Disciplines, Professions and the Sustainable Development Goals (SDGs): Challenges in Higher Education in India

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Introduction

The United Nation s ambitious 2030 Agenda was signed more than three years ago by most member countries. It comprises 17 Sustainable Development Goals, which are universally applicable to all countries of the world. Recent UN reports indicate uneven progress towards achieving these goals in most countries[1].

India is one of the critical countries where achievement of the SDGs will be essential for realising the 2030 Agenda in the next decade. One-third of the world s poor are in India[2] (SDG 1: No Poverty); regular media reports indicate continued hunger amongst some indigenous and caste communities[3]. (SDG 2: Zero Hunger); child malnutrition indicators in India are worse than in several low income countries (SDG 3: Health & Well-being); entrenched patriarchy restricts education for girls after puberty (SDG 5: Gender Equality); access to safe water is decreasing (SDG 6: Clean Water & Sanitation); and several Indian cities have the worst air pollution levels in the world[4] (SDG 11: Sustainable Cities & Communities). Much needs to be done in India for systemic progress on the SDGs before 2030.

At the policy level, much of the attention to the SDGs is being led by the national government through NITI Aayog, which has created a national framework not only for regular collection of data on the SDGs but also for acting proactively towards achieving the goals and targets, both quantitatively and qualitatively. The Ministry of Statistics and Programme Implementation (MoSPI) is assisting NITI Aayog in interacting with other ministries and developing indicators reflecting the SDG goals and targets[5]. In addition, NITI Aayog s latest SDG India Index Report (2018)[6] showed uneven progress on most SDGs, especially in hitherto marginalised communities and regions. Commensurate engagement of civil society is also pushing for further concerted actions at the ground level. However, educational institutions have remained somewhat disconnected from the SDGs.

There is a long history of programmes on Education for Sustainable Development (ESD) through earlier global UNESCO programmes. The ESD program *aims to improve access to quality education on sustainable development at all levels and in all social contexts, to transform society by reorienting education and help people develop knowledge, skills, values and behaviours needed for sustainable development*[7]. Several primary schools and adult education centres have been involved in ESD activities in the past. However, the ESD framework is a pre-SDG era approach to sustainable development;

1. https://unstats.un.org/sdgs/files/report/2018/TheSustainableDevelopment GoalsReport2018-EN.pdf

2. https://www.un.org/millenniumgoals/2014%20MDG%20report/MDG% 202014%20English%20web.pdf

3. https://www.outlookindia.com/website/story/the-hidden-epidemic-of-tribal- malnutrition-among-migrants-in-rajasthan-and-madhya-pradesh/327416

4. https://www.theguardian.com/cities/2019/mar/05/india-home-to-22- of-worlds-30-most-polluted-cities-greenpeace-says

5. https://niti.gov.in/content/niti-aayogs-role

6. https://niti.gov.in/writereaddata/files/SDX_Index_India_21.12.2018.pdf

7. https://en.unesco.org/themes/education-sustainable-development

it does not have the breadth and depth of the 17 SDGs and their many sub-goals.

Status of Higher Education Institutions in India

India's higher education sector is the third largest in the world[8]. There are 903 universities, more than 10,000 professional technical institutes and 42,000 colleges, in both the public and private sectors.

Including technical and professional institutions, about 36.6 million students were enrolled in these post-secondary educational institutions as per the All India Survey of Higher Education Data (2017-18)[9]. Moreover, these numbers are rapidly increasing. Despite being such a large sector, conversations about the integration of the SDGs in the operations of higher education institutes (HEIs) are still rather weak, and national associations of higher education have not taken up the matter either. The Association of Indian Universities (AIU) is the oldest such network, mostly including public institutions. The Federation of Indian Chambers of Commerce and Industry (FICCI s) Higher Education Committee has been bringing together private institutions for the past two decades. Neither has inspired their members to focus on the SDGs as a core function of HEIs. Not even NITI Aayog s national approach to achieving the SDGs in India contains any mention of HEIs, or their possible contributions[10].

A review of the recent Times Higher Education (THE) ranking report on universities and SDGs shows that only a handful of Indian universities are mentioned; no elite public institutions such as IITs and IIMs are mentioned at all. This report only focuses on a few goals, and looks at how universities operate internally in this regard. It goes on to argue that Indian policymakers need to think about new roles for HEIs in supporting the achievement of the SDGs[11].

Perhaps in parallel to this, the University Grants Commission (UGC), the senior policy-making body on higher education in India, has just announced a new policy framework Fostering Social Responsibility and Community Engagement in Higher Education Institutions in India (2019)[12]. These new guidelines recommend that

"The goals of fostering social responsibility and community engagement in HEIs" can comprise of

- Improving the quality of teaching/learning in HEIs, by bridging the gap between theory and practice through community engagement;

- Promoting deeper interactions between higher educational institutions and local communities for identification and solution of real-life problems faced by the communities in a spirit of mutual benefit;

- Facilitating partnerships between local communities and institutions of higher education so that students and teachers can learn from local knowledge and wisdom;

- Engaging higher institutions with local communities in order to make curriculum, courses and pedagogies more appropriate to achieving the goals of national development;

- Catalysing acquisition of values of public service and active citizenship amongst students and youth alike, which would also encourage, nurture and harness the natural idealism of youth;

- Undertaking research projects in partnership with local communities through community-based research methods.

Further, the above guidelines recommend that existing courses should be re-designed to integrate interactions with local society in learning process. Additionally, these guidelines propose that new courses that are relevant to changing societal contexts should be offered as options to all students.

9. http://aishe.nic.in/aishe/viewDocument.action?documentId=245

10. http://mospi.nic.in/sites/default/files/National_Indicator_Framework_6nov18.pdf

11. https://www.orfonline.org/expert-speak/sdg-rankings-lessons-for-indian-higher-education-institutes-49917/

12. https://www.ugc.ac.in/pdfnews/9345940_Guideline-fostering05-2019.pdf

"Such courses can be audited by students, or taken as a part of 25% provision for external (to faculty) courses now allowed by UGC guidelines. These can be short-term certificate courses, or integrated into the existing syllabus. By their very nature, such courses are trans-disciplinary and require community engagement activities by students. Additionally, new courses which teach about Sustainable Development Goals (SDGs) will provide local understanding about some of these goals to students, in addition to learning about Agenda 2030.[13]"

Therefore, discussions about integrating the SDGs within HEIs, their professional associations and networks in India will hopefully gather some momentum soon.

Integrating SDGs in Higher Education

The social responsibility and societal relevance of higher education has only recently been debated in global conversations. The recently published Global University Network for Innovation (GUNi) Report on Higher Education[14] clearly argues that:

"Social responsibility emerges as the need to reconsider the social relevance of universities in light of the encounter of the local with the global, regarding priorities, demands, impacts and knowledge needs in the context of globalization. The competitiveness of nations as the only way to achieve progress should be balanced with inclusive social development and sustainability of the entire global population."

If an HEI is viewed as a public institution, located in the public sphere, contributing to public purposes, it's the specific (social) responsibilities would be:

- Adopting the mantle of the civic university pursuing the public good by aligning its interests with those of society, and working collaboratively with other HEIs to maximize their collective impact;

- Playing a proactive role in ensuring that the SDGs are included on local agendas, proposing changes to education, conducting research and engaging with local and global communities on sustainable development;

- Imparting education needed to make the SDGs a reality, with the necessary knowledge, skills, competencies,

partnerships, and values thereby helping to produce new SDG leaders;

- Building capacities for SDG policies, planning and management;

- Conducting transversal reviews and refinements of curricula to ensure the mainstreaming of SDG issues across curricula, and including new values and practices for economic development that enhance social equity while reducing environmental risks (GUNi, 2017).

A significant mission of HEIs is to prepare the next generation of professionals and provide young people with the knowledge and competencies required for effective economic and social life as an adult. The integration of the SDGs in teaching as illustrated above is critical for the next generation of professionals and intellectuals. New sustainable frameworks have to be developed, learnt and taught.

Similar expectations arise from the core function of research at HEIs.

"Of particular importance are the increasing expectations from the field of research. In the context of the SDGs, research needs to contribute much more than what it has been doing traditionally. In addition to giving an understanding of phenomena, research is now perceived as being able to provide 'new solutions, through appreciating and incorporating alternative perspectives of knowledge'." (Hall and Tandon, 2017)[15]

To bridge the gap between research and society, lessons are available from the Science Shops model in Europe, which pursues research based on questions that emerge from the community. The European Union's Responsible Research & Innovations (RRI) framework also demonstrates how research can be used responsibly and innovatively to further develop objectives.

13. http://unescochair-cbrsr.org/pdf/resource/BHALL_Community_Based_Research_ENG_Dec13.pdf

14. http://www.guninetwork.org/files/download_full_report.pdf (p. 41)

15. Drs. Hall and Tandon. (2017). Community Based Participatory Research and Sustainable Development Goals. Ottawa, Canada: Canadian Commission for UNESCO.

Achievement of the SDGs will also require finding new solutions to various socio-economic challenges, and new knowledge will be essential towards this end.

"Co-creation of such knowledge is a pre-requisite to finding sustainable solutions. This in essence, lays the foundation of engaged research , which requires moving beyond traditional notions of top down research (dictated by academics), to a more collaborative/participative form of research, where research questions are framed in accordance with local community needs, and the research is designed in collaboration with the local stakeholders who are impacted by the particular problem (the research intends to address). (Hall and Tandon, 2017)."

Community-based participatory research (CBPR) has now been recognised as the methodology for co-constructing knowledge worldwide. A global consortium of Knowledge for Change (K4C) is currently working in 12 countries to undertake such research to provide knowledge solutions for effective implementation of the SDGs locally[16]. HEIs can develop other similar arrangements at country levels to promote CBPR in finding new knowledge solutions through local partnerships. International associations like the International Association of Universities (IAU) and the Association of Commonwealth Universities (ACU) are already playing such facilitative roles. GUNi s expert group on SDGs is taking recommendations from the 6th World Report on Higher Education[17]. Several regional and global networks of HEIs that are working to promote engaged teaching and research are issuing regular global calls in this direction Big Tent[18].

Examples from India

In preparing this paper, the authors issued an invite to a vast number of academics in the country to share what was being done on SDGs in their HEIs. Limited responses followed up with personal contacts seemed to indicate that this is a major shortcoming in present-day Indian Higher Education. Why is this so?

Before returning to this question, illustrated below are some efforts that exemplify ways in which Indian HEIs

are attempting to integrate the SDGs in their core teaching and research functions:

1. Forest Management

An example of expanding the curriculum to introduce the SDGs to a compulsory course for students of the Masters in Forest Management can be found at the Indian Institute of Forest Management in Bhopal. The course on Development Management has been expanded to include an understanding of SDGs in the framework of adaptive management. Foundational teaching of the SDGs is thus linked to development management, thereby preparing students to use adaptive techniques in the context of achieving the SDGs. Given the professional nature of this course, students from this institute go on to become forestry and natural resource management professionals.

The course began two years ago and has continued since then. As the champion of this course, Dr Amitabh Pande explained that the faculty at the Institute were not fully aware of or interested in SDGs. In order to foster a deeper understanding of the SDGs and a sense of the importance of focusing on sustainability issues when teaching the next generation of professionals, the Institute co-organised an International Conference on a Multi-disciplinary Approach to Sustainable Development in February 2019. The conference attracted participants from academia, government, industry and civil society, and a wide range of sustainable development experiences were shared and discussed (www.iifm.ac.in).

2. SDGs & Climate Resilient Strategies in Wayanad District of Kerala

The greater goal of this project is to make Wayanad an SDG ready model for India, meaning it would be climate resilient and able to adapt to climatic changes accordingly. A team of researchers from DEL Lab[19] and the Srishti Institute of Art, Design & Technology[20] in Bengaluru undertook this research project in partnership with the local community and government in 2018.

"When we started the field work in Wayanad, our intention was to discuss and document the resilience of communities in dealing with the multiplicity of issues. It also defied several unproven assumptions that development planning has to be structured, policy-centred and responsive using exogenous inputs and experiences[21]. The key principle used in the research was that of the active landscape."

16. http://unescochair-cbrsr.org/index.php/k4c-2/

17. http://www.guninetwork.org/news/guni-group-experts-sdgs-and-higher-education

18. http://www.guninetwork.org/news/global-networks-higher-education-institutions-call-action-united-nations-sustainable

19. http://srishti.ac.in/centers-and-labs/law-environment-design-laboratory

20. http://srishti.ac.in/index.php/

"When we say Wayanad is an active landscape, it means the people, their practices and culture are deeply integrated with their surroundings, i.e. the terrain and ambience. With the change in season the landscape changes and so does practise."

Sustainable Planning and Design Principles emerged from this research[22]:

- As Wayanad is a monsoon fed region, design principles should consider rain as an integrated part of planning. The concept of seepage helps to understand the landscape not just in terms of land and water as two sides of a coin but also the intensity of the texture of the landscape depending on the presence of water.

- The concept of porosity needs to be given due consideration. The main issue in the district is finding ways to tackle the problems with drought and flooding. River beds are drying, aquifers are vanishing, and this is due to the non-permeability of the materials we use in construction. The importance of a porous landscape needs to be understood in order to tackle the problems related to water.

- The term sustainable is often misunderstood to mean energy efficiency only. Sustainability, when deriving ideas from the field and local/sensitive practices, is based on the need to be self-reliant and to adapt to changes. Planning principles need to include change and plan accordingly, and also be static.

- Planning needs to be based on the carrying capacity of the terrain, and adapt to the resources, terrain, time and practices. This also changes across seasons.

- In order to be sustainable, climate resilience is an important phenomenon; this can only happen if we are adaptive, anticipative and absorptive towards change.

3. Teaching SDGs to Engineering Students

The Humanities department at Delhi Technological University (DTU) has undertaken some initiatives to teach Sustainable Development Goals (SDGs) to engineering students. Since the SDGs are not part of any course content or pedagogy, a few responsible faculty members, have tried, in their own stride, to introduce this perspective and these ideas to the students. A quarter of the course component is class work. Some faculty members, making good use of this component, have allocated some marks

to the learning of SDGs. Students are expected not just to read about SDGs but also to experience them. At the end of the semester, the students are expected to submit a written assignment on their practice and understanding of the SDGs and the assignment forms a graded component of their education.

Having accessed the assignments by the students, we were able to understand their imagination and understanding of the SDGs. Each project is generally done in groups and the students have tried to highlight the relevance and relation of engineering and sustainable development. Some of the highlights that emerged out of these projects are:

- Engineering students acknowledged the importance of food cycle systems; they felt that engineers can contribute to the processing and transport of natural resources in closed-loop systems. This can reduce waste and increase the efficient use of resources. Likewise, engineers can contribute greatly to the extraction and development of natural resources, the processing and modification of resources, the design and construction of transportation infrastructure, the recovery and reuse of resources and the production and distribution of energy. The idea of Sustainable Engineering also emerged in this assignment.

- Another assignment was based on the premise that *'Engineers have an obligation towards the general public in order to seek the various available opportunities to work for the enrichment of wellbeing, security and the communal welfare of the local and global community equally through the practice of sustainable development'*. Engineers are also accountable for undertaking efforts to help to reduce pollution at all levels. The students demonstrated a powerful example of the issue of sustainability in electrical engineering, showing how the use and manufacture of mobile phones has detrimental effects on the environment and suggesting small, doable steps that can be adopted by engineers to help combat these ill effects.

- Another assignment tried to understand the correlation between Information and Communication Technologies (ICT) and Sustainability. Keeping a holistic picture in mind, they have drawn a connection between ICT and socially relevant mandates of health and well-being,

A number of these initiatives are wonderful first steps but do not feed into a systemic structure of SDG learning. They are mainly faculty driven and are thus ad-hoc in nature. There is a need for more institutionalized support to make these initiatives more robust. The content

21. http://fledgein.org/wp-content/uploads/2019/04/Wayanad-Report.pdf.

22. http://fledgein.org/wp-content/uploads/2019/04/Wayanad-Report.pdf

generated by the students is thought-provoking but lacks rigour. This could also be because of their distance from local realities.

Many more similar examples to the above can be provided, and which demonstrate several aspects for integrating SDGs in HEIs:

a. The first clear lesson is that students are interested in learning about SDGs, and how they can contribute to finding solutions. This reality is globally recognisable students are interested in issues of sustainability, though different higher education courses and programmes may relate to different sets of SDGs.

b. Most such initiatives are led by individual academics who are passionate about some of these sustainability issues. While such energy and commitment is necessary, it is not sufficient to institutionalise the initiatives. Individual academics are interested in certain SDG goals more than others, and their own professional interests drive such initiatives.

c. Individual academics focus on either teaching or research, depending on their own persuasion. They are able to include materials on the SDGs in an existing course that they teach; or bring an SDG focus to a research project they are conducting. Holistic attention to both teaching and research is not incorporated this way.

d. In the absence of deliberations at the level of HEI leadership (such as VC, DVC, Deans & Departmental Heads), the process of institutionalisation does not gain momentum. Conferences and seminars on the SDGs have proven to be an effective means of building awareness and developing action-plans.

e. The absence of a national policy framework that encourages HEIs to focus teaching and research on the SDGs tends to reduce continued efforts in this direction. Policy guidance and earmarked funding acts as an incentive to introduce new curricula and pedagogy linked to teaching the SDGs.

Bridging the Gap in Teaching & Research on SDGs in HEIs in India

Let us return to the question why the authors received limited responses to their invitation sent to a vast number of academics in the country to share what was being done on the SDGs in their HEIs. The answer(s) lie in the somewhat unique challenges that Indian HEIs face.

The biggest challenge facing institutional integration of the SDGs in teaching and research activities at HEIs comes from academic disciplines. Each discipline has rigidly defined frameworks of what can be taught. Curriculum and course outlines are approved only when they follow rigidly specified disciplinary requirements.

Not only is teaching content at the undergraduate and post-graduate levels rigidly defined, but even the pedagogy of teaching is tightly specified. For example, a course in chemistry specifies the curricular contents, as well as experiments and durations of teaching in the laboratory. Such rigid specifications limit the scope for experimentation by individual teachers. Even an SDG perspective regarding potable drinking water and water quality is difficult to introduce to such rigid chemistry courses.

Disciplines also specify research methodologies. Sociology, economics and physics each prepare researchers in those disciplines to follow a specific methodology. Bound within these disciplinary rules, journals and publications also follow similarly rigid specifications. New approaches to engaged and partnership research is hard to practice in such a rigid disciplinary architecture.

As disciplinary boundaries are rigidly specified, and their pedagogical and research methods are uniquely regulated, it is very difficult to cross disciplinary boundaries to generate multi-disciplinary teaching and research teams. Since all SDGs can only be understood in multi-disciplinary frameworks, the rigidity of disciplinary specifications is a hindrance.

There is a similar challenge emanating from professional education frameworks. The teaching of medicine, nursing and pharmaceuticals alone does not make students understand SDG 3 Health & Well-being. Construction, stress and material standards taught in civil engineering may require significant revisions in the light of climate resilience requirements in order to be relevant to several SDGs. The training of financial managers, bankers and investors to focus attention only on maximising profits,

GDP growth rates and raising stock prices tends to limit their understanding of how the SDGs can improve markets and institutions. Management education still requires substantial attention to the SDGs in order to prepare future managers to take business decisions in the light of sustainability requirements.

So, what can Indian HEIs do to actively integrate SDGs in their teaching and research functions?

HEIs can more actively integrate the SDGs in their teaching and research functions if they are able to overcome the disciplinary rigidities and frameworks of professional education as established and monitored by their respective councils and regulatory bodies. The All India Council for Technical Education (AICTE), Council of Engineers, Medical Council, Bar Council etc. need to proactively design new frameworks for professional education that integrate both the contents and the intents underlying the SDGs. There are 15 professional councils in India[23], each setting its own professional standards. It is clear that these councils and their elite leadership need to seriously study and incorporate the SDGs in the teaching of professionals.

While UGC has begun to establish some enabling framework policy (as described in an earlier section), AICTE, which regulates technical and professional education in India, needs to pay similar attention to the SDGs.

What will it take for HEIs to do what has been argued above? What kinds of actions may be required for a supportive eco-system to emerge that will spur HEIs to make their contributions towards the realization of the SDGs?

Tandon (2017) has argued for more systematic and concrete steps towards integrating the SDGs in the core teaching and research functions of HEIs; many of those are urgently relevant to the Indian context:

- First and foremost, leadership of HEIs and universities must encourage institution-wide appreciation of and learning about SDGs. Platforms of Vice-Chancellors and university presidents must put this urgently on their agenda.

- National and provincial ministries responsible for higher education policy and Higher Education Councils in all countries must encourage, mandate and resource such shifts towards linking the core functions of HEIs and universities to SDGs.

- Associations of teachers, researchers and universities can play a mobilising role to generate demand for such an engagement with SDGs. Such networks and associations can place SDG on the agenda of their forthcoming meetings.

- Students can become key champions of higher education engagement with SDGs. Local, national and international student associations can focus on SDGs in their forthcoming meetings, thereby generating demand for university authorities to act.

- International networks and associations of universities and their leaders can do likewise to promote engagement with SDGs. The International Association of Universities (IAU) is one such example. The Association of Commonwealth Universities (ACU) had taken a lead in the run-up to SDGs and made great contributions. Other regional and sectoral associations can also be so mobilised. GUNI has created a panel of experts which continue to promote integration of SDGs in HEIs[24].

- UNESCO has a special role to play in this regard. Its regional and national associations and offices should be proactively convening dialogues with universities to promote such engagement with SDGs.

Finally, civil society in India (and many other countries) needs to begin to demand greater involvement of HEIs in the achievement of the SDGs. HEIs should be held accountable for teaching SDGs to the next generation of students and professionals. The 2030 Agenda and specific SDGs should be the focus of locally relevant research by HEIs.

India s large and rapidly growing higher education sector needs to urgently focus its core functions of teaching and research on the SDGs. Not only will their enormous educational and intellectual resources be valuable for finding local solutions to the SDGs, but they will also be able to mobilise future generations to pay attention to sustainability challenges in the decade ahead.

References

Hall, Budd and Tandon, Rajesh. (2017). Community Based Participatory Research and Sustainable Development Goals. Ottawa, Canada: Canadian Commission for UNESCO.

GUNI. (2017). Higher Education in the World 6. Towards a Socially Responsible University: Balancing the Global with the Local. Global University Network for Innovation.

Tandon, R. (2017). Making the Commitment: Contribution of Higher Education to SDGs. New Delhi: PRIA.

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23. https://www.ugc.ac.in/page/Professional-Councils.aspx

24. http://www.guninetwork.org/news/guni-group-experts-sdgs-and-higher-education