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History of Post Independence India

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EDUCATIONAL, SCIENTIFIC AND INDUSTRIAL DEVELOPMENTS

15.1 Historical Background

Education in India till the Nineteenth century was largely a prerogative of a few, mainly the upper castes/classes in almost all the communities in the country, and was influenced by religion. Philosophy, grammar and logic were the main subjects. Simply put, it was unlike what we know of education in the modern sense. The British introduced modern education in the country, albeit on a restricted scale, with an aim of furthering their colonial interests, by preparing Indians for clerical jobs and westernizing Indians in taste to create demand for British factory manufactured products.

The present education system in the country has evolved from the one introduced by the British. Here we will try to look at the journey of education in India post independence but before we do so let's look at some of the steps taken during and by the British.

1. Calcutta Madrasah was established by Warren Hastings in 1781 for the study of Muslim law and related subjects.
2. Sanskrit College was established by Jonathan Duncan, the resident, at Banaras in 1791 for study of Hindu law and philosophy.
3. Fort William College was set up by Lord Wellesley in 1800 for training of civil servants of the British East India Company in languages and customs of Indians (closed in 1802).
4. Charter Act of 1813 directed the company to sanction 1 lakh rupees annually for promoting knowledge of modern sciences in India.
5. The famous orientalist (expansion of traditional Indian learning) versus Anglicist (modern education) controversy resulted in the Lord Macaulay's minutes (in 1835). The minute proposed teaching of western sciences and literature through the medium of English alone and placed its faith in downward filtration theory.
6. Woods Despatch (1854) asked British East Indian Company to assume the responsibility for the education of masses. Thus, repudiating the downward filtration theory.
7. Hunter Education Commission (1882-83) made a thorough enquiry on the condition of primary and secondary education in India.
8. Indian Universities Act (1904) was formulated on the basis of the recommendations of the Indian University Commission of 1902.
9. Government passed resolution on Education Policy (1913) to compensate the demand raised for compulsory primary education, by Gokhale. Government promised to extend recurring and non-recurring grants to primary education as it could not ignore the growing popular demand for the spread of primary education.
10. Saddler University Commission (1917-19) was appointed, mainly, to look into the affairs of Calcutta University; yet, in its report, it dealt with different aspects of education.
11. Hartog Committee (1929) was appointed to survey the growth of education in British India.
12. Wardha scheme of basic education (1937) was formulated by Indian National Congress under the chairmanship of Zakir Hussain. The main principle behind this was 'learning through activity'. It was based on Mahatma Gandhi's ideas published in a series of articles in the weekly Harijan.
13. Sergeant Plan (1944) was to prepare a comprehensive report on education.

15.2 Education at Independence

At independence in 1947, only 12% of Indians were literate and only 21 universities and 496 colleges were in operation. As the numbers suggest, the limited character of ancient and medieval Indian education had remained unchanged during the British rule. Thus, the national government at the outset, was faced with the challenge of facilitating mass elementary education, creating the infrastructure, having teachers who could shoulder the responsibility of educating the masses, reorienting the entire system of education, enable the coming generations to develop their natural faculties and to rebuild a new India.

India after independence adopted a strategy of appointing committees and commissions to reform education. Now let's look at the evolution of education in the post-independence phase through the various committees and commissions on education.

15.3 Post Independence Developments

Radhakrishnan Commission (1948-49)

The commission was set up to report on university education in the country. The major recommendations were as follows.



Dr. Sarvepalli Radhakrishnan

1. There should be 12 years of pre-university educational course.
2. Higher education should have three main objectives: central education, liberal education, and occupational education.
3. A university degree should not be considered essential for administrative services.
4. Rural universities with Shantiniketan and Jamia Millia as their models, should be established.
5. Examination standards in universities should be raised and university education should be placed in 'Concurrent List', of constitution.
6. A University Grants Commission should be set up to look after university education in the country.
7. English, as the medium of instruction for higher studies, should not be removed in haste.
8. Where federal language and mother tongue are not the same, federal language should be the medium of instruction; where federal language and mother tongue are the same, the child should take up a classical or modern Indian language.

In pursuance of these recommendations, the University Grants Commission was constituted in 1953 and given an autonomous statutory status through an act of parliament in 1956, with responsibilities connected with university education, including determination and coordination of standards and facilities for study and research.

Analysis

Although a humble beginning was done in pursuance with the ideals of Nationalist movement some of the weaknesses remained.

In 1952, a similar function was performed by Mudaliyar Commission, for secondary education. While action was taken on the basis of the reports of both these commissions, no formal comprehensive policy was formulated.



Dr. Lakshmanswami Mudaliar

Kothari Education Commission (1964-66)

In 1964, Congress was criticised in the parliament for not paying enough attention to education and failing to ensure a uniform vision and philosophy for education in the country. Thus, a commission was set up under Dr. D.S. Kothari to advise on the national pattern of education.



Dr. D.S. Kothari

The main features of the commission's report were as follows:

1. Introduction of work-experience which includes manual work, production experience, etc. and social service as integral parts of general education, at more or less all levels of education.
2. Stress on moral education and inculcation of a sense of social responsibility.
3. Vocationalization of secondary education.
4. Strengthening of the centres of advance study and setting up of a small number of major universities which would aim at achieving highest international standards.
5. Special emphasis on the training and quality of teachers for schools.
6. Education for agriculture and research in agriculture and allied sciences should be given a high priority in the scheme of educational reconstruction.
7. Development of quality or pace-setting institutions at all stages and in all sectors.

The commission observed that mother-tongue had a pre-eminent claim as the medium of education at the school and college stages. Moreover, the medium of education in school and higher education should generally, be the same. The regional languages should, therefore, be adopted as media of education in higher education.

The commission, further, observed that the public demand for secondary and higher education had increased and would continue to increase in future. It was, therefore, necessary to adopt a policy of selective admissions to higher secondary and university education in order to bridge the gap between the public demand and available facilities.

National Policy on Education (1968)

Based on the recommendations of the Kothari Commission, the Indira government presented the first National Policy on Education (NPE).

Some of the important points of the policy were:

1. Free, universal and compulsory education up to the age of 14.

2. Improved status and emoluments of teachers
3. A three language-formula—mother tongue, Hindi and English—and development of regional languages.
4. Equalization of education of science and research
5. Investment of 6 per cent of national income on education, training and quality of teachers.
6. Improvement of quality and production of inexpensive textbooks.
7. Development of education for agriculture and industry.

Analysis

It was an important landmark in history of educational development in Independent India because it was the first attempt to give some sense of direction to the country's educational system.

Three language formula was lauded as a step in the direction of national integration. The role of central government in promotion of education, as recognized in the policy, was a good beginning.

However, it was criticized as:

- It gave importance to too many things at the same time.
- The three language formula was criticized as a political compromise. Despite the noble intent, it was felt that it would be a burden on the students.
- Linking education with agriculture and industry was felt to have deleterious effect on individual intellectual development, as education began to be considered as a tool for getting jobs in the market.

Education in Concurrent List

Before 1976, education was a state subject and the responsibility of delivery of education at the district and the taluka levels was that of the state governments, while the central government played only an advisory role. Academicians, often, felt that education delivery systems were not working; hence, education should be the joint responsibility of both the centre and the states as it would allow the Centre to partner with the state governments in making the delivery systems more efficient. Thus, in 1976, education was placed in the Concurrent List of the Constitution, by 42nd Constitutional Amendment Act.

Analysis

After four decades of education being placed in the concurrent list, it is, however, felt that the dismal show of education in the country is a result of lack of coordination between the centre and the states on the matter.

National Policy on Education (NPE) 1986

National Policy on Education, 1986, was formulated to improve the scenario of education in the country. The main objective of NPE 1986 was to establish a national system of

education where all students irrespective of caste, creed, sex, religion, etc. have access to education of good quality.



Objectives of NPE 1986

- Universal access and enrolment at the primary level.
- Bring about a sustainable improvement in the quality of education so as to enable children to achieve essential levels of learning.
- Secondary education: Improve the quality of education; providing computer literacy so as to equip the students with necessary computer skills.
- Higher education should provide people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues
- Therefore, education must play a positive and interventionist role in correcting social and regional imbalance; it should empower women, and help the minorities and disadvantaged sections to secure their rightful place in the society.

Features

- Strengthening 'balwadis', pre-primary schools of the state government and municipalities, day care centres etc., and strengthening the system of monitoring and evaluation.
- It argued for vocationalization of secondary education.
- Technical institutes like medical, engineering, agriculture universities etc. should be set up and development of vocational skills was to be stressed upon.
- To promote the accessibility of education at higher stage as well as to make higher education more flexible; open university and distance education were to be promoted.
- It envisaged that rural universities and institutions should be developed in rural areas after studying the needs of such pattern of educational institutions in rural areas.
- It envisaged that some job oriented degree courses as well as skill oriented courses should be made for promoting human capital in the nation.

- Stress would be laid on research as an essential component of higher education because of its role in creating new knowledge and insights to impart innovation and dynamism to the educational process.
- It laid stress on universalization of elementary education, and to solve the problem of the girl child by increasing participation of girls at all stages of education.
- It envisaged that adult education would be a means for reducing economic, social and gender disparities.
- The basic emphasis was given to interlinking education with culture. By interlinking education and culture, the stress was given in the development of child's personality, particularly in terms of helping the child to discover his inner talent and to express his/her creativity.

A Fact Sheet

According to the fifth All India Education Survey, 1986, 94.5 per cent of the rural population had schools within a walking distance of 1 km. and 83.98 per cent of the rural population was served with middle schools/sections within a walking distance of 3 km. The number of primary schools increased from 2.10 lakhs in 1950-51 to 5.29 lakhs in 1985-86. Similarly, the number of upper primary schools went up to 1.35 lakhs in 1985-86 as compared to 13,600 in 1950-51. The gross enrolment of 6-11 age group increased from 43.1 per cent in 1950-51 to 62.4 per cent in 1960-61 to 76.4 per cent in 1970-71 to 80.5 per cent in 1980-81 and to 85.0 per cent in 1985-86. Likewise, the gross enrolment of 11-14 age group increased from 12.9 per cent in 1950-51 to 22.5 per cent in 1960-61 to 33.4 per cent in 1970-71 to 41.9 per cent in 1980-81 and to 48.9 per cent in 1985-86.

However, in 1985-86, dropout rates were 47.6 per cent in classes I-V and 64.4 per cent in classes I-VIII. Despite increased participation of girls, disparity still existed. Though the participation of girls in primary education (classes I-V) increased from 28.1 per cent in 1950-51 to 40.2 per cent in 1985-86, it was still below the normative percentage of about 50 per cent.

The participation of girls in upper primary classes (classes VI-VIII) was lower; it increased from 16.1 per cent in 1950-51 to 35.1 per cent in 1985-86. The participation of SCs and STs was more or less in proportion to their share in population at the primary level, but the sex disparity persisted amongst SCs and STs. In classes I-V, SC girls accounted for 37.5 per cent of SC students and in classes VI-VIII 29.9 per cent (1985-86) was the corresponding figure. The corresponding percentages of ST girls were 36.6 per cent and 30.4 per cent respectively

- District Institutes of Education and Training (DIET) should be established with the capability to organize pre-service and in-service courses for elementary school teachers and for the personnel working in non-formal and adult education.

Programme of Action POA (1992)

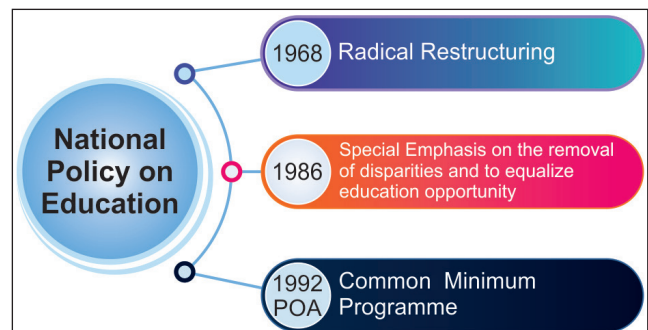
In 1992, the Acharya Ramamurti Committee was constituted, that brought about the programme of Action for the 1986 policy. The National Policy on Education 1986 was modified to fulfill the objective of universal enrolment and retention of children in schools and successful completion of education up to 14 years of age.

Salient features

- It called for making the 'plus two stage' part of school education throughout the country.
- It also suggested decentralized planning and good management of primary education.
- It laid considerable stress on the need of value education and inculcation of proper perspective about the country's cultural traditions.
- It gave importance to vocational education to increase individual competency and national productivity.

Analysis of NPE (1986) and POA (1992)

NPE 1986 marked a significant step in the history of independent India. Emphasis was given on the values of secularism, socialism and democracy to be inculcated by the citizens of the country. Policy laid emphasis on reducing urban rural disparity by education and was a step in the direction improving education status of women, SCs and STs and improving vocational education. Policy was criticized as being one dimension of the overall dynamics of education, many others, for example, action by civil society, research, societal changes, etc were ignored.



Education: A Fundamental Right

86th Amendment, 2002

The Directive Principles of State Policy enshrined in the Constitution, originally contained a provision which required the state to ensure "free and compulsory

education for all children until they complete the age of fourteen years." However, as we have seen, this provision was not implemented in letter and spirit. In 1992, the POA, on the recommendation of Ramamurti Committee, noted the need for compulsory education.

Later, in 1993, the Supreme Court, in J. P. Unnikrishnan vs. the State of Andhra Pradesh case, held that children under the age of 14 have the fundamental right to free education. The implication of the apex court's verdict in the Unnikrishnan case was that in the event of the state failing in its duty to provide the necessary infrastructure for primary education, there was a ground for a legal remedy. It was in this context that the United Front government had introduced a Constitution Amendment Bill in July 1997 by which a separate provision was to be added – Article 21 A – to the Constitution (which was finally passed in December, 2002 as the 86th Constitution Amendment Act).

86th Amendment

- It added article 21A, which states that "the state shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the state may, by law, determine". It provided for a follow-up legislation, which culminated in Right to Education Bill 2005, Right to Education Bill 2008, and, finally in Right to Education Act, 2009.

Right to Education Act (RTE), 2009

Article 21-A and the RTE Act came into effect practically on 1st April 2010. With this, India has moved forward to a rights based framework that casts a legal obligation on the central and state governments to implement this fundamental child right as enshrined in Article 21A of the Constitution, in accordance with the provisions of the RTE act. The RTE act provides for:

- Right of children to free and compulsory education till completion of elementary education in a neighbourhood school.
- It clarifies that 'compulsory education' means obligation of the appropriate government to provide free elementary education and ensure compulsory admission, attendance and completion of elementary education to every child in the six to fourteen age group. 'Free' means that no child shall be liable to pay any kind of fee or charges or expenses which may prevent him or her from pursuing and completing elementary education.
- It makes provisions for a non-admitted child to be admitted to an age appropriate class.
- It specifies the duties and responsibilities of appropriate governments, local authority and parents in providing free and compulsory education, and

sharing of financial and other responsibilities between the central and state governments.

- It lays down the norms and standards relating inter alia, to Pupil Teacher Ratios (PTRs), buildings and infrastructure, school-working days, teacher-working hours, etc.
- It provides for rational deployment of teachers by ensuring that the specified pupil teacher ratio is maintained for each school, rather than just as an average for the State or District or Block; thus, ensuring that there is no urban-rural imbalance in teacher postings.
- It provides for appointment of appropriately trained teachers, i.e. teachers with the requisite entry and academic qualifications.
- It prohibits (a) physical punishment and mental harassment; (b) screening procedures for admission of children; (c) capitation fee; (d) private tuition by teachers, and; (e) running of schools without recognition.
- It provides for development of curriculum in consonance with the values enshrined in the Constitution, and which would ensure the all-round development of the child, building on the child's knowledge, potentiality and talent and making the child free of fear, trauma and anxiety through a system of child friendly and child centred learning.

Critical analysis

A critical appraisal of the functioning of the 'Right to Education act, reveals that large gaps exist in its implementation including the quality of education being provided; the high number of dropouts and out of school children and the absence of equity in education. However, despite the shortcomings in its implementation, the Right to Education act remains a remarkable achievement.

Achievements

The Right to Education act has shown promising developments, as:

- Literacy rate in India as per Census 2011: 74%.
- Literacy rate: Male: 82.1%; Female: 65.5%
- Kerala tops the rankings, followed by Delhi, Maharashtra, and Tamil Nadu.
- Bihar is the lowest among states, followed by Arunachal Pradesh, Rajasthan, Jharkhand, etc., however, they are improving their position.
- Bihar has a literacy rate of 63.8%, and that of women is 53.3%.
- Literacy rates for both adults as well as youths have increased, still, the absolute number of illiterates in

India is as much as India's population was at the time of independence.

- The gender gap in terms of literacy began to narrow first in 1991 and the pace has accelerated, however still lags far behind the global female literacy rate of 7% (UNESCO 2015).
- There are large state variations in the gender gap.
- However, during 2001 – 2011, the male literacy rate increased by 6 percentage points but female literacy increased by nearly 12 percentage points. Achievement in female literacy in Bihar is noteworthy: from 33% in 2001 to 53% in 2011.
- Be that as it may, India is still lagging behind the world literacy rate of 86.3%(UNESCO 2015). A major group of states lies in the average rank i.e. just above the national level of 64.8 percent.

Challenges

- Even with the increasing primary enrolment rates, India has the largest number of out-of-school children in the world, which is more than the out of school children in whole of sub-Saharan Africa.
- There is a huge disparity between the urban and rural education and rich and poor children have radically different schooling experiences.
- One of the most stringent criticisms of RTE has been the quality of education being provided.
- The quality of education suffers due to understaffing and lack of training of teachers. The flow of public funds has so far been focused on developing school infrastructure. Teacher training has been a neglected area.
- The decline in state funding in the key social sector programmes, including education, is of particular concern.
- The next challenge relates to the absence of equity in education. Of the 6.064 million out of school children, a whopping 4.6 million or 76%, belonged to the Scheduled Castes, Scheduled Tribes and other religious minorities.
- Other challenges include the following:
 - (a) the 25% reservation of seats for children from disadvantaged backgrounds in private schools;
 - (b) poor educational infrastructure in rural areas compared to urban centers;
 - (c) cases of discrimination on the basis of caste;
 - (d) neglect of targeted elementary education schemes for the Scheduled Castes and Scheduled Tribes and other backward communities.

Way forward

Quantity, quality and equality are the three sides of the triangle required to ensure 'Right to Education'. The experience gained in operating the RTE for the past 6 years, should be useful. Other remedies could be:

- Monitoring the implementation of the act is to be taken more seriously;
- Vibrant partnerships among the departments and organizations concerned with children;
- Acceleration of poverty reduction programmes of rural development;
- Ensuring that state governments get the panchayati raj institutions appropriately involved.

In addition to increasing the government investments in education, it is also essential to maintain the funding levels of other social welfare schemes, especially those operating in the rural sector- to ensure that falling incomes of parents do not impact the educational prospects of in-school children. The immense relevance of inclusive education, particularly of disadvantaged groups, demands:

- Vibrant partnerships among the departments and organizations concerned with children of the Scheduled Castes, the Scheduled Tribes and educationally backward minorities. Government have to set up systems for equal opportunity for children with special needs.
- Acceleration of poverty reduction programmes of the 'Rural Development' and 'Panchayati Raj' departments so that children are freed from domestic chores and wage earning responsibilities.
- Close cooperation amongst departments concerned to ensure that so far the deprived children get their rights to education.

The transition towards a comprehensive implementation of Right to Education will come through making parents, particularly in rural areas, aware of the benefits of education for their children. This requires a change of mindset at the community level, and accountability of all entrusted with this responsibility.

New National Education Policy, 2020

The Union Cabinet has approved the new National Education Policy (NEP), 2020 with an aim to introduce several changes in the Indian education system - from the school to college level.

- The NEP 2020 aims at making "India a global knowledge superpower".
- The Cabinet has also approved the renaming of the Ministry of Human Resource Development to the Ministry of Education.

- The NEP cleared by the Cabinet is only the third major revamp of the framework of education in India since independence.
- School Education:
 - ♦ Universalization of education from preschool to secondary level with 100% Gross Enrolment Ratio (GER) in school education by 2030.
 - ♦ To bring 2 crore out of school children back into the mainstream through an open schooling system.
 - ♦ The current 10+2 system to be replaced by a new 5+3+3+4 curricular structure corresponding to ages 3-8, 8-11, 11-14, and 14-18 years respectively.
 - It will bring the uncovered age group of 3-6 years under school curriculum, which has been recognized globally as the crucial stage for development of mental faculties of a child.
 - It will also have 12 years of schooling with three years of Anganwadi/ pre schooling.
 - ♦ Class 10 and 12 board examinations to be made easier, to test core competencies rather than memorised facts, with all students allowed to take the exam twice.
 - ♦ School governance is set to change, with a new accreditation framework and an independent authority to regulate both public and private schools.
 - ♦ Emphasis on Foundational Literacy and Numeracy, no rigid separation between academic streams, extracurricular, vocational streams in schools.
 - ♦ Vocational Education to start from Class 6 with Internships.
 - ♦ Teaching up to at least Grade 5 to be in mother tongue/regional language. No language will be imposed on any student.
 - ♦ Assessment reforms with 360 degree Holistic Progress Card, tracking Student Progress for achieving Learning Outcomes
 - ♦ A new and comprehensive National Curriculum Framework for Teacher Education (NCFTE) 2021, will be formulated by the National Council for Teacher Education (NCTE) in consultation with National Council of Educational Research and Training (NCERT).
 - By 2030, the minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree.
- Higher Education:
 - ♦ Gross Enrolment Ratio in higher education to be raised to 50% by 2035. Also, 3.5 crore seats to be added in higher education.
 - The current Gross Enrolment Ratio (GER) in higher education is 26.3%.
 - ♦ Holistic Undergraduate education with a flexible curriculum can be of 3 or 4 years with multiple exit options and appropriate certification within this period.
 - ♦ M.Phil courses will be discontinued and all the courses at undergraduate, postgraduate and PhD level will now be interdisciplinary.
 - ♦ Academic Bank of Credits to be established to facilitate Transfer of Credits.
 - ♦ Multidisciplinary Education and Research Universities (MERUs), at par with IITs, IIMs, to be set up as models of best multidisciplinary education of global standards in the country.
 - ♦ The National Research Foundation will be created as an apex body for fostering a strong research culture and building research capacity across higher education.
 - ♦ Higher Education Commission of India (HECI) will be set up as a single umbrella body for the entire higher education, excluding medical and legal education. Public and private higher education institutions will be governed by the same set of norms for regulation, accreditation and academic standards. Also, HECI will be having four independent verticals.
 - ♦ Affiliation of colleges is to be phased out in 15 years and a stage-wise mechanism to be established for granting graded autonomy to colleges.
 - Over a period of time, every college is expected to develop into either an autonomous degree-granting College, or a constituent college of a university.
- Other Changes:
 - ♦ An autonomous body, the National Educational Technology Forum (NETF), will be created to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration.
 - ♦ National Assessment Centre- 'PARAKH' has been created to assess the students.
 - ♦ It also paves the way for foreign universities to set up campuses in India.

- ♦ It emphasizes setting up of Gender Inclusion Fund, Special Education Zones for disadvantaged regions and groups.
- ♦ National Institute for Pali, Persian and Prakrit, Indian Institute of Translation and Interpretation to be set up.
- ♦ It also aims to increase the public investment in the Education sector to reach 6% of GDP at the earliest.
- ♦ Currently, India spends around 4.6 % of its total GDP on education.

15.4 Scientific Developments in India

Pre Independence Achievements

India has long scientific traditions beginning in the ancient ages. Many a scientific and mathematical firsts, credited to ancient Indians, are believed to have shaped the evolution of modern science and technology. Except for a brief period in the medieval ages, when these traditions saw a lull in their growth and development, the scientific developments in India, have been noteworthy.

The arrival of European colonialists in India, from the Fifteenth century onwards, brought Indians in contact with the Western education and modern sciences which helped revive the development of science in India. Western education and techniques of scientific inquiry added to the already established Indian base, making way for later developments. Developing gradually from the initial rudimentary stage, India became a name in scientific developments in the years immediately before its independence. A number of Indian scientists like C.V. Raman, who went on to win a noble prize in physics in 1930, J.C. Bose, Homi Jahangir Bhabha, Prafulla Chandra Ray and many others helped India become the leader in science and technology in Asia at the time of independence in 1947. Moreover, they even brought global recognition to Indian scientific developments.

At independence, Jawaharlal Nehru, the Indian Prime Minister, reposed his faith in science for solving problems of hunger and poverty, of insanitation and illiteracy, of superstition and deadening customs in the country. Under his leadership, the government set out to cure numerous social problems and inculcate scientific temper amongst its citizens.

Origin of Modern Science and Technology

The origins of the current science and technology system in India can be traced to the establishment of the first scientific agencies that the British found

necessary to manage and expand their Indian empire in the 18th and 19th centuries. The 'Survey of India' goes back to 1767, and the 'India Meteorological Department' back to 1875. The Indian Association for the Cultivation of Science was established in Calcutta in 1876 by a remarkable doctor, Mahendra Lal Sircar. Beginning in the 1930s, the Indian National Congress, under the leadership of Jawaharlal Nehru and Subhash Chandra Bose, started planning for science and industry, almost as if, in anticipation of the times when they would be able to make and execute national policy under their own government. British policy during and between the two world wars faced the difficult problem of striking a balance between responding to the demands of prosecuting war in distant colonies cut-off from Britain and ensuring that no commercially or militarily sensitive technology became available to the 'natives'.

After Independence

After Independence, the government supported and funded various science and technology initiatives through its five-year plans to fulfil short-term needs, while aiming to provide the institutional base needed to achieve long-term goals. As the government adopted a planned model of economic and social development in the country, we will try to look at the scientific and technological developments through the various five-year plans.

First Plan

The first five-year plan (1951-56) aimed at setting up of new national laboratories and research institutions, training of personnel for manning the research institutions and running industries. The plan also emphasized on exploration and survey of resources.

The government also made attempts to strengthen the required technical education infrastructure. On 18th August 1951, the government inaugurated the Indian Institute of Technology (IIT) at Kharagpur in West Bengal. With its inauguration, the country got its first higher technical educational institution. It was soon followed by such institutions in Bombay, Madras, Kanpur and Delhi.

Second Plan

During the second five-year plan (1956-61), efforts were made to strengthen research facilities, coordinate research programs in various national laboratories and institutions with the requirement of national planning. It also intended to link up research work at the national level with the work carried out at the regional and state level and train and generate scientific manpower in sufficient numbers and ensure its proper utilization, while linking research and industrial needs.

It was during this plan that the government released the Scientific Policy Resolution of 1958, which called for embracing "by all appropriate means, the cultivation of science and scientific research in all its aspects—pure, applied, and educational" and encouraged individual initiatives.

In the very same year, the government merged the Technical Development Establishment and the Directorate of Technical Development and Production with the Defence Science Organisation to establish the country's premier military research and development organisation Defence Research and Development Organisation (DRDO).



Third Plan

The third five year plan (1961-66) aimed to strengthen the existing research institutions and expand facilities for research, encourage basic research and research in engineering and technology with a view to developing and manufacturing scientific and industrial instruments. To train scientific manpower and expand the programs of research fellowship and scholarship, coordinate research work carried out by various national laboratories, universities, technical institutions, laboratories of scientific associations and research wings of government departments and utilize the results of research, were also its objectives.

The fabled Green Revolution, which increased the food production in the country with the help of improved methods, technology and above all the high-yielding seeds, began in the early 1960s. Indian geneticist M.S. Swaminathan, American Agronomist Dr. Norman Borlaug and others played an instrumental role in development of high-yielding varieties of seeds.

In 1962, the government set up the Indian National Committee for Space Research (INCOSPAR) under the Department of Atomic Energy (DAE). This organisation was later superseded by Indian Space Research Organisation (ISRO) in 1969.

Fourth Plan

The fourth five-year plan (1969-74) emphasized on purposeful research and developmental programs. Engineering consultancy firms were to be engaged in 'Design Engineering' and presenting feasibility reports. The plan aimed at avoiding duplication in the research work of different laboratories, stressed the desirability of increasing the utilization of indigenous expertise and materials in the nuclear power projects.

Under this plan, in 1971, the Department of Science and Technology (DST) was established. Its main functions aimed at promoting and identifying frontline and priority areas of R&D in various disciplines of science and technology, international scientific and technological affairs and development of science and technology entrepreneurship. Besides, it also aimed at coordination of science and technology activities in the country in which a number of institutions/departments/ministries had interests and capabilities and utilization of science and technology for different sectors of society and industry.

Fifth Plan

The fifth five-year plan (1974-79) attempted to restructure the research programs. Plans were also finalized to make a beginning in the field of dissemination of scientific information by setting up of National Information System on science and technology (NISSAT) under the DST.

The fifth plan period was one of the most eventful periods in the field of scientific development in the country and the pace of scientific developments have been increasing since this period. On 18th May 1974, India detonated its nuclear bomb at Pokhran in Rajasthan. ISRO also built India's first satellite, Aryabhata, which was launched by the Soviet Union on 19th April 1975. Both these events have great significance.

Sixth Plan

The sixth five-year plan (1980-85) regarded science as an outlook and as a value system and therefore, it was felt that the 'task of creating scientific temper is a vital necessity for the growth of science and its utilization in the developmental process'.

The plan also aimed at creating instruments relating to policy formulation and implementation of science and technology creating necessary structures to transfer the benefits to rural areas.

In 1980, ISRO launched Rohini, which became the first satellite to be placed in orbit by an India-made launch vehicle, SLV-3. In 1981, the 'Indian Antarctic Programme' was started when the first Indian expedition was flagged off for Antarctica from Goa. More missions were subsequently sent each year to India's Antarctic base 'Dakshin Gangotri'. In 1983, the government issued the Technology Policy Statement, which, while stressing the importance of international cooperation and the diffusion of scientific knowledge, put considerable emphasis on self-reliance and the development of indigenous technology.

Seventh Plan

The seventh five-year plan (1985-90) continued to emphasize on 'growth, self-reliance, improved efficiency

and productivity'. It recognized new areas in science and technology emerging on world scene, like microelectronics, informatics and telematics, etc. Special emphasis was called for concerning science and technology efforts to enhance productivity in various major socio-economic sectors.

In 1986, a department of Biotechnology was set up as a separate department under the Ministry of Science and Technology, which helped development in that sector in the country. Indian agriculture benefitted from the developments in the field of Biotechnology. As corollary to the developments in the Biotech sector, both the Indian private sector and the government invested in the medical and agricultural applications of biotechnology. Massive Biotech parks were established in India while the government provided tax deduction for research and development for biotechnological firms. In 1991, a new permanent Antarctic base 'Maitri' was founded, which continues to remain in operation to the present times.

Eighth Plan

In the eighth five-year plan (1992-97), emphasis was laid on integration of science and technology in the socio-economic sectors. Stress was also laid on specified four thrust areas of major significance, which were – basic research in frontline areas, innovative research in exploitable areas of science and technology, allocation in science and technology to atomic energy and space. It also emphasized on research and developmental activities in emerging technologies that provide India an opportunity for securing a position of leadership and self-reliance, diffusion of appropriate technology and integration of science and technology in socio-economic and rural sectors.

Ninth Plan

The ninth five-year plan (1997-2002) was launched in the 50th year of India's independence. Its specific objectives were to give priority to productive employment, ensuring food and nutritional security for all, participation and mobilization of people at all levels and strengthening efforts to build self-reliance.

During this period, space and atomic energy continued with their programmes, the former with development of the early satellite launch vehicles and the design and manufacture of a series of remote sensing and other satellites, while the latter with more nuclear power stations and a second round of nuclear test explosions in 1998 (once again in Pokhran). The most striking development of these years, however, was the unforeseen and spectacular growth of the IT services industry, which had never figured in the official five-year plans.

Before the 1980s the major employers of outstanding graduates in science and technology were the public sector units, research institutes, national laboratories, high-end industry, etc. The new opportunities unveiled by the computer revolution were often seized by those who learnt some basic skills at one of the roadside computer schools that began mushrooming in cities like Bangalore, Delhi Mumbai, Pune, etc.

Tenth Plan

Tenth Five Year Plan laid greater emphasis on the development of indigenous technologies and focus on latest technologies available elsewhere. It gave high priority to technologies that are oriented towards human welfare. These include technologies that provide creative and cost-effective solutions in health services, population management, mitigating the effects of natural hazards, conservation of land, water and energy resources etc. It also focused on interface between industry, R&D institutions and academia.

Eleventh Plan

Eleventh Five Year Plan approach emphasized on setting up a national-level mechanism for evolving policies and providing direction to basic research, enlarging the pool of scientific manpower and strengthening the S&T infrastructure and attracting and retaining young people to careers in science, implementing selected National Flagship Programmes which have direct bearing on the technological competitiveness of the country in a mission mode. It also focused on developing new models of PPPs in higher education, particularly for research in universities and high technology areas.

Twelfth Plan

The Twelfth Plan programmes of the Indian Science aimed at three outcomes: realisation of the Indian vision to emerge as global leader in advanced science; Encourage and facilitate Indian Science to address the major developmental needs of the country like food security, energy and environmental needs etc. and gain global competitiveness through a well-designed innovation ecosystem, encouraging global research centres of multinational corporations (MNCs) to be set up in India.

15.5 Indian Space Programme: An overview

Genesis

The space research activities were initiated in India during the early 1960s, when applications using satellites were

in experimental stages, even in the United States. With the live transmission of Tokyo Olympic Games across the Pacific by the American satellite 'Syncom-3' demonstrating the power of communication satellites, Dr. Vikram Sarabhai, the founding father of Indian space programme, quickly recognized the benefits of space technologies for India.

As a first step, Indian National Committee for Space Research (INCOSPAR) was formed under the leadership of Dr. Sarabhai and Dr. Ramanathan in 1962. Indian Space Research Organisation (ISRO) was later formed on August 15th, 1969. The prime objective of ISRO is to develop space technology and its applications to various national needs. It is one of the six largest space agencies in the world. Department of Space (DOS) and Space Commission were set up in 1972 and ISRO was brought under DOS on June 1st, 1972.

Since inception, the Indian space programme has been orchestrated well and had three distinct elements such as satellites for communication and remote sensing, the space transportation system and application programmes. Two major operational systems have been established – the Indian National Satellite (INSAT) for telecommunication, television broadcasting, and meteorological services and the Indian Remote Sensing Satellite (IRS) for monitoring and management of natural resources and disaster management support.

Major Milestones

- Indian space programme began at Thumba Equatorial Rocket Launching Station (TERLS) located at Thumba, near Thiruvananthapuram. Thumba was selected for being rocket launching station because geomagnetic equator of the earth passes over Thumba.
- On November 21st, 1963, the first sounding rocket was launched from TERLS. The first rocket, a Nike-Apache was procured from US. A sounding rocket is a rocket which is intended for assessing the physical parameters of the upper atmosphere.
- The Satellite Tele-communication Earth Station was set up at Ahmedabad on January 1st, 1967.
- India's first indigenous sounding rocket, RH-75, was launched on November 20th, 1967.
- Aryabhata – First Indian satellite was launched on April 19th, 1975. It was launched from the former Soviet Union. It provided India with the basis of learning satellite technology and designing.
- During 1975-76, ISRO, along with NASA, developed means of using space communications system for TV broadcasting. This resulted in the creation of the project Satellite Instructional Television Experiment (SITE). It was a one-year program covering Indian villages and districts. The main purpose of SITE was to experiment usage of satellite broadcasting to educate the masses. SITE, hailed as 'the largest sociological experiment in the world', benefited around 200,000 people, covering 2400 villages of six states and transmitted development oriented programmes using the American Technology Satellite (ATS-6).
- Bhaskara-I – An experimental satellite for Earth observation was launched on June 7th, 1979.
- First experimental launch of SLV-3 with Rohini technology payload on board (August 10th, 1979) was attempted but. Satellite could not be placed in orbit. satellite Launch Vehicle-3 (SLV-3) is the first launch vehicle of India.
- Second experimental launch of SLV-3 with Rohini satellite was successfully placed in orbit on July 18th, 1980.
- Ariane Passenger Payload Experiment (APPLE), an experimental geo-stationary communication satellite, was successfully launched on June 19th, 1981. It became the forerunner for future communication satellite system.
- Indian National Satellite system (INSAT)-1A was launched on April 10th, 1982. This system was for the communication, broadcasting and meteorology.
- On April 2nd, 1984, the first Indo-Soviet manned space mission was launched. Rakesh Sharma became the first Indian citizen to go into space. He flew aboard in the Soviet rocket Soyuz T-11, as part of a three-member Soviet-Indian crew.
- The first operational Indian Remote Sensing satellite, IRS-1A was launched on March 17th, 1988.
- On March 24th, 1987, the first developmental launch of Augmented Satellite Launch Vehicle (ASLV) that supported a larger payload than SLV-3 and was meant to be low-cost, took place.
- Launch of first operational Indian Remote Sensing Satellite, IRS-1A happened on March 17th, 1988.
- Second developmental launch of Polar Satellite Launch Vehicle (PSLV) with IRS-P2, on board took place on October 15th, 1994. The satellite was successfully placed in Polar Sun synchronous orbit. PSLV went on to become a favoured carrier for satellites of various countries due to its reliability and cost efficiency, promoting unprecedented international collaboration.
- The first developmental launch of Geo-synchronous Satellite Launch Vehicle (GSLV)-D1 with GSAT-1 on board, took off from Sriharikota on April 18th, 2001. It was developed keeping in mind the heavier and

more demanding geosynchronous communication satellites.

- INSAT-4CR weighing 2130 kg and launched by GSLV-F04 on September 2nd, 2007 is the heaviest satellite launched from India.
- PSLV-C11 was successfully launched CHANDRAYAAN-1 from Sriharikota on October 22nd, 2008. Chandrayaan-1 is a scientific investigation – by spacecraft – of the Moon. Chandrayaan-1 is the first Indian planetary science and exploration mission. Chandrayaan-1 was operational for 312 days till August 28th, 2009.
- On November 5th, 2013, PSLV - C25 was successfully launched with Mars Orbiter Mission (Mangalyaan) spacecraft from Sriharikota.
- On February 15th, 2017, PSLV-C37, the 39th mission of the workhorse launch vehicle of ISRO, injected ISRO's Cartosat-2 Series satellite weighing 714 kg and two ISRO Nano-satellites namely INS-1A (8.4 kg) & INS-1B (9.7 kg), and 101 Nano-satellites, from six foreign countries into a Sun-Synchronous Orbit (SSO) at an orbit of 506 km above earth, with an inclination of 97.46°. The mass of nano-satellites varied from 1 kg to 10 kg. The total weight of all the 104 satellites carried on-board PSLV-C37 was 1378 kg.
- India's latest communication satellite, GSAT-31 was inducted into the INSAT/GSAT system on 6th feb, 2019 from French Guiana. GSAT-31 also carries equipments for meteorological data relay and satellite based search and rescue services being provided by earlier INSAT satellites.
- India successfully launch chandrayaan 3 mission to moon and aditya L1 mission to sun in 2023.

15.6 Industrial Development before Independence

In 1750, India produced nearly 25 % of the world's manufacturing output and was only behind China, which manufactured 32.8 %. However, this industrial feat began to reverse drastically as the British colonialists extended their sway over the sub-continent. By mid of Nineteenth century, the place of pride that Indian industries held, was ultimately lost due to the discriminatory colonial policies, which favoured British capital and industries in Britain over those in India, leading to de-industrialisation of the country. Then, from the late Nineteenth century and early Twentieth century onwards began a process of revival of Indian industries, albeit in certain sectors such as textile, jute and iron and steel, despite the government policies. The

industries that developed in this phase saw a degree of modernisation, as a corollary of British rule. However, this indigenous industrial development remained abysmal at the time of Indian Independence.

A number of industrialists and visionaries realised the importance of industrial development in the Twentieth century and laid down certain plans and proposals, which paved the way for industrial development in the post-independence period.

Let's have a brief look at some of these major plans and proposals in the years prior to Indian independence:

- **Planned economy for India 1934 (Book):** Visionary Sir M. Visvesvarayya pointed to the success of Japan and insisted that industries and trade do not grow of themselves but have to be build, planned and systematically developed. Thus, he published the book with the above name.
- **National planning committee (1938):** It was established under the chairmanship of Jawaharlal Nehru. It advocated heavy industries under public ownership that were essential to build other industries and for redistributive purposes.
- **People's plan:** It was prepared by MN Roy in 1940s that stressed on employment and wage goods.
- **Gandhian plan (1944):** It was prepared by S.N Agarwal. It emphasized on decentralisation, agriculture development, employment, cottage industries, etc.
- **Bombay plan (1944):** JRD Tata, GD Birla, Purshottamdas Thakurdas and others were the architects of this plan. It emphasized on India's future progress based on further extension of textiles and consumer industries. It saw an important role of the state in industrial development.

15.7 Industrial development after independence

In 1930s a consensus had been reached amongst the major political forces in the country that the industries would lead the economy in the post-independence phase. But, at independence, industries in the country were marked by weak base, low capital intensity, limited role of public sector and lack of capital for investment.

The government, after independence, adopted various policies and planning (especially for economic development) to guide industrial development in the country.

Industrial Policy Resolution (IPR) 1948

The main thrust of IPR, 1948 was to lay down the foundation of mixed economy whereby the private and public sector were accepted as important components in

the development of industrial economy of India. It gave public sector vast area to operate. Government took the role of catalytic agent of industrial development.

Economic Planning (1950)

The government adopted the path of planned economic development, with the formation of Planning Commission, in March, 1950.

- **First five-year plan (1951-56):** The main thrust of the plan was on agriculture. It emphasised on increasing capacity of existing industries rather than starting new ones. Industrial production showed 40% increase during this plan.
- **Second five-year plan (1956-61):** This plan laid emphasis on development of basic and heavy industries and defined the key role which the public sector was to play in the economic development of country. It was based on Nehru-Mahalanobis model. Some of the heavy industries started during this phase were Durgapur, Rourkela and Bhilai steel plants.

Industrial Policy Resolution (1956)

The policy emphasized on following points.

1. **New classification of industries:**
 - **Schedule A industries:** The industries that were the monopoly of state or governments.
 - **Schedule B industries:** In this category of industries, state was allowed to establish new units but the private sector was denied to set up or expand existing units e.g. chemical industries, fertilizer etc.
 - **Schedule C industries:** The industries not mentioned in the above category formed part of Schedule C.
2. Encouragement to small-scale and cottage industries
3. Emphasized on reduction of regional disparities.

The basic rationale of IPR, 1956 was that the state had to be given a primary role for industrial development as capital was scarce and entrepreneurship was not strong. The public sector was enlarged dramatically so as to allow it to hold commanding heights of the economy. It, also, emphasized the mutual existence of public and private sector industries.

Third five year plan (1961-1966)

This plan laid stress on the expansion of 'basic industries' like steel, chemical, fuel, power, etc. The basic philosophy behind this plan was to lay foundation for a self-generating economy.

However, the achievements fell short of the target to a great extent due to following reasons:

- Untimely monsoon rains and severe drought in 1965.

- India's war with china in 1962 and with Pakistan in 1965.
- Non availability of foreign credit.

Monopolies Commission (1964)

In April 1964, the government of India appointed a Monopolies Inquiry Commission 'to inquire into the existence and effect of concentration of economic power in private hands'. The commission looked at concentration of economic power in the area of industries. On the basis of recommendation of the commission, Monopolistic and Restrictive Trade Practices Act (MRTP Act), 1969 was enacted. The act sought to control the establishment and expansion of all industrial units that have asset size over a particular limit.

Annual plans (1966-69)

The fourth five-year plan was deferred and annual plans were adopted for a period of three years. Not much headway was made due to resource crunch.

Fourth five-year plan (1969-74)

Indian economy started recovering from recession at the beginning of the plan, in 1969. Some industries showed uneven growth due to shortage of raw materials and difficult power situations. Public sector undertakings showed good progress. Efforts were made to accentuate the process of industrial dispersal through regional and local planning process.

Industrial Policy Statement (1973)

Industrial Policy Statement of 1973 drew up a list of industries to be started by large business houses so that the competitive effort of small industries was not affected. The entry of competent small and medium entrepreneurs was encouraged in all industries. Large industries were permitted to start operations in rural and backward areas with a view to developing those areas and enabling the growth of small industries around.

Fifth five-year plan (1974-79)

The main emphasis of this plan was on rapid growth of core sector industries and increase the production of export oriented articles and articles of mass consumption. The public sector had assumed much importance.

Industrial Policy Statement (1977)

Its focus areas were:

- **Development of small-scale sector:** The small sector was classified into 3 categories viz. cottage and household industries which provide self-employment; tiny sector, and; small-scale industries.
- **Restrictive approach towards large business houses:** The large scale sector was allowed in basic, capital goods and high-tech industries.

- **Expanding Role of Public sector:** The industrial policy stated that the public sector would be used not only in the strategic areas but also as a stabilizing force for maintaining essential supplies for the consumers.

Sixth five-year plan (1980-85)

This plan marked a watershed in the development process which was initiated three decades ago. The period 1950-80 marked the first phase of industrialization. Second phase started with this plan. It emphasized on developing globally competitive, cost effective and modernized industry. For this purpose, liberalization was initiated.

Industrial Policy Statement (1980)

Important features included:

- **Effective management of Public Sector:** The policy emphasized the revival of efficiency of public sector undertakings.
- **Liberalization of Industrial Licensing:** The policy statement provided liberalized measures in the licensing in terms of automatic approval to increase capacity of existing units under MRTP and FERA. The relaxation from licensing was provided for a large number of industries.

Analysis

Industrial policy, 1980 focused attention on the need for promoting competition in the domestic market, technological up gradation and modernization. The policy laid the foundation for an increasingly competitive export based industries and for encouraging foreign investment in high-technology areas.

Seventh five-year plan (1985-90)

The plan aimed at developing a high-tech and electronic industrial service base. Industrial dispersal, self-employment and proper training were the main planks of the plan.

Features of Pre-1991 industrial Policies

- **Protection to Indian industries:** Local industries were given shelter from international competition by introducing partial physical ban on the imports of products and high imports tariffs.
- **Import-substitution policy:** Government used its import policy for the healthy development of local industries. It encouraged the production of imported goods indigenously.
- **Financial infrastructure:** In order to provide the financial infrastructure necessary for industry, the government set up a number of development banks. The principal function of a development bank was to provide medium and long-term investments. Examples

of such institutions are Industrial Finance Corporation of India (IFCI) (1948), Industrial Credit and Investment Corporation of India (ICICI) (1955), Industrial Development Bank of India (IDBI) (1964), etc.

- **Control over Indian industries:** Indian industries were highly regulated through legislations such as industrial licensing, MRTP Act, 1969, etc.
- **Regulations on foreign capital under the Foreign Exchange and Regulation Act (FERA):** FERA restricted foreign investment in a company to 40 percent. This ensured that the control in companies with foreign collaboration remained in the hands of Indians.
- **Emphasis on public sector:** The government made huge investments in providing infrastructure and basic facilities to industries.

Review of Pre-1991 Industrial Policies

The pre-1991 industrial policies created a climate for rapid industrial growth in the country. It helped to create a broad-base infrastructure and basic industries. A diverse industrial structure with self-reliance on a large number of items had been achieved. Modern management techniques were introduced. An entirely new class of entrepreneurs came up with the support system from the government, and a large number of new industrial centers developed in almost all parts of the country.

However, the implementation of industrial policies suffered from shortcomings. It is argued that the industrial licensing system has promoted inefficiency and resulted in the high-cost economy. Licensing was supposed to ensure creation of capacities according to plan priorities and targets. However, due to considerable discretionary powers vested in the licensing authorities, the system tended to promote corruption and rent-seeking.

15.8 Liberalization-Privatization-Globalization (LPG)

Background

In 1990s, India witnessed a major balance of payments crisis. This crisis was caused by Gulf War and the cumulative problems of India economy. It led to an IMF sponsored bailout. The Gulf crisis and the subsequent rise in crude prices rudely exposed the inadequacies of reserves. International rating agencies downgraded India. This crisis was converted into an opportunity by the then Finance Minister Manmohan Singh through a series of reforms, popularly known as Rao- Manmohan formula.

New Industrial Policy (1991)

The liberalized industrial Policies aimed at rapid and substantial economic growth, and integration with the global economy in a harmonized manner. The reforms have reduced the industrial licensing requirements, removed restrictions on investment and expansion, and facilitated easy access to foreign technology and foreign direct investment. The important elements can be classified as follows:

- Dismantled the license raj so that the private sector and government were on a level playing field.
- Drove public sector towards sustainable profitability and global play by de-reservation, disinvestment, professionalization of management, etc.
- Moved towards free float of rupee and relaxation of controls on convertibility, aggressive export promotion, amendments in Monopolies and Restrictive Trade Practices (MRTP) Act, 1969, etc.
- Liberalized Foreign Investment Policy to facilitate FDI (Foreign Direct Investment) and FII (Foreign Institutional Investment) inflows, etc.
- Foreign Technology Agreements (FTA).
- Dilution of protection to Small Scale Industries (SSI) and emphasized on competitiveness.

Analysis

The all-round changes introduced in the industrial policy framework have given a new direction to the future industrialization of the country. The impact of industrial reforms is reflected in multiple increases in investment envisaged, both domestic and foreign. This has improved industrial health of the country positively. However, major criticism includes lack of reforms in labour laws and exit clauses for the loss making enterprises.

- **Eighth five-year plan (1992-97):** This plan gave concrete form to the steps taken in the New Industrial Policy 1991 and it further expanded the scope of industrial development.
- **Ninth five-year plan (1997-2002):** During this plan period, industrial growth retarded. The main factors responsible for slowdown were lack of domestic demand, high oil prices, calamities like Gujrat earthquake, and high interest rate with an adverse impact on private investment and slowdown in world economy because of East Asian crisis.

- **Tenth five-year plan (2002-2007):** Some of the policy initiatives included Assistances to States for Infrastructure Development for Exports (ASIDE), market access initiative, Special economic Zone (SEZ) policy, modernization of Directorate General of Foreign Trade (DGFT). Plan also focused on improvement of the textile industry.

15.9 Other policy initiatives

- **New Manufacturing Policy:** The objective of policy is enhancing the share of manufacturing in GDP to 25% within a decade and creating 100 million jobs. It also seeks to empower rural youth by imparting necessary skill sets to make them employable. Sustainable development is integral to the spirit of the policy and technological value addition in manufacturing has received special focus.
- **Delhi-Mumbai Industrial Corridor:** The government of India is developing the Delhi Mumbai Industrial Corridor (DMIC), as a global manufacturing and investment destination utilizing the high capacity 1483 km long Dedicated Freight Corridor (DFC), as the backbone. In essence, DMIC project is aimed at the development of futuristic industrial cities.
- **Make in India programme:** 'Make in India' programme aims at promoting India as an important investment destination and a global hub for manufacturing, design and innovation. 'Make in India' initiative does not targets manufacturing sector alone, but also aims at promoting entrepreneurship in the country. The initiative is further aimed at creating a conducive environment for investment, modern and efficient infrastructure, opening up new sectors for foreign investment and forging a partnership between government and industry through positive mindset.



TRY SOME MAINS PREVIOUS YEAR QUESTIONS

1. Discuss the impact of post-liberal economy on ethnic identity and communalism. (2023)
2. Discuss the contributions of Maulana Abul Kalam Azad to pre and post-independent India. (2013)

Appendix

Timeline: Post Independence History

Year	Event
	Indian Independence Act 1947 by British Raj.
1947	Partition of India and Pakistan becomes an independent state on 14 th August 1947.
	Hundreds of thousands die in widespread communal bloodshed after partition.
1948	Mahatma Gandhi assassinated by Nathuram Godse.
	War with Pakistan over disputed territory of Kashmir.
	Hyderabad and many other princely states integrated in Indian union
1950	India became Republic.
1951-52	Congress Party wins first general elections under leadership of Jawaharlal Nehru.
1956	Dr B.R Ambedkar converted to Buddhism along with 600,000 followers.
1962	War over disputed territory with China.
	India won Diu, Daman and Goa from Portuguese India.
1964	Death of Prime Minister Jawaharlal Nehru.
1965	Second war with Pakistan.
1966	Nehru's daughter Indira Gandhi becomes Prime Minister.
1971	Third war with Pakistan and creation of Bangladesh, formerly East Pakistan.
	Twenty-year treaty of friendship signed with Soviet Union.
1974	India explodes first nuclear device in underground test.
1975	Emergency imposed in the country
	Nearly 1,000 political opponents imprisoned and programme of compulsory birth control introduced.
1977	Indira Gandhi's Congress Party loses general elections. Janata Party comes to power. Communist Party of India comes to power in West Bengal.
1979	Janata Party splits. Chaudhary Charan Singh becomes Prime Minister.
1980	Indira Gandhi returns to power heading Congress Party splinter group, Congress (Indira).
1984	Operation Blue Star in Amritsar.
	Indira Gandhi assassinated by Sikh bodyguards, following which her son, Rajiv, takes over as Prime Minister.
	Anti-Sikh riots
1987	India deploys troops for peacekeeping operation in Sri Lanka's ethnic conflict.
1989	National Front headed by V. P. Singh and led by Janata Dal stormed into power with outside support from BJP and CPI.
1991	Rajiv Gandhi assassinated by suicide bomber sympathetic to Sri Lanka's Tamil Tigers.
	Economic reform programme begun by Prime Minister P.V. Narasimha Rao.
1992	Babri Mosque in Ayodhya is demolished, triggering widespread Hindu-Muslim violence.
1998	BJP forms coalition government under Prime Minister Atal Bihari Vajpayee.
	Operation Shakti: India tests nuclear weapons again.
1999	Tension in Kashmir leads to a brief war with Pakistan-backed forces in the icy heights around Kargil in Indian-held Kashmir.
	Cyclone devastates eastern state of Odisha, leaving at least 10,000 dead.
2000	States of Jharkhand, Chhattisgarh & Uttaranchal (Uttarakhand) were created on 15 th November 2000
2001	A high-powered rocket is launched, adding India to the club of countries able to fire big satellites deep into space.
2002	India successfully test-fires a nuclear-capable ballistic missile – the Agni – off its eastern coast.
	Gujarat Riots
2008	India successfully launches its first mission to the Moon, the unmanned lunar probe Chandrayaan-1.
2013	Mars Orbiter Mission, is successfully launched into Mars orbit by the Indian Space Research Organisation (ISRO).
2014	Narendra Modi elected as Prime Minister of India; Congress was routed in the general elections.
	Telangana was officially formed on 2 June 2014.