

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commodities including food grains, cotton, cane, horticultural crops, dairy, poultry, aquaculture and spices.

Agriculture production in 2019 was valued at USD 459 billion and the country's global trade in agriculture produce fetches more revenue than the services or even manufacturing. Agricultural GDP rose from USD 101 billion in 2001 to USD 459 billion in recent years showing remarkable growth and that too with substantial reduction in the workforce in agriculture. As the economy grew, the workforce engaged in this sector sharply declined from 60% in 2000 to 42% in 2019. Still the current agricultural production has been ever increasing touching new heights; food grains 297 MT horticulture 31 MT, cotton 37 million bales of 170 kg each, milk 188 MT, fish, 13 MT, poultry 4 MT and 103 billion egg production, have been all records. In fact, except vegetable oils, India is not only self-sufficient but now planning for surplus management of agricultural produce.

Future Challenges

India's population was just 376.32 million in 1950 but it is now 1.3 billion in 2019. Thus, the growing

The growing population poses a challenge to food and nutritional securities when there is pressure on land due to urbanisation, improved standard of living, changed food habits etc., generating great demand for diversified agricultural commodities. These challenges are further exacerbated by declining soil health, low nutrient content, occurrence of new biotic stresses and frequent droughts and floods due to climate change.

population poses a challenge to food and nutritional securities when there is pressure on land due to urbanisation, improved standard of living, changed food habits etc., generating great demand for diversified agricultural commodities. These challenges are further exacerbated by declining soil health, low nutrient content, occurrence of new biotic stresses and frequent droughts and floods due to climate change. In recent years, the

unprecedented change in the climatic conditions has posed a serious threat to crop, animal and fish productivity. Climate change will impact the lives of the people in India mainly due to erratic rainfall as nearly 62% cultivated land is rain-fed. India's performance on key malnutrition indicators is also not satisfactory. According to UNICEF, India was at 10th spot among countries with highest number of underweight children and at 17th position for highest number of stunted children in world in 2019. To meet these challenges, it is estimated that the country must prepare for increasing land productivity by 4 times, water productivity by 3 times and labour output by 6 times. All this has to be achieved with low carbon emission technology, no ecological footprints but simultaneously doubling the farmers income, rather making the farming remunerative to farmers which has emerged as a major challenge of current production system. Today's paradox is that on one hand the country is planning for management of surplus production, but on the other the farmers are driven to poverty as they are unable to get sufficient returns of their produce.





Historic Decisions



- To empower farmers for engaging with processors, aggregators, large retailers, exporters etc. without any fear of exploitation
- Enable farmers to access modern technology & better inputs, will reduce cost of marketing & improve their income
- Will act as a catalyst to attract private sector investment for supply of Indian farm produce to global markets
- Allow direct marketing of farm produce thereby eliminating intermediaries resulting in full realization of price
- Adequate protection & effective dispute resolution mechanism provided to farmers with clear timelines
- Historic-step to unlock the vastly regulated agricultural markets in the country and create One India, One Agriculture Market
- Promote barrier-free interstate & intrastate trade and commerce outside State APMC premises
- Will open more choices for farmers, reduce marketing costs & help them in getting better prices
- Electronic trading platform for ensuring a seamless trade electronically proposed

The Road Ahead

Technology Innovation

Globally agriculture sciences are experiencing series of innovations and development of technologies that could mitigate the effects of climate change, better the yields, reduce the effects of salinity, drought, flooding and biotic stresses etc. For example, the science of genomics has seen exploratory changes where many crops are improved through genomics-assisted breeding, transgenics, and now through the CRISPR-Cas 9 technology.

In India, several molecular breeding products have been commercialised in the field successfully and farmers are taking advantage of this technology in rice, wheat, maize, chickpea and groundnut. But cotton, the first biotic crop has brought the Indian cotton production at the top level in the world. The genome editing technology is the latest addition to the tool box of crop, animal improvement. Technology is being used to overcome myriads of intractable problems and could be a game changer in mitigation

of the effects of climate change. The huge potential to edit genes using the CRISPR-Cas 9 tool has been used to create a large number of crop varieties that are not only resistant to biotic and abiotic stresses but are also better in quality of produce. In India, several rules and guidelines and policies notified under the Environment (Protection) Act, 1986 have been in place. The country is also preparing guidelines for the safe use of gene-edited products. Thus, the country shall be benefitted once scientists are given freedom to commercialise the products of modern breeding. Such

Several molecular breeding products have been commercialised in the field successfully and farmers are taking advantage of this technology in rice, wheat, maize, chickpea and groundnut. But cotton, the first biotic crop has brought the Indian cotton production at the top level in the world.

policies need to be in place in the road ahead.

Besides the seed technologies, refining integrated crop management systems like resource conservation, innovations in irrigation application, sustainable intensification, prevention of post-harvest losses, new crop protection techniques and modern communication tools including social media, ICT for updating the farmers in rural areas are important for mitigating the challenges of future agriculture. Use of drones in managing the recent locust infestation in India during the rainy season, 2020 have shown new path of crop protection. Resource conservation technologies have economic and environmental consequences and are finding adoption at farm level. A related development is mechanisation for precision of farm operations and labour saving. Micro-irrigation systems are also finding large-scale acceptance as they not only save water but also double the yields. Additional sensor technologies have potential to use optimum inputs of nutrients and water. Saving the harvested produce itself in addition to food availability

and hence harvesting technologies of fruits and vegetables, storage, logistic and financing infrastructure should become priorities in India.

Investment in Research and Development

Research and development in India after independence has helped risen the per capita production and has gone a long way easing the pressure on meeting the food and nutritional requirement. The impressive contributions made by agricultural scientists in the past have been acknowledged time and again. Unfortunately, the system is under stress with lack of clarity on focus and financial resources. Our past experience should be enough for us to keep faith in our R&D systems. They have potential to mitigate the challenges posed by climate change, biodiversity, small farming issues, and market reforms for the benefit of farmers. According to ICAR-NAIP study, returns on investment on research has been found to be highly paying proposition. The internal rate of return on investment in agricultural research is estimated to be more than 42%, which is much higher than any other sector, then what prevents from investing in this sector? Investment in generation of new technologies—which have direct implications in proper resource use efficiency, also in teaching and extension—need to be enhanced. The gap in financial commitments made in the beginning of the plan and now annually, is widening in taking the research programmes to logical conclusions.



Naturally strengthening research and development and innovations to create new technologies will be an important step for Indian agriculture as a road ahead. Simultaneously like the current reforms in farm produce marketing, series of policy changes needed to give emphasis on technology and skill-intensive agriculture. Suitable policy reforms will certainly act as the confidential building mechanism amongst all the stakeholders of agriculture.

Policy Options

The Government of India for the first time introduced the long pending reforms in agricultural marketing through the legislation of three major bills—Farmers Produce Trade and Commerce (Promotion and Facilitation) Act 2020 (Trade and Commerce Act), Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act, 2020 (Contract Farming Act) and has made necessary amendments to the Essential Commodities (Amendment) Act, 2020. These policy changes are hailed as revolutionary as the farmers are freed from the designated markets and are free to sale their produce any where to get the maximum price. Introducing a competition in sale of produce, the farmers will be benefitted. The Contract Farming Act provides for them to enter into agreements with companies, retailers, agri-firms, etc., which they can produce the crop for an agreed price so the current volatility

in market will not affect the prices that the farmers are entitled to under the contract.

With such sweeping changes farmers are now looking for the freedom to use the modern technologies. The scientists are also apprehensive as the Government restricts them from commercialising their product created through the genetic engineering technologies. There are examples of the hurdles created by the policy makers for use of such products in crops. If the impending challenges before increasing productivity and profitability are to be mitigated, then like the current marketing reforms some policies including input management, risk management, extension service changes and higher productivity policies need to be properly placed. The agriculture policies must accelerate all-round development and economic viability in comprehensive terms. The country must alter the policies from input-intensive to technology and skill-intensive modes.

Epilogue

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

Indian Art & Culture

Supriti



At the core of the Fibonacci Sequence of Indian art & culture is the spirit of India which is all about the values of inclusiveness, beauty, aesthetics, purity of intention, attention to detail, discipline, focus, pursuit of perfection, willingness to connect with one's higher self, openness, excellence, and plurality. Indian philosophy values beauty and aesthetic experiences and this informs Indian art & culture at every stage. The purpose of art has been to temporarily take one away from the mundane earthly domain of routine chores and sorrows; to provide alternative visions of an ideal, heavenly, healing beauty.

Today, India is identified by many things in the world—as the largest democracy, a big nation, with the second largest population, a growing economy, an emerging market, an IT services provider, a leader; a land of rivers, seat of many civilisations, spirituality, mysticism, ancient wisdom, traditional medicine, fairs, festivals; diversity of skin colour, facial features, costumes, cuisines, languages, dialects, beliefs, norms, customs, rituals, religions, meditation, yoga, paintings, crafts, sculpture, architecture, literature, poetry, music, dance, art and culture.

What is Indian? An identity given by geographical boundaries? Post-independence India which is a young 75 years old or an India that has existed for centuries. I believe the latter is the idea of India—vast, larger

& deeper than its present territory, its art and culture—a synthesis of centuries of wisdom and freedom of expression. Trying to unravel this magical mystery of co-existence, or the ingredients in this melting pot is a tedious task.

Pingala, an ancient medieval Indian mathematician, in his treatise *Chandah-sastra* had given the *matrameru*, now known as the Fibonacci numbers. The same was later explained by a Jain philosopher Hemachandra and then by an Italian mathematician Leonardo Fibonacci, after whom they are named today. The Fibonacci sequence starts with numbers 0 and 1, and every new number in the sequence is the sum of the two numbers just before it. 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, and so on. The ratio of any two consecutive numbers is always 1.618 shown by the Greek



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letter phi Φ . This is called the golden mean and has been found to exist abundantly in nature as an outward spiral that appears in the arrangement of seeds in a sunflower or on a sea shell or a snail.

I believe that Indian art and culture has grown in a Fibonacci sequence and will continue to do so. Being an outward spiral, the possibility of growth is unlimited. A core value guiding Indian art and culture is “inclusiveness”. This spiral includes new ideas/beliefs/styles/values into its fold, whether for better or for worse, while retaining the old, which may seem to become invisible or inaccessible from the outside because of the many layers over it. But the old doesn't disappear, instead continues to exist, inform the new, often standing the test of time. The new appears with a distinct and more visible identity, an advantage it has from being on the outside. A person standing at the outermost point of the spiral inherits this entire spiral, its knowledge and wisdom, Indian art & culture. It is left to an awakened soul, a researcher, a seeker to choose to access the innermost depths of this

spiral, to reach the source, to rediscover their heritage and the wisdom embedded in it. This is what historians, archaeologists, philosophers, theologians, heritologists, culture vultures and the curious cat try to do. We will briefly review the impact of two major interventions—the Moghul rule (13th century onwards) and the European rule (18th century onwards) on Indian art & culture.

Indian philosophy values beauty and aesthetic experiences and this informs Indian art & culture at every stage. The purpose of art has been to temporarily take one away from the mundane earthly domain of routine chores and sorrows; to provide alternative visions of an ideal, heavenly, healing beauty. A great work of art, whether music, dance or a painting can touch the soul, and move one to tears. When the giver is a genius and the receiver is in an evolved state of deep inquiry, seeking personal development, this magic and spiritual upliftment happens.

The central courtyard in temples was often used for classical music or dance offerings to God. Devotees getting pleased in the process were only

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a by-product, not the aim of the performance. Such was the purity of intention, focus, urge and willingness to connect with their higher self in the earlier days. With changing time and space, this focus of the artist has shifted.

With Rajas and Nawabs becoming patrons of the arts, the performing space shifted from temple courtyards to court halls. And the purpose of art shifted from pleasing God to pleasing the King. It shifted focus of the artist from spiritual attainment to entertainment but royal patronage nurtured the artist and the art. Raja Rajendra Chola, Akbar, Ahom kings, Holkars, Nawab Wajid Ali Shah, Maharaja Sayaji Rao, Maharaja Swati Tirunal, Wodeyars and many others had their own court musicians and dancers.

The European influx of Portuguese, French, Dutch and British rulers shifted the performing space from royal courts to smaller halls for their entertainment and introduced chamber music to India where the artist was now performing to please the listener sitting on chairs with their shoes on. This is the birth of art performances in auditoria where the artist is physically farther away from the audience and the purpose of art is temporary entertainment.

Fibonacci sequence expanded to include new instruments and styles of playing. The Moghuls introduced new instruments to India like the khamanche, rabab (which we know as

the sarod today), ek-tar, du-tar, se-tar (3 strings), which we know as the sitar today in its modified version. The tabla is also said to have been introduced at this time, otherwise this region had only the pakhawaj for North Indian, mridangam for South Indian music, and pung or dhol for Eastern music. North Indian classical music got more deeply influenced by khayal, qawwali, zikir-zari, sufi and folk. Thumri was added in the Kathak repertoire by Nawab Wajid Ali Shah of Awadh.

In early 19th century, Baluswami Dikshitar, the brother of Muthuswami Dikshitar saw Irish fiddlers and was invited by the Mudaliyars to Manali in current Himachal Pradesh to learn the violin from a visiting European violinist. He then adapted the violin to Carnatic music which was refined by Mysore T. Chowdaiah to a 7 stringed one and today violin is mainstreamed in pure

Carnatic classical music. Vadivelu, a Carnatic music genius is probably the first to form a quartet as early as the 19th century, a concept taken from western classical music. Since then, other western instruments like the clarinet, mandolin, piano have been adapted to play Carnatic music.

This permeating surface of Indian art and culture allows interaction, engagement, learning, blending, merging and evolution which brings novelty and richness. The value of openness facilitates growth and takes the arts to the next level of the Fibonacci

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sequence. Hindustani music and Carnatic music repertoire is deeply enriched today, even as it may have lost some gems over time.

For those people who did not have access to courts & auditoria or could not afford the cost, the village chaupal became their performing space. Rural and tribal folk created their own music and dance and presented in open spaces often accessible to the commoner. Those viewing it did not necessarily come to watch the entire performance, they may have been passers-by who stopped to watch what was happening. Gradually folk music and folk dance were performed in melas, rural festivals, and domestic ceremonies. Every state in India has a folk music or dance form with its own local deity, language, dialect, costume, intention. Garba in Gujarat, Ghoomar in Rajasthan, Bihu in Assam, Santhal in West Bengal, Bhangra in Punjab and so on. Martial arts like Kalaripayattu, Chhau also got included and the Fibonacci sequence grew bigger.

Folk paintings started off with being done on the walls of people's house, often depicting their everyday life like in Warli painting from Maharashtra, Madhubani painting from Bihar, Gond painting from Madhya Pradesh. Some paintings tell religious stories on cloth like Pichhwai or Phad from Rajasthan, Mata-nipachedi from Gujarat, Kalamkari painting from Andhra Pradesh, Thangka painting from the Himalayan region. Emergence and sustenance of folk culture is a symbol of India's plurality in expression.

In ancient India, temples were scientific and architectural wonders. After understanding the north-south energy pull-push factors, the deity would be placed where vibrations of positive energy were highest, so that they would radiate healing energy to the devotees. The Meenakshi Amman Temple in Madurai has one thousand pillars in perfect alignment. The Rameswaram Temple in Tamil Nadu has 1212 pillars on either side of a corridor that in one dot. What perfection! The Konark Sun Temple in Odisha, Rani ki Vav in Patan, Gujarat, the Buddhist stupas built by Asoka the Great are examples of aesthetics coupled with excellence, scientific and architectural prowess.

Temples had exquisite display of art—walls filled with paintings, murals, fine sculptures that spell attention to detail. Dry frescoes in the Ajanta caves near Aurangabad, Maharashtra show stories from the Jataka tales. The Belur-Halebidu temples built by the Hoysala kings in Karnataka have fine stone sculptures that clearly show a hair pin in a woman's ornate bun or the folds of her clothes or a hole in the flute being played by Krishna. Ranakpur Jain temple in Rajasthan has intricate carvings

in white marble, there are the finest sculptures in the Jain Dilwara Temples, or Khajuraho temple in Madhya Pradesh; Mahabodhi Temple Complex in Bodh Gaya, Bihar has fine brick work, Brihadeeswara temple in Thanjavur has sculptures of dancers showing 81 of the 108 karanas of Bharatanatyam as mentioned in the Natya Shastra by Bharata Muni.

The Moghuls brought interesting application of scientific understanding. The Gol Gumbaz in Vijayapura, Karnataka made by Adil Shah which has one of the largest domes built at that time and the Whispering Gallery which picks up the lightest sound made on one side heard by people standing far away on the other side. Persian aesthetics reflected greater use of motifs from nature, geometrical designs, colourful tiles, carving on expensive materials like marble, lattice work, domes, minarets on 4 corners as seen in Itimad-ud-daulah and



Taj Mahal in Agra, Uttar Pradesh. Or palaces with large halls, for private use and common people, manicured gardens, water fountain. Europeans brought with them the Gothic style of architecture seen in the domes of the Chhatrapati Shivaji Terminus, Mumbai or the Victoria Memorial in Kolkata, West Bengal. Today, India has a variety of architectural styles and 38 UNESCO World Heritage Sites.

In the last 20 years, the Indian film industry has grown. And popular Indian culture is being identified by what people see in Bollywood films—a culture of song and dance, emotional

family dramas, tears and joy. There are newer art forms like Modern Dance, Fusion Music, Sand Art, Truck Art, flower decoration that are coming up and these are at the outermost point of the Fibonacci sequence of Indian art & culture.

To preserve and propagate Indian art and culture, the government and people of India have to become patrons by institutionalising extensively—creating more Santiniketans, Kalakshetras and Kalamandalams so that artists have a free space to explore, study, understand, and create. The other is to create a demand for the Arts by deepening the understanding of rasikas by making heritage a compulsory integrated element of formal education, which a 43 year old people's movement, SPIC MACAY has been trying to do assertively and consistently.

To sum up, at the core of the Fibonacci Sequence of Indian art & culture is the spirit of India which is all about the values of inclusiveness, beauty, aesthetics, purity of intention, attention to detail, discipline, focus, pursuit of perfection, willingness to connect with one's higher self, openness, excellence, and plurality. □

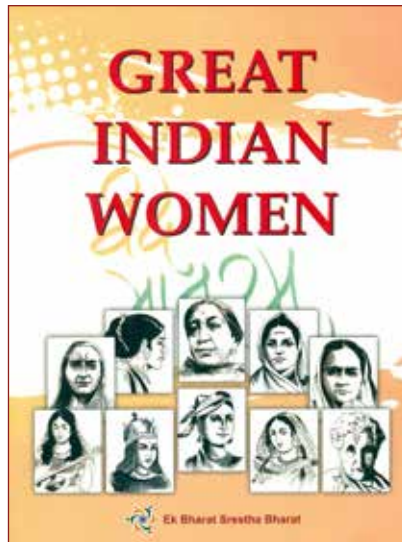
Great Indian Women: Inspiring Lives

The saga of Great Indian Women is quite old and long. The daughters of India have often carried forward the culture and tradition of India and they have continued to pass on this legacy to the next generation. History is witness to the fact that the women of India have contributed immensely in each and every sphere of life. They have always been in the forefront for the upliftment of family, society and the country.

In this collection, we have highlighted the life-stories of such gallant, determined and devoted women of India. Stories of valiant heroines from the middle ages to sketches of pious women like Kasturba Gandhi of Modern era have been included in this collection. It includes brilliant gems of all communities including Hindus and Muslims. We hope that our new generation of young boys and girls will be greatly inspired by the patriotic fervor of these stories.

RANI DURGAWATI

A city called Jabalpur is in the state, which is now known as Madhya Pradesh. In the neighborhood of this very Jabalpur, there lies the fort of Garhamandala. In the sixteenth century, Gond tribesmen used to rule the area around this. That is why, this part of land is known as Gondwana. Rani (queen) Durgawati, wife of King Dalpat Shah of this very Gondwana state has been immortalised in the annals of history because of her extraordinary valour. She defeated and took the wind from sails of the grand army of Mughal emperor Akbar and became immortal among great women of India.



Price: Rs 165
ISBN: 978-81-230-2925-2

Fame of Durgawati's beauty, wisdom and her skill in arts and arms spread far and wide in Gondwana and Bundelkhand. Great kings wanted to make her the queen. The young kind Dalpat Shah of Garhamandala was one among them. He had made up his mind to marry none other than Durgawati.

But, in those days, such things were not that easy. Kirti Singh wanted to marry Durgawati in a Rajput family, as he himself was a Rajput. Meanwhile, Dalpat Shah wrote a letter to Kirti Singh expressing his desire to marry Durgawati. As a matter of fact, the tales of the bravery of Dalpat Shah, his popularity and about his qualities and achievements had already reached the King, Kirti Singh. The letter of Dalpat Shah also reached him. But Dalpat Shah was born in a 'gond', that is, in a 'bhil' (tribal) family, whereas Durgawati was a Rajput girl. So Kirti Singh wrote to Dalpat Shah that he being a 'gond' man, should not wish

to marry a Rajput Kshatriya girl. Well, if he could defeat Mahoba's army, Durgawati would be his wife. Otherwise, the marriage was not possible.

Dalpat Shah was already preparing for war. After receiving the letter, he finished his preparations with edit motivation and attacked Mahoba with full force in 1544 AD. It was a fierce battle and finally because of strategic tactics of Dalpat Shah, the army of Kirti Singh was defeated, and Dalpat Shah became victorious. Some historians are of the view that Kirti Singh himself was enamoured by the personality, bravery and qualities of Dalpat Shah, and when he came to about the love story of his daughter and Dalpat Shah, he left his capital and according to the plan, Durgawati went to Dalpat Shah through a secret tunnel.

But, this happy family life of Durgawati did not last long. After two years of her marriage, she gave birth to a son, who was named, Vir Narayan. The boy was only four years old, when Dalpat Shah, suddenly died due to some ailment. It was quiet a difficult time for Durgawati. She had to face huge problems. But she was a great Kshatriya woman, was not to lose her heart, so easily. She decided she will complete the work left incomplete by Dalpat Shah, and carry forward his mission of keeping his subjects happy in all respect.

Dalpat Shah had initiated attempts to make the state of Garhamandala a model state (Kingdom). People were happy. They had total faith and were loyal towards the throne (king). But after the death of Dalpat Shah, many chieftains started casting their evil and greedy eyes on the throne of kingdom

Excerpts from the book 'Great Indian Women' by Publications Division. To buy, visit : www.publicationsdivision.nic.in



of Garhamandala and wanted to usurp it. Queen Durgawati, understood the situation very well and on behalf of her son Vir Narayan. She took the reins of the state in her hands and started managing the affairs of state, herself. Rani Durgawati continued to provide relief to people with full devotion.

After the death of her husband, Durgawati, organised and administered Gondwana state, quite well, defeated the king of Mandu, Baj, Bahadur repeatedly. She also defeated other neighboring rulers, as well, whenever the occasion arose.

She carried forward several welfare works in her state. Wells were dug for water in every nook and corner of the state. Tanks (water reservoirs) and inns were constructed at several places. Work for good roads was also started. Consequently, all those evil designs to capture power in Garhamandala were thwarted. The citizens started praising the queen profusely. But, this happy state of affairs in Garhamandala, caught the attention of Mughal emperor, Akbar. He wanted to capture Garhamandala at any cost. He had heard about the beauty of Rani Durgawati. The fame of good governance in Garhamandala, under Durgawati, had also reached him.

Following the death of Dalpat Shah, Rani Durgawati had completed fourteen years of her rule. Prince Vir Narayan had grown up and was eighteen years of age. He also decided to go war front along with her mother. The neighboring kings and Princes who were sympathetic to Durgawati, shied away to come forward with their armies to help Durgawati. They did not want to challenge Akbar's army. The queen was determined to go alone and face the mighty army of Akbar on her own strength and the war began in 1564 AD.

Asaf Khan took up strategic position on three sides, one front was opened from Garha side and the other near Bhedaghat from the west, upstream the river Narmada. Asaf Khan himself led from the front, which was opened in Berela village south

east of Garha. The final battle was fought here.

Asaf Khan trembled to see the ferocious side of Durgawati. Unfortunately, the army of Rani was surrounded from three sides by the army of Asaf Khan, and from behind by the river of Garhamandala. Then suddenly, the river was in spate of flood. Vir Narayan got injured in this battle. Rani directed him to reach Chauragarh under the protection of her faithful chieftains. After that, Rani stood firmly in the battle field with the remaining 300 soldiers. It was a fierce battle. Enemy's army was four times bigger. All of sudden, an arrow pierced the eye of Rani. Rani drew it out forcefully, but the tip of the arrow remained stuck in her eye. Bearing extreme pain, Rani held the reins of her horse by her teeth and wielding swords in both hands started butchering the enemy soldiers. Asaf Khan was convinced of the bravery of Rani. Then came another arrow and it pierced the neck of Rani. Rani saw that Asaf Khan laughing wickedly, was coming towards her to catch hold of her alive. She jumped away from him and protected the sanctity of her body. She took out her knife and thrust it into his abdomen. Thus, Rani Durgawati met a heroic end. She gave her life but did not compromise her honour. She sacrificed herself but kept her head high.

*"Jab Durgawati run ko nikli
Hathon men thi talwaren do
Gusse se chehra tamba tha.
Aankhon se sharare udte the
Ghode ki bagen danton men
Hathon men thi talwaren do."*

CHAND SULTANA

In 1591, emperor Akbar planned to conquer entire southern India, then known as Deccan. In those days, there were four big kingdom in Deccan, namely—

Ahmadnagar, Khandesh, Bijapur and Golconda. Akbar sent his emissaries to the courts of the four kingdoms. These emissaries asked the rulers of



those states to accept the subjugation of Akbar.

Ahmadnagar in a way, was being ruled by Chand Bibi. At that time, she was the only inheritor of the kingdom. She was the daughter of Hussain Nizam Shah and the wife of Adil Shah. Besides being a virtuous woman of a noble family, she had no dearth of wisdom, generalship and political astuteness. That is why she was called as 'Nadirat-ul-Jamani' (matchless woman of her time in the whole world). When Chand Bibi saw the kingdom was slipping away from her hand, she became very agitated and her blood began to boil. She put on a 'burqa' and with sword in her hands jumped into the battlefield.

Unfortunately, the people of Ahmadnagar were divided at that time. There were two factions there—one of Shias and the other of Sunnis. The traitors sent out a message to Murad that they would help and support him. So, the situation became very difficult, but Chand Bibi did not lose her heart. She called a meeting of all the nobles and cleverly persuaded them to remain quiet. Now, they (nobles) realised their folly and their attention was drawn to the huge army of Akbar. They repented over the promise given by them to Murad in his support. They all decided that Chand Bibi should remain in the fort as the heir of the throne and they should tighten their belt to go to war and defend Ahmadnagar anyhow.

In those days, whoever looked at the armies of Ahmadnagar, he could very well perceive the imprint of the patriotism of Chand Bibi on them. Like a gallant army commander, she had put on an armour and wielding a sword and shield, fought the enemies. Even the seasoned soldiers were astonished to see her bravery. She led her soldiers from the front. She gave such spirited speeches to her soldiers in the battlefield, that even the most coward ones, could not remain behind.

Chand Bibi had heard several tales of Rajput women. She had heard that the Rajput queens used to address their soldiers spiritedly and inspire them to





fight for the country gallantly. Chand Bibi moved one step ahead of them. She gathered her soldiers and said—“This is the question of our honour and freedom. Come with me and fight bravely for the sake of the country.

The war continued for many days. One day soldiers of Murad laid mines and blew up the wall of Chand Bibi’s fort. People in the fort got panicky and ran for their life. Everybody started planning to escape from there. But what a blessed lady was Chand Bibi. Her courage was great. The lady with the heart of tigress, threw away her ‘burqa’ and wielding a shining sword in her hands moved on the turret of the fort. She knew that such an eventuality would happen any day. Hence, she had made arrangements for hoarding essential articles like metal rings, boards, bamboos etc. She herself stood on the fallen wall of the fort. She persuaded her people cleverly coaxing and alluring them that they themselves came together and started repairing the wall. Very quickly, the wall of the fort was raised again and canons were deployed on it.

In this battle, once the ammunition of Chand Bibi’s army were exhausted, all roads to supplies were closed and no help was forthcoming from any quarters. Then, Chand Bibi got moulded canon balls from gold and silver and started firing the army of Murad with those balls. Ultimately her bravery bore fruit and the army of Murad was thrown back. Now Ahmednagar was completely safe.

When Murad saw that he would not be successful against Chand Bibi, he entered into a treaty with her. According to the treaty, Chand Bibi agreed to give neighboring area to Akbar.

After that, for five years Akbar did not dare to attack Ahmadnagar. After 5 years, the youngest son of Akbar conquered Ahmadnagar. He could win it, because at that time there was no Chand Bibi to face him. Thus, came the end of that pious, virtuous and brave Begum. As long as Chand Bibi was alive, she kept igniting the

flame of patriotism in the hearts of her countrymen. She transformed even the most coward men into a patriot and brave man. Whosoever had seen her pouncing on enemies, could never forget that scene. Like other brave women she not only made strategies for war also but executed them herself.

Chand Bibi’s adversaries were afraid of her in their minds and used to shiver even at hearing her name. Chandi Bibi, in the race for bravery and courage not only ran shoulder to shoulder with men but also surpassed them.

Akbar too in his heart, had started respecting her. So, after conquering Ahmadnagar, the first thing he did was to search for the killers of Chand Bibi. Till the time he got caught and killed each and every murderer, he did not feel a sense of relief. It is said that when the news was given to him that the killers of Chand Bibi have been cut to pieces, he heaved a sigh of relief.

Chand Bibi in her sacrifice has set an example before us which no patriot can ever forget.

TARABAI

Tarabai was a famous queen of Marathas. Everyone must have some knowledge about Chatrapati Shivaji, the founder of self rule in Maharashtra. Shivaji died in 1680 AD. He had two sons—Sambhaji, the elder one and Rajaram, the younger one. Tarabai lived long for 86 years. For about 75 years, Tarabai participated actively in the governance of Marathas. It can also be said that the history of Marathas in this period hovered around Tarabai. During this long period, sometimes, she herself ruled directly and sometimes on behalf of a titular ruler whom she gave the throne but kept the reigns of administration in her own hands. Thus, to know about Tarabai means the history of Marathas for about seventy eighty years. At the time of marriage Tarabai was hardly seven years and Rajaram was thirteen years of age. Rajaram was married to Tarabai in



the prison of Raigarh. After marriage, Tarabai also became a prisoner. It can only be imagined what impact would have been cast on the mind of a girl of seven years about all these situations.

After imprisoning Sambhaji, Aurangzeb got him killed in 1689 AD. Sambhaji’s wife Yesubai and son Shahu remained in the custody of Aurangzeb. Who would ascend the throne in such a situation? The nearest claimant to the throne was Shambhaji’s younger brother Rajaram. But the real claimant his hand on behalf of Shahu. But running administration was not a bed of roses for Rajaram. Aurangzeb was in the south and had vowed to eliminate Marathas. In 1689 when Aurangzeb’s army surrounded Raigarh, Rajaram along with family had to take shelter in the fort of Pratapgarh. From Pratapgarh he came to Panhola. Finally, Rajaram, leaving his family in Maharashtra shifted to Gingi (about 60 miles away from Madras now known as Chennai), along with some of his selected colleagues. There he established his royal court of Maharashtra.

It is said that Tarabai was very beautiful. Because of her beauty, she was given the name of Tara. After reaching to her husband at Giongee, she started interfering in the administrative affairs. Rajaram was also afraid of her. A historian has written about Tarabai that, “She was a very wise and clever lady. Even in the lifetime of her husband, she had earned name and fame by displaying her knowledge of governance and military strategy. There is a Maratha script of that period “when Rajaram was fighting in Tanjavur, Tarabai ruled over Maharashtra like a queen. Even when her husband was alive, she had taken person like Ramchandra Pant (whom Rajaram had delegated all powers to rule over Maharashtra) under her awe. She is real daughter-in-law of Shivaji.”

When Mughal army invaded Gingee, Rajaram escaped to Satara and took shelter there. Tarabai and other queens fell into the hands of Mughal army but subsequently they were let off



and they reached Satara. But Rajaram did not survive for long. In 1700 AD at the young age of 30, Rajaram died in Singhgarh. At that time, Tarabai was 25 years of age.

After the death of Rajaram, began the real role of Tarabai in the history of Marathas. The real claimant to the throne, Shahu, was in the captivity of Aurangzeb. Rajaram had ruled as a representative of Shahu, not in the capacity of a king. But, now after the death of Rajaram the problem of nominating the new ruler was quite complex. Tarabai had tasted the blood of governance. She had drawn Maratha chiefs towards her (side). She had cast her influence on Ramchandra Pant also.

After that, continuously for seven years, Tarabai ruled over Maharashtra. She posed a tough challenge to Aurangzeb and demoralised him badly. She never bowed before the Mughals. These seven years of Tarabai's life are worth carving in golden letters. But her later deeds spoiled her good work done earlier. Had Tarabai not been greedy of power and if she would have handed over the reins of governance to Shahu, she would have undoubtedly earned a pride of place in the history of Marathas.

In 1749 AD, in the month of December, Shahuji expired and a new problem crept up. Shahu and some other Maratha Chiefs were of the opinion that a boy close to the dynasty of Shivaji should be adopted. But, Tarabai spread a story that she had given birth to one more son prior to the death of her son Shivaji. Due to the fear of Rajasbai she had kept him away; somewhere in hiding. Since this boy is from a very close family, so Shahuji Maharaj should adopt only this boy. This concocted grandson of Tarabai was then of 23 years of age. His real name was Rajaram. He was given a new name— Ramraj. To prove that Ramraj was her grandson, Tarabai left no stone unturned. She ate food from a single plate sitting along him. Ultimately, the decision was taken to adopt Ramraj. Tarabai's intention was to rule herself, on behalf of Ramraj,

while he would sit on the throne for namesake only.

Tarabai in her long life, had offended many people. But, the person who suffered most, was her fake grandson—Ramraj. And as the destiny would have, it was he who cremated her, paid last tribute to her.

Now, when we consider the works and deeds of Tarabai, we find many flaws in her character. Alas, after the release of Shahu from Mughal captivity had Tarabai renounced from the running of administration, we would have proudly said that Tarabai kept flying high the flag of Marathas until the second biggest crisis came up before Marathas after Shivaji. Be whatever, as long as Tarabai was alive, Shivaji's dynasty had life. After Tarabai, Peshwas became the real rulers of Marathas and the kings remained the ruler, for namesake only. Thus, we can say that Tarabai was the last brilliant star of Shivaji's dynasty.

BRAVE RANI CHENNAMMA

In India, the first big war of independence against British rulers was fought in 1857. Britishers called it just a Sepoy Mutiny. But Indians call the war of 1857 as first war of Independence. Among the revolutionary leaders of war of 1857, Rani (queen) Laxmi Bai of Jhansi had followed the traditional role of brave women of India. Even now the children enthusiastically sing "Khub ladi mardani, woh to Jhansi wali rani thi" (well fought brave lady, she was the queen of Jhansi).

Likewise was the brave queen Chennamma. Much before Rani Laxmibai, a thrilling chapter in the war of Independence was written by the brave woman of Kittoor-Chennamma. It was the brave Indian woman Chennamma, who for the first time inflicted severe jolts to the Britishers even in nineteenth century. She was the first queen in India who readied herself to chase the Britishers out. To defend Kittoor, she raised a strong army of patriots against the British

government.

Rani Chennamma was born in 1778 in the royal family of Kaktiyas of Kittoor (Canara or Karnataka). The meaning of word Chennamma is beautiful girl. Chennamma got her education like kings. She had learnt all sorts of martial tactics including horse-riding, weapons training, hunting etc. She learnt Kannada, Urdu, Marathi and Sanskrit language.

Chennamma was married to king Mallasurj of Kittoor. Kittoor is located on Pune-Bangalore road sixteen miles away from Belgam. In Kittoor estate, there were 72 forts and 358 villages. During those days Kittoor estate was known as a famous business destination. Humming with happiness and prosperity, Kittoor was peaceful in those days. Its king used to take care of his subjects very well and did justice with everybody. The subjects were obedient and faithful. Mallasurj was the eleventh ruler of Kittoor estate. He was sober, courageous, self-respecting and lover of arts. He wished to make Kittoor a very rich and prosperous estate. But the Patwardhan of Poona cunningly and deceitfully imprisoned him. Ultimately he died in captivity. The king had two queens Rudramma and Chennamma. Among both, Chennamma was very beautiful and virtuous. She gave birth to a son. But he had an untimely demise. After the death of kind Mallasurj, Chennamma regarded Rudranma's son Shivalinga Rudrasurj as her son and taught him the art of estate administration like other princes.

By that time the roots of British government had spread far and wide. Wherever, their rule extended people felt a region of terror there. The British employees of the company government in India were busy in planning expansion of the boundary of their estate everywhere. Therefore, they were unable to digest the existence of small but independent estate like Kittoor near Dharwar. The greedy eyes of Britishers were focused on the treasury of Kittoor and the wealth of the estate. Those days, Britishers were on the lookout to grab and annexe,



such estates, which had no inheritor by birth. They did not recognise adopted sons as proper heir to the throne. The then Governor Dalhousie had laid down this policy. Thus, the Britishers were annexing Indian princely states one by one.

On the other side, Rani Chennamma started considering ways and means to face the tricks and manoeuvres of Britishers. She saw no reason for any despair, because if there were traitors like Yellop Shetty and Venkat Rao, there were able ministers like Guru Siduppa and gallant warriors like Balanna, Gajbir and Chennavassappa too in Chittoor. And as long as they were in Chittoor, there was no danger. After consulting her minister Rani Chennamma sent out the message to Thackeray that, "Kittoor is an independent estate and will remain so. If necessity arises, we will fight for it. But we are peace-loving people. If we live, we will live like free people. It is better to die than to live as a slave." This was the slogan, of that patriotic lady.

People of Kittoor were well aware of the tricks of the Britishers and by all means were with Rani Chennamma. As soon as they got a chance, the Britishers infiltrated their soldiers in Kittoor. Thackeray himself reached Kittoor leading a big army. It appeared that a small estate Kittoor will soon lose its independence. But the queen did not lose her heart. She had already been preparing for such an eventuality. The Rani had very tactfully planned and thought over a strategy to face the Britishers.

Nobody responded to this warning. A total stillness prevailed all round. Then, suddenly, the gate of the fort opened and Rani Chennamma in manly attire jumped upon the British army like a tigress. Behind her was a strong army of two thousand patriots. Fierce battle was fought. Soldiers of Kittoor had come prepared to court death. Rani's motivation infused in them tremendous strength. The British army could not face their attack. Chennamma's sword filled the ground with dead-bodies of British soldiers

killing and cutting them ruthlessly. Thackeray was killed in the war and the British troops ran away with their falling hats. Traitors Yellop Shetty and Venkatrao too were finished off. Many British soldiers were killed in the fierce battle. Many of the British officers and soldiers were imprisoned. Chennamma dealt liberally with the British officers and on seeking pardon, released them.

In December, Britishers came again and laid a bigger siege. Gathering all the remaining strength of Kittoor, Rani Chennamma once again faced the attack of Britishers. The bravehearts of Kittoor defended the fort with all their might. But against the well-equipped army and heavy artillery, it was impossible for the minuscule proud patriots to defend for long. Moreover, the black deeds of traitors broke the remaining backbone of Kittoor. Battlequeen Rani Chennamma was imprisoned. But she did not accept the subordination of the British. To keep the head high of India's pride and honour, and also for the freedom of the country Rani Chennamma sacrificed herself. The flame of life of Rani Chennamma extinguished forever, and thus closed a bloodied chapter of freedom struggle.

Later, when our countrymen waged a prolonged battle to throw away British rule from the country, the sacrifice of Rani Chennamma continued to inspire them for patriotism. In Karnataka, the tale of bravery of Kittoor's Rani Chennamma is narrated in every household even now.

BEGUM HAZRAT MAHAL

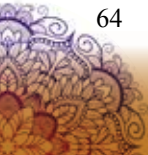
The freedom struggle of 1857, is an immortal saga of the history of our country. It was the countrywide war against the misrule of British East India Company. Britishers and their sycophant historians called this war, a mutiny. Mutiny means rebellion against the king. People of India



had taken up arms against British capitalists, not against princely states of India. In this war of freedom, royalites, landlords and public, all had joined hands. The last Mughal emperor of Delhi, Bahadur Shah Zafar had very candidly said that after expelling Britishers from India, if people want, they may choose anyone as their ruler. This declaration makes it clear that the struggle of 1857, was not a mutiny, but an armed struggle for freedom by people to liberate the country from colonial rule.

Besides, Nana Saheb, Tatia Tope, Rani Laxmibai of Jhansi, Kunwar Singh and many other kings and nawabs were warriors of this war of liberation. Although this war of freedom had ignited the entire country, but the intensity of emotions were highest in the Oudh province of north India. In this part of the country the uprising was quite significant. The fronts of Lucknow and Kanpur are the most thrilling theatres of this war. Among the people who steered the liberation war in and around Lucknow, two are particularly significant. One was Maulvi and the other, Begum. Who was Maulvi Ahmad Shah? Where from he came? There are many tales about him. We only know that he was well-known as Maulvi of Faizabad and came to Lucknow to take charge of this war. Begum was Hazrat Mahal, the wife of Nawab Wajid Ali Shah of Oudh.

The year (1847) in which Wajid Ali Shah sat on the throne of Oudh, Dalhousie was appointed as Governor General of India in place of Lord Hardinge. The British rulers had already weakened Indian princely states much. Now Dalhousie started usurping these estates, one by one. Dalhousie refused to give pension to Nana Saheb, the adopted son of Peshwa Bajirao who had died in Bithoor. Vidarbha was snatched from Nizam. After the death of kind of Jhansi, his adopted son's claim for the throne was refused. Dalhousie had made a policy to grab those Princely states whose kings and rulers had died childless. This policy is known in





history as “Doctrine of Lapse”.

Meanwhile in Oudh and Rohilkhand too, the flame of revolt had reached. In Kanpur, the Britishers took shelter in the fort and Nana surrounded them. Because of Sikh’s support to the Britishers, the forts of Allahabad and Banaras could not be captured. Now, it was the turn of Lucknow. At that time, Henry Lawrence was the Chief Commissioner of Lucknow. After the incidents in Kanpur and other cities he gathered all English families in the Residency. We have earlier mentioned that among the soldiers who fought for the freedom of Oudh, contribution of Maulvi Ahmad Shah was quite significant. The Britishers had imprisoned the Maulvi in Faizabad Jail after sentencing him to death. The rebels got him freed from the jail and picked him as their leader. Maulvi came to Lucknow and took the reins of liberation army in his hands.

After gathering in Lucknow the rebels accomplished one more task. They needed a ruler for Oudh, as Wajid Ali was imprisoned by the Britishers in Calcutta. So, people made Wajid Ali’s Son Birgis Kader their ‘Wali’, that is, king, and coronated him as Nawab of Oudh, in Lucknow. Birgis Kader was then eleven years old, thus on his behalf, his mother Begum Hazrat Mahal took the reins of Oudh in her hands. From July 7, 1857, Begum Hazrat Mahal’s rule began in Oudh. When Delhi’s king Bahadur Shah grew old, the administration was looked after by his wife—Begum Zeenat Mahal. Similarly, after the imprisonment of Wajid Ali Shah in Calcutta, Begum Hazrat Mahal took over the reins of administration in Oudh on behalf of her son. She distributed the ranks of nobles and advisers to Hindus and Muslims without any discrimination and kept some major subjects in her hands. She not only opened her treasury for the liberation army, but she also used to visit battlefield to encourage soldiers and see their organisation.

The liberation army laid a siege to the residency of Lucknow. Maulvi Ahmad Shah, Begum Hazrat Mahal etc. were commanding the army. At one time, Begum came on an elephant to steer the army which had surrounded the Residency. Henri Lawrence had already arranged everything inside the Residency. All the Englishmen and their families of Lucknow and nearby areas had moved into Residency. Food items and ammunitions too were stored in plenty. But then, who knew that the siege of Residency will continue for five months. Hit by a bullet, Lawrence died, Brigadier General English was appointed his successor. The Britishers holed up in Residency gave a good account of themselves. The main reason why the revolutionaries could not succeed was that they lacked a uniformity of command system and regulation. Otherwise, by a cannon shot, such a big hole was created in the wall of Residency that an entire army could have entered into. But they could not utilise this opportunity.

At last, the armies of Gen. Outram and Gen Haylock rescued Residency, but the city of Lucknow was still under the control of revolution armies. Begum Hazrat Mahal was still in her Begum Kothi, her palace in Lucknow. Even though Residency couldn’t be captured, Begum had not lost her enthusiasm and her morale was still high. She directed the revolutionaries to capture Allahabad. Next day, she ordered her army to Jaunpur and Azamgarh.

In March 1858, armies of Collin Campbell and Outram equipped with fresh recruitments, reached Lucknow. From March 6 to March 15, fierce battle was fought in Lucknow. Ultimately Begum Kothi also fell. On March 21, Britishers occupied whole of Lucknow. Begum Hazrat Mahal and Maulvi Ahmad Shah had already escaped from the siege of Lucknow. Now, they continued their fight outside Lucknow. After the fall of Lucknow, Nana Saheb, Begum Hazrat Mahal and Ahmad Shah issued instructions

to their colleagues, “Don’t confront the enemy in open, keep a watch on the banks of rivers, cut the mails of enemy, stop their supplies and break the barriers, check posts. Don’t let the ‘firangis’ (Britishers) live in peace.”

On November 1, 1858, Queen Victoria of England issued a declaration (ordinance) and closing the chapter of East India Company, took over the reins of governance of India in her own hands. It was clarified in the declaration that whatever treaties have been signed by the company with the Indian princes, shall be fully honored and adhered to. Many popular announcements were made in this declaration. Many kings and princes of India welcomed it. Had Begum Hazrat Mahal of Oudh wanted, she could also have made peace deal with the Britishers. But, she not only declined this declaration, she issued an order for her people to be cautious about the treachery of this declaration. In the declaration of the Queen it was spelt out that the treaties the company had signed with Indian princes shall be acceptable to Queen Victoria. But people must understand the hidden claim in the declaration that the company has taken over the whole of India under its occupations. Then what is new in the declaration of Queen? Begum further said that one by one, company had paralysed all the rulers (princes) of India. In such a situation, acceptance of company’s deeds, is what the declaration of Queen intends to say. If so what is the difference between situations now and then?

The terrain of Uttar Pradesh, was not fit for gorilla war. And, the British army was pushing from behind to drive away Nana Saheb and Begum Hazrat Mahal towards north. Further, king of Nepal Jang Bahadur gave shelter to Begum and her son in Nepal. They died there. Even more, their graves are there besides the main road of Kathmandu, which narrates the immortal saga of sacrifice and patriotism of this great lady. □



Multiple Choice Questions

1. Match List -I with List -II and select the correct answer by using the codes given below the lists:

List - I (Event)	List - II (Year)
A) Non-cooperation	1. 1942 Movement
B) Civil Disobedience	2. 1937 Movement
C) Formation of Congress	3. 1930 Ministries
D) Quit India Movement	4. 1920

CODE:

	A	B	C	D
a)	1	2	3	4
b)	4	3	2	1
c)	2	1	4	3
d)	3	4	1	2

2. In which of the following movements did Mahatma Gandhi make the first use of hunger strike as a weapon?

- Non-Cooperation Movement
- Rowlatt Satyagraha
- Ahmedabad Strike
- Bardoli Satyagraha

3. With which one of the following did the Civil Disobedience Movement in India commence?

- The Dandi March
- No Tax campaign by Sardar Patel
- The unfurling of the National flag by Nehru
- Mahatma Gandhi's going on fast

4. With reference to the 'Vittiya Saksharta Abhiyan' consider the following Statements-

1. 'Vittiya Saksharta Abhiyan' has been launched to encourage, create awareness and motivate all people around them to use a digitally-enabled cashless economic system for transfer of fund.

2. It is based on the recommendations of the 7th Central Pay Commission

Which of the Statements is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 or 2

5. Startup India Movement to boost digital entrepreneurship at the grassroots level was launched by the Government of India to fill the gaps in the economy for the growth and a dedicated fund withcrore corpus to fund start-ups.

- 1,00,000
- 5,000
- 25,000
- 10,000

6. Which among the following was the most immediate factor for the spread of Swadeshi and

boycott of foreign goods during the first decade of the last century?

- Curzon's design to curtail the sphere of local self-government
- Curzon's attempt to control the universities
- Curzon's partition of Bengal
- Curzon's plan to curb the growing popularity of the Indian National Congress

7. The following questions consists of two Statements Statement I and Statement II. You are to examine these two Statements carefully and select the answers to these items using the codes given below-

Statement I: The twelfth century witnessed the emergence of a new movement in Karnataka led by a brahmana named Basavanna. Statement II: The lingayats worshipped Shiva in his manifestation as a linga

CODE:

- Both the Statements are individually true and Statement II is the correct explanation of Statement I
- Both the Statements are individually true but Statement II is not the correct explanation of Statement I
- Statement I is true but Statement II is false
- Statement I is false but Statement II is true

8. Pochampally in Nalgonda district of Telangana became famous in April, 1951 because

- The Bhoodan movement was launched there by Vinoba Bhave
- The landless peasants rose up in arms against the landlords
- It witnessed violent anti-language agitation
- Silk weavers' cooperative was formed for the first time in India

9. E.V. Ramaswami Naicker was associated with reforming Brahminism

- the Self-Respect Movement
- the Low Caste Movement
- the Communist Movement

Select the correct answer using the code given below-

- 1, 2, 3 and 4
- 1 and 3 only
- 1 and 4 only
- 2 and 3 only

10. The Non-Cooperation movement was withdrawn for the

- First World War
- Chauri-Chaura Incident
- Bardoli Satyagraha
- Gandhi-Irwin Pact

ANSWERS KEY : 1. (b) 2. (c) 3. (a) 4. (a) 5. (d) 6. (c) 7. (b) 8. (a) 9. (d) 10. (b)

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DO YOU KNOW?

Paris Agreement

What is Paris Agreement?

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on December 12, 2015 and entered into force on November 4, 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

The Paris Agreement is a landmark in the multilateral climate change process because, for the first time, a binding agreement brings all nations into a common cause to undertake ambitious efforts to combat climate change and adapt to its effects.

How does the Paris Agreement work?

NDC explainer

Implementation of the Paris Agreement requires economic and social transformation, based on the best available science. The Paris Agreement works on a 5-year cycle of increasingly ambitious climate action carried out by countries. Countries submit their plans for climate action



known as nationally determined contributions (NDCs).

NDCs

In their NDCs, countries communicate actions they will take to reduce their Greenhouse Gas emissions in order to reach the goals of the Paris Agreement. Countries also communicate in the NDCs actions they will take to build resilience to adapt to the impacts of rising temperatures.

Long-Term Strategies

To better frame the efforts towards the long-term goal, the Paris Agreement invites countries to formulate and submit long-term low greenhouse gas emission development strategies (LT-LEDS).

LT-LEDS provide the long-term horizon to the NDCs. Unlike NDCs, they are not mandatory. Nevertheless, they place the NDCs into the context of countries' long-term planning and development priorities, providing a vision and direction for future development.

Tracking Progress

Global Stocktake explainer

With the Paris Agreement, countries established an enhanced transparency framework (ETF). Under ETF, starting in 2024, countries will report transparently on actions taken and progress in climate change mitigation, adaptation measures and support provided or received. It also provides for international procedures





including its Nationally Determined Contributions (NDC).

Senior officials from fourteen ministries will serve as Members to AIPA who will oversee the progress in implementation of India's NDC and receive periodic information updates to monitor, review and revisit climate goals to fulfil the requirements of the Paris Agreement.

Another key function of AIPA would be to operate as a National Authority to regulate carbon markets in India under Article 6 of the Paris Agreement, formulate guidelines for consideration of projects or activities under Article 6 of the Paris Agreement, issue guidelines on carbon pricing, market mechanism, and other similar instruments that have a bearing on climate change and NDCs. It will take note of the contributions of the private sector as well as multi-/bi-lateral agencies in the field of climate change and provide guidance for aligning their climate actions with national priorities.

The year 2021 would mark the beginning of implementation of the Paris Agreement and constitution of AIPA is central to strengthening the national systems and institutional arrangements for implementation and monitoring of climate actions. It will also ensure that India maintains its climate leadership as one the few countries in the world whose climate actions are consistent with the goals of the Paris Agreement. □

for the review of the submitted reports.

The information gathered through the ETF will feed into the Global stocktake which will assess the collective progress towards the long-term climate goals.

This will lead to recommendations for countries to set more ambitious plans in the next round.

What is Achieved So Far?

Although climate change action needs to be massively increased to achieve the goals of the Paris Agreement, the years since its entry into force have already sparked low-carbon solutions and new markets. More and more countries, regions, cities and companies are establishing carbon neutrality targets. Zero-carbon solutions are becoming competitive across economic sectors representing 25% of emissions. This trend is most

noticeable in the power and transport sectors and has created many new business opportunities for early movers.

By 2030, zero-carbon solutions could be competitive in sectors representing over 70% of global emissions.

AIPA of India

In another move that re-affirms India's seriousness to 'walk the talk' on climate change, the Ministry of Environment, Forest and Climate Change (MoEFCC) has constituted a high-level inter-ministerial Apex Committee for Implementation of Paris Agreement (AIPA) under the chairmanship of Secretary, MoEFCC.

The purpose of AIPA is to generate a coordinated response on climate change matters that ensures India is on track towards meeting its obligations under the Paris Agreement



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Foundation Stone of the New Parliament Building Laid



The Prime Minister Shri Narendra Modi laid the foundation stone of the New Parliament Building on December 10, 2020. The new building is an intrinsic part of the vision of 'Aatma Nirbhar Bharat' and will be a landmark opportunity to build a peoples' Parliament for the first time after independence, one which will match the needs and aspirations of 'New India' in the 75th anniversary of independence in 2022.



The construction of New Parliament Building will utilise resource efficient green technology, promote environment-friendly practices, generate employment opportunities and contribute towards economic revitalisation. It will have high quality acoustics and audio-visual facilities, improved and comfortable seating arrangements, effective and inclusive emergency evacuation provisions. The building will comply with the highest structural safety standards,

including adherence to Seismic Zone 5 requirements and is designed for ease of maintenance and operations.

The New Parliament Building will be modern, state-of-the-art and energy efficient, with highly non-obtrusive security facilities to be built as a triangular shaped building, adjacent to the present Parliament. Lok Sabha will be 3 times of the existing size and Rajya Sabha will be substantially bigger. The interiors of the new building will showcase a rich blend of Indian culture and diversity of our regional arts, crafts, textiles and architecture. The design plan includes space for a magnificent Central Constitutional Gallery, which will be accessible to the public.

Speaking on the occasion, the Prime Minister said, "Today is a milestone in India's democratic history, filled with the idea of Indianness." He added that the start of the construction of Parliament House of India is one of the most important stages of our democratic traditions. He gave a call to the people of India, to build this new building of the Parliament together. He said it can't be more beautiful or more pure than the new building of our Parliament witnessing when India celebrates 75 years of its independence. □

New Parliament and present Parliament House to work together as Ensemble

This will facilitate smoother and efficient functioning of operations of Parliament

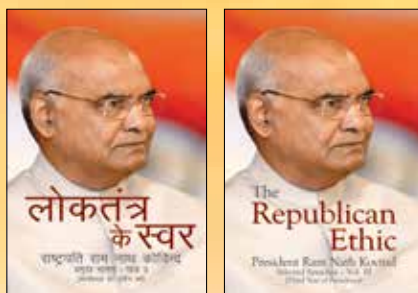


The present Parliament House, New Parliament Building, Parliament Library, Annex and the MP chambers will together be the 'Legislative Enclave'

Together they will form modern Colosseum of Indian Democracy



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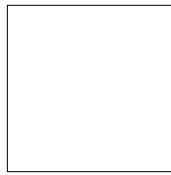
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No. of pages 76
Published on 23 December, 2020
Posted on 25 & 26 December, 2020



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