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HARNESSING THE POTENTIAL: HIGHER EDUCATION STUDENTS AS CATALYSTS FOR SUSTAINABLE CITIES AND COMMUNITIES

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ABSTRACT

Urbanization has created some of the most alarming challenges in the world, but it has also provided ample opportunities to drive sustainable development (Sustainable Development Solutions Network, 2023). As per the World bank report, two-third of world's population live in cities and these are the spaces where poverty, hunger, unemployment, inequalities, and environmental degradation coexist with unsustainable consumption and production models that seriously affect the quality of life. Cities are productive areas and centers of innovation; whether through universities, research laboratories, or large companies, new products and services are generated (Sachs, 2015).

1. INTRODUCTION

Urbanization has created some of the most alarming challenges in the world, but it has also provided ample opportunities to drive sustainable development (Sustainable Development Solutions Network, 2023). As per the World bank report, two-third of world's population live in cities and these are the spaces where poverty, hunger, unemployment, inequalities, and environmental degradation coexist with unsustainable consumption and production models that seriously affects the quality of life. Cities are productive areas and centers of innovation; whether through universities, research laboratories, or large companies, new products and services are generated (Sachs, 2015).

The concept of sustainable development is the exemplar that outlines the roadmap to a more sustainable world. On September 25th, 2015, the member states of the United Nations adopted a set of goals to ensure prosperity for one and all as part of a new sustainable development agenda. This is called the Sustainable Development Goals, to be achieved by 2030. The 17 Sustainable Development Goals (SDGs) must be achieved by all its members, leaving no one behind framework (Biglari et al, 2022). The 17 goals represent the most pressing, urgent, and emerging issues. It contains 169 specific targets that are opportunities to design a sustainable and attainable development model for society and involve all societal actors in a standard, just and comprehensive framework.

Cities and urban communities will play a major role in achieving the global SDGs (Pipa,2019). Today more than 80% of world's GDP is created in urban areas (cities). By 2050, it is expected that 68% (Two-third) of the world's population would be living in cities (World Bank, 2022). The rise in urban population will put pressure on resources and that would

have an impact on the environment and society, fostering the vital role cities play in the pursuance of sustainable development (Abstract 3).

(Abstract 3) Hence, there is an urgent need to address the Sustainable Development goal 11- Sustainable cities and communities, which calls for more inclusive, safe, resilient, and sustainable cities and human settlements. To implement this, a wise and judicious urban planning is required that supports opportunities for all, providing basic amenities, energy, housing, transportation, ad green public areas and at the same time alleviating disaster risks, as well as resource consumption and environmental impact. SDG 11 targets steps, measures, and actions towards the creation of sustainable cities and communities, but this cannot be achieved in isolation. Cities are hubs of industries, innovation, and culture. They require clean water and sanitation along with affordable and clean energy. Hence, they are connected to many other aspects of SDGs. Therefore, there is a need to connect and build and bring a institute or a link to that can play an important role by collaborating with governments, local stakeholders, and citizens to address these issues. Higher education institutes and their students can play as catalysts for sustainable cities and communities. They can do so by providing students, capacity building, research programs, innovation, enterprise, infrastructure and specialized services.

In this context, this paper examines how universities can contribute towards SDG 11from different perspectives and see how other universities are contributing towards SDG 11 which are leading on this task in their respective regions with great success.

Considering the urban reality, it is imperative to create sustainable cities with new progressive models of production and consumption, working on strategies such as circular economy, sustainable food production, waste management ad disposal, natural resource management, or urban natural finance, supply chains, energy production and use, and sustainable infrastructure development.

Higher Education Institutes have a lot of potential to achieve SDG 11by connecting and adapting their teaching and learning methods, research program, engagement of students, and effective administration to streamline with their local and regional surroundings.

Universities can help to implement SDG 11 by acting and operating as 'living laboratories' that can act as a model for cities.

Abstract 9. In bridging or getting the university or HEIs into the loop of achieving SDG 11 to create sustainable cities and communities it will not happen align or in isolation it must be intertwined with other important goals such as SDG 12. Universities can play an important role in achieving SDG11 by being a connect between sustainable cities and decarbonized economies. Universities through their curriculum, teaching methods, research programs, and practical experiments can drive the creation and development of sustainable cities and can contribute to a low-carbon economy (Sachs J.D. et al., 2022).

A new concept has emerged, known as Sustainable city or "eco-city" which are mainly working on to define strategies to counteract the adverse effects of urbanization. These eco-cities are working on issues such as increasing organized information, decreasing the consumption of natural resources, keeping a complex organization, and dealing with environmental, social, and economic dysfunctions (Joss, 2011).

Consolidating sustainable cities needs strategic planning which includes- environment planning, functional areas, and the coming together of individuals and organizations to reduce urban sprawl and promote more compact and efficient cities.

In recent years, to make sustainable cities and communities a more successful venture, universities have been roped in, and efforts have been made to pose universities as living labs for smart, sustainable cities due to the potentiality universities hold to bring this change (Fortes et al., 2019; Villegas-Ch et al., 2019). By working and coordinating with various stakeholders involved universities can raise awareness about responsible consumption, including living abs, brands, designs, degrees, and web platforms. Higher Education Institutions serve as hubs where students from diverse backgrounds, including urban and rural areas, come to study under one roof. This unique characteristic of universities makes it a perfect setting or platform to initiate large-scale sustainability programs. Valuable information about student's awareness and literacy levels on sustainability as well as sustainability issues present in their respective areas or regions can be gathered through surveys, interviews, and FDGs. The extensive data collected through surveys, semi-structured interviews, and FGDs can be significant in designing and implementing potent and wholesome sustainability programs. By collaborating with different stakeholders such as municipalities, NGOs, governments bodies etc. universities can

design specific strategies to tackle the challenges and thereby encouraging a culture of sustainability and equipping students with awareness knowledge and skills to take sustainable practices further into their communities.

2. RESEARCH OBJECTIVES

The study seeks to answer the following research objectives:

1) To assess awareness and understanding of sustainability concepts.
2) To examine student engagement and participation.
3) To identify and analyze student-led initiatives.
4) To evaluate the role of universities.
5) To develop recommendations for policy and practice.

3. METHODOLOGY

1) Research Design

The methodology used in this study for data collection involves both- qualitative as well as quantitative approaches. It is projected through an empirical study of surveys, interviews, and Focus Group Discussions (FDGs) that were conducted with students at colleges and universities. These various methods of collecting data helped in evolving an understanding as well as analysis of how sustainability can be put into action and take it further in various other institutions across the country.

These interviews, surveys, and discussions were crucial to conduct the plan of action of sustainability in a systematic and evidence-based manner. A total of 50 students from different colleges and universities were taken as a sample for the study.

Semi-structured interviews with one school of students were conducted with the students to gauge the basic understanding of the term sustainability.

A few Focused Group Discussions were also conducted with another set of students to know their understanding of sustainability and how is it crucial in present times. The data was collected in the form of notes.

2) Data Analysis

After the data was collected, it was analyzed. The techniques used for data analysis were thematic and statistical.

The qualitative data collected through semi-structured interviews and FDGs helped uncover the key themes and patterns in participants responses as well as understand the collective views and interactions among participants identifying common themes and divergent opinions.

The quantitative data was collected through survey (google form) and it helped in summarizing the data and to assess it with the research objectives.

4. CASE STUDIES

This section discusses two case studies from different universities. Abstract 3. Case studies act as a valuable tool which provides detailed, contextualized insights into specific instances.

1) Aswan University

Aswan University was established in 2012 by the national government of Egypt. In its efforts to sustainability, Aswan University has a dedicated website on Sustainability and the work done and the achievements achieved. The university has the achievement of succeeding and achieving 9 out of 17 SDGs, including SDG 11.

Aswan University's mission is contributing to the regional environment and adapting to its specific needs. It has adopted a wide range of official policies to achieve quantitative targets and milestones.

The policies ensure that strategic goals are translated into practical and achievable actions. The university has the following policies into practice:

- A sustainable transport policy that includes walking, buses and participation on the "bicycle for every student" program of the Egyptian Ministry of Higher Education, aiming at making cycling the amin transport for students and staff inside and outside the campus. It is primarily working on the estimation of how much (share)staff and students using each means of transport. It aims at achieving 50% of staff using sustainable transport by 2025 and 100% of the campus residents (students and staff) by 2030.
- Online and blended mode of classes is also available to further reduce the commuting needs.
- 6% of the university self- budget (gained by its operation and services) is dedicated to 'impact investing' on eight themes ranging from transportation and clean energy to health and waste management.
- A climate change action plan, a CO2 emissions reduction commitment, and sustainable buildings policy. These include training and awareness-raising initiatives within students and local communities, renewable energy production targets, encouragement of dedicated research and the adoption of the Green Building Classification System from the Egypt Green Building Council. There are dedicated committees from some of the polices which provides aid to the university leaders and Higher Council with these goals.
- A sustainable food policy within the university, prioritizing local produce, monitoring food waste and its management, coordinating with local administration.

Aswan University also provides free or below market accommodation to around 10% of its students. It allows the university to increase their equity by reducing the indirect costs of higher education for students. The university also provides subsidized accommodation for its staff.

The University also acts as a local hub for cultural activities where it hosts or funds exhibitions, museums, and shows, while preserving archaeological and anthropological heritage.

The University also provides general services to the community through its "Special Units" which operate as 'consulting centers in serving the business community and as income sources for supporting the university's sustainable development plans.

All these initiatives, policies and programs have been a key player or enabler in achieving the SDG 11.

These special units created by the university offer valuable services to the local business community by providing a variety of practical services and support activities. On the other hand, these units work independently or semi-independently and can earn capital through the services they offer to local businesses and government agencies.

Case Study 2.

National Taiwan University (NTU) located in Taipei, is dedicated to social responsibility and sustainable development and offers different courses and projects on sustainability, jointly works with government agencies, and has a vibrant and active community participating in sustainability initiatives. The University publishes an annual report to ensure transparency and responsibility in its efforts towards sustainability programs and actions. National Taiwan University has tried to blend SDG 11 and 12 to bring in sustainability at its best by including analyzing climate change risk and impacts, suggesting sustainable development polices, and publishing important reports to navigate policy makers toward a low-carbon future.

There are several policies and regulations followed by the university to promote SDG 11on transport, housing and culture.

Transport: The sustainable transport system involves three components-

1) encouraging the use of electric vehicles i.e. to promote green energy cars and motorcycles
2) optimizing bicycle management
3) business trip management.

Accommodation and buildings: National Taiwan University provides cost-effective accommodation to its students and professors. Its 21 buildings have got "green building label" certified by Taiwan Architecture and Building Centre.

A lot many projects are being run by the students of the university to improve the well-being of urban areas and engage communities at the rural-urban interface.

5. DATA FINDINGS

1) Findings based on Statistical Analysis

Based on the information collected through comprehensive surveys conducted amongst the students of different universities of Delhi-NCR, the following outcomes were found regarding the following:

- Awareness and knowledge of the students- Students of different universities lack awareness and comprehensive knowledge about the SDGs. It was found that 70-75 % of students lacked sustainability literacy. The current level of sustainability literacy among students is quite low.
- Attitudes and Perceptions- It was found that 60-65% of students lack the general attitude and apathy towards sustainability and its importance, which universities need to address.
- Behavior and Practices- The result presented that 70-75% students were not engaged in any of the sustainability practices and did not participate in any of the sustainability led activities.
- University's role and Impact- The finding highlighted that 60-65% of students felt that there is a need for increased student involvement in sustainability efforts also there are specific areas where university sustainability impact could be enhanced.

2) Findings based on thematic Analysis

Based on the inputs and information gathered through the interactions with students in different universities by using semi-structured interviews and FDGs the following themes were identified:

- Importance of SDG 11- The role and importance of creating safe, inclusive, resilient and sustainable cities. It also highlighted the need to address issues such as overpopulation, pollution, inadequate infrastructure, and housing. Sustainable urban development is crucial for global sustainability and quality of life.
- Practices to implement SDG 11- The universities need to integrate sustainable curriculum into their various academic disciplines. There should be campus initiatives such as recycling programs, sustainable transportation, green energy campaigns to promote sustainable urban development.
- Engaging residents and civilians- The findings show that there is a need to organize workshops, seminars, and conferences to raise awareness about sustainable practices to engage residents. The use of social media and local events can be useful to promote sustainability practices.
- Role of other stakeholders- The findings show that role of other stakeholders such as local governments, private sector, and NGOs ca plays an important role in creating sustainable cities and communities. These stakeholders can implement polices, providing funds for sustainable infrastructure and community projects.

6. CHALLENGES AND BARRIERS

There are numerous challenges at different levels that pose an obstacle in higher education's ability to contribute effectively to a sustainable future.

The following barriers are highlighted in relation to the achievement of SDG 11:

1) **Under educated audience:** The lack of sufficient knowledge and understanding of sustainability issues poses a major challenge for the universities to engage students, staff and broader community into the process of achieving SDG 11.
2) **Lack of awareness:** Overall, there is a considerable barrier in terms of awareness about Sustainable Development Goals in general and their practicality. Students, faculty, and public are not fully aware of the importance of SDG and how their actions can contribute to a sustainable urban development.
3) **Consumption patterns:** The consumption patterns on universities are such that they often contradict sustainable practices. The level of resource consumption and waste generation can weaken sustainability efforts.
4) **Need for fundamental change:** To implement SDGs universities need to go through fundamental changes in their implementation, infrastructure, and policy formulation. Such changes are complex and need significant efforts, resources, and adherence from all the stakeholders.

5) **Attitude and Ethics:** Possessing and working with a positive and optimist attitude is very crucial for the success of sustainability issues. The ethical perspectives and notions of students, and staff will make a difference to the implantation and success of SDGs whereas a negative attitude and pessimist approach will lead to resistance and slow progress.
6) **Curriculum Integration:** The foremost challenge to have a successful implementation of SDGs is the integration of sustainability concepts into the curriculum. It requires a long and exhausting process of rethinking and redesigning the present educational curriculum to incorporate new designed sustainability concepts which are going to face resistance from different departments and faculty members.
7) **Interdisciplinary Approach:** Universities often work in silos, making interdisciplinary approach, difficult and challenging comprehensive sustainability efforts.
8) **Imbalance between three pillars of sustainability:** There is a need to balance the three pillars of sustainability- people, planet and profit. The universities are unable to balance these three pillars of sustainability due to financial constraints and competing priorities can make it difficult to implement initiatives can make it difficult to implement initiatives that are environmentally sound, socially equitable, and economically viable- needs to be changed.

7. FUTURE DIRECTIONS OR RECOMMENDATIONS ABSTRACT 3

1) The university campuses should be integrated with or within the city. Higher Education Institutes and local governments should establish long-term partnerships for effective urban planning and development. This collaboration ensures that campus residents as well as neighboring city residents are well-integrated and benefitting from each other shared services such as cultural and sports activities, green spaces, public transportation, and learning opportunities.
2) Universities should be accessible by foot, cycling and affordable and sustainable public transport. The commuting of students and staff can leave a considerable carbon footprint if there is no availability of sustainable transportation which is easily accessible, convenient and affordable. To attain this target, universities must provide and create safe walking and cycling paths along with transit options between them and the city residential localities.
3) University buildings and infrastructure should follow and maintain the highest environmental standards. University buildings must follow the newest sustainability standards. Timely upgradations should be made to the old as well as new buildings. To begin with, thermal insulation, efficient lighting, and the use of smart monitoring of supplies should be in place.
4) Universities must encourage volunteering of students and faculty by collaborating with local NGOs or governments. The faculty and students at the university can make great contributions to the local community by their specialized skills. They can use their specialized skills in healthcare and mental health support in local schools and hospitals, provide free legal counsel, and provide support to disadvantaged local schools by imparting education. In return, university students and staff receive valuable practical experience.
5) University can leverage opportunities to collaborate with the private sector for developing innovative solutions for their cities. The partnership between universities and private sector holds considerable potential to handle SDG 11. By collaborating, they can develop technology parks, science parks, or innovation hubs which provide solution for a sustainable city living.

8. CONCLUSION

Sustainability is more than just a mere research topic; it signifies the relationship between humanity and nature. It emphasizes that protecting and guarding the environment alone is not enough. Rather, the pursuance of sustainability needs to be addressed in social and economic dimensions bypassing personal and individual interests.

CONFLICT OF INTERESTS

None.

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