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A Crystallized Review on Role of Technical Higher Education Under the tenets of New Education Policy

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Abstract- A well-defined and futuristic educational policy is essential for a country at the school and university level, as education leads to economic and social progress. Different countries adopt different educational systems considering tradition and culture and adopt different stages during their life cycle at school and university level to make it effective. The Indian government recently announced its new education policy, which is based on the recommendations of an expert panel led by Dr. Kasturi Rangan, former president of the Indian Space Research Organization (ISRO). This paper proffers and highlights of impact of NEP on technical higher education and given suggestions for effective implementation of the policy.

Key Words-NEP, Government of India, ISRO, Higher Education.

Introduction

Technical Higher education in India has never mattered so much and to so many as a means of social mobility, an engine of economic growth, and a defender of democracy. In order for higher education to fulfil its promise as a great equalizer, we need continued innovation that can move us toward increased access, affordability and equity. This innovation will develop an ecosystem that will include a range of opportunities for a variety of high-quality educational experiences and credentials with marketplace value suited for the differing needs of students.

The technical and management education sector has made immense contribution to the country's economic and industrial development. It has produced high quality skilled, technical and managerial manpower. Technical / management education is provided through the Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs) and 17 Regional Engineering Colleges (RECs). Other institutions in the central sector are: Indian Institute of Science (IISc), Bangalore, Indian Institute of Information Technology and Management (IITM), Gwalior, Indian Institute of Information Technology (IIIT), Allahabad, Indian School of Mines (ISM), Dhanbad, School of Planning and Architecture (SPA), New Delhi, National

Institute of Foundry and Forge Technology (NIFFT), Ranchi, National Institute of Training and Industrial Engineering (NITIE), Mumbai, Technical Teachers' Training Institutes (TTTIs), North Eastern Regional Institute of Science and Technology (NERIST) and Sant Longowal Institute of Engineering and Technology (SLIET). In addition, there are various polytechnics and engineering colleges in the states and in the private sector.

A large number of central, state and accredited technical institutions in the private sector have benefited under the schemes of Modernisation and Removal of Obsolescence, Research and Development, initiated in the Seventh Plan and Thrust Areas in Technical Education started in the Ninth Plan. Infrastructure facilities for research and development (R&D) have been upgraded under these schemes. Special emphasis has been given to strengthening the infrastructure facilities in the premier institutes viz., IITs, IIMs, IISc, RECs, etc. Besides, the IITs and IISc have implemented Technology Development Missions in the areas of food processing engineering, material technology, genetic engineering, bio-technology etc. The Technology Development Missions, started in the Eighth Plan, succeeded in establishing strongindustry-institute linkages. Technologies developed in projects carried out under different programmes have been successfully transferred to industry.

A. New Education Policy (NEP) 2020

The global education development agenda reflected in the Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development, adopted by India in 2015 - seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. Such a lofty goal will require the entire education system to be reconfigured to support and foster learning, so that all of the critical targets and goals (SDGs) of the 2030 Agenda for Sustainable Development can be achieved.

The new educational policy must provide all students, regardless of their place of residence, a quality educational system, with special attention to historically marginalized, disadvantaged and underrepresented groups. Education is a great leveler and is the best tool to achieve mobility, inclusion and economic and social equality. Initiatives should be put in place to ensure that all students in such groups, despite inherent obstacles, are given a variety of specific opportunities to enter and excel in the education system. These elements must be

incorporated taking into account the local and global needs of the country and with respect and deference for its rich diversity and culture. Instilling knowledge of India and its diverse social, cultural and technological needs, its inimitable artistic, linguistic and knowledge traditions and strong ethics in Indian youth is seen as fundamental to the purposes of national pride and self-confidence of self-knowledge, cooperation and integration.

B. Key Takeaways of NEP, 2020

The NEP proposes sweeping changes including opening up of Indian higher education to foreign universities, dismantling of the UGC and the All India Council for Technical Education (AICTE), introduction of a four-year multidisciplinary undergraduate programme with multiple exit options, and discontinuation of the M Phil programme.

In school education, the policy focuses on overhauling the curriculum, "easier" Board exams, a reduction in the syllabus to retain "core essentials" and thrust on "experiential learning and critical thinking".

In a significant shift from the 1986 policy, which pushed for a 10+2 structure of school education, the new NEP pitches for a "5+3+3+4" design corresponding to the age

groups 3-8 years (foundational stage), 8-11 (preparatory), 11-14 (middle), and 14-18 (secondary). This brings early childhood education (also known as pre-school education for children of ages 3 to 5) under the ambit of formal schooling. The mid-day meal programme will be extended to pre-school children. The NEP says students until Class 5 should be taught in their mother tongue or regional language.

The policy also proposes phasing out of all institutions offering single streams and that all universities and colleges must aim to become multidisciplinary by 2040.
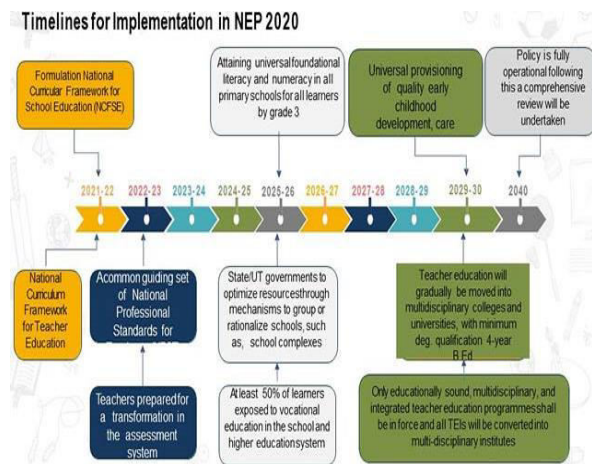

Fig.1 Structural Roadmap of NEP, 2020

C. Innovations in NEP 2020

(1) 100 top Indian Universities will be encouraged to operate in foreign countries.

(2) 100 top Foreign Universities will be allowed and facilitated to operate in India

(3) Every classroom shall have access to the latest educational technology that enables better learning experiences.

(4) Faculty Stability will be provided in an appointed institution with generally no transfer to other institutions.

(5) Faculty members get curriculum and pedagogy freedom within an approved framework.

(6) Based on academic and research performance, faculty incentives &accountability will be fixed.

(7) Faculty fast-track promotion system for high impact research contributions will be offered.

(8) A multiple parameter-based API policy with peers & students' feedback, innovations in teaching & pedagogy, professional development activities, Quality and impact research, contribution to an institution in terms of admission, and social community contribution will be in place.

(9) The API policy will clearly be defined in the Institutional development plan.

(10) Focus on achieving sustainable Education Development Goal (SEDG) & GER of 50% by 2035.

(11) All Ph.D. registered students should take one subject related to teaching/curriculum development and accept teaching Assistantship for enhancing teaching skills.

(12) All students should be encouraged to take SWAYAM online courses at least two courses per semester.

(13) Strengthening Vocational education (VE) to reach at least 50% of the student population. HEIs should plan how VE can be offered to all the students.

(14) Plan to give B.Voc. as dual degree programme in ODL (Online Distance Learning) mode or 2 hours evening programme through Skill labs & partnership with industry & NGOs.

(15) Currently, research & innovation investment in India is of 0.69% of GDP against a global average of 3% of GDP.

(16) Inclusion of research and internships in the undergraduate curriculum as a very essential component.

(17) Four functions of (1) regulation (NHERC), (2) accreditation (NAC), (3)

funding/ grants (HEGC), and (4) academic standard setting (GEC) is controlled by an umbrella institution, the Higher Education Commission of India (HECI).

D. Implications of NEP 2020 on Indian Higher Education System

(1) Only qualified role-models have the opportunity to elevate to the top to decision making role:Higher Education policy-making decisions and implementation of such policies may go out of bureaucrats and fake educationists who are enjoying top decision-making positions like Chairman's of UGC, AICTE, MCI, DCI, and Vice-Chancellors of Various Universities. For example, in present HE system in India a person without a single scholarly publication can become Vice-Chancellor of Public Sector Universities and can elevate to various higher positions and even become the chairman of UGC. Similarly, a person without a single patent can become Director of Technical Institutions, and eventually can become the Chairman of AICTE. A person without a single IPR like scholarly publication or patent can reach decision making authority at Higher Education Divisions including the Association of Indian Universities.

(2) Cleaning of Higher Education Bureaucratic system : Merit-based appointments of Institutional leaders in Research & Innovations. Unlike the present system, professors without at least five first author

scholarly publications or patents during the last five years will not become institutional leaders like Directors, Vice-Chancellors, etc.

(3) Transformation of Single discipline Colleges into a multi-disciplinary autonomous degree-awarding Colleges: This will again help to decrease corruption and lobbies in Colleges. Many colleges are unable to chart their own courses, controlled as they are by rigid bureaucratic norms of the affiliating University. All this deeply undermines the principle of local governance and the local pursuit of innovation and excellence. This must be addressed with urgency. This also develops more responsible leaders to work in HE administration along with research so that they can make better innovations in imparting higher educational services.

(4) Focus on Research & Innovation at UG & PG levels: This allows students and faculty members to think creatively with confidence to propose and do new thingsleading to novelty.

(5) Highly educated Board of Governors (BoG) to avoid misuse of power by Individuals: Every autonomous institution is expected to for a BOG having highly qualified, competent, and dedicated individuals who have proven capabilities and a strong sense of commitment to the institution.

(6) The Responsibility of maintaining Quality lies with the Board of Governors:

The BoG shall be responsible and accountable for the outcomes of the HEI to the stakeholders through transparent disclosures of relevant records. BOG has to meet all regulatory guidelines mandated by the National Higher Education Regulatory Authority (NHERA).

(7) Single Regulator for entire HEIs: National Higher Education Regulatory Authority (NHERA) a single HEIs regulator setup leads to effective regulation of financial probity of HEIs, governance, open disclosure of financials, faculty/staff, courses, and educational qualities.

(8) Elimination of Commercialization of Education: HEIs both public and private should ensure that they are not for profit and if there is any surplus, it should be re-invested in the institutional development under the supervision of BoG members to eliminate the comultiplication of education.

(9) Responsibility of Private HEIs towards Educational Philanthropy: Though private HEIs can set their fees independently, by offering at least 20% free-ship and 30% scholarships. This model allows to recover reasonably their cost while discharging their social obligations.

(10) Private Universities will overtake Public Universities due to offered 20% free-ship:Bright and intelligent students irrespective of their economic status, religion, gender, will get the opportunity to study in private HEIs free of cost due to 20% free-ship and 30%

scholarship leading to mobilization of intelligent and self-motivated students to Private institutions leading to overcrowding of meritorious students in private Universities.

(11) Transformation of Public/Government Colleges: Two possible transformation processes: (a) The affiliated public/government colleges can eventually become multi-disciplinary and expand their capacity to admit annually 3,000 or more students and become autonomous colleges (AC). (b) Small colleges with less resources and student feeding areas will convert itself as a constituent college of the affiliating university and get mentorship and all other kinds of support to offer quality education.

(12) Transformation of Private Colleges : Three possible of Transformation: (a) The private sector colleges can eventually expand in terms of their resources and quality of education and reaches a predefined accreditation status to become Autonomous Degree giving college,(b) Some small colleges with one or two disciplines and have no scope of expansion to admit 3,000 or more students will join with similar (same management or same religion) colleges in that region and may become a group of colleges or a cluster and transform themselves into a degree giving Autonomous College, (c) The private colleges which cannot form cluster or part of a group and fail to reach the pre-defined accreditation status will eventually close down their operation.

SUGGESTIONS

(1) Ph.D. should be a compulsory qualification for a permanent teaching position in Colleges & Universities: Like Integrated B.Ed. is compulsory qualification to Foundation, preparatory, middle, and secondary school education teaching, Ph.D. research should be a compulsory degree for College and University teaching. This is due to the reason that, research is going to be an integral part of bachelor's and master's degrees as per NEP 2020.

(2) Compulsory Faculty Annual Publication leading to IPR: In order to maintain sustainable quality and to avoid faculty obsolescence in Colleges and Universities, the IPR generation should be compulsory. In this regard, the college faculties should publish at least two open access scholarly research papers with copyright certificates from Govt. of India or at least two proof of patent submissions annually, failed to which the annual increment should be suspended.

(3) Use of Services of Retired Professors as Research Guides: The requirement of huge Ph.D. degree holders in autonomous colleges due to changes in policies of NEP 2020, the demand for research guides is increasing. The optimum solution for solving this shortage is the utilization of services of retired professors with good research experience. It is suggested that the universities should use the services of retired

professors as research guides. Thus, retired professors should be used as Research Professors irrespective of their age to guide the research scholars for their Ph.D. Such an idea will eliminate the scarcity of research guides.

(4) Compulsory Publication/Patent during Post graduation Courses: Students are expected to do researches based on industry internship and publish scholarly papers / own patents compulsorily as a part of their degree requirement. The awareness related to IPR should be provided during their undergraduate programme so that imposing compulsory copyright/ patent during the post graduation period is possible. Fixing the target and continuous follow-up through inspiration leads to success.

(5) Universities should have their own Publication Unit: At HEIs level, the objective of academic research is publication or patent. One of the reasons for reduced research interest in India is the frustration of researchers in the process of scholarly publication or to own a patent is time and expenditure or loss of copyright to so-called international publishers without any financial benefits forever. To avoid such loss to the researchers and to the country, it is suggested all Universities should start their own digital publication units in a systematic way to publish high quality research and sharing with global indexing agencies. Such a university publication model stops predatory journals

which follow the illegal or unethical procedure of publication.

(6) Vocational Training based Earn while Learn Encouragement: To encourage self-dependency after 18 years of age, students should be encouraged to develop skills in their interested area and involve in some kind of economic/productive activities thereby their dependency on parents can be reduced. This is possible through vocational training and building their confidence to earn while learn programmes. The vocational training based earn while learn can be strengthened at HE level through offering additional credits to Academic Bank of Credits (ABC).

(7) Compulsory Employability & Entrepreneurship related papers in each semester to promote Employability &Entrepreneur ability among the students: The undergraduate programme should be designed in such a way that there should be two skill-based subjects focusing on employability skills and entrepreneur ability skills respectively apart from core subjects, non-core subjects, and elective subjects. The evaluation scheme for these skill-based subjects should be continuous internal assessment without holding semester end exams. Such an innovative model gives confidence for the students to choose an entrepreneur career.

Conclusion

Higher education is an important aspect in deciding the economy, social status, technology adoption, and healthy human behaviour in every country. Improving GER to include every citizen of the country in higher education offerings is the responsibility of the education department of the country government. National Education Policy of India 2020 is marching towards achieving such objective by making innovative policies to improve the quality, attractiveness, affordability, and increasing the supply by opening up the higher education for the private sector and at the same time with strict controls to maintain quality in every higher education institution. Finally, the Indian higher education system is moving from teacher centric to student centric, information centric to knowledge centric, marks centric to skills centric, examination centric to experimental centric, learning centric to research centric, and choice centric to competency centric.

ACKNOWLEDGMENT

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