

# White Paper

An Initiative for Improving Quality in Higher Education

## RE-IMAGINING ASSESSMENT AND ACCREDITATION IN HIGHER EDUCATION IN INDIA



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

**NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL**

(An Autonomous Institution of the University Grants Commission)

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**Guru Purnima**

# **RE-IMAGINING ASSESSMENT AND ACCREDITATION IN HIGHER EDUCATION IN INDIA**

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and

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This whitepaper has been developed through a modified Delphi and Wiki methodology. It has been a collaborative effort to arrive at a consensus in a panel of thought leaders in higher education. The Principal Authors created a zero draft on 20<sup>th</sup> March 2022. They have been responsible for integrating contributions from co-authors and engaging in a series of revisions on the basis of feedback, comments, and corrections from the reviewers. At every stage in this process, the reviewers were offered the option to join as co-authors

The current version is the result of 44 such revisions, The 40<sup>th</sup> draft was discussed during a two-day brainstorming session on 27-28 April 2022 at the NAAC campus in Bengaluru. (A list of invited experts who participated in the proposed brainstorming is provided in Annexure 13). This group included a few experts who were part of the co-creation process and review as well as a few others. Such a mixed group allowed the opportunity for focused discussions while remaining open to new ideas. This Mini Delphi method combined with the Wiki co-creation approach involving face-to-face interactions with a panel of eminent experts has contributed immensely to the process of developing the proposed whitepaper. Subsequently, the draft was submitted to the Academic Advisory Council and Executive Committee for their approval and feedback, and their recommendations have been incorporated in the 43<sup>rd</sup> revision.

That document was uploaded on the NAAC website on 1<sup>st</sup> June 2022, and feedback was sought from *all stakeholders* of higher education in India (students, parents, faculty, academic administrators, educationists, NGOs in education, those who are involved in school education, and other members of the public) to help us improve this draft by providing comments, suggestions, criticisms, and corrections. The feedback is documented in Annexure 15.

This 45<sup>th</sup> version contains these inputs and a few others that were finalized in a meeting on 9<sup>th</sup> July 2022 at the NAAC campus in Bengaluru.

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## Key Recommendations and Roadmap for Implementation

### I. Recommendations

#### A. *Assessment of Student Learning in HEIs*

1. The System of Assessment and Accreditation (SAA) in India must be aligned to the *National Education Policy 2020* and *Sustainable Development Goals 2030*.
2. SAA should be guided by the *purpose of education* defined as different aspects of the well-being of the individual, society, nation, and the planet.
3. Regardless of specialization and career paths, we expect all individuals with Bachelor's degrees to have certain forms of understanding, skills, abilities, and habits of mind, thereby defining the concept of educatedness as distinct from degrees and certificates. Thus, the purpose of education guides the conceptualization of *educatedness*. *General Education* would then be the curriculum that aims at educatedness.
4. General Education would be a component of all HE programs, complementing *Specialized Education*. This is directly relevant to the General Education Council (GEC) proposed by the government.
5. Central to both General Education and Specialized Education programs are the *Higher-Order Cognitive capacities*, recommended by NEP 2020, and rooted in *transdisciplinary* concepts and tools of inquiry.
6. The *quality of student learning* is at the heart of the assessment of an HEI, or of an HE program in an HEI. General Education, includes Higher-Order Cognition as an integral strand in assessing the quality of student learning.
7. A set of *National level online courses* should be developed to help all students acquire the capacity for Higher-Order Cognition.
8. A *National level test* is needed to assess student learning outcomes that result in Higher-Order Cognition in all Bachelor's degree programs, regardless of specialization and future career tracks.

#### B. *The System of Assessment and Accreditation (SAA)*

9. Central to the assessment of all HEIs is the assessment of *student learning outcome*, supplemented in the case of research universities by the assessment of the *quality and impact of research*.
10. The principles of transparency, self-disclosure, hand-holding, mentoring, incubation and ongoing quality improvement must for the basis for a robust system of accreditation.
11. The manual for assessment shall contain two parts, one covering the General Education component including higher-order cognition, and the other covering the Specialized Education component.

12. HEIs are to be accredited in a binary mode. The Units/Programs in the institutions that can design their own syllabuses and final examinations could be assessed and graded separately.
13. Technology-enabled, real-time formative assessment, implemented through the idea of “One Nation – One Data,” is needed in order to reduce the burden of HEIs in data collection/submission.
14. A Multiple-Accreditation-Agencies model under NAC needs to be developed carefully so as to meet growing needs.
15. The Indian accreditation body (NAAC/NBA/NAC) may be envisioned as an international service provider for HEIs in other Nations.

## **II. Roadmap for Implementation**

A high-power oversight committee should be constituted to oversee the implementation. The committee will form further working groups that will implement the core recommendations in this white paper. It would involve the following *parts and phases* of implementation. Some of the working groups may extend the outline in the white paper by spelling out the specifics in a series of *working papers*.

### **Part I: Student Learning**

#### ***Phase 1: Developing the General Education program (Years 1 – 2)***

As the first step, we will need to construct the following:

1. *National-level online courses* on Higher-Order Cognitive capacities: beginning with one introductory course — a trans-disciplinary introduction to Inquiry, Critical Thinking, and Problem Solving.
2. A substantial question bank for the *National level tests* on Higher-Order Cognitive Capacities: beginning with a sample of questions for the introductory course in (1) above.
3. A *professional development program* for those faculty members who would be functioning as mentors for the courses on Higher-Order Cognitive capacities.
4. *Workshops* for HEIs on the initiatives of General Education, Higher-Order Cognition, and Trans-disciplinarily.

#### ***Phase 2 – Wide dissemination of the courses (Years 3 – 5)***

Wide dissemination of the online courses and the professional development programs. The courses may be piloted with a credit transfer facility for undergraduate students.

#### ***Phase 3 – Extending to PG (Years 6 – 10)***

Refining the courses and extending the general education program for PG programs.

## Part 2: Assessment & Accreditation

### Phase 1 (years 1 – 2) for the System of Assessment and Accreditation (SAA)

During Phase 1, the focus would be on rethinking the system of assessing autonomous institutions (universities and autonomous colleges). The challenge of assessing affiliated colleges could be left for a later phase. Deliberations on accreditation, grading, and the restructuring of the manuals, can begin only after (i) the creation of a robust system of assessment based on items 1 and 2 of Phase 1 of Student Learning, and (ii) the formation of NAC and GEC, and any higher-level units of organizational structure.

During Phase 1, NAAC would be engaged in the following activities:

1. Conducting workshops for the NAAC staff, and then for HEIs, to deepen their understanding of the initiatives of General Education, Higher-Order Cognition, and Trans-disciplinarity
2. Bringing these initiatives to public attention. Stakeholder consultations, regional meetings
3. Forming working groups and brainstorming on assessing the student learning outcomes with respect to General Education, Higher-Order Cognition, and Transdisciplinarity in the different HEI categories to arrive at a framework of assessment. This framework will be reviewed by the oversight committee in consultation with experts.

The various working groups that may be formed are:

- a. Working Group for Part –A
  - b. Working Group for Part –B framework of AFC;
  - c. Working Group for Part –B framework of AUC;
  - d. Working Group for Part –B framework of TU;
  - e. Working Group for Part –B framework of RU;
  - f. Technology Enabled Group for Technology Enabled Formative Assessment in order to capture the data for assessment.
4. Initiating *harmonization* between NBA, NIRF and AISHE on (1)-(4).

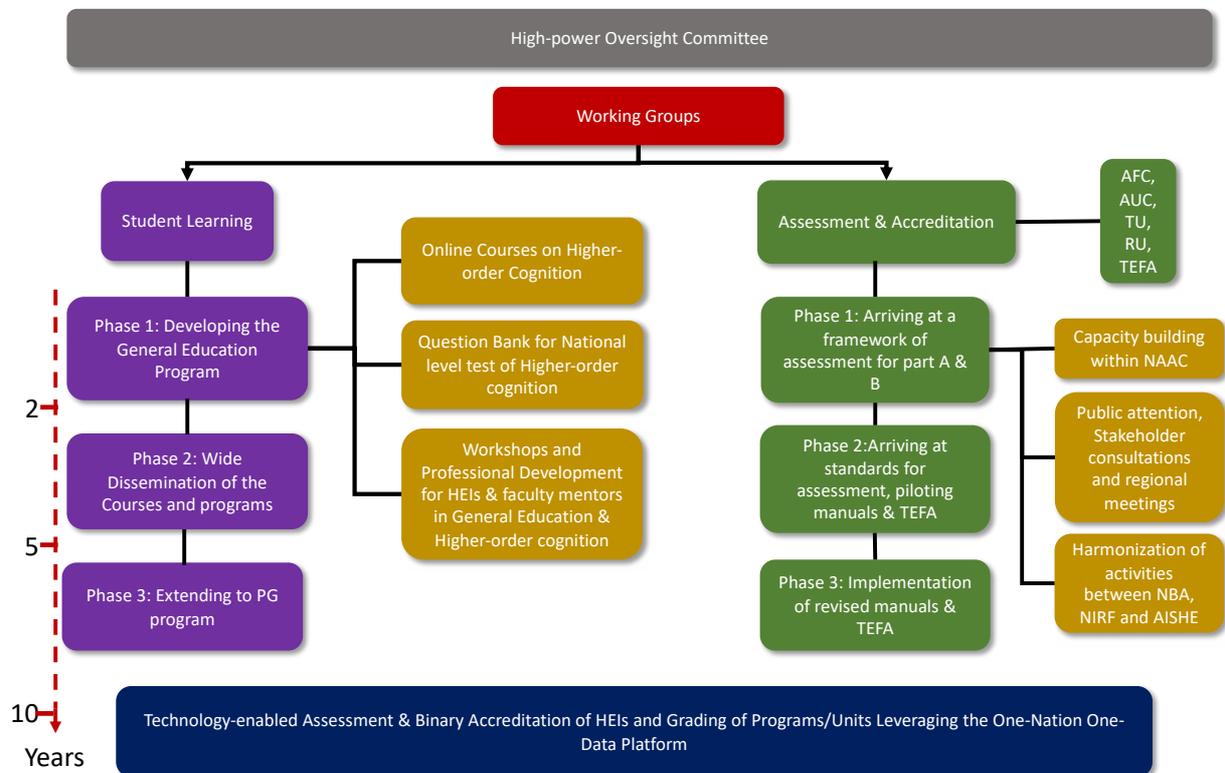
**Phase 2** (years 3 – 5), the following activities will be done

1. Further brainstorming and deliberations on expanding the framework of assessment to identify the kinds of data needed to be collected through the one-nation one-data platform along with a working group on technology enablement
2. Initiating state-level consultative meetings of stakeholders of Higher Education
3. Develop TEFA system beta version ready for testing
4. Finalization and pre-testing of manuals (Part A and B) for three/four categories of HEIs
5. Pilot the expanded framework on a few representative universities/programs to set the standards for accreditation.

**Phase 3 (years 6 – 10) will involve the following activities:**

1. Streamline the process of data acquisition from HEIs through the One-Nation One Data platform for assessment and accreditation
2. Workshops for HEIs on the data to be submitted.
3. Expand the assessment and accreditation to other HEIs and programs and refine it iteratively.
4. Optimize and implement SAA in the revised form with the new manuals
5. Optimize and implement TEFA system

**Roadmap to Implementation of the Recommendations in the White Paper**



AFC: Affiliated Colleges. AUC: Autonomous Colleges TU: Teaching Universities. RU: Research Universities. TEFA: Technology-Enabled Formative Assessment

## Executive Summary

This whitepaper is an attempt to critically evaluate the existing system and practices of the assessment and accreditation of Higher Education Institutions (HEIs) in India. The current practices based on principles formulated thirty years ago need to be aligned to the evolving concepts of learning and education, as well as the rapidly changing technology and knowledge landscape. Modern education systems globally are being redesigned with more emphasis on trans-disciplinary and multi-disciplinary perspectives, inquiry, critical thinking, and problem-solving, oriented towards the greater good of the individual and the collective, going beyond employability.

A primary focus of the whitepaper is on raising the bar of quality education and the spirit of continuous reflective striving toward greater excellence as an important function of the accreditation, beyond merely monitoring. For this, the basic objectives of education and of the assessment of its outcomes must get aligned to the spirit of the National Education Policy (NEP) 2020 and Sustainable Development Goals 2030, which can be unified by formulating *the ultimate purpose of education in terms of **the well-being of the individual, society, nation, the human species, and the planet with all its creatures.*** At the heart of the proposals in this paper is that idea of well-being.

To move towards that purpose, we need to accept **educatedness** as the shared learning outcomes that all HEIs must aspire to, regardless of the specialization and career paths of the learners. Central to educatedness are what NEP 2020 calls **higher-order cognitive capacities**, which can be viewed as the strands of the intellectual dimension of well-being. This requires effecting significant reforms in the existing system.

The National Assessment and Accreditation Council (NAAC) was established in the year 1994. Its mandate stated in MoA is to grade “institutions of higher education and their programs”, and “realize their academic objectives,” to raise the quality of higher education (and research) in India. This whitepaper is an attempt to critically evaluate the strategies adopted so far toward this aim, and explore potential initiatives to improve its functioning to help the nation become one of the world leaders in higher education.

To actualize this dream, we need to re-imagine the entire system of assessment and accreditation, such that its scope covers the value, effectiveness, and efficiency of what tertiary students learn in their courses, shaped by the quality of the design and implementation of programs in HEIs, as well as the way HEIs function to help their departments and programs do their best. And that re-imagining must start with the very purpose of education as an answer to a fundamental question: *why do we educate the young?*

As stated above, this paper adopts the formulation of the purpose of education in NEP 2020 as empowering learners to strive towards their own well-being, as well as that of the society, nation, humanity, and the planetary ecosystem. Such well-being has multiple dimensions: physical, pragmatic, societal, emotional, intellectual, ethical, aesthetic, and spiritual. Given this conception of the purpose, we need to think carefully about the means that NAAC can employ to guide our HEIs to help their departments and programs raise their quality higher than they currently are, as an ongoing pursuit.

We propose assessment-based accreditation (binary) of HEIs as per NEP 2020 and, assessment-based grading for their Units and Programs. The quality of the Programs of higher education, and hence the HEIs that host them, need to be evaluated in terms of (a) the value of their goals reflected in the learning outcomes they aim at, and (b) the effectiveness and efficiency of the means they employ to achieve those goals.

All educational programs need to pay attention to the goals of **General Education**, that is, the information, understanding, skills, abilities, and mindset that we expect of all educated individuals, regardless of their specialization or career paths. This ought to be a component of every program of higher education. The goals of **Specialized Education** are relevant for particular disciplines or professions, whether philosophy, physics, chemistry, medicine, law, engineering, etc.

The paper outlines some of the components of the intellectual dimension of well-being, adopting the concept of Higher-Order Cognition proposed in NEP 2020. These include the capacities for **self-directed independent learning, critical reading, critical thinking, rational inquiry, innovative problem solving, and clear, precise, and effective communication**. For further illustration, the paper spells out the strands of abilities and understanding that are needed for rational inquiry, as a component of General Education. General Education would also include other strands of education, such as **pragmatic abilities, societal and emotional aspects, ethics, citizenry, and aesthetics**.

Presently, NAAC undertakes only institutional accreditation. It seems to have constituted expert groups working on Program Accreditation. We propose Assessment-based Accreditation (binary) for the four categories of HEI as recommended by NEP 2020, namely, Affiliated Colleges (AFCs), Autonomous Colleges (AUCs), Teaching Universities (TUs), and Research Universities (RUs). This would include institutions of professional education, traditional knowledge systems, and what has been called vocational training.

The criteria of evaluation common to all categories must be clearly spelled out, along with the additional criteria specific to each category. This means that a common manual must be developed, with subsections for each category. The constituent units and programs under HEIs may also be assessed and the programs may be accredited based on the

expected graduate outcomes. The current system of grading (A to C) may be adopted by NAAC if required. Whether to opt for assessment and accreditation of any specific units or programs will be at the discretion of HEIs.

To implement these recommendations, it is necessary to develop an effective and efficient rubric for assessment, accreditation, and grading. We define assessment as the process of arriving at a judgment on the merit or value of something. This is the same as evaluation, which is judging the value of something. The rubric has to begin with an articulation of the purpose of education, such that HEIs and their programs can flesh it out in terms of *educatedness*, *Higher-Order Cognitive capacities*, *General Education*, and *Specialized Education*. The paper also examines some of the current pursuits, such as employability and use of technology, and aspires to extend NAAC's reach globally by adopting international best practices.

In sum, this paper recommends outcome-based Assessment and Accreditation (binary) for HEIs, and assessment-based Grading for their Programs. To improve the quality of Indian higher education and its expected outcomes, this paper offers a novel strategy to transform the system, from the current summative assessment to a summative-and-formative assessment based on multiple sources of evidence, focusing on teaching and research outcomes in institutions of higher education. With such a novel robust System of Assessment and Accreditation (SAA), NAAC/NAC may aim to emerge as a credible international accreditation agency extending its services to other countries.

We hope this exercise of re-imagining the assessment and accreditation in the Indian Higher Education System will help to catalyse the implementation of the recommendations in NEP 2020 in its right spirit of providing high-quality higher education, and thereby achieving the goal of *AtmaNirbhar Bharat* on the occasion of *Azadi Ka Amrit Mahotsav*.

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# Re-imagining Assessment and Accreditation in Higher Education in India

## 1 Introduction: Perspective and Context

### 1.1 *Why Re-imagine Assessment and Accreditation?*

1.1.1 The National Assessment and Accreditation Council (NAAC) will be entering its 30<sup>th</sup> Year in 2023. The higher education system in India has gone through several transitions over the last three decades. It must be appreciated that during these years NAAC has made a positive impact on the Indian Higher Education Institutions (HEIs). NAAC has achieved high credibility, acceptability, and stakeholder satisfaction, as evident from recently conducted surveys (Annexure 1). These surveys also indicate that about 80% of stakeholders have indicated the need for reforms. It is now time to take a critical review and do a careful study with an understanding of the value of the learning outcomes aimed at, and the effectiveness and efficiency of the means to achieve these outcomes to shape the future vision and roadmap.

1.1.2 The National Education Policy (NEP) 2020 is a forward-looking visionary document. It has provided a fresh perspective and made several important recommendations. NEP 2020 has addressed the very purpose of education stated as: “to develop good human beings - capable of rational thought and action, possessing compassion and empathy, courage and resilience, scientific temper and creative imagination, with sound ethical moorings and values”. It also states: “A holistic and multidisciplinary education would aim to develop all capacities of human beings - intellectual, aesthetic, social, physical, emotional, and moral - in an integrated manner.”

1.1.3 NEP 2020 has also taken a very progressive view on bringing innovation to education and has indicated necessary reforms in the education system. Alongside, the University Grants Commission (UGC) Quality Mandate provides strategies to improve the quality of education. The Sustainable Development Goals (SDGs) also need to be integrated into the education system. Finally, digital technology, artificial intelligence, data analytics, blockchain, and such advances offer new analytical tools relevant to the education sector.

1.1.4 Given this context, it is important that NAAC revisits, rethinks, and re-imagines the entire approach, methodology, processes, outputs, and outcomes of education to align

them to the true spirit of NEP 2020 to facilitate a continuous process of quality improvement of higher education.

## 1.2 *A Brief History*

1.2.1 In response to the recommendations of the National Policy in Education (1986), the UGC established NAAC in 1994 to serve the function of Quality Assurance. The concept of *Quality Assurance* (QA) originated in the field of business management and spread throughout the world in the 1950s and the early 1960s. (*European Student Handbook on Quality Assurance in Higher Education*, at:

<http://www.aic.lv/bologna/Bologna/contrib/ESIB/QAhandbook.pdf>)

When the institution of education became a branch of the institution of business, and leaders of education were identified as a subset of the leaders of business, the concept of QA spread to education management with its associated concepts of quality control, deliverables, accountability, performance indicators, stakeholders, customer satisfaction, marketing campaigns, licensing, outsourcing, and best practices.

1.2.2 While it is true that in the last half-century, education has been widely viewed as a marketable commodity, it was not so a few centuries ago, particularly during the *Gurukula* period (also known as the early Vedic period of education in the Indian Subcontinent) when education was viewed as holistic development of the individual along all dimensions, with the ability to contribute to global well-being. Mahatma Gandhi's *Nayi Talim* approach, Vinoba Bhave's trilogy involving head, heart, and hands, and Sri Aurobindo's integral education capture the spirit of education for life. If we value the kind of education that flourished during the Vedic period, and later in Nalanda and Takshashila, and what was expected to be adopted by independent India as articulated by Prof J.P. Naik and many others, we have an important responsibility: to be wary of the business roots of QA and the way it has shaped Assessment and Accreditation to imbibe a relatively new trend of global and national rankings.

1.2.3 The emphasis placed on employability in Higher Education and the use of gap analysis in QA are examples of how the culture and terminology of business management, which sees education as a marketable commodity, have infiltrated the culture of education. Both these concepts run the risk of making us blind to the very nature and purpose of education.

1.2.4 In sum, the rise of education as a business has had the effect of our losing sight of what was highly valued in the culture of education in the ancient times. This paper is partly an attempt to bring back what we lost in the colonization of the academic ethos by the corporate culture.

## 2 The Core Concepts

### 2.1 *The Concepts of HEI, Higher Education, Educating, and Teaching*

2.1.1 An HEI is: *an educational institution that offers learning experiences, leading to the conferring of a degree, as distinct from certificates and diplomas.*

High school education leads to a high school diploma, the International Baccalaureate program leads to an IB diploma, and the Cambridge Board confers certificates. Given our definition, none of these count as ‘Higher’ Education: only those educational institutions that award degrees — Bachelor’s, Master’s, or PhD — qualify as HEIs.

2.1.2 To understand the concept of **education**, it is crucial to compare the process of **educating** with the process of **teaching**.

Teaching is of two kinds, both tied up with the concept of knowledge. On the one hand, we say, “My teacher taught me **that** a molecule of water has two atoms of hydrogen.” This is a **know-that** form of knowledge; it includes providing **information**, making someone **believe** something, or helping someone **understand** something.

The other concept of teaching is found in statements like: “My teacher taught me how to repair a bicycle,” and “My thesis advisor taught me how to do research.” This is a **know-how-to** form of knowledge, which involves helping someone acquire a skill, ability, or capacity. At a basic level, this is a matter of **skills training**, as in ‘20<sup>th</sup>-century skills’. At the other end, it involves **capacity building**, as in ‘capacity for rational inquiry’, ‘capacity for creative problem solving’, ‘capacity for creating new knowledge’, and so on. This requires significant involvement of the mind.

2.1.3 Of these, the concept of teaching implied in “the teacher taught the learners that the earth is flat/round,” is problematic, because that form of teaching results in the transferring of the teachers’ beliefs to the learners. This is a form of indoctrination, and hence against the spirit of 51A(h) of the Indian constitution. Teaching ought to provide information and understanding, not indoctrinate learners.

2.1.4 While training is limited to skills and information, education needs to go beyond information and skills to **educating the mind**, which involves understanding and capacity building, as well as developing appropriate predispositions, attitudes, and values. In short, the process of education that leads to degrees in HEIs must involve educating the mind.

### 2.2 *The Purpose and Function of Education*

2.2.1 Central to this white paper is the axiom that

*The ultimate purpose of education is the well-being of the individual, society, nation, the human species, and the planet with all its creatures.*

2.2.2 The concept denoted by the term ‘well-being’ has also been variously called ‘flourishing’, and eudaimonia (in Aristotle’s philosophy). The ‘happiness index’ of a nation is an attempt to capture the well-being of a nation.

2.2.3 The specification, ‘the individual, society, nation, the human species, and the planet with all its creatures,’ captures the **levels** of well-being. For educational programs to aim at these levels of well-being, we also need to specify its **dimensions**, as follows:

**TABLE 1: Levels and Dimensions of Well-being**

LEVELS	DIMENSIONS
<ul style="list-style-type: none"> <li>• <b>Individual</b></li> <li>• <b>Family</b></li> <li>• <b>Society</b></li> <li>• <b>Nation</b></li> <li>• <b>The Human Species</b></li> <li>• <b>The Planet</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Physical-Biological</b></li> <li>• <b>Pragmatic-Economic</b></li> <li>• <b>Societal</b></li> <li>• <b>Emotional</b></li> <li>• <b>Intellectual</b></li> <li>• <b>Ethical</b></li> <li>• <b>Aesthetic</b></li> <li>• <b>Spiritual</b></li> </ul>

2.2.4 These dimensions and levels combine in intricate ways; e.g., the ethical well-being of an individual, the economic well-being of a society, the physical well-being of an individual, the societal well-being of a nation, the emotional well-being of an individual, the intellectual well-being of a research community, and so on. These combinations shed light on important issues of well-being that need to be tackled:

- i) A society that suffers from inequity, sexism, discrimination, corruption, and so on, or prioritizes money over ethical or intellectual values, is an ethically unhealthy society.
- ii) A legal system that allows the poor to be brutally punished and the rich to go unpunished is an ethically unhealthy system.
- iii) Economically poor individuals and groups lack economic well-being. If a significant part of the population of a nation lacks economic well-being, and the gap between the richest and poorest is large, the nation itself lacks economic well-being. This suggests that instead of interpreting the term ‘Wealth of the Nations’ in terms of GDP or ‘economic development’, we should interpret it as the economic

well-being of the nation, in terms of the resources available to all, not money concentrated among a few.

- iv) A nation in which educated people believe whatever they see in social media suffers from serious intellectual ill-health.
- v) A nation in which a significant number of individuals are absorbed in their smartphone screens and are unable to regulate their feelings of anxiety and stress lacks societal and emotional well-being.
- vi) A nation in which a significant part of the population feels no remorse for wrongdoing, and has no consideration for fellow creatures, lacks ethical well-being.

2.2.5 Given these remarks about the ultimate purpose of education, the function of education can be articulated as follows:

*The ultimate function of education is to **empower the young to strive towards** their own well-being and the well-being of their society, nation, the human species, and the planet with all its creatures.*

### 2.3 Educatedness and Well-being

2.3.1 When designing curricula for HEIs, one way to fulfill the above function of education is to ensure that HEIs provide ample opportunities for students to become ‘educated’ individuals, where ‘educatedness’ is defined in terms of the capacity to strive towards their own well-being and the well-being of others.

***Educatedness***: the capacity to strive towards their own well-being and the well-being of others.

2.3.2 Any attempt to rethink higher education must begin with a sufficiently clear and precise response to the fundamental question, “*What do we want learners to learn?*” which can be elaborated as follows:

*“Who is an educated person? What do we expect an educated individual to: be familiar with, understand, and be able to do, regardless of degrees and certificates, specializations, and careers/occupations?”*

*What habits of mind, attitudes, predispositions, and values should the program nurture?”*

2.3.3 These are questions we must discuss and debate at the national level among all stakeholders of education: students, parents, educators, education administrators, employers, and the government. As a starting point for collective thinking and discussion, however, let us define ***educatedness*** as:

the set of intelligences that empower individuals to strive for their own well-being and the well-being of the society, nation, humanity, and the planet.

2.3.4 Well-being is a desired state. Intelligence is the capacity to do things with one's mind to achieve what we wish to achieve. Conceptualized this way, the intelligences that are aligned to the different dimensions of well-being can be formulated as follows:<sup>1</sup>

#### **A. Academic Intelligence**

##### 1. Independent learning, reading, comprehension and communication:

- the capacity for independent learning: intellectual curiosity, combined with the ability to learn from sources of documented knowledge in the library or on the Internet, independently of teachers and schools;
- the ability to read/watch, understand, and critically evaluate articles, books and videos meant for educated non-specialists.;
- the capacity to communicate ideas and feelings with clarity and precision.

##### 2. Information and Understanding:

- the know-how to access relevant information;
- the abilities needed for participating intelligently and effectively in a discussion or debate on a public issue;
- critical understanding of the evidence and arguments in favour of the core ideas of academic knowledge, as well as against them.

##### 3. Construction and Evaluation of Knowledge:

- the capacity for critical thinking, inquiry, and integration, which includes thinking like a mathematician-philosopher-scientist without requiring specialized knowledge, combined with thinking like a designer-inventor-engineer-doctor-manager-leader-entrepreneur;
- the capacity to arrive at conclusions through careful reasoning.
- the capacity to live in and appreciate the world of ideas and critically engage with those ideas, including the beauty of a mathematical proof, or the wonder and elegance combined with the uncertainties and heartaches of the process of discovery (e.g., the journey from classical mechanics to quantum mechanics and relativity),
- the capacity to gather data to test an empirical claim;
- the ability to sift away propaganda, myths, and dogma in search of truth in an age of fake news;

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<sup>1</sup> This list of attributes, not covered anywhere so far, is different from the Program Outcomes in NBA. These must be fleshed out as the guiding principles in assessment.

- the capacity to reason and to spell out the steps of reasoning in a variety of contexts;
- the capacity to make informed rational and ethical decisions based on ethical principles shared across human communities;
- awareness of and fine-tuning to the extent possible other cognitive capacities such as perception, introspection, attention, intuition, insight, imagination, memory, and problem-solving;
- the capacity to pursue courses of action to achieve the goals derived from one’s value system, and critically examine the rationality of the link between actions and the value system they are grounded in.

4. Attitudes, Values, and Habits of Mind:

- a joy of learning, and intellectual curiosity, combined with intellectual humility;
- academic habits of mind such as looking out for counterexamples to knowledge claims; detecting logical contradictions; being aware of one’s own biases; and clarity and precision of communication;
- a deep awareness of the uncertainty and fallibility of human knowledge;
- the ability and the mindset to engage critically with what one reads/listens to, and decide for oneself whether to accept, reject, or set aside for later review what the writer/speaker claims (critical reading).
- the ability and the mindset to think critically, to examine the relevant considerations for assessing the merit of knowledge claims, proposals for action, policies, products, and so on, where ‘merit’ includes truth, ethical goodness, usefulness, relevance, significance, and beauty. This calls for the mindset of doubting and questioning oneself as well as others; the ability to encourage and accept reasonable (and reasoned) objections (critical thinking);
- a commitment to the values of truth, rationality, clarity, and rigor of thinking;
- a democratic mindset in the exchange of ideas and beliefs.

**B. Pragmatic Intelligence:**

- the capacity to work for the *economic well-being* of oneself, the community, the nation, and the human species.
- the capacity to engage in *reflective action and practice* to achieve goals of value to oneself and others, in personal, professional, and public domains. This is particularly important for professional programs in medicine, engineering, law, management, entrepreneurship, education, social work,

administration, governance, and industry, all of which call for *the integration of the pragmatic with the intellectual and the ethical*.

**C. Ethical Intelligence:**

- the ability to make decisions on the moral rightness and wrongness of actions and practices, rooted in the ethical values (compassion, non-violence, truthfulness, fairness, justice, ...) shared across humanity, combined with careful reflection and reasoning.

**D. Physical Intelligence:**

- sensitivity to the importance of physical health for one’s own sake as well as that of the others, and
- basic knowledge of taking care of one’s own physical health.

[For an HEI to aim at D, its curriculum should include a broad understanding of issues of mental and physical health and illness, and an extracurricular provision for such things as sports, yoga and games. It should also have a unit devoted to the physical and mental health of the students, which will educate students in these matters, and provide consultation and training in coping with physical and mental health.]

**E. Citizenry:**

- an awareness of and commitment to one’s rights and responsibilities as a member of a community, country, and humanity;
- a sense of global citizenship and sustainable living;
- a set of qualities that come under ‘character’, such as honesty, integrity, courage, and self-discipline.

**F. Societal and Emotional Intelligence**

- the ability to regulate one’s attention and emotions, such that one can engage with life’s demands, with unfamiliar situations, and with fellow human beings, in a rational, ethical, and mature way
- a set of qualities that characterize a ‘good’ human being, such as empathy, compassion, consideration for others, gratitude, stamina, grit, and so on.

**G. Aesthetic Intelligence**

- an appreciation of beauty across different forms and traditions of art; and
- the ability to defend aesthetic judgments based on shared perceptions and shared aesthetic values.

**H. Spiritual Intelligence**

- a deep concern for the purpose and meaning of life;

- the disposition to dedicate one’s life to a quest that goes beyond oneself, and
- openness to the experience of awe and wonder of what is beyond oneself.

[To this inventory, one may add character traits such as honesty, integrity, tenacity, fortitude, tactfulness, decisiveness, self-reliance, willingness to learn from peers and ‘subordinates’, cultural sensitivity, and so on, even though most of these traits are acquired from the home environment and during early education.]

2.3.5 What we have articulated in A-H is an expanded version, with further details, of what NEP 2020 says in section 11.3:

“A holistic and multidisciplinary education would aim to develop all capacities of human beings - intellectual, aesthetic, social, physical, emotional, and moral - in an integrated manner. Such an education will help develop well-rounded individuals that possess: critical 21<sup>st</sup>-century capacities in fields across the arts, humanities, languages, sciences, social sciences, and professional, technical, and vocational fields; an ethic of social engagement; soft skills, such as communication, discussion, and debate; and rigorous specialization in a chosen field or fields. Such a holistic education shall be, in the long term, the approach of all undergraduate programs, including those in professional, technical, and vocational disciplines.” (p. 41)

2.3.6 Adapting Howard Gardner’s idea of *multiple intelligences* (at [https://en.wikipedia.org/wiki/Theory\\_of\\_multiple\\_intelligences](https://en.wikipedia.org/wiki/Theory_of_multiple_intelligences)), what we have outlined in A-H can also be described as ‘intelligences: e.g., pragmatic intelligence, academic intelligence, emotional intelligence, societal and interpersonal intelligence, spiritual intelligence, aesthetic intelligence, and so on. If so, the attributes that NEP 2020 describes as **higher-order cognition** would come under academic intelligence.

2.3.7 As pointed out earlier, it is important to recognize the critical role of ‘doing’ as an integral part of ‘knowing’. The ability to convert knowledge into action to achieve one’s goals for the betterment of self and society is an essential part of ‘educatedness’. And if we define intelligence as the ability to do things with our mind and body to achieve the goals we value, then intelligences can also be conceptualized as **capabilities**.

2.3.8 This approach would take us to the idea of educatedness as capabilities in Martha Nussbaum’s work, and to develop as human flourishing in Amartya Sen’s work, the latter leading to the concept of the goals of education framed in terms of capabilities needed for working towards human well-being and flourishing.

2.3.9 The capability approach is normative in that it draws on the Aristotelian notion of the ‘good life’. It views the well-being of the individual in terms of her capability to ‘be’ and to ‘do’ things that she values the most, and the actual realization of some of these

capabilities, termed as functioning. The freedom to choose capabilities and actively realize them (functionings) “depend crucially on what institutions exist and how they function.”

## 2.4 *Higher-Order Cognitive Capacities and Academic Intelligence*

2.4.1 We now turn to what NEP 2020 calls it Higher-Order Cognition. Given section 2.3, we see that the nurturing of ***Higher-Order Cognitive capacities*** is the same as nurturing Academic Intelligence:

“... education must develop not only cognitive capacities - both the ‘foundational capacities’ of literacy and numeracy and ‘higher-order’ cognitive capacities, such as critical thinking and problem-solving – but also social, ethical, and emotional capacities and dispositions.”

2.4.2 As indicated in this quote, the recommendations call for a form of education that aims at learning outcomes along two dimensions. The first involves cognitive capacities, both foundational and higher-order. The second involves developing social, ethical, and emotional capacities and dispositions.

2.4.3 The higher-order cognitive capacities that NEP 2020 expects students to develop may be viewed as those of *academic cognition*: the abilities required for thinking like mathematicians, scientists, philosophers, historians, literary critics, and so on. These abilities need to be grounded in an understanding of the concepts of academic knowledge and inquiry. Academic cognition is the combination of these abilities and understanding.

2.4.4 Foundational literacy includes the ability to read and write words and sentences. *Higher-order literacy* is the ability to process and communicate academic knowledge through spoken and written forms of language. Similarly, foundational numeracy calls for familiarity with numbers and the arithmetic skills of adding, subtracting, multiplying, and dividing. Higher-order numeracy is essentially the thinking that goes into making sense of numerically coded information. Both literacy and numeracy of the higher order involve cognitive capacities like critical thinking, problem solving, etc., which are rooted in transdisciplinary concepts and tools of inquiry such as those in Table 2 below. These transdisciplinary concepts and tools, derived from the norms of academic inquiry, will help in intellectual well-being – in terms both of liberating the mind from indoctrination and of producing new knowledge that is useful for the society and the nation.

**TABLE 2: An inventory of Transdisciplinary Tools and Concepts**

Transdisciplinary Tools	Transdisciplinary Concepts
<ul style="list-style-type: none"> <li>• Observing; Reporting observations; Describing</li> <li>• Creating and Using Observational Frameworks</li> <li>• Categorizing; Sampling; Generalizing; Abstracting</li> <li>• Identifying Counterevidence, including Counterexamples</li> <li>• Reasoning; Explaining; Predicting (deducing logical consequences)</li> <li>• Justifying; Proving (arguing in support of or against)</li> <li>• Debating; Articulating; Communicating</li> </ul>	<ul style="list-style-type: none"> <li>• Structure; Function; System</li> <li>• Entity; Property; Relation; Process</li> <li>• Change; Development; Evolution; History</li> <li>• Invariance and Variability</li> <li>• Phenomena and Explanation</li> </ul>

These transdisciplinary tools and concepts of inquiry and integration are important not only for developing the higher-order cognitive capacities as part of academic cognition, but

also for the ‘academic temper’ that results from their practice, academic temper being a more generalized form of ‘scientific temper’ that is articulated in Section 51-A(h) of the Indian Constitution, and extends to the well-being along other dimensions including the societal, emotional, ethical, and spiritual.

***Academic temper:*** a generalized form of ‘scientific temper’, extending to well-being along all dimensions — the intellectual, societal, emotional, ethical, spiritual...

These abilities and capacities can also be developed through the intertwining of the general education components with specialized education. An indicative inventory of the desired abilities, capacities, mindsets, and habits of mind along the intellectual dimension is listed in Section 2.3.

2.4.5 The recently published National Higher Education Quality Framework by the University Grants Commission is a step in the direction towards defining the graduate attributes. However, it may stand to benefit if the framework is strengthened in harmony with the General Education and Higher-order Cognition based on Transdisciplinary tools advocated in this white paper.

## 2.5 *Employability, Well-being, and the Purpose of Education*

2.5.1 There has been a great deal of discussion in recent years about the employability of the 'educated' young in India. Some of these concerns can be summarized as:

- a) CEOs of big companies complain that Indian graduates are not 'employable'.
- b) Accepting (a), entrepreneurs set up companies to do 'research' on employability to confirm what these CEOs have been saying.
- c) Yet other entrepreneurs set up companies and offer solutions for the findings of (b), appealing to such things as EQ, soft skills, 21<sup>st</sup>-century skills, and Education 4.0.
- d) Accepting (a)-(c), decision-makers introduce courses on such things as Artificial Intelligence and (management) leadership in secondary school curricula.
- e) Parents send their children to courses that offer 'scope' (where 'scope' is equated with 'high salary').

2.5.2 The overemphasis on placements is probably happening since the colonial periods when Indians went in for education to get jobs within the British system. Agreeably, in the modern world, people expect good career-linked employment after receiving a high-quality education. Career progression is certainly a measure of quality education. However, currently, we are witnessing worrisome signs of a socio-cultural transformation in which the concept expressed by the term 'education' turns into:

*what lends itself to making large profits; and*

*what allows the young to grow up into high-salaried employees.*

2.5.3 It would therefore be useful to take a careful look at the current concept of employability. We should ask ourselves how employability connects to educatedness, assuming that *the function of educational institutions is to help the young become educated*, not merely to offer them degrees and certificates (or even 'skills') which have high market value in multinational corporations.

2.5.4 The question that is repeatedly raised in the discourse on employability is:

What are the 'key competencies' needed for employment?

A brief look at the literature on soft skills, 21<sup>st</sup> century skills, and education 3.0 and 4.0 yield a list of these key competencies, the most important of which are:

- the capacity for independent learning (translated as the capacity to learn what the industry wants them to learn),
- the ability to work in teams,

- personal intelligence,
  - the capacity to communicate clearly and persuasively,
  - the ability to solve problems and make decisions,
- and so on.

All of these competencies are framed with specific reference to the demands of the workplace and viewed from the perspective of employers. Granted that finding employees is important for the industry, why is employment (including self-employment and entrepreneurship) important for graduates? The obvious answer is: for their ***economic well-being***.

2.5.5. But then, employment is not the only mode of income for economic survival and flourishing. One can make a good living by being a freelancer, a consultant, or an entrepreneur, without being an employee. So let us generalize *employability*, framed in terms of the needs of the industry; and *money-making capacity*, framed in terms of the needs of the young adult. In the language of well-being, money-making capacity translates as *economic well-being*, the *capacity to have adequate economic resources to survive and lead a comfortable life*.

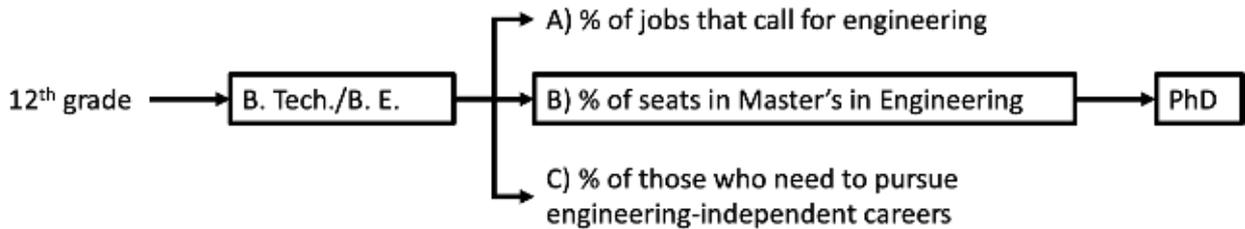
2.5.6 As a concrete example of ‘employability’ and economic well-being, consider those who complete a BEng or BTech degree. There are three questions that we need to answer:

**Question 1:** How many jobs are there in India that requires BEng/BTech graduates?

**Question 2:** How many seats are there for Master’s in Engineering/Technology in India?

**Question 3:** What capacities do BEng/BTech graduates need in order to make a decent living outside of Engineering and Technology?

2.5.7 Given the small number of engineering jobs and the large number of engineering graduates, it is bound to be the case that many engineering graduates would not find engineering jobs. That is, they would be ‘unemployed’. This is inevitable even if our engineering education is the best in the world: it is meaningless to mourn about it. Instead, what we should do is to find out what percentage of graduates can be absorbed in engineering jobs, what percentage of Bachelors in Engineering/Technology can be absorbed into Master’s programs, and what percentage of them would need to look for other careers, such as business management, government jobs that do not require engineering, entrepreneurship, and a whole range of other jobs.

**FIGURE 1: Trajectories of Engineering Graduates**

If  $N\%$  of engineering graduates are in category C, the weightage for Higher-Order Cognitive Capacity in BE and BTech curricula should be  $N$ . Until that switch is made, our engineering graduates will not have economic well-being: they will be unhappy, frustrated and disgruntled, which will contribute to a lowering of well-being for the Nation.

2.5.8 Having replaced the concept of employability with the concept of economic well-being, we should still ask: is economic well-being the sole purpose of higher education? Obviously not. The capacity to pursue economic well-being is only one form of well-being. As NEP 2020 points out, the process of formal education ought to empower learners also with the capacity to pursue other forms of well-being: physical-biological, societal, emotional, intellectual, ethical, and aesthetic well-being. If we interpret the spiritual dimension of life as the yearning to find purpose and meaning in life and to dedicate at least part of one's life to something beyond oneself, then education should also develop the capacity to pursue *spiritual well-being* (or at least to value it).

2.5.9 *Educatedness* gives us the capacity to pursue well-being along all these dimensions. From this perspective, employability is only one of the components of the capacity to pursue economic well-being, which in turn is just one of the components of well-being in general. Economic well-being is an important consideration in the design of curricula, but the shrill hype of employability is not only unbalanced but also harmful to the human future when pursued at the cost of other forms of well-being.

## 2.6 Fundamental Axioms of Education

2.6.1 The central axioms of curriculum design that the paper assumes can now be articulated as follows:

- a) The ultimate *purpose of education* is the well-being of the individual, society, nation, humanity, and the planet with all its creatures.

- b) The ultimate *function of education* is to empower the young to strive towards their own well-being and the well-being of their society, nation, the human species, and the planet with all its creatures.
- c) The *dimensions of well-being* include: physical-biological, pragmatic-economic, societal, emotional, intellectual, ethical, aesthetic, and spiritual.
- d) What students *learn from a program* of education must be of value to them after their graduation, as well as to the purpose in (a).

2.6.2 The alignment with well-being would be reflected in the ***educatedness*** component of Higher Education. The intellectual dimension of educatedness will be translated as ***Higher-Order Cognitive capacities***. All educational programs need to pay attention to the goal of *educatedness* with focus on *Higher-Order Cognitive capacities*.

Higher-Order Cognitive capacities must appear in ***General Education***, that is, the information, understanding, skills, abilities, and mindset that we expect of all educated individuals, regardless of their specialization or career paths. It must also be part of ***Specialized Education***, the goals of which would be relevant for particular disciplines or professions, whether philosophy, physics, chemistry, medicine, law, engineering, etc.

***General Education:***  
the information, understanding, skills, abilities, and mindset expected of all educated individuals, regardless of specialization or career paths.

***Specialized Education:***  
relevant for particular disciplines or professions

### 3 Central Questions

3.1 As required by the original briefing in the NAAC MoA, the assessment of HEIs should include not only matters at the institutional level, but also at the level of Units and Programs, such that we can evaluate the value, effectiveness, and efficiency of what the students in the HEI end up learning, and, where relevant, the quality and quantity of its research. Since the component of education is the core of an HEI, it would be useful to take a more careful look at this strand of evaluation.

3.2 The central questions that ought to guide the System of Assessment and Accreditation (SAA) of HEIs are:

- Question I:** What is the brief for the educational programs (Bachelor’s, Master’s, and PhD) of the HEI under consideration? That is to say, what is their expected function?
- Question II:** Within that brief, how valuable are the learning outcomes (information, understanding, skills, abilities, habits of mind...) that those educational programs aim at?
- Question III:** How effective and efficient are the means that the programs employ to achieve the aims in (II)?

3.3 For instance, if the function of an HEI includes PhD programs that seek to train research students (e.g., RUs), how aligned are the teaching-learning materials, classroom practices, assessment, infrastructure, learning resources, educational policies and governance, leadership and management, and institutional culture towards those goals? If the function of a Bachelor’s program is that of educating students whose future career options are unknown, and if the educational goals include the Higher-Order Cognitive abilities that NEP 2020 recommends, how aligned are the teaching-learning materials, classroom practices, assessment, infrastructure, learning resources, educational policies and governance, leadership and management, and institutional culture towards these goals?

It is necessary to create a rubric of evaluation that nudges HEIs to adopt the recommended practices. This point is discussed separately in a later section.

## 4 Functions of a System of Assessment and Accreditation

### 4.1 Definitions

To engage more deeply with the question raised in section 1.1, namely, “Why do we need to rethink the existing mechanisms of assessment and accreditation of Higher Education Institutions (HEIs) in India?” it would be useful, to begin with clarifications of some of the central concepts in assessment and accreditation:

**Assessment and Evaluation:** Assessment is the process of arriving at a judgment on the merit of something, based on multiple sources of available evidence. Evaluation is *assigning a value* to something. It could be assigning a monetary value in the case of a curator assigning a price for a work of art, or the government official assigning a price for a piece of land. Assessment, in contrast, is the process of *making an estimate of the quality* of something. In order to evaluate something, we need to make an assessment of its quality first. Assessment includes both self-assessment and assessment by others. The purpose of assessment by others (e.g., the teacher’s assessment of the students’

learning) could be (a) diagnosis: to figure out the students' problem(s) and to plan remedial interventions, including formative feedback to the students, or (b) to assign a grade or marks to the students' learning, in which case it is evaluation. Evaluation of a piece of land by a government official or of an antique by an expert does not involve any of these: all that it is assigning is a monetary value.

**Accreditation:** a certification, resulting from a valid form of assessment based on clearly articulated transparent criteria, made by an official assessor or assessing body, to the effect that what is under consideration meets the criteria and standards of quality to perform its expected and explicitly articulated function.

**Approval:** A legal sanction for an HEI to function, a form of licensing. When the government makes a positive decision on a request to allow the setting up of a new HEI, it counts as an approval, not accreditation, because at that time we are not in a position to make an assessment of the quality of the functioning of the HEI. Accreditation comes later, at least after five years of the functioning of the HEI.

**HEIs:** Educational institutions that offer learning experiences that lead to the conferring of degrees. According to NEP 2020, they include five categories, as recommended by NEP 2020, namely, Affiliated Colleges (AFC), Autonomous Colleges (AUC), Autonomous Units (AU), Teaching Universities (TU) and Research Universities (RU). It might be necessary to refine this classification.

**Units:** These may include any constituent body such as Schools, Departments, Centers, Area Studies etc. involved in education and research.

**Programs:** A program is a collection of courses that lead to a degree such as B.Sc. (Physics), M.Sc. (Botany), etc. (to generalize, Bachelors in X, Masters in Y, PhD in Z). Thus, they include specific undergraduate programs (BSc, BA, MBBS, BE, BTech,...), postgraduate programs (MSc, MA, MBA...), and doctoral programs (PhD, DLitt, ...)

**Manual:** A document that outlines the criteria for accreditation and the processes to be adopted for assessment.

**Affiliated Colleges:** Colleges that fall under the administration of a university and follow the syllabus prescribed by the University to which they are affiliated. They do not set their own question papers. They are primarily teaching HEIs in which faculty members do not necessarily hold a PhD.

**Autonomous colleges:** Colleges that have complete administrative autonomy and can confer UG, PG and PhD degrees (definition from UGC).

**Teaching University:** *A teaching-intensive university where the faculty members hold a PhD, but the institution is not mandated to do research*

**Research University:** *A research-intensive university where the faculty members hold a PhD and engage in research.*

**Evaluation:** Evaluation refers to checking for the degree of compliance to a set of indicators.

**Licensing:** Process of checking for compliance to certain criteria that allows the licensee to practice an action.

## 4.2 *The Three Functions of a SAA*

4.2.1 Why does NAAC have a system of assessment and accreditation of HEIs? Why does the Government release funds based on the grades provided by NAAC? Why are students/parents' preferences influenced by NAAC grades? These questions call for a clear understanding of the purpose of the very existence of NAAC, and the functions of NAAC (as a system of assessment and accreditation) to realize its purpose.

4.2.2 Let us begin by reiterating what we said earlier:

The function of NAAC/SAA is to ensure that HEIs in India continue to strive towards higher and higher quality of education (and research where applicable), no matter where they currently are.

4.2.3 Given that function, there are three sub-functions that NAAC/SAA needs to perform:

Function A: Quality Enhancement.

Nudge, guide, and help HEIs to improve upon their current quality of education (and research.)

Function B: Quality Maintenance

Help HEIs to not go down from their current quality.

Function C: Assessment and Accreditation

Use the mechanisms of Assessment and Accreditation to serve functions A and B.

Needless to say, to avoid conflict of interest, functions B and C on the one hand, and function A on the other, should be undertaken by two distinct wings of NAAC.

4.2.4 If an external committee were to evaluate NAAC/SAA, the central question they should ask is: How successful is NAAC/SAA in fulfilling functions A-C?

4.2.5 To understand the distinction between the three functions, consider SAA within an HEI. A university serves the accreditation function by awarding a degree, which satisfies the function of licensing (e.g., to practice as a medical doctor, an engineer, or a lawyer). It also serves the function of providing input to selection, enabling employers and admission committees to choose the best from a large pool of applicants (e.g., restricting admission to those who have made the cut-off point in GPA, or to the top N percent in rank).

4.2.6 The assessment of students in an HEI is an input to the process of accreditation. However, it has an additional function, namely, that of evaluation — for the HEI to find out if:

- ~ the students have learned what they were expected to learn, and
- ~ how well they have learned it.

4.2.7 The design of assessment tasks serves a still more important function in student learning, that of:

- ~ signaling to students what kinds of learning outcomes the program or course expects them to achieve; and thereby
- ~ improving the quality of their learning.

To illustrate, compare a set of final examination questions that are designed to test the information that students have acquired (e.g. What is the botanical name of holy basil?) vs. to probe into the understanding of concepts (e.g., a question that tests understanding through an application)? Likewise, compare questions that test mere comprehension, vs. those that probe into the students' capacity for critical reading and critical thinking. This can be done by providing a half-page write-up and asking learners to identify the claims and justification in it, and judging if their argument is valid, or asking them to come up with an argument to choose between two alternative positions.

4.2.8 Suppose HEIs, in their design of assessment tasks, shift from the current system that tests information and mechanical application, to one that probes into what NEP 2020 calls Higher-Order Cognition. This will signal to students that they need to learn the abilities and concepts of these higher-order learning outcomes to do well in the assessment. It would thereby raise the bar both of the quality of student learning and the quality of teaching by the faculty.

4.2.9 Some HEIs currently rely on a revised Bloom's Taxonomy for the assessment of the Higher-Order Learning outcomes. Now, Bloom's Taxonomy was created based on the actual practice of educational institutions. It was not formulated based on the epistemic norms of academic knowledge and inquiry, reflected in concepts like capacity for self-directed independent learning, problem-solving, critical thinking, inquiry, integration,

and so on. In Annexure 8, we have elaborated on why we must consider an alternative and expanded framework for the assessment of Higher-order Learning Outcomes.

4.2.10 These learning outcomes are not restricted to higher-order cognition. They also include such things as the ability to apply what students have learned to a variety of problems and situations: the ability to make decisions, to engage in action to achieve valuable goals, to make ethical choices, and so on. The strategies we need to employ to work towards these multidimensional outcomes need to be carefully thought through.

4.2.11 The main purpose of SAA in NAAC assessment has been to provide *input* to accreditation. The design of assessment in the SAA of HEIs and their programs should signal intent and efforts for raising the bar resulting in the desired effect of improving the quality of education.

4.2.12 Now, as pointed out in section 18.4 of NEP 2020, accreditation itself is only one of the functions of regulation by the government. The other important sub-function is that of *financing*. The separation of these functions has been the central concern in the policy of *binary accreditation*, by which we mean that the outcome of the process is either accreditation or non-accreditation, like a pass-fail system. This is an issue that will be discussed later in this paper.

### 4.3 *Enhancing and Monitoring the Quality of Education & Research*

4.3.1 As mentioned in the previous section, one of the important functions of SAA is that of enhancement of the quality of both research and education for the purposes of accreditation. This involves:

- 1) Mentoring HEIs to meet the criteria and standards set by SAA, and
- 2) Helping HEIs to raise their quality in terms of
  - a. The Faculty
  - b. The students, and
  - c. The Higher Education landscape

4.3.2 Mentoring can be modeled on the existing schemes of the UGC's Paramarsh and AICTE's Margadarshan schemes. These schemes may be suitably revised to help HEIs to get accredited and continue the process of quality improvement. For the purpose of helping the HEIs and their Faculty to help the students develop the outcomes of learning specified under General Education, particularly those that come under the intellectual strand (Higher-Order cognitive capacities.), the white paper recommends that the SAA undertakes

- developing and rolling out faculty development programs;

- curating and creating online educational resources which students can use for independent learning; and
- spearheading higher educational research along the lines that are valuable for curriculum design (e.g., academic epistemology, educational neuroscience,..).

4.3.3 Beyond the creation of online resources to help students develop inquiry abilities as part of Higher-Order Cognitive capacities, we may also think of initiating a Citizen Research Program (CRP), which may be viewed as a generalization of the idea of Citizen Science (see [https://en.wikipedia.org/wiki/Citizen\\_science](https://en.wikipedia.org/wiki/Citizen_science)).

4.3.4 Suppose we define **Citizen Research** as *research done by those who are neither research students nor professional researchers*. Defined this way, training in Citizen Research can begin in schools and continue in Bachelor’s programs. Students in these programs may not be able to contribute to collective knowledge in areas that require specialized content knowledge and specialized skills (e.g., number theory, quantum mechanics, evolutionary theory, molecular biology, artificial intelligence, analytic philosophy, stone-age history, ...). However, they can observe and report the behavior and external morphology of plants and animals around them, investigate their own culture, language, and local history, and so on, and conduct experiments that do not require a high level of content knowledge.

4.3.5 While there are initiatives such as the Atal Tinkering Laboratory at the school level to encourage and build an innovation ecosystem in the country, no such programs exist to encourage ideas for Citizen Research to promote Higher-Order Cognitive capacities in HEIs, and kindle curiosity among the young, as a basis for research. These may be modeled along the lines of Atal Innovation Mission programs which are sustained by voluntary mentors. Such CRPs would not require much funding or labs or equipment. A successful CRP is that of the DBT’s foldscope program.

4.3.6 It is important for such initiatives to come under the purview of SAA. This is because they would lend themselves to a calibration of the broader initiatives of General Education as contributing to general well-being, and Higher-Order Cognitive capacities as contributing to intellectual well-being. For this, CRP would call for sustained effort, and cannot be seen as a set of one-off activities which do not contribute to sustained and meaningful learning.

#### 4.4 *Accreditation and Grading*

4.4.1 The main objectives of NAAC as specified in its Memorandum of Association (MoA) include a function of Assessment and Accreditation (A&A) to grade both HEIs and their Programs. The MoA makes it clear that “NAAC shall arrange for the periodic

assessment and grading of institutions of higher education, or units thereof, or specific academic programs or projects.”

4.4.2 However, NEP 2020 has recommended binary accreditation for HEIs. This means that the accreditation of an HEI would involve just two categories: accredited or not accredited, *without grading*. Therefore, in future, grading may apply only to their programs. The NAAC objectives include helping HEIs to achieve their academic objectives. Assigning grades to programs is a means to do so by recognizing their quality, and encouraging healthy competition to strive to be better.

4.4.3 The current practices of assessment and accreditation by NAAC do not cover programs. The assessment of professional/technical programs is undertaken by the National Board of Accreditation (NBA), not by NAAC. And even NBA does not cover all programs. This is one of the major shortcomings that need to be addressed on priority. It is prudent to bring both HEI-level and program-level accreditation under a single umbrella. The University Grants Commission (Recognition and Monitoring of Assessment & Accreditation Agencies) Regulations, 2018 has been gazetted, and the UGC constituted an Accreditation Advisory Council (AAC) in 2019. However, the implementation of this regulation is still awaited. This may happen probably when the National Accreditation Council (NAC) as per NEP 2020 comes into existence. Manuals for assessing and accrediting specific academic programs may evolve or be adapted from existing discipline/specialty-based manuals. Thus, any HEI may be assessed and accredited (binary) as a whole institution. In addition, its programs may be assessed and accredited (Graded) only at the discretion of the HEI. A strategy for improvement and the specific roles of NAAC and NBA may be decided once the NAC as per NEP 2020 comes into existence.

For example, any HEI (whether a University or College) focusing on Health Sciences may be accredited (binary) based on its overall performance. In addition, if the HEI desires, its specific programs, such as MBBS, MD, MTech, B.Arch., etc., can be separately assessed, accredited, and graded.

4.4.4 Thus, under the binary accreditation system, it is possible that an HEI may or may not be accredited; and if accredited, its programs in different disciplines such as mathematics, biology, commerce, education, medicine, etc., may receive a grade such as A, B or C depending on individual quality. This reform may address several problems faced currently because of a uniform framework being used for HEIs as well as their specific academic programs. This reform will also pave the way to a holistic outcome-based assessment and accreditation.

4.4.5 To achieve this goal, NAAC will have to be the body responsible for assessment leading to accreditation and grading of all HEIs as well as their units and programs. This should be done based on an overarching set of shared criteria for all HEIs, specified in a common manual. Additional criteria and standards specific to the different categories of HEIs, units and programs shall be specified in subsections of the manual. HEIs or their programs may also seek the accreditation of global accreditation agencies such as ABET, IET, EQUIS, AMBA etc.

#### 4.5 *The Basis of Assessment for Accreditation and Grading*

4.5.1 The current online assessment and accreditation (A&A) processes are well described on the NAAC website <http://naac.gov.in/images/docs/Flowcharts-of-A-and-A-process.pdf>. It provides very good guidance regarding the eligibility criteria, units of assessment, weightages, grading, the grievance redressal system, etc. The NAAC team deserves appreciation for these transparent and technology-driven systems.

4.5.2 As can be seen, however, the current NAAC assessment system relies primarily on self-assessment reports of the institutions and programs. For instance, page 9 of the university manual for accreditation states: "In line with NAAC's conviction that quality concerns are institutional, Quality Assessment (QA) can better be done through –self-evaluation, the –self-evaluation process and the subsequent preparation of the Self Study Report (SSR) to be submitted to NAAC involves the participation of all the stakeholders – management, faculty members, administrative staff, students, parents, employers, community and alumni."

4.5.3 The essence of the preceding sections has been that while self-assessment provides useful information, it cannot be the basis for external party assessment and accreditation. Likewise, the opinions of the stakeholders provide valuable information, but they do not constitute reliable *evidence* to base judgments on the quality of an HEI or program, or decisions on accreditation. Why so?

4.5.4 The task of assessing the value of a piece of land or an object to be bought by a museum is performed by an assessor appointed by the government and the museum respectively. A similar demand for assessment by those appointed for that purpose applies to the accreditation of students, educational programs, and educational institutions as well.

4.5.5 When assessing human individuals, programs, and institutions, we have an additional source of information, that of self-assessment. Needless to say, it would be inappropriate to base the certification and the grades of candidates in an engineering or medical program on the students' self-assessment alone. A parallel remark applies to the

assessment that goes into the accreditation of educational institutions and programs as well. In other words, the information from the results of self-assessment and its validation cannot be taken as the sole evidence for the external party assessment leading to decisions on accreditation or non-accreditation. The reason is, accreditation, by definition, is done by a party other than the assessed.

4.5.6 That does not mean that self-assessed cannot provide information/data relevant to the third-party assessment. What is stated in the syllabus for a program in an HEI, the teaching-learning materials used, reports on classroom activities, examples of student projects, and examination questions are useful information. Self-reports by faculty members, programs, and HEIs may also be used to find out what they think they are trying to do in their educational interventions, and what the reasons for their choices are, such that the information they provide *guides* the assessment by bringing attention to the relevant considerations that the assessor may not be aware of.

4.5.7 When the Self-Evaluation Report of an HEI says "Yes" to the question of whether their curriculum is outcome-based, or whether it aims at or is successful in nurturing critical thinking, it is necessary to be as skeptical as of a PhD candidate saying that his PhD thesis is of high quality. Furthermore, if those who produce the report are not clear about the meaning of the term 'outcome', this answer 'yes' about outcome-based curriculum may be misleading, to say the least.

4.5.8 In addition to self-assessment, NAAC seeks third-party validation and verification in the process of Data Validation and Verification (DVV). The DVV has brought in a certain degree of objectivity and has helped in reducing possible subjectivity or even occasional bias of the Peer Team Visits (PTV). However, there seems to be a need to critically review the entire process to ensure that third-party evaluation (during DVV) is done by highly trained persons and experts with the ability to judge critical parameters in a just and fair manner. Furthermore, the current system does not appear to make a sufficient attempt to base the assessment on critical parameters regarding the *purpose of education* as articulated by NEP 2020, as given in section 1.1. The current system does not appear to sufficiently capture the quality of the examination process and other types of student assessment, the syllabi, learning materials, activities inside and outside of the classroom, employability, student career progression, and alumni feedback.

4.5.9 It must be acknowledged that it is not easy to measure the outcomes of these purpose and quality parameters. There is a tendency to assess what is easily measurable. Probably, because of this, the current assessment approach is more structural and input-driven. We will have to develop the right strategy, necessary methodology, comprehensive rubric, and technology-enabled precision tools to achieve this. Moreover,

the existing processes prevailing since colonial times need to be contextualized to suit the current environment in the Indian HEIs.

## 5 How to Address the Current Challenges

5.1 The current NAAC system has evolved over the last three decades. It has indeed contributed to the cause of quality assurance. However, attaining the purpose of improving the quality of HEIs remains challenging. Every system has scope for improvement, and the current system of assessment and accreditation is no exception. A brief account of the Strengths, Weaknesses, Opportunities, and Challenges (SWOC) of NAAC is given in Figure 2:

**FIGURE 2: SWOC Analysis**



5.2 The current NAAC assessment is mostly a structural summative assessment system based on a fixed time-point, data entry, and peer team visit, namely, an *input-based approach*. The proposed approach is based on a pragmatic, formative, functional, real-time technology-enabled, *outcome-based approach*. Figure 3 below lays the two approaches side-by-side.

**FIGURE 3: Input-based vs. Outcome-based Criteria for Assessment and Accreditation**



To improve the quality of Indian higher education and its expected outcomes, the system needs to be transformed from the input-based approach to an output-based one. The concepts of input, process, and outcome are elaborated in Annexure 2.

5.3 Furthermore, considering the following aspects might help in addressing the objective of improving the quality of HEIs.

- a. The current assumption is that the desired learning outcomes can be achieved once the systems and processes necessary for achieving them are in place. This assumption must be revisited, and the focus must shift to assessing the learning outcomes themselves that we expect HEIs to aim at. There is a need to assess the level of knowledge and skills acquired by students as outcomes after completing their studies. Also, the quality of teaching-learning is currently assessed by proxy parameters like teacher-student ratio, number of PhD holders in the Faculty, number of books in the library, and so on. These forms of evidence are hardly sufficient for assessing the quality of teaching and learning.
- b. The current program outcomes are not well-fleshed out. Consequently, any activity/course that is mapped to the outcomes and the methodology employed, may be used to inflate the actual scenario.
- c. The process of Peer Team Visits adds substantial effort on the part of both NAAC and the HEIs. Hence, we recommend that the role of Peer Team visits be

facilitatory in nature and not have a significant weightage in assessment and accreditation.

- d. The documentation exercise is too intensive and overwhelming for the HEI and must be rationalized and reduced if possible.
- e. The accreditation process does not provide requisite data to stakeholders to enable arriving at informed decisions.

5.4 Keeping these factors in perspective, it may help if NAAC/SAA:

- 1) Spells out the outcomes of learning expected of the graduates of an HEI; and
- 2) Provides a rubric to find out if these learning outcomes are paid attention to in
  - i) preparation of curricula, the learning materials, and
  - ii) the classroom activities;
 and are tested in
  - a) continuous assessment, and
  - b) the final examinations.
- 3) Leverages technology to capture the required data to arrive at informed assessment and accreditation decisions, thus not only reducing/rationalizing the documentation exercises by the HEI but also shifting towards an outcome-based assessment and accreditation.

5.5 In other words, to implement the aspirational statements of NEP 2020, NAAC/SAA should require HEIs to articulate in their curriculum design, with adequate clarity, both their goals and the means they use:

- A) Educational Goals: In their syllabi, educational programs must clearly articulate the educational goals of their degree programs (the learning outcomes we expect students to achieve by the end of the program) in terms of understanding, abilities, attitudes, and habits of mind.
- B) Action Plan: The programs must also articulate an action plan for achieving the educational goals in terms of comprehensive learning resources for students (text, audio, video, and other resources); teaching resources for the faculty; guidelines on pedagogy, classroom activities, and assessment; and programs for the faculty to develop the capacity to use the teaching-learning materials, as well as to help the faculty to continue learning and update their information and understanding.

5.6 It must be pointed out that the mere use of words like critical thinking, higher-order cognitive ability, and so on is not enough. The key question is how to assess the actual outcomes. It is important to forge a reliable mechanism to capture this. The

assessment process should ascertain whether the faculty can help the HEI to achieve the objectives that have been laid down.

5.7 The quality of a curriculum is ultimately a function of the value of the learning outcomes (the *goals*), and the effectiveness and efficiency of the pedagogical strategies (the *means*) to achieve the goals. Higher-order cognition is only one of the learning outcomes that we expect HEIs to pursue. They also include a variety of other types of outcomes.

5.8 Take outcomes of learning in the context of evaluating the design and implementation of the curriculum of what NEP 2020 calls Research-intensive Universities (RUs), whose primary function is to engage in research to contribute to human knowledge, and to train future researchers. Admittedly, research in most Indian universities has become synonymous with the publication of papers and citations thereof. The assessment process needs to evaluate the quality, relevance, and utility of research.

Some of the questions that may provide requisite inputs for this are:

- Is there a vibrant 'Research Culture' in the university?
- Is there an attempt to expand the horizons of knowledge?
- Is there an attempt to apply knowledge for the benefit of society?
- Does the research have any relevance to addressing challenges faced by humanity?
- Do the research activities contribute to local, and national development?

Do we expect the graduates of RU to be able to do the following?

- 3) (a) clearly articulate research questions
- (b) identify the central claims of an article/paper/thesis
- (c) provide rational justification (proof/arguments/evidence...) for the claims
- (d) deduce logical consequences
- (e) detect logical contradictions
- (f) come up with explanations for puzzling phenomena
- (g) come up with alternative explanations
- (h) deduce predictions of a theory
- (i) gather data to test the predictions
- (j) gather data to test correlational claims vs. causal claims
- (k) integrate concepts across domains
- (l) make connections across domains

These are learning outcomes expected of graduates of an RU. To achieve this purpose, it is important to articulate them in the syllabi and embody them in the rest of the curricula, including exams, tests, and other forms of student assessment.

5.9 These learning outcomes are related to, but not the same as Graduate Attributes or Program Outcomes. Having spelled out the graduate attributes and the Program Final Syllabus in sufficient detail, it is important to identify the *sources of evidence* to check if these expectations are met. This would require syllabi, samples of learning resources, continuous assessment tasks, and final examinations. The current system does not have any provision for institutions to submit samples of these as evidence for their having met the goals in terms of the learning outcomes.

5.10 It is our considered opinion that rather than relying exclusively on the SSR of HEIs, NAAC/SAA should:

- ~ ask institutions to provide evidence (samples of learning materials and continuous assessment tasks and final examinations) to show that they have met the goals (outcomes of learning) specified in the syllabus; and
- ~ accept the responsibility of examining the evidence to make an assessment.

5.11 It must be noted that NAAC uses student feedback as a source of evidence. This is indeed desirable. But it is important to check whether:

- ~ the feedback is representative of the population of students; and
- ~ what it provides is a measure of the quality of teaching, rather than of the popularity of the teacher.

A question of the reliability of data also needs to be carefully addressed.

## 6 Improving the Quality of Student Assessment

### 6.1 *A Plan of Action*

6.1.1 In what follows, we outline a set of core initiatives as a concrete plan of action to work toward General Education as the Core component of Higher Education, focusing on the Non-professional Bachelor's Programs. As NEP 2020 recommends, we believe that some of the courses in the General Education Program can and should be introduced in Professional Bachelor's Programs (BE, BTech, MBBS, LLB, BBA, BArch, BCA, ...) as well, but we leave that issue for consideration at a later point, as only a much smaller percentage of students enroll in these programs.

6.1.2 Sections 2.3 and 2.4 outline the kinds of learning outcomes that HEIs ought to aim at if they are to implement the recommendations on Higher-Order Cognition in NEP 2020. Now, no initiative to improve the quality of student learning and faculty teaching can make a dent in actual practice unless we recognize the hard societal realities in which HEIs exist:

Bachelor's students learn to do well in examinations, to get selected either for (a) admission to a prestigious Master's program or (b) a lucrative job. (Master's and PhD programs are also viewed as pieces of paper to find more lucrative jobs.)

Faculty orient their teaching in a way that students do well in examinations.

6.1.3 It is important to change this culture of education-for-lucrative-employment (see section 2.5). But in the meantime, it is equally important to recognize a hard consequence of this culture:

No attempt at improving the quality of learning and teaching will be successful unless the design of the examination questions tests the learning outcomes that the curriculum aims at, and students are convinced that to do well in examinations, they need to acquire those Higher-Order Cognitive Abilities.

6.1.4 Given the above, we recommend the following plan of action to improve the quality of the design of examination questions, initially for the Bachelor's programs in a few subjects, and subsequently to be expanded to cover all Bachelor's programs.

Phase 1: 10% of the total marks be devoted to a set of important learning outcomes that come under Higher-Order Cognition (an ability or set of abilities). A National Test for students from institutions approaching accreditation (may be as part of the student survey such that the critical aspects of the levels of learning are captured) shall be conducted. This would set a National level standard for higher-order cognition, and pre-empt "inflated" evidence of achieving higher-order abilities. Simultaneously, a Nation-wide set of online courses be set up to help students acquire the expected higher-order abilities, such that they can engage successfully with the questions in the National Level Test.

Phase 2: If found successful, say, after a couple of years, 10% be increased to 20%, and then gradually to 40%, with the corresponding strengthening of the online education program. In doing so, it is extremely important to address the issue of the digital divide by ensuring inclusiveness and infrastructural support to the deserving.

Phase 3: Phases 1 and 2 be expanded step by step to cover all Bachelor's programs.

6.1.5 The accreditation process would crucially involve checking if the students have achieved the required level of General Education and Higher-Order Cognition. It then becomes the responsibility of the HEIs and their programs to help the students achieve this learning outcome, either by setting up stand-alone courses on higher-order cognition

or by incorporating these abilities and understanding into the programs and the courses they offer.

6.1.6 The System of Assessment and Accreditation may also consider setting up (a) National Level online courses for Higher-Order Cognition, and (b) a test at the end of the course, such that (c) the results of the test can be used to make an assessment of how successful HEIs are in helping their students to acquire Higher-Order Cognitive capacities.

6.1.7 Needless to say, it would be advisable to have an entry level test to find out what understanding and abilities they already have. Since the current entrance tests and Board exams do not test any of the strands of Higher-Order Cognition, it would be necessary to set up National entry level tests in such things as capacity for independent learning, critical reading, critical thinking, and reasoning. We may also consider national tests for the faculty. Such issues would require further discussion and thinking.

## 6.2 *Training the Assessors*

The proposal to include General Education and Higher-Order Cognitive Capacities as important functions HEIs immediately raises the question of the expertise of assessors in assessing these parameters of SAA.

Just as there must be a National online course to help students to develop Higher-Order Cognition and a National test to find out if the students have achieved the aims of that course, there should be a provision to train the assessors in the art and craft of assessment, especially for the assessment of Higher-Order Cognition. We leave it to the authorities how to make that happen.

## 6.3 *The Current Criteria for Evaluation*

At present, NAAC uses seven main criteria: (1) Curricular Aspects; (2) Teaching-Learning and Evaluation; (3) Research, Innovations, and Extension; (4) Infrastructure and Learning Resources; (5) Student Support and Progression; (6): Governance, Leadership and Management; and (7) Institutional Values and Best Practices.

It might be useful to revise these parameters in accordance with the parameters of learning outcomes that the Programs of Higher Education (Bachelor's, Master's, PhD) aim at. Key benchmark parameters in the Proposed system are provided in Figure 4. There is a need to revisit these criteria in the light of contemporary developments including NEP 2020. A few suggestive parameters for the evaluation used as a benchmark may include Appropriateness, Inclusiveness, Autonomy, Accountability, Integrity, Effectiveness, Vibrancy, Feasibility, Commitment to SDGs, and Local and Global Good. (Figure 4).

**FIGURE 4: Proposed Benchmark Parameters**

#### 6.4 *A New Rubric for Assessment and Accreditation*

6.4.1 As pointed out in section 2 and fleshed out in the subsequent sections, the design of NAAC’s Assessment and Accreditation must serve the function of improving the quality of education that HEIs and their programs provide, by raising the bar and changing the design of assessment. For this purpose, it is necessary to restructure the rubric for assessment and accreditation. A sample rubric for higher-order cognitive capacities is given in Annexure 6.

6.4.2 There is considerable heterogeneity among educational institutions across the country in terms of thrust, resources, and social setting. As part of the restructuring, therefore, appropriate criteria should be evolved taking into account this heterogeneity.

In the NEP 2020 classification, universities are differentiated according to their focus, i.e., research and teaching. In the case of research universities, the complementarity between teaching and research would be one of the important factors determining the outcomes. Another equally important consideration would be the distinction between curiosity-driven research (pure research) and usefulness-driven research (applied/instrumental/translational research). Focusing on one of these to the exclusion or de-emphasis of the

other would be detrimental to the purpose of education as human well-being, and ultimately detrimental to the very strand of research that we seek to promote.

## 7 Classification of HEIs

### 7.1 *The Current Classification*

The current NAAC classification of institutions is based on the parameters of administration and the types of degrees they provide, not their function. As a result, there is a long list of categories without a clear sense of the parameters of educational outcomes they are expected to aim at. These include:

1. General Universities; 2. Autonomous Colleges; 3. Affiliated / Constituent Colleges;
4. Open Universities; 5. Dual Mode Universities; 6. Health Science Institutions;
7. Super-specialty Health Science Institutions; 8. Law Universities; 9. Law UG Colleges;
10. Law PG Colleges; 11. Sanskrit Universities; 12. Sanskrit Dual Mode Universities;
13. Sanskrit Colleges; 14. Yoga Institutions; 15. Teacher Educational Institutions.

It is understood that every HEI may have some uniqueness, however, they cannot be assessed differently for the outcomes in education. The approach of creating different manuals for different disciplines or specialties will be an unending futile exercise that is contrary to the main objective of the assessment of HEIs. For example, allied health sciences including Physiotherapy; Ayurveda, Unani, Siddha, Homeopathy; Languages including Hindi, Urdu, Tamil, Physical Education, Sports, Defence, Petroleum, and other Universities may ask for a special manual for their assessment.

It is surprising to note specialty manuals include two variants for health sciences, two variants for Law, three variants in Sanskrit, etc. Also, it is strange that a separate manual exists for Yoga institutions. This is contradictory to the vision and spirit of NEP 2020. As stated earlier, we need a combination of shared criteria and standards articulated in a single manual, with specific criteria and standards for specific categories of institutions and programs, articulated in subsections of the manual.

### 7.2 *HEI classification in NEP 2020*

It may be prudent to replace the current classification with the one recommended by NEP 2020. This would involve a clear articulation of the functions of the HEIs contributing to human knowledge and skills, training researchers and practitioners, and helping the young become educated individuals capable of contributing to individual upliftment as well as the development of the nation and society. It is necessary that ***the assessment of HEIs should be based on their function and expected outcomes.***

NEP recommends the following function-based categories: These are horizontal categories. Vertically, each one would be divided into Part A (generic outcomes) and Part B (specialty outcomes).

- **Category 1:** Affiliated Colleges (AFC)
- **Category 2:** Autonomous Colleges (AUC)
- **Category 3:** Teaching University (TU)
- **Category 4:** Research University (RU)

(Note: The issue of classification is tied up with the issue of ranking, which is discussed in a later section.)

It must be noted that these categories do not necessarily imply a higher or lower status. Teaching and research, for instance, are both equally important functions of a university. There is no reason for prioritizing one over the other. Consider, for instance, an HEI that offers only Bachelor's programs. There is no reason for that HEI to train students to do research, or its faculty to have PhDs. Granted that PhD ought to be a requirement for those who teach PhD courses or guide research students, extending that requirement to the faculty in colleges which do not have PhD programs will only dilute our PhDs and create a mass production of PhDs with very little quality. It will also have negative consequences to the quality of teaching at the Bachelor's level. Hence, these two functions of HEIs should be seen as equal, allowing an HEI to be a teaching HEI, a Research HEI, or a combination.

Similar remarks apply to multidisciplinary. There is no reason to hold that an HEI that offers degrees only engineering, only medicine, or only management is in any sense inferior to one that offers degrees in mathematics, the physical sciences, the biological sciences, and law. Multidisciplinary in the teaching and research in any discipline or subject is to be encouraged, but offering degrees in multiple disciplines does not by itself result in a multidisciplinary perspective in teaching and research.

In terms of vertical progression, therefore, the crucial line of division is a matter of autonomy in syllabus design, choice of textbooks, design of exam questions, and appointment of faculty. The relevant categorization is autonomy vs non-autonomy. In the current system, universities are autonomous, while affiliated colleges are non-autonomous. Within the category of HEIs which are neither affiliated colleges nor universities, whether HEI is called an autonomous college or autonomous unit doesn't seem to make any difference for assessment and accreditation.

Hence, the assessment of a non-autonomous HEI should take into account that the institution has no freedom in the choice of syllabi, textbooks, examination, and faculty

appointment. Only autonomous HEIs should be assessed and accredited for these parameters of assessment and accreditation. Similarly, the rules, criteria, and standards should be the same irrespective of whether a HEI is private or public.

### 7.3 *Autonomy of HEIs*

7.3.1 Section 10.3 of NEP 2020 defines AUC as follows:

“Autonomous degree-granting College (AC) will refer to a large multidisciplinary institution of higher learning that grants undergraduate degrees and is primarily focused on undergraduate teaching though it would not be restricted to that and it need not be restricted to that and it would generally be smaller than a typical university.”

7.3.2 And the UGC Guidelines for Autonomous Colleges says:

"Highlighting the importance of autonomous colleges, the UGC document on the profile of higher education in India clearly states that: “The only safe and better way to improve the quality of undergraduate education is to delink most of the colleges from the affiliating structure. Colleges with academic and operative freedom are doing better and have more credibility. The financial support to such colleges boosts the concept of autonomy.” " ([https://www.ugc.ac.in/pdfnews/2166758\\_Revised-Guidelines-for-autonomous-college-15.05.2017.pdf](https://www.ugc.ac.in/pdfnews/2166758_Revised-Guidelines-for-autonomous-college-15.05.2017.pdf)-)

7.3.3 In principle, autonomy is a good thing, but giving autonomy to affiliated colleges without ensuring that the administration and the faculty of the college have the academic and pedagogical capacity to make decisions that are aligned to the purpose and function of education, especially when it comes to General Education and Higher-Order Cognitive capacities, must be approached with considerable caution.

7.3.4 Increasing the number of autonomous colleges without paying attention to their capability will be detrimental to the quality of education. The mushrooming of private autonomous HEIs may also lead to greater corruption in the country. Hence, we recommend that granting autonomy to HEIs be brought under SAA, and be based on their being granted accreditation.

## 8 **Grading, Licensing, and Ranking**

8.1 The NAAC website states:

“Institutions are graded for each Key Aspect under four categories, viz. A, B, C, and D, denoting Very good, Good, Satisfactory and Unsatisfactory levels respectively.”

<http://naac.gov.in/index.php/en/assessment-accreditation#grading>

When assigning grades, however, it is important to do so for specific functions, and not provide an overall grade, as in the case of the practice of converting grades into numbers for a CGPA (Cumulative Grade Point Average).

8.2 Consider the distinction between the goals of contributing to research and training researchers. Suppose one HEI of category A is extremely good at research and not so good at research training, and another HEI of the same category is extremely good at research training but is not particularly good at research. Is it a good idea to add up the points to assign a single CGPA number? What if one institution excels in training in experimental research but is poor in theoretical research, while another excels in training in theoretical research but is poor in experimental research? Do we assign them the same overall grade? Similar questions arise about training in mathematics vs. in the physical sciences vs. in the biological sciences vs. in the human sciences vs. the humanities. In our considered opinion, the GPA idea needs critical reconsideration.

8.3 It must be pointed out that grading is not the same as **ranking**. Given a population of programs all of which are excellent, one of them would still be ranked as the lowest. And even if all of them are mediocre, one of them would still be ranked as the highest. As a result, the highest ranked program in the second population would be the inferior to the lowest ranked program in the first.

8.4 We are *not* advocating a system of ranking, but a system of grading in which it is possible that in a population of excellent programs, most of them assigned grade A, and in a population of mediocre programs, most of them would be assigned grade D, and the remaining would be assigned grade F if they are not accredited.

8.5 It may also be useful to distinguish between **licensing** and accreditation. If a person is denied a driving license, (s)he is legally not allowed to drive. Likewise, if a lawyer or a medical doctor is denied the license to practice, they are legally not allowed to practice law or medicine. This is not the case with accreditation. An HEI or a program that has not been accredited yet, or has been denied accreditation can still continue to practice teaching and/or research.

8.6 It must also be pointed out that a larger proportion of Higher Education, particularly that of Professional Education, is now in the Private Domain. The education that some of these Institutions provide is indeed of good, and in some cases, exceptional quality. However, it is important to recognise that in large number of cases, the motivation for setting up HEIs is profit, and the necessary quality is lacking. Adequate measures must be taken to avoid the dilution of quality both in their approval and in their accreditation. We may also need to find ways of closing some of these non-performing institutions.

8.7 One of the purposes of accreditation is to assure students (and parents) that the HEIs and programs they are considering meet the necessary standards of quality. Hence, it would be a serious disadvantage to approve a large number of HEIs and/or programs that are unlikely to meet the standards at the time of accreditation. Hence it is necessary that the approving bodies take measures to prevent such situations, by ensuring that they have a reliable action plan to achieve high quality education in a prescribed time period. This would be particularly important for new initiatives like General Education and Higher-Order Cognitive capacities. Further details regarding the suggested approach will be addressed during the planned discussions in the implementation phase.

## 9 Binary Accreditation

9.1 Assessment and accreditation are part of the larger function of regulation by the government. The proposal for binary accreditation of HEIs is closely tied to the function of regulation in educational management and administration by the government.

According to section 19.1 of NEP 2020,

“Regulation of higher education has been too heavy-handed for decades; too much has been attempted to be regulated with too little effect. The mechanistic and disempowering nature of the regulatory system has been rife with very basic problems, such as heavy concentrations of power within a few bodies, conflicts of interest among these bodies, and a resulting lack of accountability.”

To solve this problem, section 19.2 proposes setting “five independent verticals” within an umbrella institution:

“To address the above-mentioned issues the most basic principle in the regulatory system of higher education will be that the distinct functions of regulation, accreditation, funding, and academic standard setting will be performed by distinct, independent, and empowered organizations/structures. This is considered essential to create checks - and - balances in the system, minimize conflicts of interest, and eliminate concentrations of power. To ensure that the four institutional structures carrying out these four essential functions work independently - yet at the same time talk to each other and work in synergy towards common goals - these four structures will be set up as four independent verticals within one umbrella institution, the Higher Education Commission of India (HECI)”

And 18.4 states,

“The primary mechanism to enable such regulation will be accreditation. The second vertical of HECI will, therefore, be a ‘meta-accrediting body’, called the National Accreditation Council (NAC). Accreditation of institutions will be based primarily on

basic norms, public –self-disclosure, good governance, and outcomes, and it will be carried out by an independent ecosystem of accrediting institutions supervised and overseen by NAC. The license to function as an accreditor shall be awarded to an appropriate number of institutions by NAC. In the short term, a robust system of graded accreditation shall be established, which will specify phased benchmarks for all HEIs to achieve set levels of quality, –self-governance, and autonomy. In the long run, accreditation will become a binary process, as per the extant global practice.”

9.2 It must be pointed out that the idea of NAC is not clear in NEP 2020. We may need to flesh it out. NEP 2020 recommends that in a short term a robust system of graded accreditation should be established. It also recommends that the assessment and graded accreditation should specify phased benchmarks for all HEIs to achieve set levels of quality, self-governance, and autonomy.

One of the fundamental principles of NEP 2020 is *“focus on regular formative assessment for learning rather than the summative assessment that encourages today’s ‘coaching culture’ with its attendant consequences.* This should apply to NAAC as well.

9.3 The stakeholder perception regarding the value of NAAC accreditation has substantially increased over the years. Its linkage with government funding and other benefits has made NAAC accreditation and grades more lucrative. This has led to the emergence of commercial entities and self-styled consultants resulting in the ‘compliance culture’ and an attitude to ‘crack’ the systems. Such an attitude may not be conducive to continued improvement: it may actually may be detrimental to the basic purpose of accreditation which is ongoing quality improvement. Thus, a shift from a structural approach to a pragmatic functional approach to assessment suggested in this paper should be considered as a first step towards the objective of a binary accreditation by 2030.

9.4 We assume that eventually, “accreditation will become a binary process”. We interpret the statement, “accreditation will become a binary process” to mean that accreditation applies only to HEIs, while grading applies to their Units/Programs. Hence, the assessment itself may not be a binary process.

9.5 Given this structure, it becomes clear that the responsibility of NAC (= current NAAC) is to provide the following:

- A) A clear statement of the learning outcomes for General Education (the strands of educatedness) and Higher-Order Cognition that applies to all HEIs and their educational programs, from affiliated colleges, autonomous colleges, and universities (including TU and RU).

- B) A clear statement of the learning outcomes expected within an HEI, its units, specific academic programs or projects in terms of broad disciplines such as health sciences, engineering, science, technology, law, management, humanities, languages, vocational training, etc., or programs such as MBBS, MD, BPharm, BE, MTech, MBA, BA, BSc, etc.
- C) Comprehensive rubrics for assessment of (A) and (B).

Grounded in A-C, NAC may oversee and monitor the practices of the multiple agencies for accreditation.

9.6 It must be stated that even though the system being recommended is highly desirable, we will have to consider a gradual way of implementing it. If the implementation is not gradual and careful, the proposed accreditation system may become similar to the old approval system. Similarly, if we suddenly stop grading we may tend to lose the measure of quality and the spirit of competitiveness. Therefore, the implementation needs to be very carefully planned and monitored. The proposed accreditation system must be progressively implemented as the system gets matured.

## 10 Vision Alignment

### 10.1 NAAC and NEP 2020 Vision

10.1.1 The vision statement of an organization is an articulation of the desirable states in the future. A mission statement is an articulation of what the organization is committed to doing to achieve that vision. These two statements, coupled with the underlying value system, should form the basis for identifying the expected learning outcomes of an educational program as its goals:

**Vision** and the **Value System**: help locate → **Mission**

Together, they guide: **Educational goals** → **Learning outcomes**

These determine: **Curriculum** (= syllabus, learning resources, classroom activities, assessment of students)

The NAAC and HEI administrations need to ensure clarity in the logic derived from the vision reflected in the implementation of the curriculum in terms of syllabi, learning materials, class activities, and the assessment of students.

10.1.2 The Vision articulated in NEP 2020 is of an education system *rooted in the Indian ethos* that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, thereby making India a global knowledge superpower. Guiding this vision is the

concept of *well-being along multiple dimensions* as the ultimate purpose of education, which in turn shapes NEP's concept of quality.

10.1.3 Now that NEP 2020 is approved by the Government of India, the NAAC vision must be aligned with it. However, a serious misalignment is apparent in the vision statements of NAAC and NEP 2020. The NAAC vision statement simply states 'quality' as a goal, without making clear what it means or connecting it to the vision of the future world. It then proceeds to specify 'self and external quality evaluation' as the means, in addition to the 'initiatives' of promotion and sustenance. It is hard to see what consequences this statement has for the design and implementation of curricula.

10.1.4 The value framework is equally problematic. What does 'excellence' in 'quest for excellence' mean, other than high quality? And how is 'promoting the use of technology (one of the means) part of a value system in education?

It is necessary that the NAAC vision, mission, and value proposition are revisited in light of the NEP 2020 spirit and the required mid-course correction is attempted.

## 10.2 *Specialized Manuals*

10.2.1 Traditionally, NAAC had different manuals to assess Universities and Colleges. However, during the last few years, it has adopted a process to assess HEIs based on specialties. This is in a way against the spirit of NEP 2020. While a few parameters may differ based on the nature of a discipline, adopting different manuals for specialties / super specialties is not advisable. Granted that there could be specific outcomes expected from a professional, there are key attributes expected from every educated person. Hence, identical yardsticks may not apply to graduates of general-purpose programs (Arts, Science, etc.) and graduates of professional programs (Medicine, Engineering, etc.). While professional programs (MBA, BE, MBBS, etc) may have specialized requirements, an assessment of all HEIs needs to include the expected outcomes related to the improvement of the quality of education in terms of the attributes of educatedness and Higher-Order Cognitive capacities.

10.2.2 It is possible that the specialty-based manuals developed so far can be modified for the assessment and grading of specific academic programs within specific disciplines under HEIs. However, as long as NAAC is focused on assessing HEIs and not specific programs, it is not advisable to adopt a specialized manual approach for different disciplines.

### 10.3 *Provisional Accreditation*

10.3.1 The ***misalignment*** of the visions, and contradictions in them, can have serious consequences for the implementation strategies. As a case in point, consider the vision and mission statements along with the recommendations in the NAAC manual *Provisional Accreditation for Colleges (PAC)*.

10.3.2 The Vision articulated in the document on *PAC* is to make ***quality*** the defining element of higher education in India through a combination of self-evaluation and external evaluation of quality for promotion, and sustenance initiatives (*PAC*, p.2). This statement takes ‘quality’ as a goal, and gives the mechanisms for its evaluation, without making clear what ‘high-quality’ means, and what its components are, or connecting it to the vision of the future world. It is hard to see what consequences this statement has for the design and implementation of curricula.

10.3.3 The Mission statement in *PAC* is a set of vague phrases about the quality of teaching-learning and research; mechanisms of periodic assessment and accreditation; self-evaluation; quality-related activities, and collaboration with stakeholders. Like the vision statement, it fails to indicate what the desired goals of HEIs or their program ought to be.

10.3.4 The Value Framework in *PAC* is equally problematic. While it ought to guide the vision, the mission, and the curriculum, it merely lists such items as ‘Quest for Excellence’, and ‘Inculcating a Value System among Students’, without indicating what makes a particular vision, mission, or curriculum desirable (or undesirable), and worth aiming at. What does ‘excellence’ in ‘quest for excellence’ mean, other than high quality? And how is ‘promoting the use of technology (which is one of the means) part of a value system in education?’

10.3.5 The statements in *PAC*, as articulated, may not have any significant consequences for actual practice, other than increasing the documentation workload for the administrators and faculty. They may also have other undesirable consequences. For example, encouraging colleges to apply for accreditation, and giving them provisional accreditation for two years, is analogous to encouraging all teachers to apply for a PhD program and giving them provisional Doctoral Degrees for two years. It can only result in mass production of PhD theses with very little research value.

10.3.6 The *PAC* proposal implies a ***lowering of standards*** so that a greater number of colleges can gain Provisional Accreditation. Instead, it would be wiser on the part of NAAC to help the colleges improve the quality of education they provide, such that they can be successful in meeting the standards that NAAC accreditation calls for. The UGC Paramarsh scheme direction may be appropriately revised to meet these objectives.

10.3.7 Such misalignment of vision, mission, and value system may have an adverse bearing on the efforts. A scheme like PAC may lead to more ritualistic documentation exercises with hardly any consequence to the actual practice, other than increasing the workload of the administrators and faculty. Encouraging colleges to apply for accreditation and giving them provisional accreditation for two years is analogous to encouraging all teachers to apply for a PhD and giving them provisional Doctoral Degrees for two years. It can only result in mass production of PhD theses with very little research value.

10.3.8 Notice that Provisional Accreditation is unnecessary if we distinguish between licensing and accreditation. As stated earlier, an HEI or a program can practice teaching and research even if it is not accredited. Hence, instead of ***lowering the standards*** implicit in PAC, it would be wiser to help the HEIs and programs improve the quality of education they provide, such that they can be successful in meeting the standards that NAAC accreditation calls for.

10.3.9 While we are not in favor of provisional accreditation, we strongly support encouragement, hand-holding as well a consultative approach between teams of NAAC and concerned institutions to continuously improve before they are either considered for or given an accreditation status. This kind of approach is followed by ABET, USA, and other international bodies, and accreditation is granted after a slightly prolonged period of interaction between the grantee organization and the academic institutions.

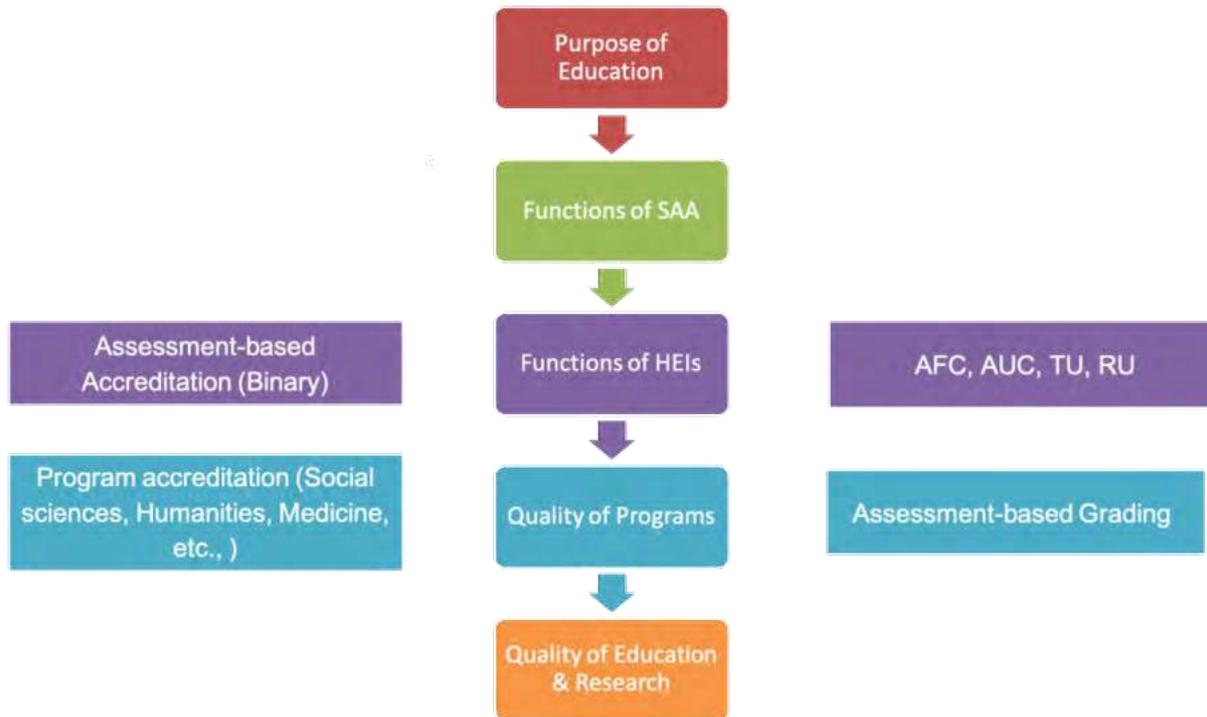
## **11. The Proposed Approach**

The mandate stated in the MoA of NAAC is to grade “institutions of higher education and their programs”, and “realize their academic objectives”, to raise the quality of higher education (and research) in India. Thus, NAAC is expected to assess both HEIs and their Programs, which has not been attempted yet. NEP 2020 has recommended binary accreditation of HEIs.

### *11.1 HEI Accreditation (Binary)*

11.1.1 Over this background, we propose a *Purpose* and *Function* linked approach to assessing the functioning of HEIs and also the quality of Programs, Education, and Research (Figure 5).

**FIGURE 5: Proposed Approach**



11.1.2 Even though this diagram is framed for now in terms of the categories of HEI as recommended by NEP 2020, namely, Affiliated Colleges (AFC), Autonomous Colleges (AUC), Teaching Universities (TU) and Research Universities (RU), our recommendation is to have the primary distinction in terms of autonomous and non-autonomous HEIs, with further functional categories in terms of what each autonomous HEI aims at.

11.1.3 There must be a common manual for these categories with subsections for each of these categories. A suggestive comparison of the parameters from the current NAAC framework and the proposed framework is shown in Table 3. Of course, deciding these parameters needs detailed discussions and wider consultation.

**TABLE 3: Proposed Framework**

S. No.	Parameter	Proposed Framework
1.	Function of NAAC	<ul style="list-style-type: none"> <li>• Quality enhancement</li> <li>• Quality maintenance</li> <li>• Assessment and Accreditation</li> </ul>
2.	Classification of HEI	<ul style="list-style-type: none"> <li>• Non-autonomous HEIs</li> <li>• Autonomous HEIs</li> </ul>
3.	Accreditation Type	Binary accreditation of HEIs and graded accreditation of academic programs/constituent units
4.	Assessment nature	Progressive: Continued improvement
5.	The focus of assessment & accreditation	Learning Outcomes
6.	Criteria for assessment & accreditation	Function & Outcome-based <ol style="list-style-type: none"> <li>1. General educatedness</li> <li>2. Skills/abilities for specialized education</li> <li>3. Contribution to research/innovation</li> </ol>
7.	Data for assessment	Real-time technology-enabled data collection

11.1.4 It must be pointed out that NEP 2020 suggests moving away from the system of “affiliated colleges”, so eventually “every college would develop into either an Autonomous degree-granting College or a constituent college of a university” (NEP 10.4). What we have outlined above applies aptly to that system as well.

## 11.2 *Program Accreditation and Grading*

11.2.1 We propose Assessment-based Grading of constituent units or programs based on expected outcomes where the current system of grading (A to C) may be adopted by the HEIs if required. The existing specialty manuals may be useful to develop manuals for the assessment of discipline-based programs. Grades from A to C may be awarded depending on the quality of education and research under respective units or programs.

11.2.2 To implement these recommendations, it is necessary to develop an effective and efficient rubric for assessment, accreditation, and grading. That rubric has to begin with the purpose of education and proceed to HEIs and their programs in terms of both general purpose education and specialized education.

11.2.3 It must be made clear that we are recommending only grading, and not accreditation for units and programs. ‘Units’ includes departments as well, so this would cover the evaluation of resources like faculty, laboratories, and funds of the department, shared by the programs in the department.

11.2.4 It might be useful to consider the possibility of giving HEIs a choice to select a small number of their best domains/departments (say three or four, or more if they wish)

for a special quality assessment just like the best practices are considered for the current set of evaluation. This might remove the need for specialized/dedicated frameworks that were created in recent times for institutions focusing on medical, distance, or other specialized disciplines.

Arguably, the proposed approach might be perceived as an extraordinary burden for NAAC. Whether to involve a third party or an independent agency to assign such work to is a critical question. We have tried to elaborate on this point in Annexure 7.

### 11.3 *Academic Bank of Credits and Program Accreditation*

In light of the Academic Bank of Credits in NEP 2020, it is clarified that the HEI that confers degrees will be taking the credit and onus of the assessment and accreditation. That is, a student may accumulate credit from institute A and then move to institute B for a degree. It is the duty of institute B that confers the degree to ensure that the outcomes of both general education and specialized education are met when they approach program accreditation. This may be achieved either by having an entrance test for the student, or, by a policy by the specific HEI to recognize courses only from certain other HEIs.

### 11.4 *Research Assessment and Accreditation*

11.4.1 Assessment of research quality is currently done by metrics such as impact factor of the journal, h-index, etc. These are proxy indicators of quality. In alignment with the goal of this whitepaper to move to an outcome-based assessment and accreditation, it is recommended that a system of methods and rubrics be developed to evaluate the originality, creativity, and impact of the research work pursued in an HEI. The impact of the research work can be assessed at the local, regional and global levels, giving equal priority to “pure” research and applied research.

11.4.2 Further, to encourage HEIs to engage with research questions that cut across disciplinary approaches or require a multidisciplinary approach, and to facilitate unconventional research collaborations between disciplines (for example, analytical philosophy and biology; biology and linguistics; humanities and technology; etc.), it is suggested that research be assessed at the HEI level and not at the unit level.

11.4.3 It has also been clarified that research evaluation is relevant only for those HEIs that offer PhD programs (Research intensive HEIs). It may not be meaningful or useful to evaluate the research of HEIs that offer only Bachelor's programs. In such HEIs, it would also be unreasonable to expect the faculty to have PhDs, let alone to publish papers.

11.4.4 Those who evaluate the research of the faculty and PhD students must themselves be high-caliber researchers. This would mean that the members of the

committees that evaluate research cannot be restricted to those in India alone. Getting overseas experts to agree to evaluate the research of the faculty and students, and the steps that an HEI has instituted to promote high-quality research, would be something that needs careful working out.

11.4.5 It is equally important to take appropriate measures to minimize the equivalent of cronyism in peer evaluations of the quality of research in HEIs. In the peer reviews of research papers and articles submitted for publication, this is achieved through double-blind reviews, where neither the reviewer and the author knows the identity of the other. Similar measures to minimize positive and negative prejudices must be set up for the evaluation of research in HEIs and programs as well.

### 11.5 *Creating an Ecosystem of Assessment & Accreditation*

The number of HEIs in India is more than 40,000. Assessing and accrediting such a huge number of HEIs cannot be handled by a single agency such as NAAC. Given this, multiple bodies of assessment & accreditation of the educational system would have to evolve and get engaged in the task over time. The NAAC or an equivalent central agency shall formulate the criteria and standards for assessment, and these multiple accreditation bodies shall be trained appropriately to assess an HEI based on those criteria and standards. Utmost care must be taken to adequately familiarize these accreditation bodies (and their assessors) with the general education component and higher-order cognitive capacities, and train them in assessing these components. Careful thought must be placed into approving these multiple accreditation agencies such that the specialized education component and research are also assessed competently. The State Higher Education Council may need to be involved in creating this ecosystem of accrediting agencies. Care must be taken to ensure that these accrediting bodies, which should be mandatorily not-for-profit, do not end up in competition, as this can result in unfair practices. Alternatively, it may also be worth considering a cadre of education quality assessors. These cadre officers are to be selected and trained through the National SAA with due testing and evaluation. They may then be made available for assessment duty concurrent with their current roles in various institutions. This approach will make it possible for academicians to make lateral moves as well as in-service moves into education management. In other words, we may consider creating Education Quality Professionals, which would fill the current gap, which is huge.

## **12. Technology-Enabled Assessment**

NEP 2020 recommends leveraging the power of technology at all levels. The use of technology might help HEIs in reducing the burden to provide various kinds of data, often

to multiple agencies at multiple times. It is high time to shift from the current fixed time-point data entry (IIQA, SSR, DVV) and peer team visit based summative assessment system to the next generation technology-enabled formative assessment (TEFA) powered by artificial intelligence, fractals, data analytics, blockchain, and other cutting-edge technology to capture real-time data and continuous assessment of education quality and expected outcomes.

A pragmatic approach involving TEFA may provide a more comprehensive, reliable, and realistic assessment of HEI performance and abilities. Technology-enabled tools can support assessors to capture real-time activity, performance, and outcomes supported by documents, weblinks, video, and other evidence of quality. TEFA can also provide new avenues for self-assessment; self-reflection and peer reflection; faculty, student, and alumni feedback. This would give a comprehensive 360-degree evaluation of an HEI. We visualize TEFA as the future of the NAC process.

The Government of India is considering an ambitious program to create a “One Nation One Data” (ONOD) Platform. This can have a significant advantage for HEIs to deposit data and NAAC can have access to real-time credible data. The evaluation of the outcomes can be made easy with the ONOD platform and digital technology. In such a scenario, perhaps the role of the Peer Team Visit might remain limited to a facilitatory mechanism and the assessment may become more precise, unbiased, and meaningful. While moving along the technology-enabled path, it is vital to ensure that the processes are aligned to the principle of equity and access articulated by NEP 2020.

It must be stated that we would need to further extend the assessment to “Relevance” as well as “Impact” which will follow Wisdom. However, it may be very difficult to measure the aspects of Relevance, Impact, and also those of Values. Hence, we must deliberate deeply on these before implementing them.

### 13 Concluding Remarks

In sum, quality assurance, assessment, and improvement will remain a continuous journey rather than a final destination. It should follow an approach of: “Say what you do”, “Do what you say”, “Prove it”, and “Improve it”.

Any system of education is composed of three subsystems: a set of educational **goals**, the **means** to achieve those goals and the **value system** of education from which the goals and means are derived. These can be formulated as what, how, and why respectively.

**A) What:** what does the system expect learners to learn?

**B) How:** how does the system intend to help the learners learn what the system expects them to learn?

**C) Why:** what is the value system that shapes the choices in (A) and (B)?

(A) is, or ought to be, spelled out in a *final syllabus* in terms of information, understanding, skills, abilities, capabilities/competencies, habits, and mindset expected of the learner by the end of an educational program (Program Final Syllabus) or course (Course Final Syllabus), where a ‘program’ could be a degree program (e.g., a bachelor’s program) or the entire program of education from kindergarten to PhD. At the level of HEIs, it is articulated as the learning outcomes of General Education.

(B) is the set of *pedagogical strategies* that the system employs, including teaching-learning resources/materials (e.g. textbooks, videos, workbooks), classroom activities, activities outside the classroom, and assessment tasks (assignments, projects, tests, exams, etc.) And (C) comes under educational philosophy.

The central thread that runs through this whitepaper has been the idea that any meaningful system of assessment and accreditation of HEIs and their units or programs must include not only B but also A and C as well.

We conclude this whitepaper by quoting the vision expressed in NEP 2020: “This National Education Policy envisions an education system rooted in Indian ethos that contributes directly to transforming India, that is Bharat, sustainably into an equitable and vibrant knowledge society, by providing high-quality education to all, thereby making India a global knowledge superpower”.

We hope this exercise helps in the effort of re-imagining the assessment and accreditation in the Indian Higher Education System, and in the implementation of NEP 2020 in its right spirit to provide high-quality education and thereby achieve the goal of *AtmaNirbhar Bharat* on the occasion of *Azadi Ka Amrit Mahotsav*.

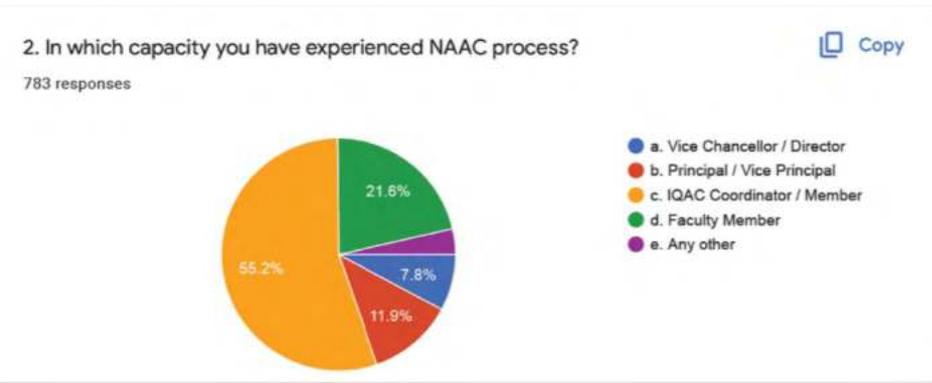
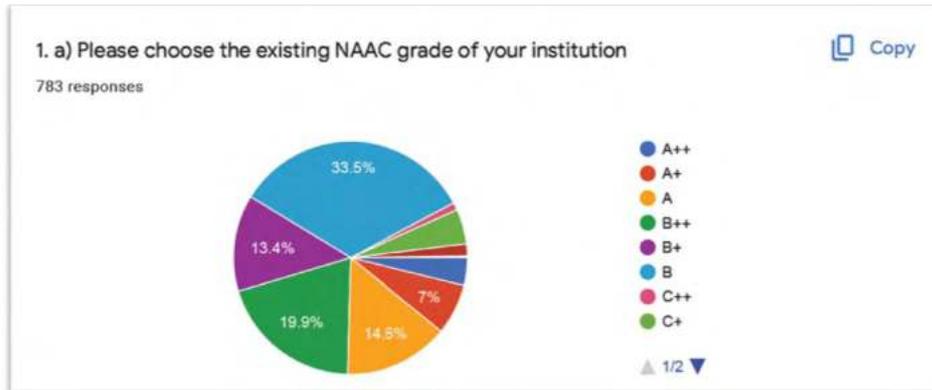
# Annexures

## Annexure 1

### Results of Stakeholder Satisfaction Surveys 1 and 2

#### SSS 1

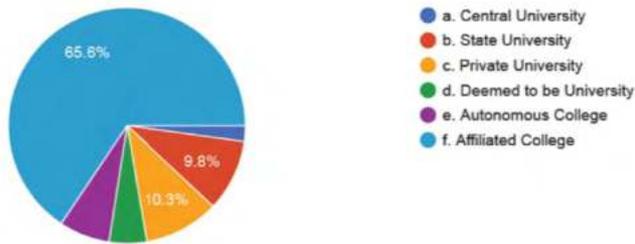
#### Conducted through AIU



3. Which category you will put your institution?

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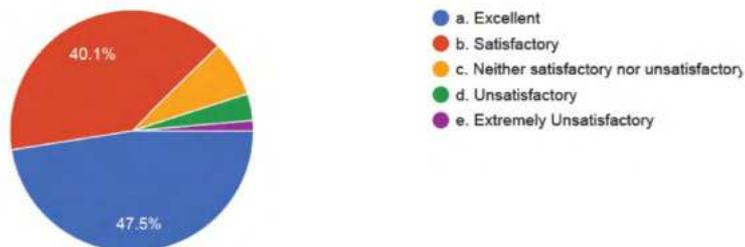
783 responses



4. How was your experience with NAAC assessment process?

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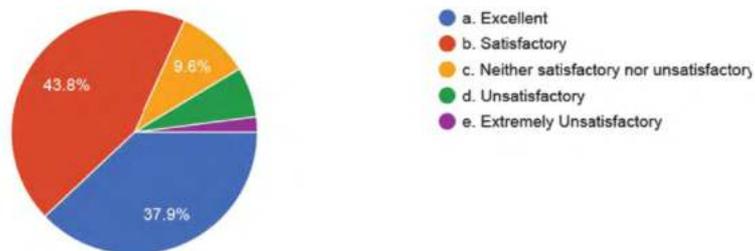
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5. How was your experience with process of Data Validation and Verification?

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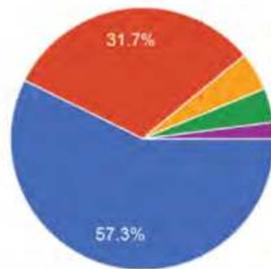
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6. How was your experience with the Peer Team Visit

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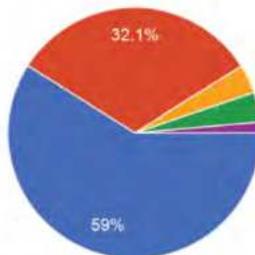


- a. Excellent
- b. Satisfactory
- c. Neither satisfactory nor unsatisfactory
- d. Unsatisfactory
- e. Extremely Unsatisfactory

7. Do you think NAAC assessment is reliable?

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783 responses

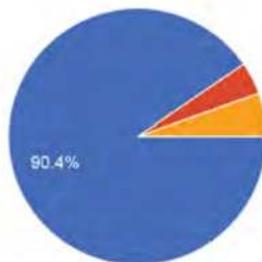


- a. Extremely reliable
- b. Somewhat reliable
- c. Neither reliable nor unreliable
- d. Somewhat unreliable
- e. Extremely Unreliable

8. Do you think NAAC process made quality improvement in your institution?

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783 responses

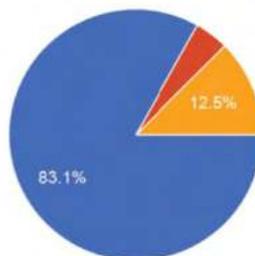


- a. Yes
- b. No
- c. Can't say

9. Do you think the NAAC process needs reforms in the light of NEP 2020?

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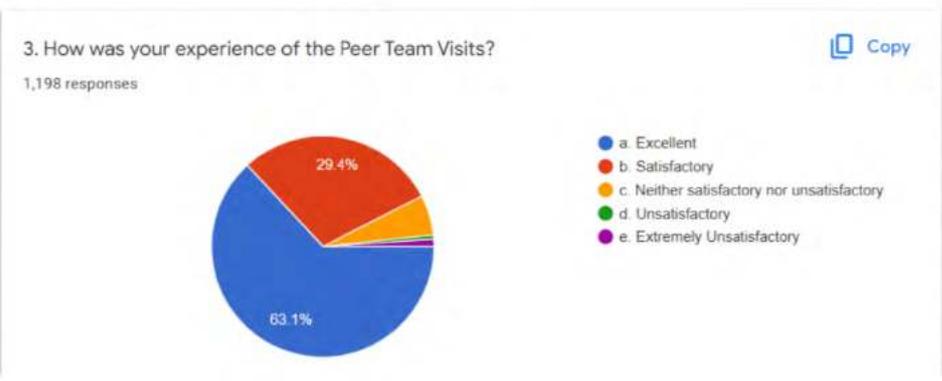
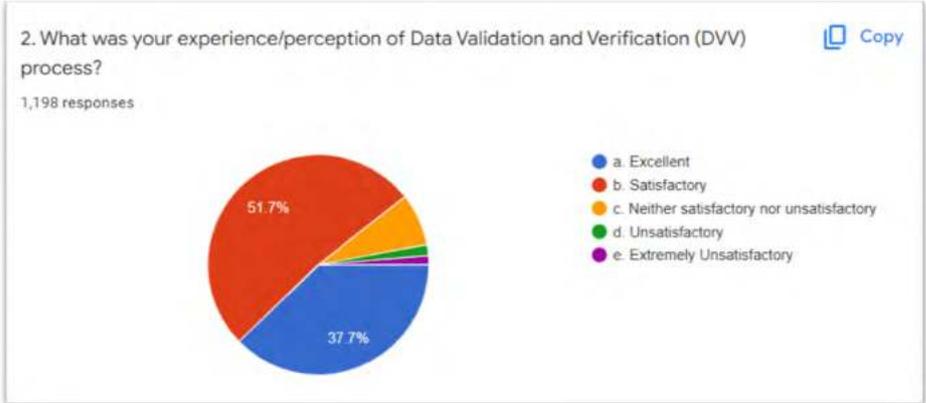
783 responses



- a. Yes
- b. No
- c. Can't say

**SSS 2**

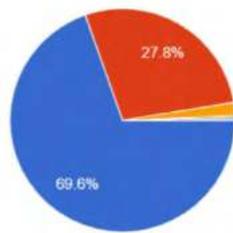
**Conducted by NAAC through Assessors database**



4. How was your experience with the assessor training / orientation conducted by NAAC?

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1,198 responses

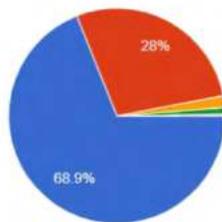


- a. Excellent
- b. Satisfactory
- c. Neither satisfactory nor unsatisfactory
- d. Unsatisfactory
- e. Extremely Unsatisfactory

5. Do you think NAAC assessment is reliable?

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1,198 responses

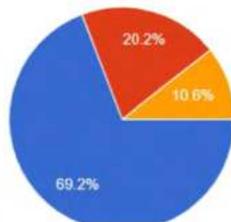


- a. Extremely reliable
- b. Somewhat reliable
- c. Neither reliable nor unreliable
- d. Somewhat unreliable
- e. Extremely Unreliable

6. Do you think the NAAC process needs reforms?

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1,198 responses

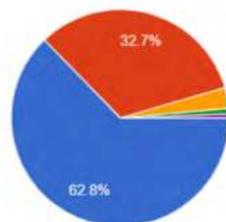


- a. Yes
- b. No
- c. Can't say

8. Please rate overall satisfaction level regarding NAAC

[Copy](#)

1,198 responses



- a. Excellent
- b. Satisfactory
- c. Neither satisfactory nor unsatisfactory
- d. Unsatisfactory
- e. Extremely Unsatisfactory

## Annexure 2:

### *The Concepts of Input, Process, and Outcome*

Given the controversies on process-based approaches and outcome-based approaches in the education literature, it might be useful to clarify our use of the term ‘outcome-based approach’. By **outcome**, we mean the outcome of the **process of learning** that takes place inside the mind of a learner. The **input** to the process of learning is a set of interventions on the part of the institution, program, and faculty.

Neither the learning process nor its outcome in the mind is directly observable, so all that we can do is arrive at inferences or informed guesses based on the available **evidence**. These include the observable behavior of the students in the classroom, what they produce as assignments, projects, or answers to tests and exams, their self-reports on their learning, student feedback surveys, faculty surveys, and so on.

This is what we mean by the *outcome-based approach*. In contrast, we may also make informed guesses on what learning must have taken place given the input to the learning process. For instance, given examination questions that test only information recall and mechanical application, and examination questions that go beyond these to probe into higher-order cognitive abilities, we may conclude that the second type of questions are more likely to result in learning outcomes of higher-order cognition. Similar remarks apply to other kinds of interventions such as what the faculty does in the classroom (as reported in peer evaluation or self-reports), the nature of the learning materials (e.g., textbooks), and what the syllabus specifies, from which we may infer what kind of outcomes would be achieved in the students. We call this the *input-based approach*.

Needless to say, the input-based approach, while necessary, is not a sufficient indicator of the outcomes achieved by students. Hence, to supplement the outcome-based approach, the input that we use as a basis for evaluation must be such that it allows for informed and reasonable guesses about the outcome.

### **Annexure 3:**

#### **The Professional and the Vocational**

Vocational training and professional education serve the same functions in that both aim at helping the student develop the knowledge and abilities needed for a specific career. It is not clear what the difference between the two is. Why should programs to qualify as doctors and dentists be labeled 'professional', while programs to qualify as veterinarians and nurses be labeled 'vocational'? Should a BEd in primary school teaching be labeled professional or vocational? Do what is called 'soft skills' and '21<sup>st</sup> Century Skills' come under professional programs or vocational programs? Why do we provide bachelor's degrees for professional programs but not for what are called vocational programs?

Whether the difference between the two categories is a matter of social prestige and income or a matter of what goes into the training program, is something important for NAAC to determine.

#### **Annexure 4:**

#### **Ethical Well-being**

In 2016, a group of four or five medical college students tied up a female monkey, and tortured and killed her, while nearly thirty medical students watched the scene without intervening (<https://www.indiatoday.in/india/story/monkey-vellore-christian-medical-college-tamil-nadu-students-fir-wildlife-protection-act-353624-2016-11-23>). This was an extreme case of ethical ill-health. A possible cause for this rise and spread of psychopathy is the extreme stress generated by the competition to get into high prestige educational programs, combined with the current educational system that pays no attention to ethical sensitivity and ethical reasoning.

Similar remarks apply to law graduates who do not have a rudimentary capacity to engage in a public discussion of whether or not the legal system needs to de-criminalize euthanasia or abortion, and engineering graduates who are not capable of critically evaluating rational arguments on the desirability or undesirability of building dams or highways in terms of their environmental impacts and their socio-economic impact on the poor and the rural populations.

To take another example, the suicide rates among students in HEI, especially those in high prestige institutions, have been rising alarmingly. (<https://www.thehindu.com/news/cities/Hyderabad/student-suicides-go-up/article37729564.ece#:~:text=More%20students%20ended%20their%20lives%20in%202020%20than%202019%2C%20according,7.4%25%20in%202019%20and%202020>) This is yet another indication of systems of higher education promoting socio-emotional illnesses. To ensure that our HEIs do not lead us to a future India with individual and societal forms of ill-health, and to promote systems that lead us to greater well-being, the rubric of evaluation needs to be designed in such a way that it pays attention to those aspects of well-being that are central to the ultimate purpose of education. The formulation of that rubric ought to be an important project for NAAC.

## **Annexure 5:**

### **Quantity vs. Quality**

The distinction between the terms *quantity* and *quality* has two distinct parameters. In the case of a product, quality refers to what we find in a product, while quantity refers to the number of items produced. Thus, we might say that while poet X has written only a small number of poems (quantity) but each poem is an outstanding one (quality), poet Y has written a large number of poems, hardly anyone outstanding.

This distinction is relevant for the quality and quantity of research as well. All of us agree that the quality of Einstein's research is outstanding. From 1900 to 1950 or so, he published more than 300 papers, but five of these published in 1905 are more than sufficient to establish him as one of the giants in the history of physics. In contrast, 500 papers published by a physicist in most Research-intensive Universities in the twenty-first century would be nowhere near the importance of these five papers by Einstein.

Suppose Einstein had published only these five papers from 1900 to 1950. Should a university committee for promotion and tenure have thrown him out of the university because of the low number of publications? The answer would clearly be no. This means, there must be a promotion committee that evaluates the merit of the research contribution of a faculty member, judging it to be excellent, good, or bad. How this is to be accomplished requires further thought and discussion.

Similar remarks apply the distinction between the quality and quantity of HEIs and their programs. A department in an RU may 'produce' only three or four PhDs a year, but if all of them become high caliber researchers in the world, that RU is more valuable to the human species than one that produces fifty graduates that stop doing research after graduation.

The second meaning of qualitative vs. quantitative has to do with the coding of a variable. When we say that an essay written by a student is 'excellent', or that a person is tall, we are coding the variable of the quality of the essay and the height of the person in terms of the categories expressed by words. But when we say that the essay deserved 92 marks, or the person is 192 cms tall, we are coding it in terms of numbers.

In the case of variables such as height, weight, distance, and temperature, it makes perfect sense to measure them and assign numbers to them so that we can make meaningful calculations. But in the case of variables such as quality of research or the quality of an HEI, numerical coding is both meaningless and dangerous.

To see this clearly, consider the different kinds of excellence in the research of Einstein and Hubble. Einstein was outstanding in his theoretical work, but designed no experiments and made no measurements. Hubble did not construct any theories but was

an outstanding contributor to observational research in astronomy. Suppose a university committee for promotion and tenure had assigned numbers from, say, one to ten for both theoretical and observational research of the faculty in physics. Einstein and Hubble would have received a ten in one of them and a zero in the other, and averaging the numbers would have resulted in the judgment that both Einstein and Hubble were average in their research. This is precisely the danger we are facing in assigning GPA to HEIs and employing gap analysis in the accreditation of HEIs.

**Annexure 6:**  
**A Rubric for Cognitive Abilities**

***Foundational***

Literacy

Evidence to show that the AC/TU/RU/MERU has a mechanism to improve the language abilities of those students with poor language abilities – especially those of listening and reading. Poor language abilities are obstacles to learning in Higher Education.

Evidence to show that these efforts have been successful. [To gather the relevant evidence, it might be necessary to devise online tests or assignments instead of student satisfaction surveys.]

Numeracy

Evidence to show that the AC/TU/RU/MERU has a mechanism to help students achieve the basic numeracy required for engaging in discussions of public issues as well as in reading newspaper articles,

Evidence to show that these efforts have been successful.

***Higher-Order***

Academic Discourse

Evidence to show that the AC/RU/TU/MERU has a mechanism to improve the capacity to engage in academic discourse – going beyond mere language skills – involving such things as critical reading, making inferences in reasoning, justifying claims, and so on. (Refer to a source that fleshes out these abilities.)

Evidence to show that these efforts have been successful.

Independent Learning abilities

Evidence to show that the AC/RU/TU/MERU has a mechanism to nurture the capacity for independent learning from documented sources of knowledge without having to depend on teachers and classrooms.

Evidence to show that these efforts have been successful.

Inquiry Abilities

Evidence to show that the AC/RU/TU/MERU has a mechanism to nurture educatedness among students along varied strands of learning.

Evidence to show that these efforts have been successful.

### Academic Inquiry and Integration Abilities

Evidence to show that the AC/RU/TU/MERU has a mechanism to help students develop the capacity for academic inquiry across disciplines and domains of academia

Evidence to show that the AC/RU/TU/MERU has a mechanism to help students develop the capacity to integrate knowledge across disciplines and domains of academia

Evidence to show that these efforts have been successful.

### Research Capability

Evidence to show that the TU/RU/MERU has a mechanism to help students develop general research capabilities across disciplines and domains of academia

Evidence to show that the TU/RU/MERU has a mechanism to help students develop specialized research capabilities in the major domains of academia.

Evidence to show that these efforts have been successful.

## **Annexure 7:**

### **Outsourcing vs. In-house Expertise**

The proposals made in the preceding sections result in what might be pursued as an extraordinary burden for NAAC in what it needs to do by way of Assessment and Accreditation. Would outsourcing NAAC's work be a way to reduce that burden? Our answer is no.

In our opinion, there are hardly any external organizations which

- (a) have the value system of education we have outlined in the preceding sections (purpose of education, valuable learning outcomes that HEIs need to aim at, general education, specialized education, ...) and
- (b) have a deep understanding and understanding of what it takes for a curriculum to achieve the learning outcomes NEP 2020 and this white paper expects them to aim at.

Most external organizations, including ISO and OECD, are located in the corporate culture of the management and administration of business organizations. It would be unrealistic to expect them to have a deep understanding and appreciation of research and education. Hence, we must do this in-house.

To meet that challenge, NAAC will require a range of sub-units to engage successfully with the functions it is expected to perform. Central to our proposal, for example, has been the function of evaluating the quality of General Education and Specialised Education in HEIs. We propose therefore that NAAC initiate, under its umbrella, a wing for General Education and a wing for Specialised Education to evaluate these two functions of HEIs, and a third wing for the evaluation of the quality of research.

The experts for the research wing must be a team of internationally renowned researchers. Those in the two education wings must be researcher-educator-thinkers in General Education and Specialised Education respectively.

Likely, we may not have an adequate number of these two categories of experts currently in India. There will be a need for systematic capacity building. We may consider this as a ten-year or twenty-year project during which efforts may be made to attract potential candidates to join these two teams and nurture them to become experts in their respective functions. The wing for General Education can also take up the responsibility of designing and implementing online courses in General Education, as discussed in section 2.

## Annexure 8:

### Bloom’s Taxonomy vs. Desirable Learning Outcomes

In this whitepaper, the rubric for the evaluation of the learning outcomes of educatedness common to all HEIs has been formulated in terms of the concepts of well-being and higher-order cognition as one of the strands of educatedness. Now, a rubric that has been widely popular in many HEIs in India for the evaluation of learning outcomes is one based on the framework of Bloom’s Taxonomy (BT). In effect, we propose that BT be replaced by the framework of Educatedness and Higher-Order Cognition (EHOC) outlined in sections 2.3 and 2.4 of this paper. In what follows, we explore the similarities and differences between the two, to indicate the reasons for our proposal.

#### The Empirical Nature of BT (vs. the Normative Nature of EHOC)

BT is based on empirical data from the *assessment tasks* designed by teachers, available in North America. That is, the taxonomy that Bloom came up with was based on a large sample of assessments available at his time, using concepts available in the educational discourse of his time. He uses words like analysis (breaking up, identifying the parts) and synthesis (putting things together) to categorize the kinds of tasks found in his sample of assessment, but he did not investigate what is desirable but was *missing* in his sample. In other words, it was *not* based on the investigation of the norms of rational inquiry, either at a trans-disciplinary level or at the level of specific modes of inquiry as embodied in academic research.

In contrast, *the rubric of higher-order cognition in EHOC is based on an understanding of how academics construct and evaluate knowledge* (one of the ideas hinted at but not explored in the approach called “constructivism”), by asking questions like “How do mathematicians prove or refute conjectures? What are the ways in which mathematical proofs/refutations are similar to experimental scientific proofs/refutations, theoretical scientific proofs/refutations, legal proofs/refutations, philosophical proofs/refutations, and so on? In other words, the proposed framework is based on the idea of helping students develop the capacity to think like an academic: like a mathematician, an experimental scientist, a theoretical scientist, a philosopher, a historian, and so on, as embodied in academic *research*.

BT does not cover learning outcomes that are outside intellectual well-being (higher-order cognition), such as societal well-being, emotional well-being, ethical well-being, spiritual well-being, and so on. It is limited to intellectual well-being. Even within this strand, it does not cover those aspects of knowing such as the value of rigor, clarity, and

precision, open-minded skepticism, sense of uncertainty, and so on. So we need a more comprehensive framework.

### **Bloom’s Taxonomy vs. Higher-Order Cognition**

The *Taxonomy of Educational Objectives* (1956) by Benjamin Bloom and his collaborators (Bloom’s taxonomy) proposes six levels of learning objectives: knowledge, comprehension, application, analysis, synthesis, and creation.

*Knowledge* “involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting.”

*Comprehension* “refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.”

*Application* refers to the “use of abstractions in particular and concrete situations.”

*Analysis* represents the “breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between ideas expressed are made explicit.”

*Synthesis* involves the “putting together of elements and parts to form a whole.”

*Evaluation* engenders “judgments about the value of material and methods for given purposes.”

(A subsequently revised BT replaces the above with remembering, understanding, applying, analyzing, evaluating, and creating. (<https://tlc.iitm.ac.in/PDF/Blooms%20Tax.pdf>) )

Some of these correspond to some of the strands in Higher-Order Cognition. Evaluation, for instance, corresponds to (but is not the same as) critical thinking. Synthesis might be the same as integration. Analysis might be an interpretation within a theory, as in literary analysis or political analysis, or identification of the parts and labeling the parts, as in chemical analysis. We do not know if ‘creation’ covers the construction of knowledge, including theory construction, or only creating those things that can be patented.

To take an example, consider a program that seeks to help students develop the capacity to construct, articulate and evaluate mathematical proofs. This involves being able to propose a conjecture, make appropriate abstractions, and deduce logically at the least. It is not clear if and how BT could contribute to such a program. Similar arguments can be made for other abilities such as the ability to distinguish between correlation and causation, the ability to choose between competing theories, and the ability to deduce and test predictions – abilities important in constructing academic knowledge. Even in

the case of engineering programs where the abilities of abstraction, reasoning, and optimizing are important, BT is largely insufficient.

The basic problem with the terms and concepts in BT is that they do not have fleshed-out details that can shape the design of syllabi, teaching-learning materials, or even implementation. They are concerned only with assessment, and that too, assessment of the kind practiced more than fifty years ago or is still being practiced in North America. We do not know, for instance, how these terms connect to the tools of inquiry such as classifying, defining, generalizing, reasoning, predicting, explaining, identifying logical contradictions, and so on. Without that kind of specificity, these words cannot be used for the assessment and accreditation of HEIs.

### **Learning as Behavior vs. Learning as a Process in the Mind**

The literature on education talks about aims and objectives:

***aims*** as what we expect the students to *learn* in the course or program, and

***objectives*** as what we can observe (and measure) in the behavior of learners if they have learned what we expect them to learn.

Learning is a transformation in the mind of the learner, resulting in a mind-internal state that we cannot directly observe. Under ‘objectives’ we specify the behavior that we can observe if they have learned what we expect them to learn.

This is like saying that we cannot directly observe what we call sadness or happiness, as these are internal to the mind of a person. What we can observe are the behavioral correlates of the mental states of happiness and sadness: the facial expressions, the body language, the tears, what a person says, and the voice quality: from these, we make inferences about the mental states that we cannot observe.

BT is based on the concept of ***objectives***. It stems from the behaviorist psychology and learning theories of the first half of the twentieth century. Behaviorist psychology held that the mind is an unscientific concept since it is not observable, so all that we can talk about is behavior. We can talk about stimuli and responses, both of which are observable, but not the mind that mediates between the two. Stimuli and responses are ‘associated’, without the intervening mind. As a result, BT is in direct conflict with the concept of ***learning processes*** and ***learning outcomes*** that exist in the human mind. The very concept of cognition, that cognitive psychology studies, is incompatible with behaviorist psychology. Naturally, higher-order cognition is also impossible.

BT formulates learning objectives in terms of the behaviors that can be observed and even measured in responses to the stimuli in assessment tasks. Hence, it lends itself to the view of education as training students to answer exam questions. This is detrimental to what NEP 2020 stands for when it calls for higher-order cognition.

The concepts of mind and its components are no longer unfashionable in psychology or neuropsychology. Learning theories propagated by behaviorist psychologists like Pavlov, Skinner, and Thorndike (with the terminologies of classical conditioning and operant conditioning) continue to be taught in courses on educational psychology in many departments of education in India, even though their status is not unlike that of Ptolemaic astronomy and Aristotelian physics.

## Annexure 9:

### Systems of Education: Ancient and Modern

As pointed out in section 13, any system of education is composed of three subsystems: a set of educational *goals*, the *means* to achieve those goals, and the *value system* of education from which the goals and means are derived: the what, how, and why:

**A) What:** what does the system expect learners to learn?

**B) How:** how does the system intend to help the learners learn what the system expects them to learn?

**C) Why:** what is the value system that shapes the choices in (A) and (B)?

And any meaningful system of assessment and accreditation of HEIs and their programs must include not only B, but also A and C as well.

To gain a general perspective, it would be useful, therefore, to compare A-C as envisioned in this paper with other current educational systems, as well as those of the past. But that pursuit is beyond the scope of this annexure, so we will restrict ourselves to a brief look at the educational systems of the Indian Subcontinent, treating it as an illustrative sample of comparing educational systems in terms of (A)-(C).

It must be understood that when we say Ancient Educational Systems of the Indian Subcontinent, we are talking about a wide range of species of education, far more diverse than, say, the species of Education Systems in North America. To make our task manageable, we will restrict our scope to the features of the ancient university systems with multiple gurus and disciples living in the same residential campus, as distinct from, say education with a single guru in a forest, or education at home with a guru as a private tutor. And we will pick Takshashila (Taxila), as our representative example.

According to Choudhary (2008), Taxila

“...was famous especially for the school of Medicine, Law and Military Science which, by midway through the 6th century had acquired a reputation as a great centre of learning, attracting scholars from distant parts of India (Dongerker, 1997 pp. 1-2). During the reign of Alexander the Great the fame of its philosophers had spread as far as Greece. The students’ choice of subjects was not restricted by their caste. For instance, a Brahmin could study Archery and a Kshatriya could study the Vedas. Panini, the renowned Sanskrit Grammarian, and Kautilya, the author of the Arthashastra, were reputed to have studied in Taxila which flourished as a great educational centre until the middle of the 3rd Century A. D.

It is clear that subsystem (A) in Taxila included multiple disciplines. And for those who have studied Ancient Indian systems of epistemology and logics (e.g., Nyaya, Buddhist, and Jainist epistemologies and logics) and have considered the widespread use of

debating as a way of learning and inquiry, it would be equally clear that rationality and rigor as integral components of (A). As for subsystem (B), the central mode of instruction was that of oral transmission, the same channel being used for student-student interaction (peer learning) and student-teacher interaction. Without going into the details, one may also say that it would be reasonable to conclude that the educational philosophy (C) underlying (A) and (B) included a vision of a better world in terms of its intellectual, ethical, societal, emotional, pragmatic, and spiritual health, along with character building and the empowerment of the individual.

The ancient pedagogy during the Gurukula system was mainly based on four sequential stages as Adidhi (information), Bodha (learnings), Aachaarana (adoption), and Prachaarana (Practice). This was supported by interactions with teachers at ascending levels as Adhyaapak (Information), Upaadhaaya (knowledge), Aachaarya (skills), Pandita (insights), Drishta (vision), and Guru (awakening).

A brief look at the evolutionary history of this remarkable ancient system shows a gradual decay along many dimensions, where dogmatism, closed-mindedness, and ritualism replaced what was valuable in the ancient system, long before the Mughals arrived. Whether the introduction of the British system of education brought more benefits than harm is an issue that requires careful examination. Regardless of those issues, this white paper takes the position that what was desirable in the ancient system ought to be brought back to the twenty-second century India.

**Annexure 10:****Ten Central Capabilities related to individual Well-being**

1. *Life.* Being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so reduced as to be not worth living.
2. *Bodily Health.* Being able to have good health, including reproductive health to be adequately nourished; to have adequate shelter.
3. *Bodily integrity.* Being able to move freely from place to place; to be secure against violent assault, including sexual assault and domestic violence; having opportunities for sexual satisfaction and for choice in matters of reproduction.
4. *Senses, Imagination, and Thought.* Being able to use the senses, to imagine, think, and reason—and to do these things in a "truly human" way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to have pleasurable experiences and to avoid non-beneficial pain.
5. *Emotions.* Being able to have attachments to things and people outside ourselves; to love those who love and care for us, to grieve at their absence; in general, to love, to grieve, to experience longing, gratitude, and justified anger. Not having one's emotional development blighted by fear and anxiety. (Supporting this capability means supporting forms of human association that can be shown to be crucial in their development.)
6. *Practical Reason.* Being able to form a conception of the good and to engage in critical reflection about the planning of one's life. (This entails protection for the liberty of conscience and religious observance.)
7. *Affiliation.*
  - a) Being able to live with and toward others, to recognize and show concern for other humans, to engage in various forms of social interaction; to be able to imagine the situation of another. (Protecting this capability means protecting institutions that constitute and nourish such forms of affiliation, and also protecting the freedom of assembly and political speech.)
  - b) Having the social bases of self-respect and non-humiliation; being able to be treated as a dignified being whose worth is equal to that of others. This

entails provisions of non-discrimination on the basis of race, sex, sexual orientation, ethnicity, caste, religion, national origin and species.

8. *Other Species.* Being able to live with concern for and in relation to animals, plants, and the world of nature.
9. *Play.* Being able to laugh, to play, to enjoy recreational activities.
10. *Control over one's Environment.*
  - a) *Political.* Being able to participate effectively in political choices that govern one's life; having the right of political participation, protections of free speech and association.
  - b) *Material.* Being able to hold property (both land and movable goods), and having property rights on an equal basis with others; having the right to seek employment on an equal basis with others; having the freedom from unwarranted search and seizure. In work, being able to work as a human, exercising practical reason and entering into meaningful relationships of mutual recognition with other worker.

**Annexure 11:****Global Practices**

Assessment and accreditation are not confined to the education sector but are also globally used in different sectors such as healthcare and manufacturing.

*International Organization for Standardization (ISO)*

The International Organization for Standardization (ISO) processes may offer valuable learning. The Bureau of Indian Standards (BIS) is an active participant in ISO's standards development. ISO has developed standards for various assessment practices and accrediting bodies largely in the form of the ISO 17000 series of standards. It has also prescribed standards such as ISO 9001 on quality management systems that are relevant to educational organizations. As per the ISO Survey 2020, these seem to be the most popular with an estimated over 900,000 certificates issued globally. As also ISO 21001 for educational quality management systems and ISO 29993 for learning service providers may be relevant in the current context.

The Quality Council of India (QCI) was established in 1997 as a National body for Accreditation. Already, the National Accreditation Board for Hospitals & Healthcare Providers (NABH) and National Accreditation Board for Testing and Calibration Laboratories (NABL) have made a positive impact on the quality of healthcare services. Incidentally, NAAC has referenced ISO 9001 in its criteria with some weightage to those certified to it. Thus, while ISO may not be an appropriate model for the education sector, it is desirable that NAAC/SAA reviews the knowledge available in these standards and adopts relevant parts to improve the quality and credibility of the accreditation process.

*Education Accreditation*

Many progressive countries have robust systems of accreditation for various categories of educational institutes and programs. We provide here only a few highlights of international practices by taking three major agencies as well-known examples of the global accreditation scenario in business management institutions.

- *Association of MBAs (AMBA)*: This is based in London. Its philosophy is centered on impact, employability, and learning outcomes. Institutes need to demonstrate the highest standards in teaching, learning and curriculum design, career development and employability, student, alumni, and employer interaction. Currently, 12 B-schools are AMBA-accredited in India, including IIMs (C, I, K, L), NMIMS, ISB, and SPJIMR.

- *The Association to Advance Collegiate Schools of Business (AACSB )*: This is the US and Singapore-based agency. It is the longest-standing and most recognized professional accreditation body in the business education field at the Bachelor's, Master's, and Doctoral levels. In India, 18 institutions have AACSB accreditation, including IIMs (C, I, L, U), IMT-Ghaziabad, and MDI-Gurgaon.
- *The European Quality Improvement System (EQUIS)*: This is run by the Brussels-based EFMD Management Development Network. It offers accreditation to undergraduate, graduate, and doctoral business programs. EQUIS assesses institutions based on faculty, students, research, e-learning, and community outreach. EQUIS strives for a balance between high academic quality and professional relevance, for which it emphasizes innovative program design, pedagogy, and other aspects. In India, six schools have EQUIS accreditation - IIMs (A, B, I, C, K), and ISB-Hyderabad.

A careful study of international accreditation practices offers a few noteworthy considerations that may help in re-imagining NAAC/SAA systems. Most international agencies believe in providing active mentorship and a strong spirit of enablement in the accreditation process. If the applicant falls short of the agency's standards, the journey does not end. The agency continues to guide the institute to fill the gaps and *close the loop*. It provides opportunities and resources to the applicant to improve and attain the set standards. The whole process is intensive and can take a relatively long time (three to five years).

The accreditation granted is not forever nor a *status quo*. It is only for a fixed duration, say, five years. Accredited institutes need to show evidence of *continued improvement* and apply for re-accreditation that involves review cycles at regular intervals and ensures that the accredited party continues to improve, develop, and evolve.

International accreditation agencies recognize and respect diverse settings shaped by cultural traditions, regulatory frameworks, social needs, etc. The agencies do not impose their values to examine the performance of the institutes/universities. Most agencies have well-defined measures by which the applicants can know how far they are from attaining their learning goals. These can be direct or indirect measures. Direct measures include the activities of the students in the classroom, their answers to tests and exams, and the projects or theses they submit. Carefully designed qualitative and quantitative surveys, as well as qualitative and quantitative feedback from faculty, students, and alumni would form the indirect measures. Such practices in international accreditations have signaled quality, enhanced competitiveness and inspired confidence of prospective employers.

## Annexure 12: Cited and Relevant Scholarly Articles

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2. Patwardhan B, K P Mohanan & Tara Mohanan (2021) "Higher Education in India: Vision, Purpose, Policy, and Strategy," Association of Indian Universities, pp 7-8) [https://www.aiu.ac.in/documents/AIU\\_Publications/Wednesday\\_Essay/2.%20Higher%20Education%20in%20India%20Vision.%20Purpose.%20Policy%20and%20Strategy%20By%20Bhushan%20Patwardhan.%20VC%20UGC.%20K%20P%20Mohanan.%20Co-Founder.%20ThinQ%20&%20Tara%20Mohanan\\_03%20March%202021.pdf](https://www.aiu.ac.in/documents/AIU_Publications/Wednesday_Essay/2.%20Higher%20Education%20in%20India%20Vision.%20Purpose.%20Policy%20and%20Strategy%20By%20Bhushan%20Patwardhan.%20VC%20UGC.%20K%20P%20Mohanan.%20Co-Founder.%20ThinQ%20&%20Tara%20Mohanan_03%20March%202021.pdf)
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<https://unece.org/fileadmin/DAM/env/esd/EGC/Relevant%20materials/ADFCAPABILITYARTICLE.doc> \*\*
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7. Saito, M. 2003. Amartya Sen's Capability approach to Education: A critical exploration, *Journal of Philosophy of Education*, 1, pp.17-33 \*\*
8. Sen, A. 1999. *Development as Freedom*. Oxford: Oxford University Press \*\*
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12. Bloom B. S; Engelhart, M. D.; Furst, E. J.; Hill, W. H.; David Krathwohl (1956). *Taxonomy of educational objectives: The classification of educational goals*. Vol. Handbook I: Cognitive domain. New York: David McKay Company.
13. Choudhary, Sujit Kumar, "Higher Education in India: a Socio-Historical Journey from Ancient Period to 2006-07" *Journal of Educational Enquiry*, Vol. 8, No. 1, 2008)

\*\* Articles relevant to the Capability Approach. Inputs to this section from Prof Medha Deshpande are gratefully acknowledged.

## **Annexure 13:**

### **List of Participants in the Brainstorming Meet**

1. Dr. Anil Jauhri, Former CEO, Quality Council of India
2. Prof. Bhushan Patwardhan Chairman-EC, NAAC, Bengaluru
3. Prof. Darshan Shankar, VC, TDU
4. Prof. Dishan Kamdar, VC, FLAME
5. Prof. H. A. Ranganath, Former Director, NAAC
6. Prof. K. P. Mohanan, Co-Founder, ThinQ
7. Dr. Leena Chandran Wadia Senior Fellow, ORF, Mumbai
8. Prof. M. K. Sridhar, UGC Commission Member
9. Prof. Nitin Karmalkar, VC, SPPU
10. Prof. Pankaj Mittal, Secy Gen, AIU
11. Prof. R.S. Grewal, Former VC, Chitkara
12. Prof. Sandeep Sancheti, Former VC, Manipal-J, SRM
13. Prof. Suranjan Das, VC, Jadavpur
14. Prof. Sushma Yadava, UGC Commission Member
15. Prof. T.V. Kattimani, VC, CU, TUAP
16. Dr. Tara Mohanan, Linguist and educator, Co-Founder, ThinQ
17. Prof. V.S. Prasad, Former Director, NAAC
18. Prof. Vaidhyasubramaniam, VC, SASTRA
19. Prof. Vandana Singhvi Patel, Professor, MICA, Ahmedabad
20. Prof. Vasudha Kamat, Eminent educationist, Member NEP
21. Prof. Vigneshwar Ramakrishnan (Rapporteur)
22. Prof. Vinod Bhat, Former VC, MAHE
23. Dr. Amiya Kumar Rath, Adviser, NAAC
24. Dr. B. S. Ponmudiraj, Adviser, NAAC
25. Dr. Sujata P. Shanbhag, Adviser, NAAC
26. Dr. Devender S. Kawday, Adviser, NAAC
27. Dr. Shyam Singh Inda, Assistant Adviser, NAAC
28. Dr. A. V. Prasad, Assistant Adviser, NAAC
29. Dr. D. K. Kamble Assistant Adviser, NAAC

## **Annexure 14:**

### **Members of NAAC Executive Committee**

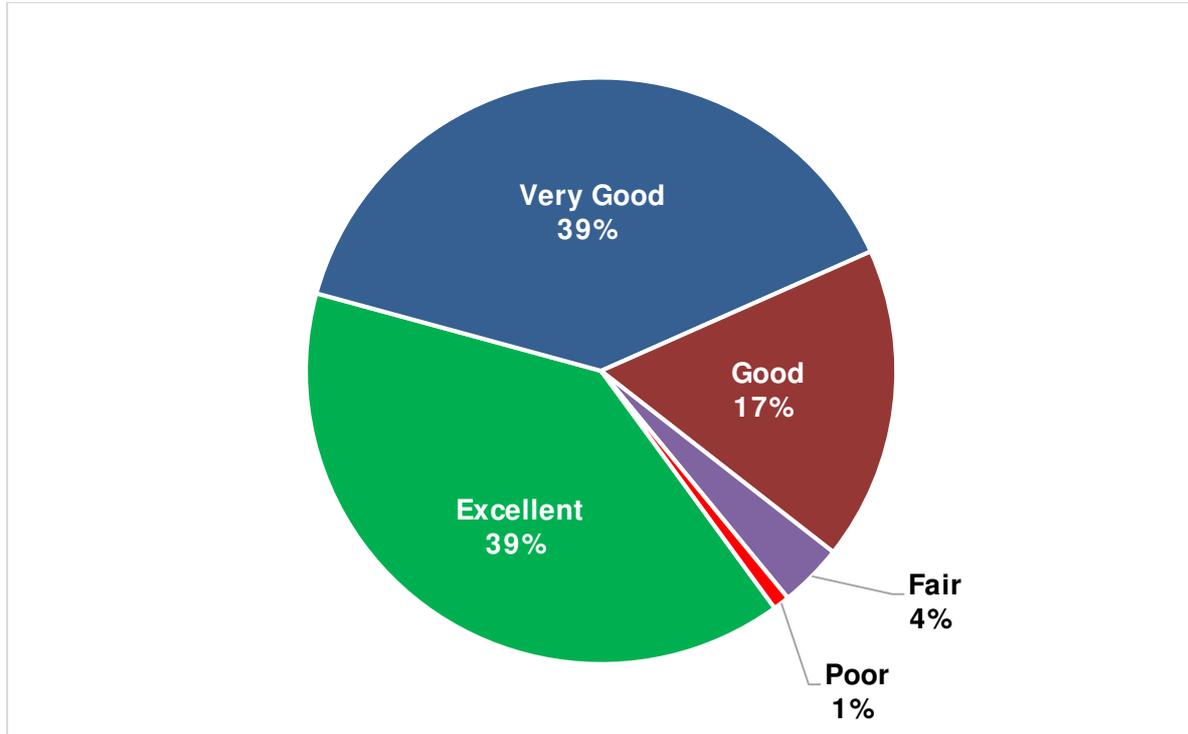
1. Prof. Bhushan Patwardhan, Chairman, NAAC-EC
2. Shri K. Sanjay Murthy, Secretary, Ministry of Education, GoI
3. Prof. Rajnish Jain, Secretary, UGC
4. Prof. Nagesh Thakur, Himachal Pradesh University
5. Prof. M. K. Sridhar, Commission Member, UGC
6. Prof. Rama Shanker Dubey, VC, Central University of Gujarat
7. Prof. (Mrs.) Anu Singh Lather, VC, Dr. Ambedkar University
8. Prof. Yogesh Singh, VC, University of Delhi
9. Prof. Jagdish Prasad Singhal, Former VC, University of Rajasthan
10. Prof. Avinash C. Pandey, Director, Inter-University Accelerator Centre
11. Dr. Smita Raosaheb Deshmukh, Principal, Matoshri Vimlabai Deshmukh Mahavidyalaya
12. Dr. B. S. Ponmudiraj, Adviser, NAAC
13. Ms. Kamini Chauhan Ratan, Joint Secretary, MHRD
14. Prof. S. C. Sharma, Director, NAAC

**Annexure 15:**

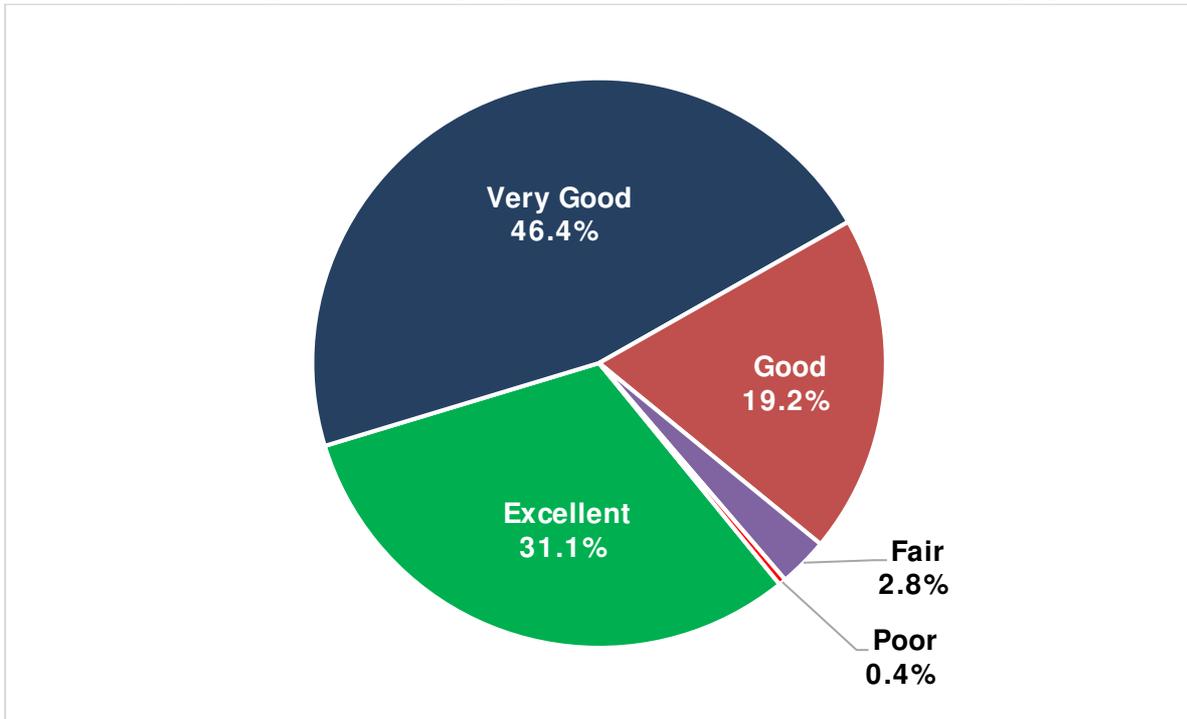
**Public Response to the White Paper**

There were more than 400 responses to the white paper from the public. The responses are summarized below. As we see from the summary, the public, in general, is in favour of the recommendations in the white paper and is appreciative of the approaches outlined (about 96% of them have rated the white paper as good, very good or excellent).

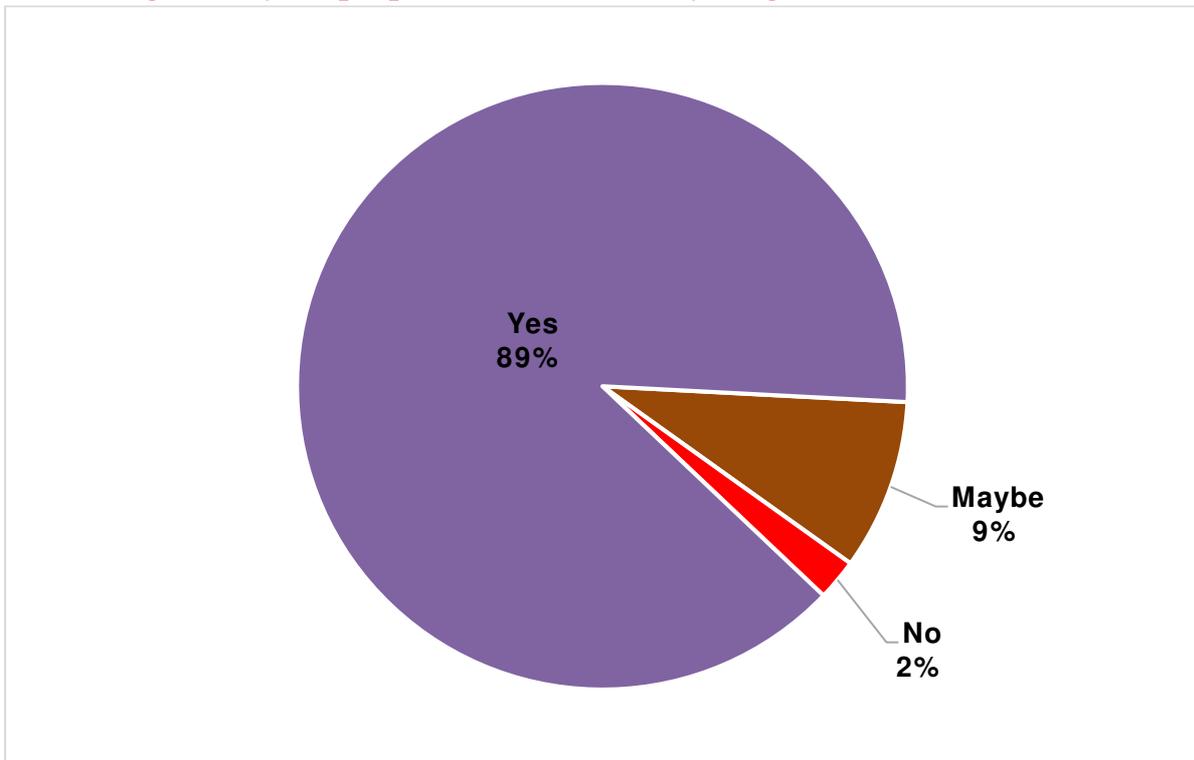
**Q1) What is your opinion on the approach adopted to create this White paper?**



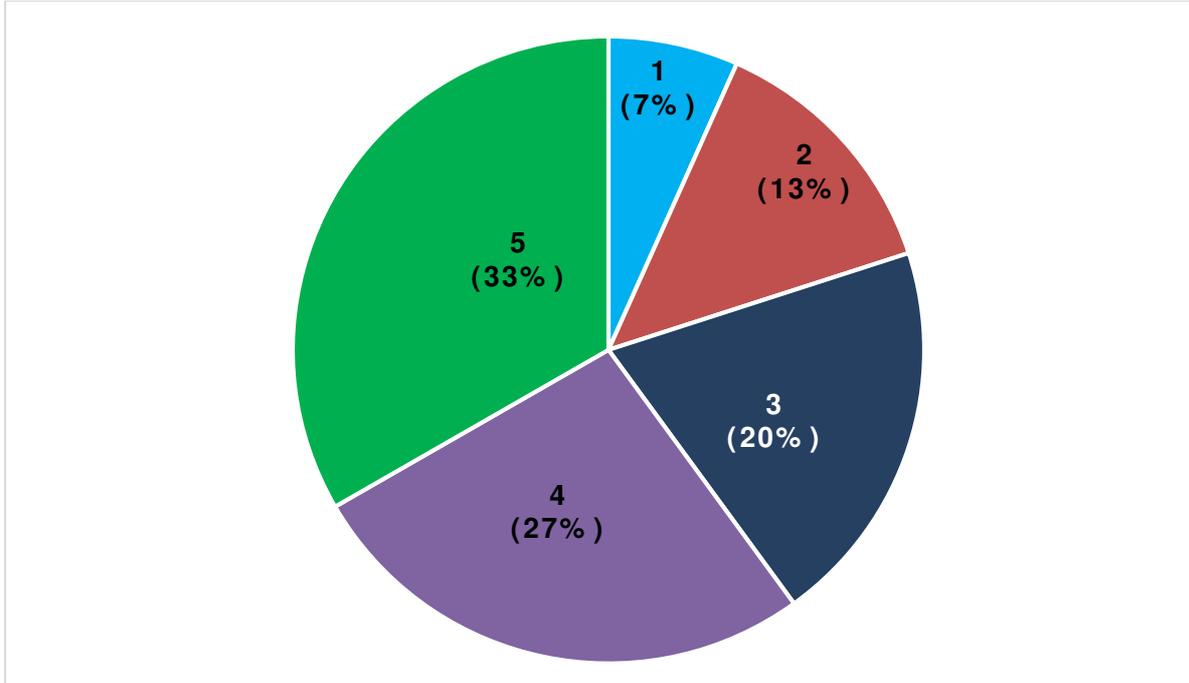
**Q2) What is your opinion on the purpose of education stated in the white paper?**



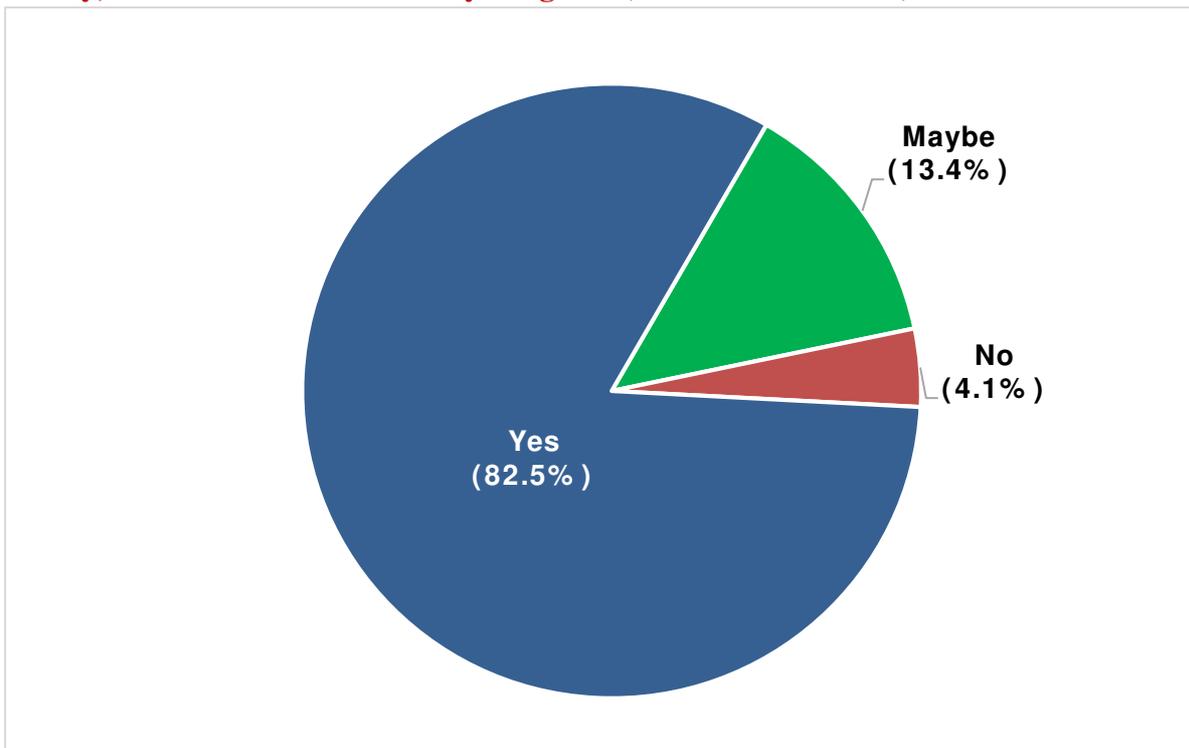
**Q3) A central tenet of this white paper is that a system of assessment and accreditation should be guided by the purpose of education. Do you agree?**



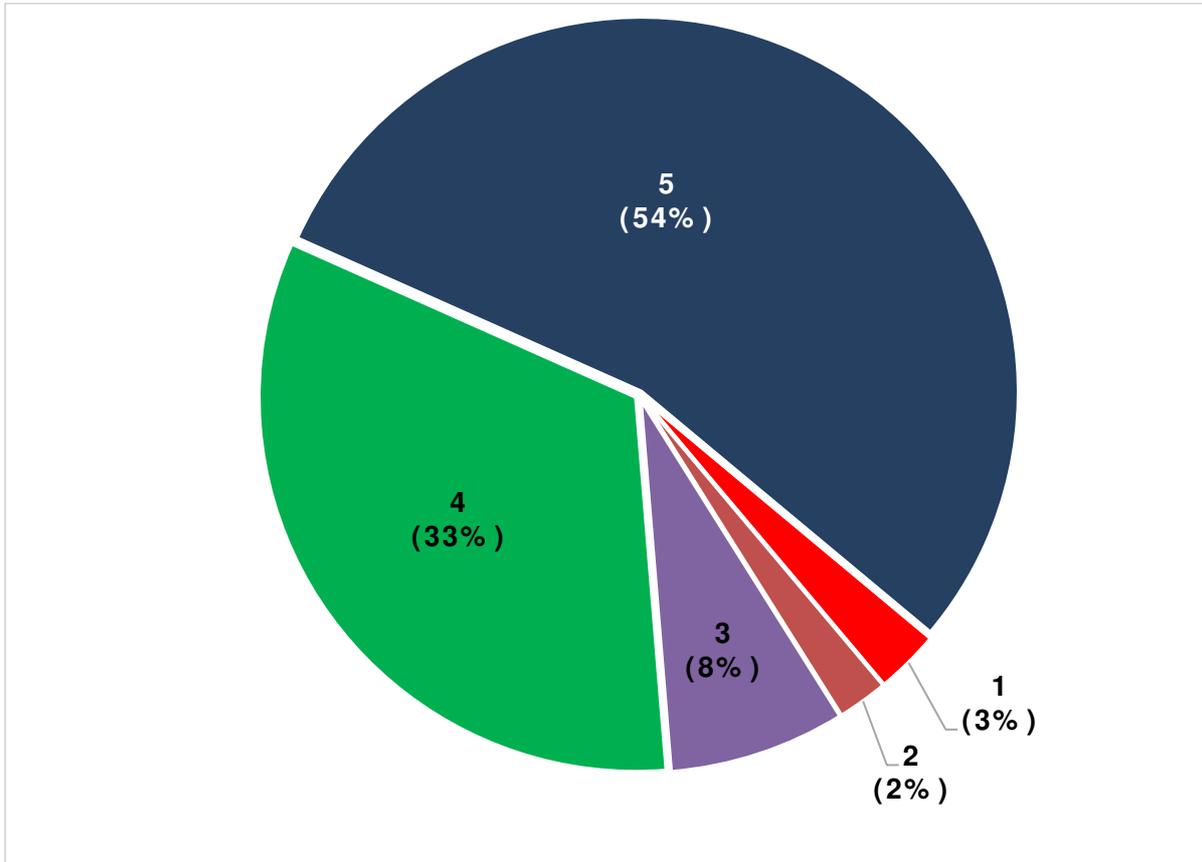
**Q4) This white paper recommends that assessments of HEIs shift from input-driven mode to outcome-based assessment. To what extent do you think this will have an impact on the quality of higher education in India?**



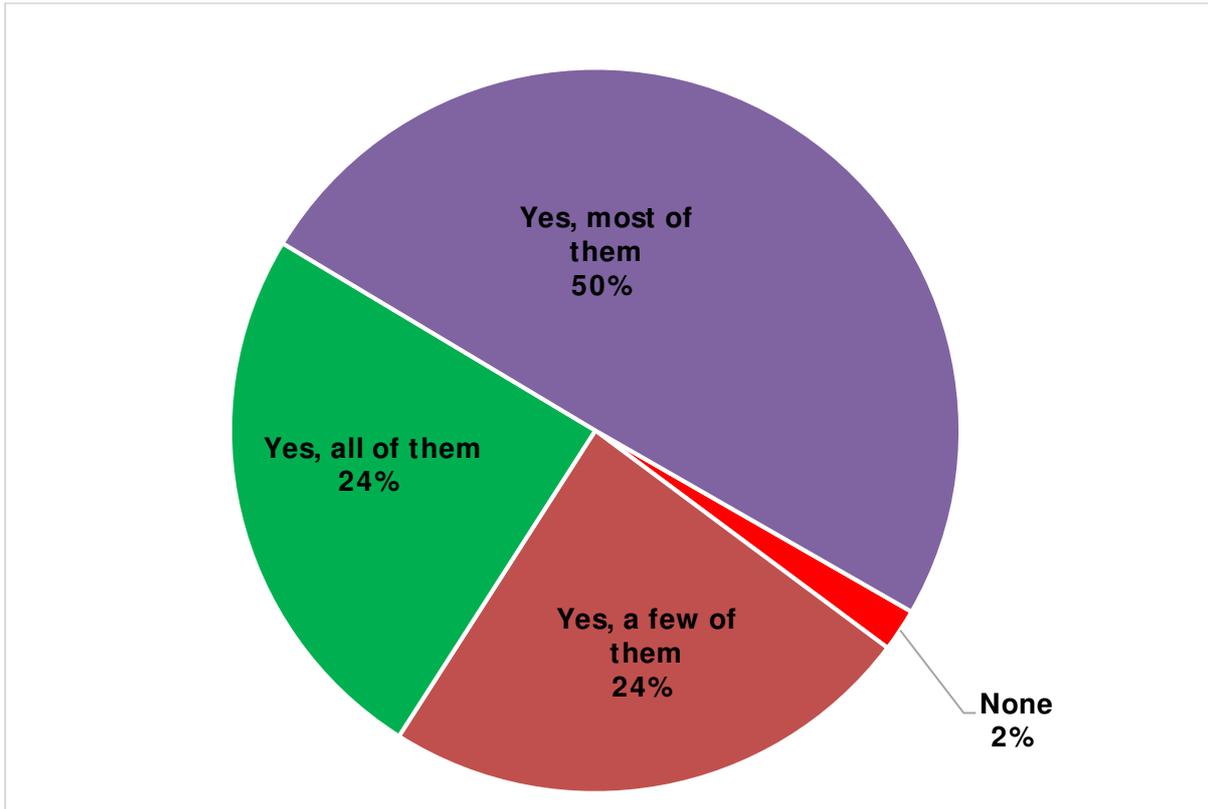
**Q5) Higher-order cognitive capacities are central to the well-being of the individual, society, nation and the world. Do you agree? (Sections 2.2 and 2.3)**



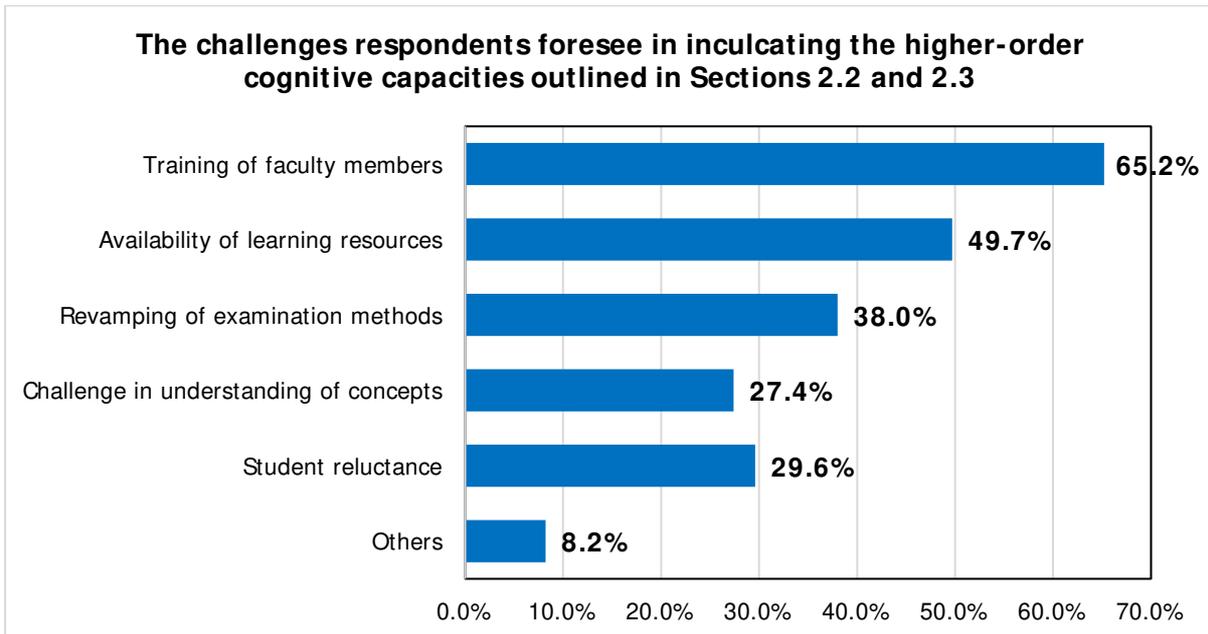
**Q6) A specific emphasis on General Education in all HEIs is required to improve the quality of education in India. Do you agree?**



**Q7) NEP 2020 envisions higher-order cognitive capacities in our students. An inventory of trans-disciplinary tools of inquiry which form the basis for higher-order capacities is provided in Table 2. In your experience of higher education either as a student or as a faculty member, or as a member of the public, does the curriculum help students acquire these abilities?**

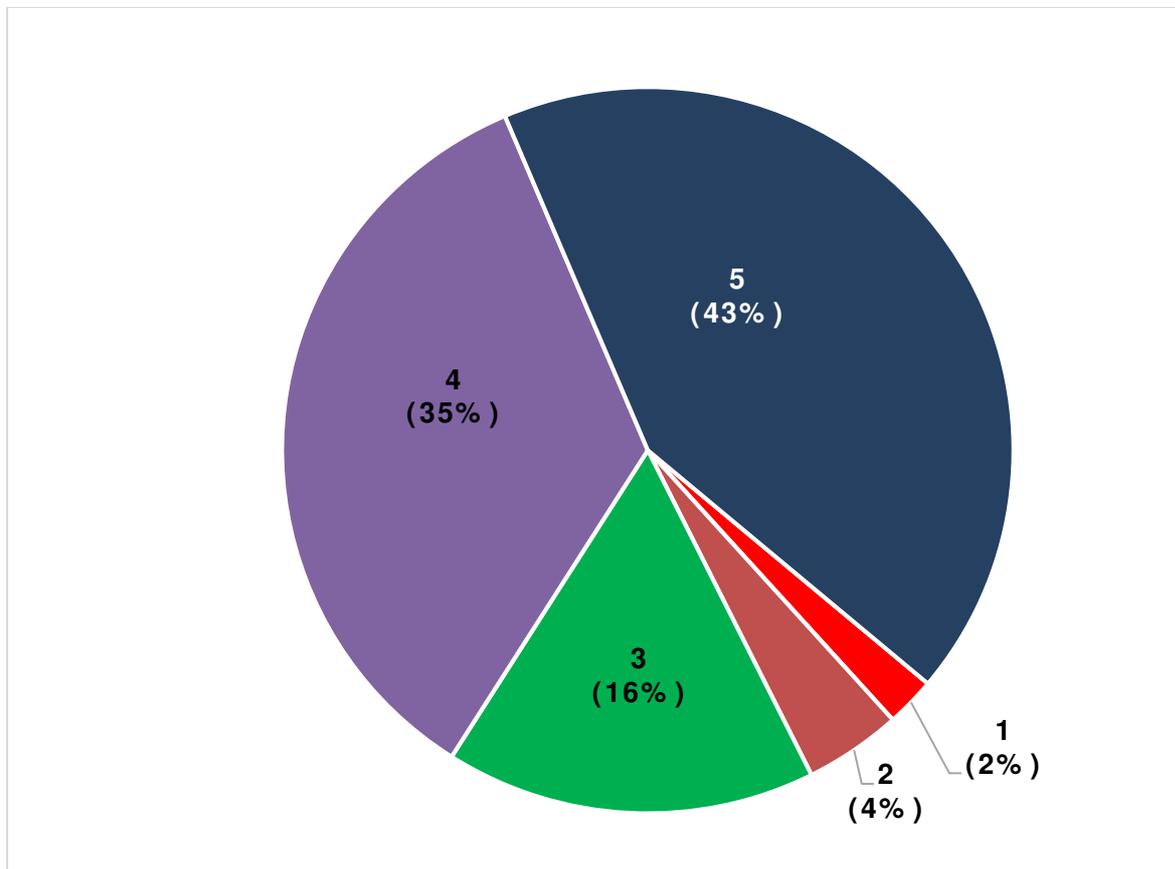


**Q8) What challenges do you foresee in inculcating the higher-order cognitive capacities outlined in Sections 2.2 and 2.3?**

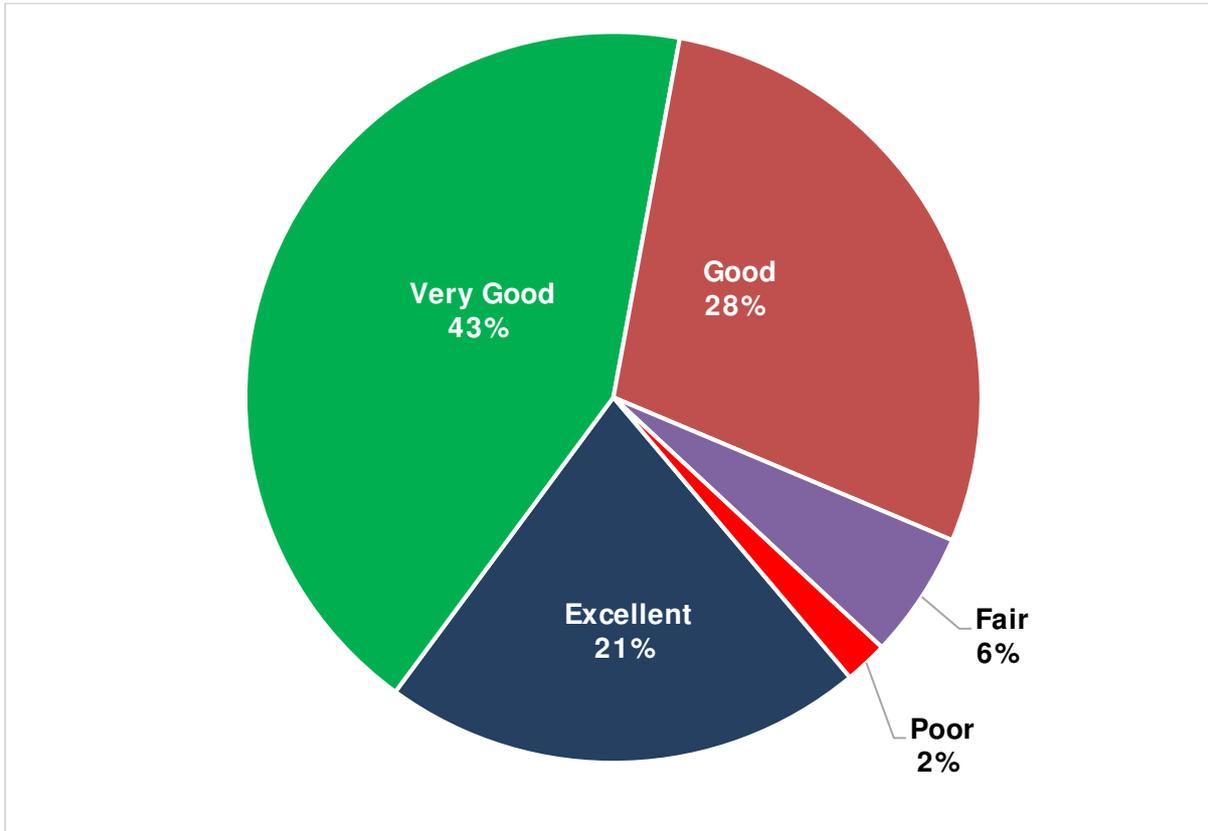


Training of the faculty members (65.2%) and availability of learning resources (49.7%) followed by revamping of examination methods (38%), understanding of the new concepts (27.4%) and student reluctance (29.6%) are among the major problems respondents foresee in inculcating the higher-order cognitive capacities outlined in sections 2.2 and 2.3. A small percentage of respondents (8.2%) also expect the following challenges – low attendance of students in the physical class; lack of faculty autonomy; funding issues; involvement of teachers; difference in student quality; leadership/institutional apathy; and implementation issues arising due to the vast differences in rural and urban educational institutions; and lack of awareness in achieve the objectives.

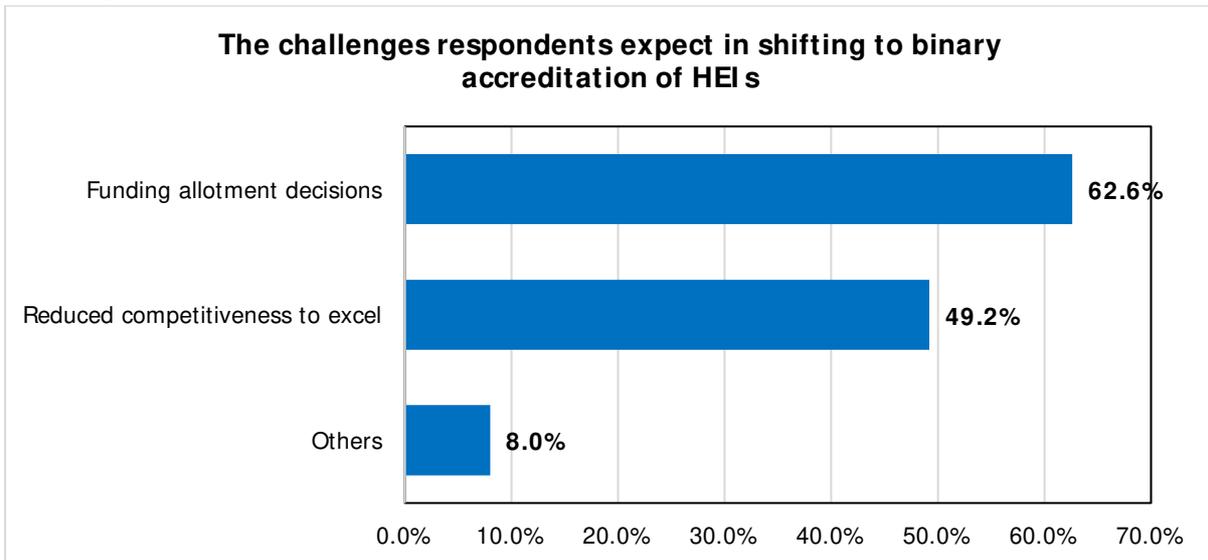
**Q9) Employability is only one component of the well-being of an individual. Do you think a shift in conception of education from this narrow sense of well-being to overall well-being along the various dimensions will benefit our students and, by extension the society, the nation and the world? [Sections 2.3, 2.4 and 2.5]**



**Q10) What do you think about the suggested framework (in terms of the categories of the HEIs and multiple accreditation agencies) in the white paper for assessment and accreditation?**



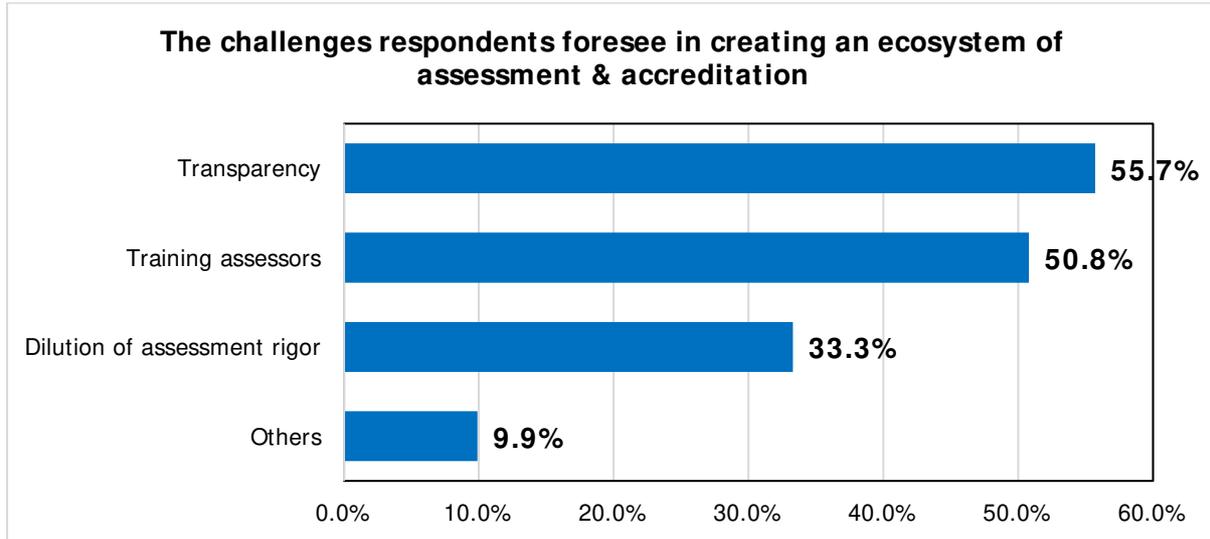
**Q11) What, in your opinion, are the challenges in shifting to binary accreditation of HEIs? [Section 9]**



The funding allotment decisions and reduced competitiveness to excel are major challenges in shifting to binary accreditation of HEIs. Almost 62.6% respondent opined that the funding allotment decisions would be biggest challenge in shifting toward binary accreditation. Similarly, almost of 50% respondents also felt reduced competitiveness to excel could also emerge as another significant challenge in shifting binary accreditation. Among the other

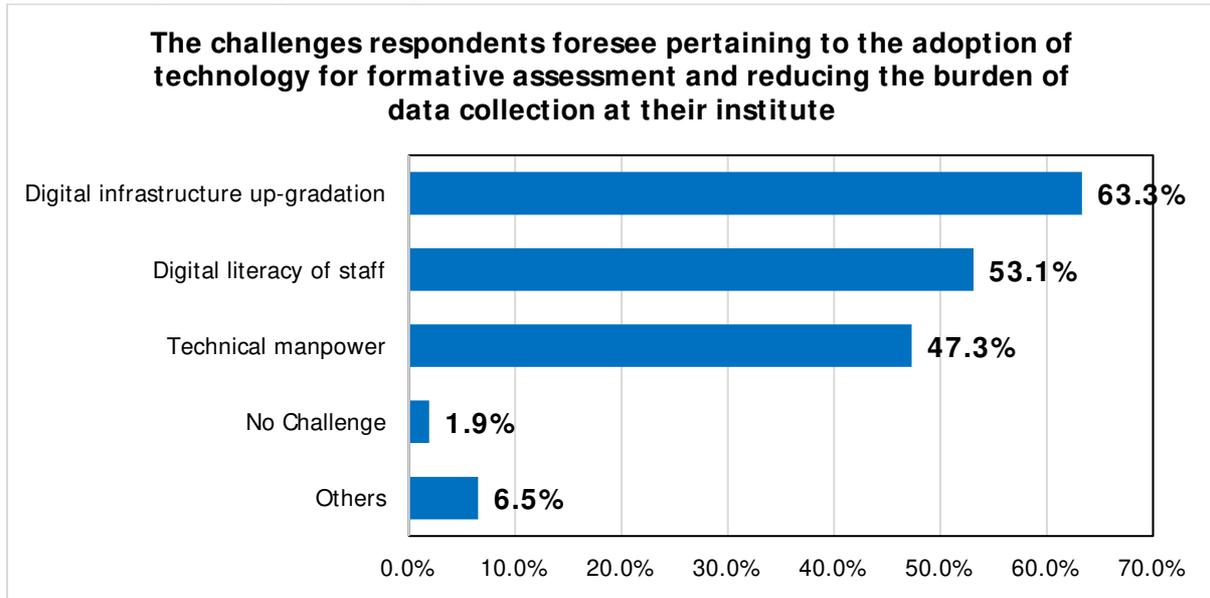
challenges that 8% respondents felt were – maintaining team spirit: its impact on pattern of examination, evaluation, and variations in rubrics for assessment and additional burden on faculty and staffs for the completion of assessment process.

**Q12) What do you see as the challenges in creating an ecosystem of assessment & accreditation? (Section 11.5).**



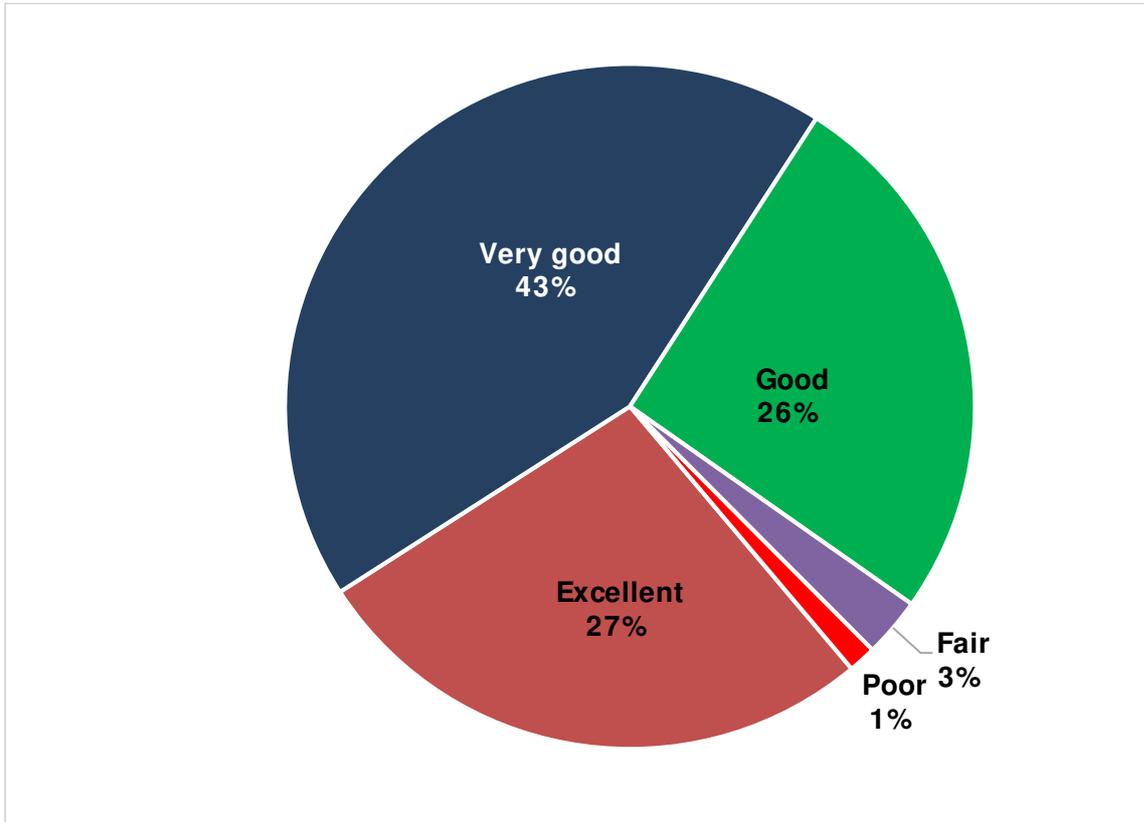
According to the respondents, transparency, training assessors and dilution of assessment rigor might pose a significant challenge in creating an ecosystem of assessment & accreditation. Almost 50 to 56 % respondents expressed their concern over transparency and training assessors, whereas one third respondents expected that dilution of assessment rigor could emerge as a significant challenge for HEIs in creating an ecosystem of assessment & accreditation. Some of the other challenges expressed by almost 9.9% respondents included participation of promoters of the institutions; increase of load of the process on the institutes; teaching staff for paperwork; make the assessment process lengthy; Infrastructural support, Inertia to adopt new and innovative things; maintaining the uniformity and compatibility of standards since multiple accrediting bodies for accreditation may have their own implications in terms of the credibility of the assessment and accreditation processes conducted by each of the accrediting bodies. Lack of financial assistance and faculty in HEI. Shift of focus of institutions from students to NAAC accreditation. Ensuring participation of larger number of assessors.

**Q13) A crucial suggestion in the white paper is the adoption of technology for formative assessment and reducing the burden of data collection for the HEIs. What are the challenges you foresee pertaining to this at your institute? (Section 12)**



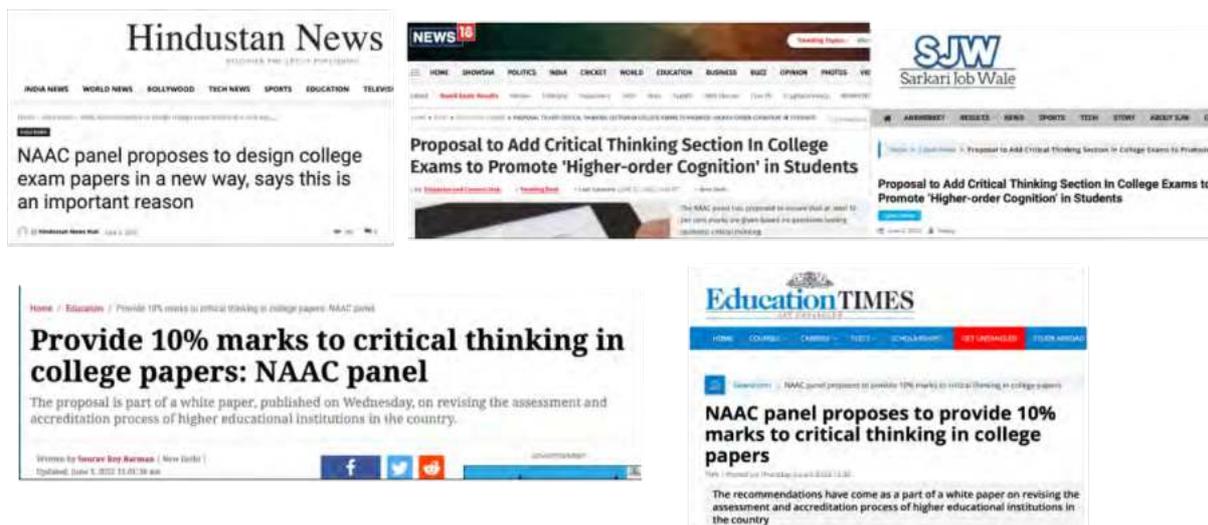
According to respondents' feedbacks, upgradation of digital infrastructure; digital literacy of staffs and availability of technical manpower would be major challenges in adoption of technology for formative assessment and reducing the burden of data collection for the HEIs. Most of the HEIs have different level of digital infrastructure in place and almost 63.3% respondents opined that HEIs with poor financial status would face a serious challenge in upgradation of digital infrastructure. Apart from these, almost 47 to 43 percent respondents felt that digital literacy of staff and availability of technical manpower might also pose a significant challenge particularly for HEIs located in rural and hilly regions as well as financially constrained HEIs. A miniscule percentage of respondents (1.9%), who have digital infrastructure and technical manpower did not see it as a problem. A small percentage of respondents (6.5%) reported the following problems they might face during the adoption process, and these are - increase of workloads of data collection burdens the staff and affecting actual assigned works; addressing questions of Peer team members during the validations of information not verified digitally; inadequate funding support for sophisticated/professional augmentation of IT infrastructure from the state and central funding agencies to implement at full scale; data security; lack of uniform bench marks by various agencies and seeking sane data by various agencies in different formats; transparency declaring data by the Private institutions on digital platforms.

**Q14) What is your overall rating of the white paper?**



## Annexure 16: Media Coverage

The white paper was extensively covered in various media, highlighting the salient recommendations. A sample of the same is provided below.



Links to the media articles on the white paper:

1. Indian Express: <https://indianexpress.com/article/education/10-pc-for-critical-thinking-college-papers-naac-panel-7948252/>
2. Hindustan News Hub: <https://hindustannewshub.com/india-news/naac-panel-proposes-to-design-college-exam-papers-in-a-new-way-says-this-is-an-important-reason/>
3. Education times:  
<https://www.educationtimes.com/article/65779739/91959201>
4. News18: <https://www.news18.com/news/education-career/proposal-to-add-critical-thinking-section-in-college-exams-to-promote-higher-order-cognition-in-students-5294833.html>
5. Sarkari Job Wale: <https://sarkari-job-wale.in/proposal-to-add-critical-thinking-section-in-college-exams-to-promote-higher-order-cognition-in-students/>



*“Fundamental objective behind NEP is to bring education out from limits of narrow thought-process and integrate it with thoughts and ideas of the 21<sup>st</sup> century. We should not only prepare the degree holders but also develop responsible citizens to meet the future challenges.”*

**Prime Minister Narendra Modi**

July 7, 2022 Varanasi



राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

**NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL**

(An Autonomous Institution of the University Grants Commission)

Opp. NLSIU, PB 1075, Nagarbhavi, Bangalore-560 072, India.