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Does GATS' Influence on Private University Sector's Growth Ensure ESD or Develop City 'Sustainability Crisis'—Policy Framework to Respond COP21

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Abstract: The conventions and ratifications made by the United Nations (UN) have a long history. They were well respected for their ability to unite the world's countries on some issues. The paradigm transformation of UN ratifications to combine both business models and social justice has received both positive and negative responses. While adherents argue that such a transformation is fundamental to boost economic development, opponents assert that the 'so-called paradigm transformation' has benefited the West by victimising the East, which has essentially complicated the global 'sustainability crisis'. This also hinders executing the ESD (education for sustainable development) concept, especially in developing countries. The concept of 'sustainable development' is now the main agenda item of UN conventions. COP21 (United Nations Climate Change Conference in 2015, otherwise known as the 21st Conference of the Parties), is an example of the UN's seriousness in addressing the 'global sustainability crisis'. GATT and GATS are the international policies that are, respectively, the 'causer' and 'developer' of the private university sector in emerging market economies. Critics claim that this expanding sector generates an urban sustainability crisis. This study examined the effect of private universities' expansion on urban sustainability, using a qualitative method for assessing primary and secondary data. The indices for night light intensity, heat and greenery served as the essential parameters to calculate the sustainability crisis. Results indicate that while the greenery index has fallen significantly, night light and heat indices have unexpectedly increased, which correlate with the development and expansion of the private university sector. To respond to COP21, a 'carbon neutrality' policy framework for the sector is suggested in an effort to control the sustainability crisis.

Keywords: COP21; GATS and GATT agreements; sustainability crisis; carbon neutrality policy; private university sector

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1. Introduction

Development criteria and their schemata grow out of longstanding historical social and economic practices [1]. Interpreting social events is governed and shaped by the prevailing rationale and the structure of power or authority in which it operates [2]. Study [2] further argued that the concept of development saw many paradigm transformations, which has proved that the earlier concept of development is a threat for today. Therefore, the contemporary development concept may boil down into a threat for future developmental models [3]. For example, recent shifting towards SDGs (Sustainable Development Goals) confirms that some actions of MDGs deserved cautious attention. The COP21 (21st

Conference of the Parties) agreement is considered one of the most important manifestos in achieving the SDGs. COP21 is considered to be an effective guideline for ensuring that sustainability is not compromised when dealing with other core goals of SDGs. These are as follows: end poverty in all its forms; zero hunger; health; education; gender equality and women's empowerment; and water and sanitation. On 25 September 2015, world leaders accepted the 2030 Agenda as the potential roadmap for implementing the required actions. This roadmap contains 17 priority targets to be achieved by 2030; for instance, ending poverty, addressing inequality and injustice, and combatting climate change. These targets are known as SDGs [3,4] and they represent a way to realize the 'carbon neutrality target' while ensuring the success of all SDGs [5].

Scholars have defined and modified the concept of development by studying different schools of thought that generally emerged in Western countries [6]. It has also been argued that global politics plays a vital role in defining and moderating the 'developmental concept' and, subsequently, the 'paradigm transformation' that is constantly changing [7]. The domination of Western countries in revising the developmental concept helps them to take advantage of international competition [3]. The United Nations is an international podium overseeing the global development phenomena, and it employs a number of agencies to do this. While these agencies are well regarded for balancing the needs of international development, critics have argued that the primary role of these agencies is to ensure an 'international business market' for their sponsored countries [8]. In doing so, these agencies often redefine the concept of development, which has become a 'global commodity' in recent times [6].

The term 'development' has changed its colour or tone many times, either by being an adjective or being defined as an adjectival noun (such as prosperity, economic development, sustainable development). Its latest version is the ubiquitous term 'sustainable development' [8]. Sustainable development, which originated from the UN, has been loaded with ambiguity ever since the ancient philosophers realized the importance of sustainable development long before the modernisation theory was introduced, as explained by [2]. The modernisation theory is now a very popular concept. The UN has promoted the modernisation theory, but it is now seen as a main cause of today's sustainability crisis, in many ways [9]. Surprisingly, the UN and its agencies have started advocating in favour of sustainable development after the serious environmental damage caused by the modernisation theory [10]. The COP21 agreement initiated by the UN is the latest global development ratification to tackle the sustainability crisis [11].

The sub-sections that follow explain the paradigm transformation of UN ratified policy, and how this has led to establishing private sector universities in developing countries. The emergence of ESD is also described to explain the subsequent outcomes. Essentially, Section 1 serves as the background of this research topic. Relevant information is provided in Section 2 to identify the actual problem, aim and objectives, questions that are asked, and the hypotheses. Section 3 outlines the conceptual framework and scope, while Section 4 explains the research design adopted. Section 5 covers the findings and discussion before the conclusions are stated in Section 6.

1.1. Paradigm Transformation of the UN Ratification and the Reality of COP21

Policy analysis often requires an understanding of the chronological and historical backgrounds of key documents. This project heavily emphasises the GATT, GATS and COP21. Therefore, before explaining them, some discussion of the historical context is required here.

Founded in 1945 with 53 member states, currently with 193, the UN is a well-regarded institution that promotes the global economy, peace and social welfare [12]. In order to execute its mandates, the UN works through its agencies, programmes, funds and collaborative partners [2]. The objective and role of each agency, programme, fund and collaborator were well identified and demarcated [12]. The drastic expansion of UN agencies, programmes, funds and collaborators has led to a large degree of overlap [13].

For example, the UNDP (United Nation Development Program), a special programme of the UN, seems to be an interventional programme in all actions of the UN [13].

The World Bank was established in 1944. Many critics argued that the UN was an agent for promoting the business and interests of the World Bank through a 'soft-touch' approach [12,13]. Lately, the direct involvement of the World Bank as an agent of the UN has been seen in a number of interventions to promote the World Bank's business interests via both soft and hard touches [13,14]. These have deeply compromised the fundamental characteristics of the UN by changing the rationale of the development concept. The World Bank became the World Bank Group, and it is closely associated with the IMF (International Monetary Fund), which has now introduced a number of market-driven developmental models, such as privatisation, commodification, neoliberalism and customer focus of economic systems [15]. However, [16] argued that these concepts are not all market driven. The World Bank Group diplomatically used its UN affiliation to make these concepts more popular and acceptable [17]; hence, the UN agencies and their programmes created a business runway for the World Bank Group to take-off and to fly in the name of global modernisation and economic freedom [16,17]. This has also led to what is known as the dependency theory, as argued by [16].

Under the IMF's advocacy, the World Bank has successfully managed to implement two policies for developing nations, namely GATT and GATS, in the name of modernisation and economic development [17,18]. Adherents contend that these two ratifications will deliver economic and social freedoms to many developing countries [18]. However, [14] have argued that both economic and social freedoms via GATT and GATS are at the price of a sustainability crisis, and the UN's sustainable development agenda is not exempt from criticism [19]. The UN has, in fact, put a lot of emphasis on it. Thus, COP21 has received serious global attention. Critics argue that the implementation of sustainable development would be a milestone for enabling 'super sustainable development', and this should be the new agenda item of UN business [16] in the near future. The developmental agenda prescribed by the UN may ultimately change its shape, colour and size to protect the World Bank Group and its associates [17].

1.2. GATT and GATS Agreements and the Development of the Private University Sector

Referring to the success story of the US private sector, the same model was advocated for developing nations to end the decades of the governmental monopoly economic system [19]. In order to increase the private sector's participation in international economic activity, the General Agreement on Tariffs and Trade (GATT) was introduced in 1947 as a 'legal legislative agreement' for many countries [19]. Ideally, GATT was not a humanitarian-driven framework, but rather an economically motivated, international policy wheel. To update the GATT agreement, a few rounds of GATT multilateral trade negotiations have been held at various times since 1947 [20]. This has helped to develop the concept of neoliberalism, which fostered the growth of the private sector [14].

Education is now being increasingly run by the private sector in developing countries, and this was made possible by the formulation of the GATS (General Agreement on Trade in Services) agreement. In this way, education became a 'global service industry' [14]. The UN encouraged the World Bank Group to put enormous pressure on emerging economies to open up their education systems to the private university sector [21]. The World Bank fundamentally argued that the privatisation of higher education would help the governments of emerging countries to invest more funds in primary and secondary schooling [22]. One study [22] further noted that in following the advice of the World Bank in reference to the GATS agreement, developing countries removed barriers to the private sector's involvement in higher education.

The private sector in higher education in the USA worked well for a number of economic, social and cultural reasons [23]. It had a history of 'decentralisation' and 'provincial autonomy' of governance and regulatory mechanisms throughout the country [24]. In contrast, private universities in developing nations were established in the main cities and

especially in the capitals but without a policy of social inclusion, administrative decentralisation and substantial infrastructure and communication facilities to ensure access for all [14]. The capital cities in developing nations are now overwhelmed by many private universities, which has undermined sustainable city life in many ways [14,25,26].

Research and higher education are closely connected, as one cannot thrive without the other. Higher education performs a crucial part in shaping the entire economic system. The core purpose of higher education is to produce job-ready graduates. The success of education for sustainable development (ESD) with regard to higher education is considered by measuring its contribution to preparing job-ready graduates. In the absence of a balanced and well-organised higher education structure, developing nations are forced to follow the dependency theory. The system of private higher education in emerging nations provides a new avenue for them to control the development phenomena [16]. It means, in effect, that sustainable development will not be achieved but would instead be replaced with a sustainability crisis that lasts indefinitely.

1.3. ESD in Higher Education and the Role of Private University

The fundamental concept of ESD is to ensure that modern education can confront the challenges that were part of the fourth industrial revolution, but without damaging eco-sustainability. Information technology, artificial intelligence and robotics engineering have emerged as topics of research during this fourth industrial revolution [27]. They are now considered important aspects of the innovative paradigm that shapes the modern business world [28]. A responsive higher education system is deemed to be what modern advanced economies need [29]. Five central propositions were identified to justify the role of the private university sector [30], of which three are directly linked with the fourth industrial revolution, as explained below [25].

Firstly, the private university sector is a market-driven industry. It has been argued that the private sector should always understand market needs better [26]. Secondly, the private sector is responsive to a range of diverse and differentiated demands [30]. Industries established during the fourth industrial revolution do not operate in the same way that they followed earlier [31]. Many sectoral and trade dynamics take place in various sectors, and skills have to be continuously revised or updated [27]. This creates a demand for differentiated skills, and given the prevailing constraints, the public university sector cannot respond [26]; hence, the private sector was seen as the best alternative [30]. Thirdly, specified demands for certain skills are a consequence of the fourth industrial revolution due to the continuous changes in skill patterns and specified professions [27]. Customising the skills to fit a particular context requires a rapidly responding management process. Due to the rigidities of public university management systems, it was believed that the private university sector can act sharply in order to meet the specified skills demand [32].

The above-mentioned propositions were the basis for establishing private universities in the developing world and were expected to play a robust role in economic development by generating private goods [30]. Universities by definition offer a wider range of programs, subjects and courses to value the ESD concept, but this does not necessarily apply to private sector institutions (Economist Intelligent Unit, 2014). Most developed countries allowed the private university sector to start operating by introducing programs such as Business Administration followed by Computer Science [30,33]. Some more programs were added later. However, private universities in developing countries are reluctant to innovate a course by themselves [27]. On most occasions, courses and curricula were borrowed either from Western universities or from the local public sector counterparts. This leads to the following question: is the private university sector able to contribute to the paradigm transformation of ESD?

Progress in the form of 'development of modernisation' by ensuring the sustainability of natural resources and ecosystem-related services is the key theme of 'sustainable development'. To add value to this concept, the private university sector needs to produce well-timed job-ready graduates who can contribute to economic progress. In doing so,

private universities should be cautious not to further aggravate the 'sustainability crisis'. Producing well-timed graduates without worsening this crisis will enable private universities to be responsive to ESD. A number of International University Alliances have been created to ensure ESD [29]. Playing an exemplary role, universities are at the frontline of leading ESD and they are innovating all the time. Sustainability is being developed in many areas such as transportation, city development, energy, water, recycling management, carbon emissions, environmental policies and action plans [29]. Universities used to focus on market-orientated outcomes, but more recently they have been connected to the activities that promote sustainability [27]. This transformation is not limited to laboratories but has become the hub of creating 'sustainable campuses'. A number of praiseworthy movements (i.e., Green Campus, Plastic Free Academy, Smoking Prohibited Campus) have made the university 'the icon of sustainability' [29]. It is therefore an obligation for universities to set 'sustainable development' in their cities [16]. This study devises a potential roadmap for the private university sector to follow. This roadmap will guide the sector in how its core responsibilities will fill the existing vacuum concerning ESD, which the world's leaders adopted as part of the 2030 Agenda by identifying 17 top-priority targets. Additionally, a guideline to combat climate change by 2030 in order to achieve the target of 'carbon neutrality' and SDGs will be presented.

2. Research Context and Problem

In the developing countries of the world, the private university sector's location and growth are occurring in similar ways. Critics claim that local think tanks are, firstly, not advising on or providing carbon neutrality targets; secondly, the sustainability and legislative frameworks are weak. Consequently, mushrooming private sector universities generate a city sustainability crisis. Carbon neutrality targets and the sustainability crisis require an effective policy of intervention. This study investigates three specific issues; namely, (i) educational development and expansion of private universities; (ii) private universities and the sustainability crisis; and (iii) the city and university and their roles in sustainable development. To illustrate the research problem, these themes are discussed by referring to what is happening in Dhaka, Bangladesh; the catchment zones are explained in the research layout.

2.1. Development and Expansion of Private Universities

Following the WTO's (World Trade Organisation) advice, two private universities in Bangladesh were established in 1992 through the Private University Act. Their campuses were situated in Dhaka's premier residential areas [34] and it was political priorities that helped to expand the private university sector in seven phases [30]. Currently, 114 private universities are operating, and their combined enrolment is approximately 400,000 [6]. Until the early 2000s, the private universities' expansion was basically limited to Dhaka, specifically to two elite residential areas or adjacent to them [35]. Although it should be noted that official statistics are not always the only set of fact, Gulshan and Dhanmondi. Banani is one such hotspot and it is an elite area in the Gulshan area. A little decentralisation has occurred since that time, yet growth is still confined to major cities' residential areas: 84% are in the residential zones in Dhaka [16], and 76% of private universities are situated in Dhaka's two most expensive residential areas, or nearby. There are currently 15 institutions sharing the bulk of student intakes, and these amount to nearly 178,000 [6]. Within Kamal Ataturk Avenue (e.g., radius of a few hundred yards), for instance, in 2016 only five private universities were established. Of these, two shifted to a residential established area (this area is now considered ideal for young people who respond to Western culture. Generally, the elite residential areas of Dhaka have been greatly influenced by Western thinking and practices) recently and they share the highest number of enrolments. Confirming the obligations of citizenship and student life (accommodation, playgrounds, restaurants, laboratories, prayer areas, libraries, etc.) through the establishment of a full-fledged university campus is an expensive exercise [35].

2.2. Private Universities and the Sustainability Crisis: Shortcomings of the Policy Framework

University campuses require special setups that are very different from residential settings [28]. Ideally, the university campus has some distinct characteristics that are 'fully specialised' when compared to residential areas for a couple of reasons. One is the need to avoid the sustainability crisis in the city's residential life, and the other is to ensure a substantial academic and extracurricular activity atmosphere [14,28]. Moreover, the diverse locations of universities are considered to be essential to the decentralisation of higher education if much of the population is to be included in it [14].

In addition to 8 public universities and a number of public university colleges, 82 private universities and more than 400 private colleges are established in the residential areas of Dhaka city. Indeed, this should affect both the education quality and the sustainability crisis. The market-driven theory is one of the important propositions to justify the rationale of such expansion. Although decentralisation was one of the mandates of the World Bank's advocacy in general, the concept of decentralisation, with reference to the expansion of private education in developing nations, has not really been valued.

Referring to the policy formation for the private university sector, GATS was the latest agreement/ratification prescribed by the UN. In the absence of a COP21 agreement and a lack of emphasis on sustainable development goals, the policy framework for the private university sector ignored the issue of the sustainability crisis. This is probably the main reason for the private university sector taking advantage of a weakened policy and regulatory mechanism. The result is a noteworthy sustainability crisis in city life, marked by an increase in problems such as climate change, traffic congestion, and increasing crime. This confirms that the promotion of the private university sector by the virtue of the GATS agreement was rather short-sighted. Universities, whether public or private, should function as role models that can help to resolve the sustainability crisis in order for the COP21 agreement to be worth the paper it is written on.

2.3. Research Aim, Objectives, Questions and Hypotheses

The COP21 is a recent UN ratification that has received much global attention for its attack on the sustainability crisis. This ratification has heavily emphasised two perspectives: one of them is innovation, and the other is a policy framework that creates carbon neutrality in countries' economies. To understand how a substantial and effective policy framework is urgently required to tackle the sustainability crisis, we document below the key research objectives:

a. To explore how the imprudent growth of the private university sector affects city sustainability crisis in the study zone (catchment area) in Dhaka, Bangladesh;
b. To make practical suggestions for improving the current sustainability policy framework by valuing the concepts of SDGs, ESD and the recent 'carbon neutrality target'.

Our project argues that a substantial policy framework is a key to tackling the sustainability crisis when it is not helped by the private university sector. Therefore, we aim to outline a policy and legislative framework for this sector so that it operates to greatly reduce the sustainability crisis. This objective will contribute to the carbon neutrality discourse of COP21. In order to accomplish this, the following issues are stated:

a. Does the imprudent growth of the private university sector worsen the city sustainability crisis without valuing ESD?
b. How can a revised and effective policy framework address the city sustainability crisis so that the ESD concept is properly valued?

This study considered two (2) major hypotheses about understanding the scope of a sustainability crisis and the role of innovation and policy frameworks in paving the way to carbon neutrality. Hypotheses that we developed in our qualitative study are commonly referred to as propositions. The two hypotheses which propose relationships between the selected study variables were devised to explain the carbon neutrality discourse of COP21 concerns, which are as follows:

Hypothesis 1 (H1). *There is a reciprocal relationship between the imprudent growth of the private university sector and the city sustainability crisis.*

Hypothesis 2 (H2). *There is a positive relationship between the policy framework that addresses the city sustainability crisis and ESD.*

3. Scope of This Study and Conceptual Framework

This section explains the connection between cities and universities and the role of the latter in broad sustainability, known as sustainable growth and development.

3.1. The City and University: Role for Sustainable Development

A paradigm shift is occurring in the way that cities and universities function together [30]. Since medieval times in Western and non-Western cultures, cities and universities enjoyed a mutually inspirational connection in terms of sharing knowledge that expanded the horizons of culture, customs, social life and the economy [36]. A renowned university allows a city to enjoy more prestige, attract attention and flourish. History is replete with illustrations where good universities linked their host cities to other parts of the world, so that academia, researchers, business people and talented students came to such places [36,37]. The mutual prosperity enjoyed by universities and cities is absent in the modern world's private sector university setup. The burgeoning private universities do not exist to improve the reputation of the city they are based in [26]. They are much more interested in making profits and getting the most out of people who now live in urban areas. Such universities should be functioning as agents for sustainable development in the cities where they are located.

Universities now generally reflect neoliberal and market-orientated behaviours but are also increasingly connected to activities that concentrate on promoting sustainability [27]. This transformation is part of the process of creating a sustainable campus. Good policies (i.e., smoking-prohibited campus, plastic-free academy and green campus) will help to make a university what [29] call an 'icon of sustainability'. The obligation is consequently on the universities to set a good example in their cities so that sustainable development is achievable. Private universities should not be exempt from it.

This study—although it does not quantify the achievement of 'innovation in sustainability'—does employ three fundamental sustainability indices (i.e., night light intensity, heat and greenery) to investigate the extent to which private universities have infiltrated the realm of sustainable residential life. A commonly used phrase is 'the more greenery, the more sustainability'. An arising heat index means that more congestion is occurring [38]. Conversely, an expanded night light intensity index means that commercial actions and activities will gradually ruin or fundamentally transform residential life. Preferably, sustainability in residential areas means a greater level of greenery with reduced heat and intensity of night light indices [39]. Crime and Traffic indices also are often used to measure social sustainability (Schlör et al., 2010). Crime index does not always correlate with the heat index, but the traffic index instead. This conceptual underpinning measures the impact of the private university sector on the sustainability crisis. The discussion that follows explains the policy framework discourse that is a key part of this research.

3.2. Carbon Neutrality Target and Policy Framework: Valuing the Concept of ESD

According to [40], carbon neutrality is the only way to address the sustainability crisis. In doing so, three main policy approaches respond to the carbon neutrality agenda [41]. One of them emphasises technological innovations whereby new goods and services or products can help create carbon neutrality as demanded by COP21 [42]. Policies are often provided by the government to motivate both public and private sector agencies to work on innovations and, in this way, tackle the sustainability crisis [43]. Critics argued that this approach will not by itself solve the sustainability crisis and will only make things worse in the future [44,45]. They suggest limiting the use of natural resources, which is

the second approach for dealing with the carbon neutrality agenda [45]; hence, the key purpose of a policy framework is to provide a comprehensive user guideline with tighter rules and regulations that ensure proper legislative and regulatory implementation so that the carbon neutrality agenda is achievable [45].

Other scholars such as [46,47] recently argued that societies do not have a 'bible of policies' with which to run their lives. They, therefore, call for a people-driven approach to deal with the sustainability crisis. According to them, a substantial sustainable index needs to be designed, which should have distinct features for each sector and its stakeholders. In order to make this sustainable index workable, they have advocated for two fundamental modalities. One of them is compensation and the other is a penalty package. A good response to the sustainable index by a sector would provide financial and logistical compensation for the sector and its stakeholders. On the other hand, failure to respond to the sustainable index means incurring a penalty. Although this model is not above criticism, it does link well to the economic-driven approach. While some countries are following these three approaches at the same time, others are considering a specialised approach, and the rest are concentrating on a mixed approach. This project intends to examine the most viable approach for the private higher education sector in developing nations to value the concept of ESD.

4. Materials and Methods

4.1. Catchment Area and Its Importance

The first private university in Dhaka was established in a rented property in the Banani residential area, specifically on Kamal Ataturk Avenue. This area's growth has been dramatic, and not only are most universities in this residential area mainly located on this avenue, but also every road has a branch campus and hall of residence. Beginning in 2009, a few universities began shifting to their own campuses, and most were established in residential zones, of which Basundhara residential neighbourhood is the key one. This newly established zone hosts the major enrolments, and in the Basundhara residential area, most students are relatively well off. This transfer did not lower the number of universities in Banani, Kamal Ataturk Avenue, because newly established ones occupied the buildings left vacant due to the transfer. Nonetheless, there has been a slight fall in enrolments. The Banani and Basundhara residential zones are called Catchment Areas 1 and 2, respectively.

4.2. Method

A qualitative research method was employed, and a number of tools served for the triangulation process. Given the nature of the research questions, this study employed an individualistic method for selecting these tools. Data were originally gathered by the UGC (University Grants Commission) and by satellite. One research question was answered with reference to secondary data, while more detailed information for the primary data was gathered through interviews and the Delphi technique. These are explained in more detail below, as is the Delphi technique.

4.3. Secondary Data

This study used two kinds of secondary data to reach the targeted aim. To map the universities' expansion and their enrolments, data collected by the UGC (University Grants Commission) are applied. Satellite imaging dating back to 1992 was gathered and processed by professionals applying GIS (Geographic Information System) software to verify the heat and greenery indices. Night light satellite imaging, moreover, cannot be managed through GIS, so subsequently quantifying their value is challenging. It should be noted that before 2013 satellite imaging for night light intensity was not available. Consequently, to calculate night light intensity, DESCO's collected data on electricity consumption were utilised. The quality of the satellite imaging is affected by certain variables; for instance, satellite configuration, age and longevity of images, time of image taken, etc. An index value is not provided by raw images which helps to explain why they are technologically

administered via GIS. Secondary data in the form of documents held by RAJUK, DESCO, Department of Environment (DE) and the Bangladesh Meteorological Department (BMD) also supplement this study.

4.4. Interviews, Primary Data and 'Delphi Method'

Triangulation of samples helped to achieve the objectivity of this study. There are 10 respondents chosen, comprising owners (i.e., board of trustees members) of the universities, management of the university, representatives of academics, representatives of students, and representatives of the housing association. One respondent for each cluster is measured from the Banani and Basundhara catchment areas. Additionally, one expert from each institution (i.e., BMD, RAJUK, DE and DESCO) was included. Each respondent was contacted personally, informed about the research details and they were invited to participate via the Delphi approach and its related data collection method.

Branching out from the qualitative technique, the Delphi approach can manage a large amount of quantitative and qualitative data because of the respondents' wider capabilities [48]. This study arranged a session with these people before commencing conversations for the interviews, which [49] suggested. The paper explained the study's goal and the results of Research Question 1 by informing them about the data nature and their collection procedure. The session lasted 1.5 h and this included the time set aside for receiving the responses. Experts were invited to take part in personal interviews after ending the session. Each interview and discussion lasted for an hour, and follow-up sessions were also undertaken in some cases.

4.5. Data Collection, Analysis, Statistical Effect, Confidentiality and Limitations

UGC is the only resource for Higher Education data in Bangladesh. By law, Higher Education related agencies are compelled to utilise UGC data if any legislative and policy frameworks for Higher Education are to be applied. Reviewing various agencies' records gave us an outstanding prospect to assess the overall scenario and arrange semi-structured interview questions. As advised by [6], this study performed trial sessions for interviews with associates, and this guided in duly asking further queries following the respondents' responses for the final interviews. This study used semi-structured interviews and asked if respondents wanted to express more about their experiences so as to disclose additional relevant information. The order in which questions were asked was changed according to the nature of the answers and where the discussion was heading.

All participants were thanked for their practical and essential opinion, and confidentiality about themselves and their answers was retained. This study labelled them A, A1, B, B1, C, C1, D, D1, E, E1, F G, H, I and J, which represented the following, respectively: board of trustees (BoT), management of the university, academics, students, representatives from housing association, RAJUK, BMD, DE, DESCO, and the University Grants Commission (UGC). Number 1 refers to interviewees from the Basundhara residential zone. We sought their consent to record their conversations, and most were happy to do this. The rationale for a smaller sample size is that the qualitative nature of the samples may characterise, under the right circumstances, the views of many; having too big a sample size would make richer inquiry unmanageable.

Due to the qualitative nature of this paper, developing a standard regression or common statistical probability model was not applicable. However, as explained earlier, scientific interpretations were devised to analyse secondary data using GIS software that could explain night light intensity, heat and greenery indices via numbers. These are presented in graphic form to translate the 'sustainability crisis'. On the other hand, primary data collected by the Delphi method were tested by ATLAS.ti software to determine their significance. ATLAS.ti is a computer software that deals with various issues (such as coding, analysing transcripts and field notes) of qualitative data so that possible biasness may be identified and addressed. However, human intervention in evaluating the accuracy of qualitative data is still be needed. For example, in order to express the views of the

audience (qualitative primary data), collected utilising the Delphi method, we considered only those opinions where the majority of the participants had reached a consensus. In the event of using direct quotations, the most relevant statements that precisely expressed the views of the majority are used. The relevance of a statement was determined using ATLAS.ti software.

5. Findings and Discussions

Firstly, the causal relationship that exists between the private university and the substantiality crisis will be examined. Secondly, we investigate a substantial policy framework that will assist the private university sector to respond in a practical way to the carbon neutrality issue. Since the study was undertaken in two student catchment zones, these areas constitute the subject of the findings and discussions. For the purpose of making a comparison, city-based data are also referred to.

5.1. Correlation between the Growth of Private Universities and Sustainability Crisis

Private sector universities are expanding faster than public sector ones in Bangladesh (Figure 1), and this is confirmed by the steady growth of private institutions in Catchment Area 1. Since 2009, some private universities started relocating from this catchment area as the regulations were made clear. Universities are now permitted to function for a specified period in a rental property. Consequently, most universities moved from Catchment Area 1 to Catchment Area 2 to develop their campuses but this move did not reduce the number of universities and their enrolments. This is because new universities rent vacant properties to operate in (Figure 2 A,B). For example, 13 universities with more than 55,000 enrolments are currently operating in catchment area 1. According to our findings for catchment area 1, it is evident that the sustainability crisis arose in the study zones due to the expansion of private sector universities. It should be noted that unlike quantitative research, where hypotheses are formulated solely to be tested, qualitative research can result in hypothesis-generating (e.g., proposition) outcomes. The outcomes of this development concerning the sustainability crisis in Catchment Area 1 by ATLAS.ti analysis support hypothesis H-1, and are described in more detail below.

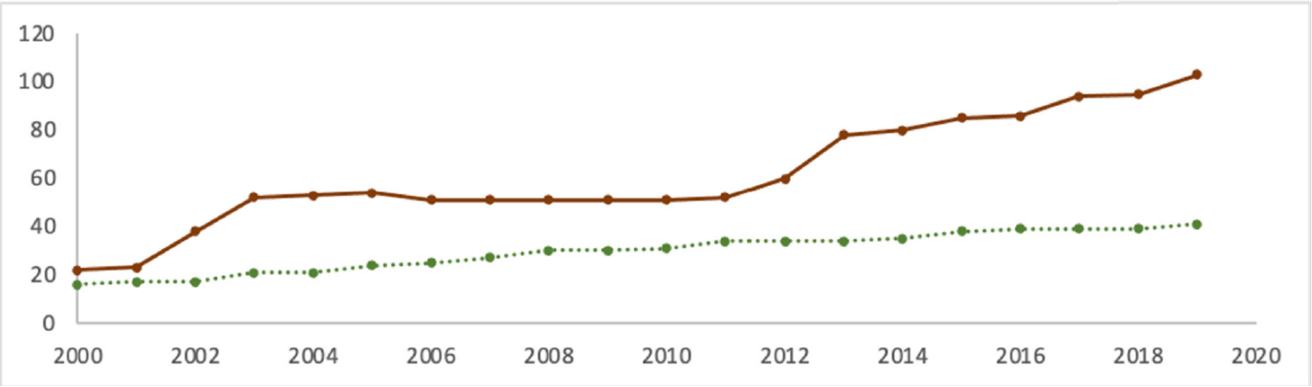
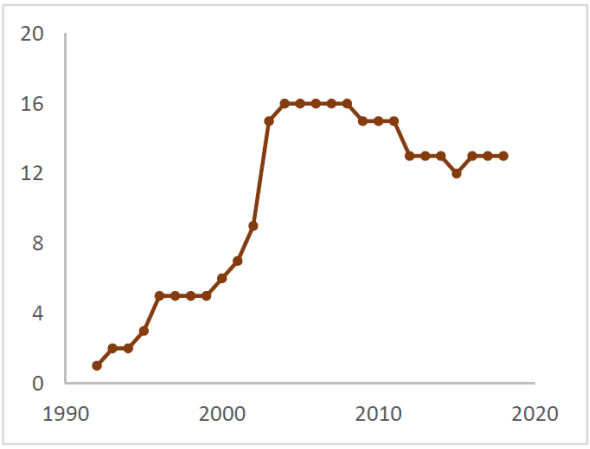
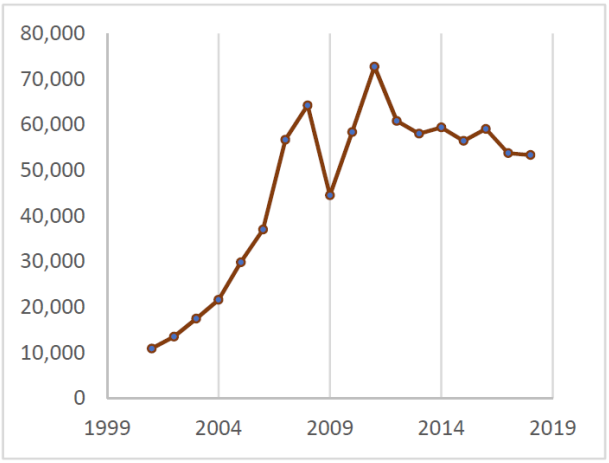


Figure 1. Expansion of private and public university sectors. Source: Compiled data from UGC. Note: Total number of private and public universities are represented via the solid and dashed lines, respectively.



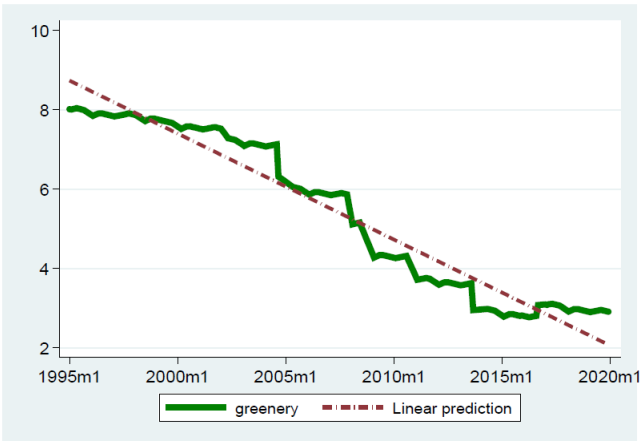
Panel A: Growth of private universities at Catchment Area 1



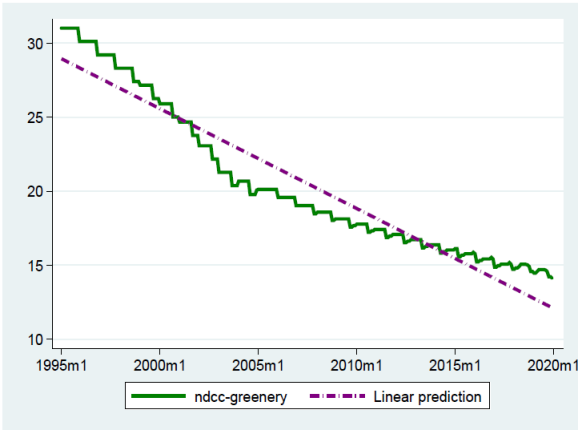
Panel B: Trends of intakes at Catchment Area 1

Figure 2. Expansion of private universities and students' enrolments at Catchment Area 1. Note: The figures above are compiled from the University Grants Commission.

Following the establishment of private universities in Catchment Area 1, the greenery index started falling dramatically until nothing remained (Figure 3A). Added to this, the greenery index is declining in the city (Figure 3B). The rate of decline in Catchment Area 1 is much more pronounced than the metropolitan average (Industrial areas and types of industries also contribute to the city average). Both maximum and minimum temperatures can explain the importance of the heat index. The maximum temperature index, both in the metropolitan average and Catchment Area 1, is rising and for this particular catchment, it is faster than the metropolitan average (Figure 4A,B). The minimum temperature index both in the metropolitan average and Catchment Area 1 remains steady. However, the metropolitan average in the city is noticeably better compared to Catchment Area 1 (Figure 4C,D). Demand for electricity during both day (e.g., off-peak) and night (e.g., peak) helps to evaluate night light concentration. Catchment Area 1's demand for electricity is positively associated with the growth and development of universities and their daily activities and student enrolments (Figure 5).

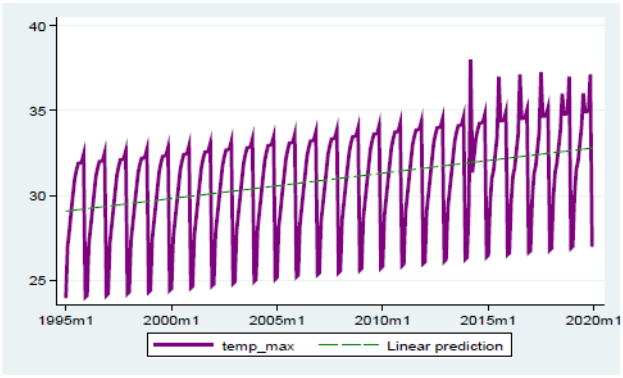


Panel A: Greenery trends in Catchment Area 1 via linear prediction

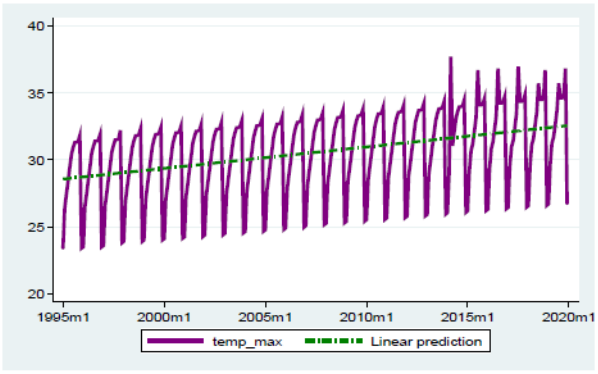


Panel B: Greenery trends in the city via linear prediction

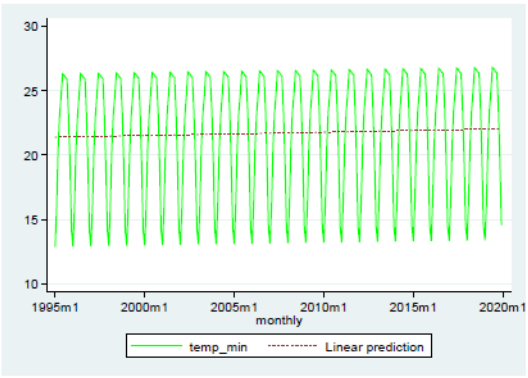
Figure 3. Comparison of the trends of greenery index between Catchment Area 1 and the city. Note: satellite images are used to extract the trend values. Ordinary least squares (OLS) model is adopted to obtain the linear prediction.



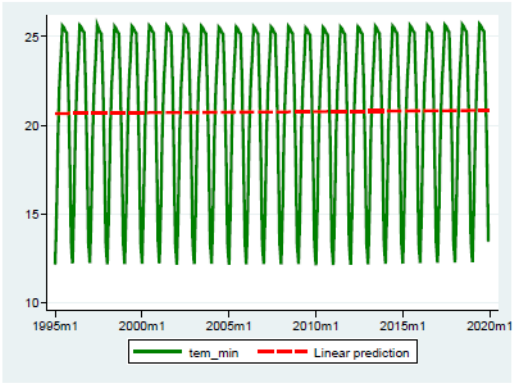
Panel A: High temperature in Catchment Area 1 via linear prediction



Panel B: High temperature trends in the city via linear prediction

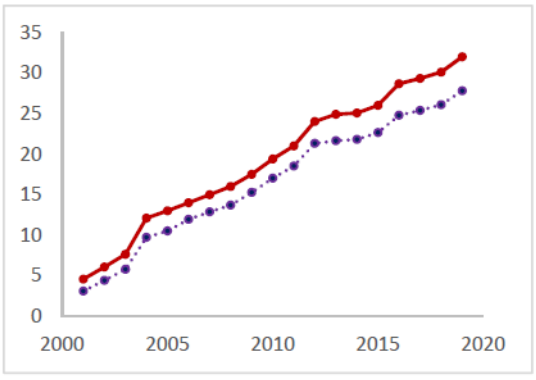


Panel C: Low temperature in Catchment Area 1

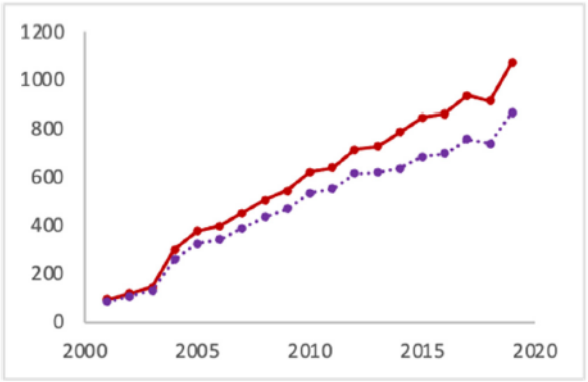


Panel D: Low temperature trends with linear prediction in the city

Figure 4. Comparison of temperature trends between Catchment Area 1 and the city. Note: satellite images are used to extract the trend values. Ordinary least squares (OLS) model is adopted to obtain the linear prediction. The maximum and minimum temperature measured in degrees Celsius are respectively represented by the 'temp_max' and 'temp_min'.



Panel A: Demand of electricity in Catchment Area 1

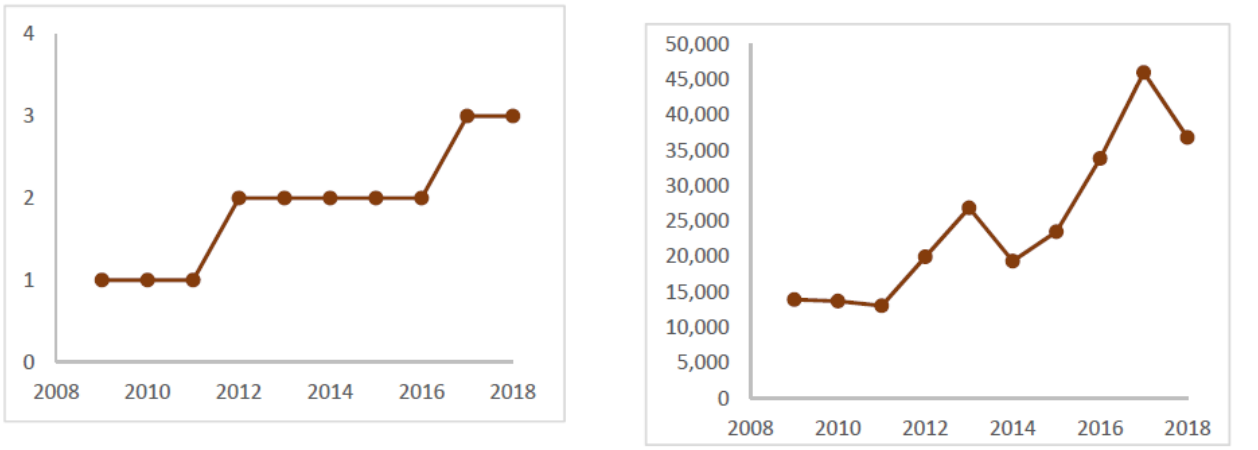


Panel B: Demand of electricity in the city

Figure 5. Demand trends for electricity in Catchment Area 1 and the city. Note: Mega Watt (MW) is indicated by the vertical axis while year is indicated by the horizontal axis. The total demand for electricity during the night and daytime is represented by the solid and dashed lines, respectively. Data source: DESCO.

The growth of universities, their daily activities and student enrolments in Catchment Area 2 are increasing, and rapidly so (Figure 6). Outcomes confirmed that the residential

environment in this catchment area is adversely affected by this phenomenon (Figure 7). For instance, the greenery index is declining (Figure 7A), while both the temperature or heat index and electricity use are rising (Figure 7C). These statistics in Catchment Area 2 are still better than those for Catchment Area 1 but worse than the city. If this remains the case in Catchment Area 2, it will soon reach or surpass Catchment Area 1. Respondents A, A1, B, B1, C, and C1 claim that universities and many other businesses help create this deteriorating situation, yet the reality is that these universities are welcomed by those businesses, as suggested by respondents E, E1, G, H, I and J. The environmental sustainability crisis described in this present study is supported by other research [5,10,29,38,39].



Panel A: Growth trend of private universities at Catchment Area 1

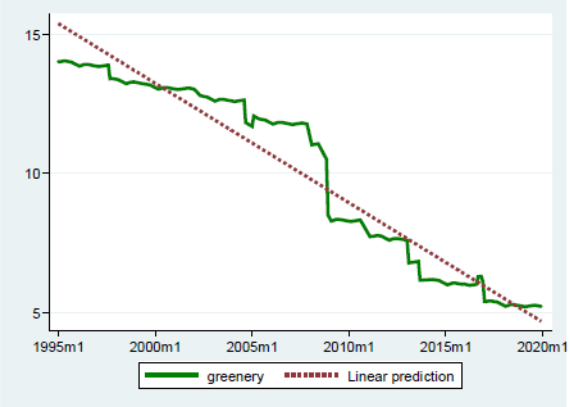
Panel B: Private universities' intake trends at Catchment Area 2

Figure 6. The growth of private university sector and students' enrolment at Catchment Area 2. Data source: UGC.

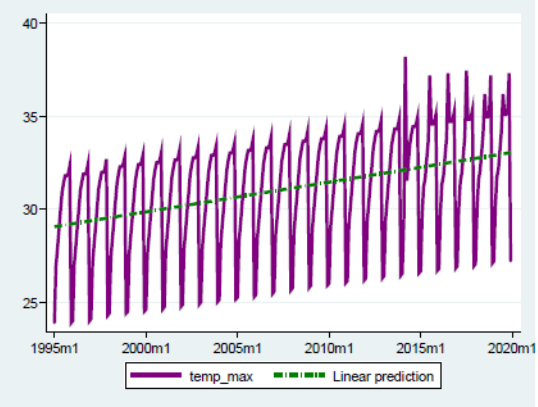
The establishment of campuses by private universities in the residential areas is primarily possible for two important economic reasons. One is the number of publicly available facilities, such as parks, mosques, food courts, roads and other infrastructure that are free of cost. Such facilities consume additional costs from university funds, and private universities are reluctant to invest in them if more money is needed. Moreover, it would incur additional tuition fees for students. Market availability is another reason for positioning private universities in residential areas. Students at the private universities come from wealthier family backgrounds in these zones.

5.2. Policy and Legislative Framework for Ensuring Carbon Neutrality

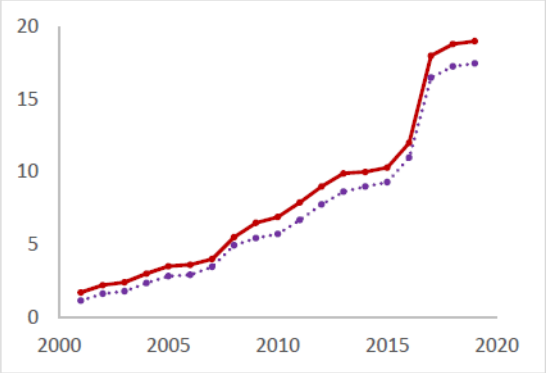
Carbon neutrality is the key to solving the sustainability crisis. Both policy framework and innovation are fundamental to ensure that this is achieved. While innovation is the tool to supplement the carbon neutrality objective, it will not function if a coherent framework is missing. During the establishment of the private university sector in developing countries, the sustainability crisis and carbon neutrality targets were not on the governments' economic development agendas. It was, therefore, policy negligence that helped the private universities to take advantage of the sustainability crisis. Prevention is better than cure—it is an old saying that is too often ignored; thus, it is time to call for a revision of the policy to meet the carbon neutrality target. The policy and legislative frameworks for ensuring carbon neutrality described in this study are supported elsewhere [5,38,39,41].



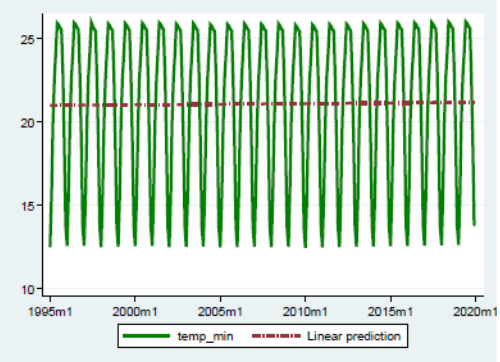
Panel A: Index of Greenery trends



Panel B: High temperature trends presented via linear prediction



Panel C: Electricity consumption trends



Panel D: Low temperature trends with linear prediction

Figure 7. Greenery, temperature indices and demand of electricity at Catchment Area 2. Note: Satellite images are used to extract the trend values in Panel (**A**). An Ordinary least squares (OLS) model is adopted to obtain the linear prediction. Panel (**C**) used data compiled from the DESCO, where MW is showed via the vertical axis. Total electricity demand during the night and daytime are respectively showed via solid and dashed lines. The ordinary least squares linear regression is adopted to obtain the linear prediction. The maximum and minimum temperature measured in degrees Celsius are respectively respected by 'temp_max' and 'temp_min'.

5.2.1. Call for Revision of the Policy and Legislative Framework

The Private University Act 1992 marked the official commencement of the private university area in Bangladesh, and it remained the same until 1998 to govern the sector. In 1998, an adjustment was rendered to the act and, therefore, the new Private University Act 2010 (PUA-2010) now governed. Many policy documents of UGC support this process. However, unfortunately, campus sustainability and its related issues are greatly overlooked and PUA-2010 permits a university to function on a rented property for seven years. Theoretically, at the end of the seventh year, a university should relocate to a permanent campus, but no university did so in its eighth year. The first shift only appeared after seventeen years. The location was not stipulated, and only a minimum size of the land was determined. The size is too crowded for students and does not encourage a considerable campus life. J makes the following observation:

> *Bible of legislation doesn't ensure proper governance and regulatory control. An informal approach is more important. We regularly monitor and evaluate the campus sustainability issue through our visits.*

The views of J do not support the 'Principle of Governance' since [30] contended that formal governance should supplement informal approaches in order to achieve the organisation's mission. Otherwise, corruption, secrecy and irregularities will seep through the governance system; hence, the author referred to the official rules, regulations and protocols as formal governance methods, while organisational leadership, culture and behaviour skills are defined as unofficial aspects of governance. J's further statement is alarming:

> *Our prime priority was to cover the maximum possible number of intakes to support higher education. The private university was introduced with the advocacy of development partners while there was no SDG agenda provided by them. The SDG was not a fundamental concern of our development partner during the expansion of private universities. Other respective bodies in the country such as RAJUK, BMD and DE should look after the issue of sustainability.*

These organisations (i.e., UGC, BMD, RAJUK DE and DESCO) are independent bodies, and each manages its activities following its respective ministry. By law, UGC is an influential sovereign body that oversees both private and public sector universities. For this reason, E, E1, F, G and I believe that UGC would not deny its obligations. According to F is the following:

> *If all concerned agencies including private universities denied shouldering the responsibilities of sustainability, this is very unfortunate. We should work as a collective force. Otherwise, suffering would excuse none.*

J claims that private universities want to shift to permanent campuses. However, both the BoTs and management of these institutions emphasize that government support is for this, and it does depend on the pressure put on them from the residential areas. Hence, C remarked the following:

> *Because of the chase of UGC, older universities are moving to the newly established residential areas by having an own piece of land. This doesn't mean that residential areas will be free from campuses. It seems that older brother moves to the rooftop flat allowing youngers to use the old ones.*

C's statement clearly clarifies the condition. Sadly, if this remains, both the temporary and permanent campuses of most private sector universities will remain in the capital city, Dhaka. This would definitely make a constant obstacle for residential smooth city life. Catchment Area 1 began life in the early 1980s for only 45,000 residents. Remarkably, universities in these areas have more than 55,000 students, complicated by the increasing number of residents and other business activities. F1 stated:

> *We all are either emphasising for our personal or organisational benefits at the cost of society's wellbeing. Private universities and housing sectors are looking to maximise their profits. On the other hand, public agencies either look for revenues or their employees are keen to accept 'benefits of irregularities'. Parents, Students and House Owners are also contributing to degrading the harmony of the neighbourhood. A well-timed legislative framework covering sustainability issues and supported by different agencies is the only way toward sustainability.*

The 'sustainable society' should not be treated simply as a theoretical concept. The collective understanding and will of all stakeholders are fundamental for building a sustainable society. The roles, functions and duties of public bodies and service organizations are demarcated so that power and authority are not misused. This qualitative outcome resorting to the ATLAS.ti analysis supports H-2. Furthermore, findings indicate that an effective, action-oriented and timely policy framework could minimise the city sustainability crisis in Dhaka, Bangladesh (Figure 8).

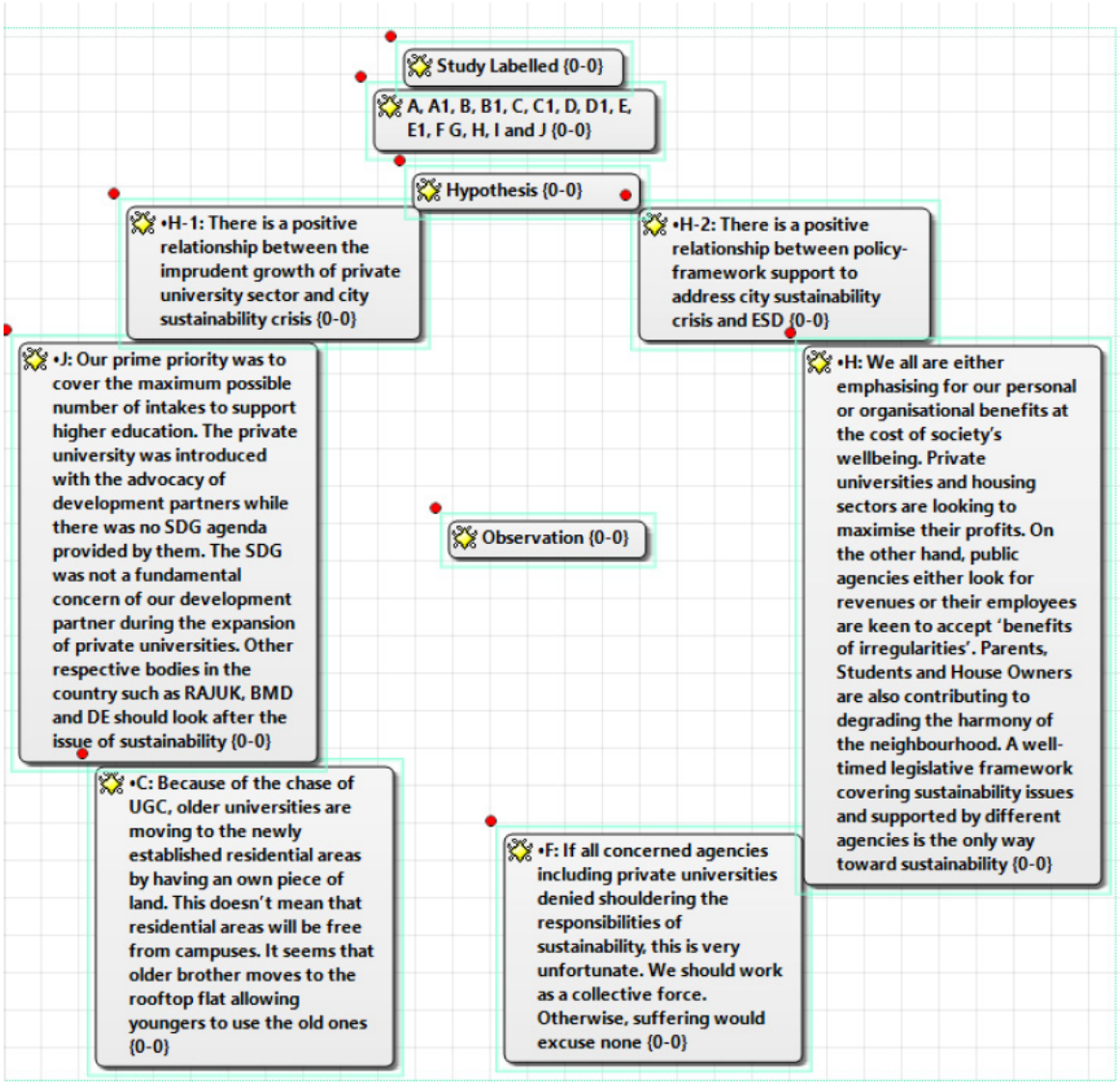


Figure 8. Qualitative outcomes and linkage within hypotheses by ATLAS.ti analyses (e.g., hypotheses H-1 and H-2).

It is evident that inter-institutional coordination creates balance by reducing the overlap. Unfortunately, the above discussions, in engaging the different stakeholders, generated debate without coming to a consensus. 'Blame-game thinking' has become a more topical weapon to protect people from criticism [5,39,41]. If this continues, the carbon neutrality target will be the only official agenda item. The next section explores a policy model that could be a remedy to the carbon neutrality issue.

5.2.2. Policy Framework for Carbon Neutrality: Penalisation vs. Incentivisation

Before explaining this carbon neutrality policy framework for the private university sector with a particular focus on a developing nation, let us note that this model is based on a comprehensive framework designed for developing countries in Southern Asia.

Carbon neutrality and the sustainability index constitute the apex and base element of this policy framework, respectively [50,51]. To ensure their correct implementation, this policy is further supported by a concept identified as the 'penalisation vs. incentivisation' approach. Many countries—such as Malaysia, Thailand, China, Japan and South Korea—adapted the concept of the Sustainable Development Goals (SDGs). Asian nations need to urgently consider how to balance the green capacities of their economies and ensure that decarbonisation is workable and does not devastate industrial systems by the year

2050; Bangladesh is part of this scope. Before explaining the rationale of the penalisation vs. incentivisation approach and how it can succeed, let us explain carbon neutrality and the sustainability index in the context of the private university sector in a developing nation.

Figure 9 presents a number of potential macro variables with the score weighting applicable to carbon neutrality and the sustainability index as it applies to the private university sector. These macro variables are supported by a number of micro variables that were determined by wider discussions and consultations conducted by scientists and scholars working with different stakeholders. Both the macro and micro variables could differ from one context to the other in order to reflect the contextual needs; hence, the distribution score and its weightage are used as the basis of scientific validity to ensure that what is achieved reflects international benchmarks [52–55]. Each private sector university has to achieve a minimum qualifying score, which should be valid for a certain period of time. The qualifying score is to be categorised into two types: one with incentive given and the other with penalty. The universities that have scored in the 'incentivised category' should be provided with both cash and logistical assistance by the government, and this establishes the tier status (Figure 10). On the other hand, penalties or punishments will be decided, as indicated in Figure 10. Successful implementation of such a policy may initially generate some revenue. However, this revenue should be distributed amongst all stakeholders; otherwise, corruption in developing countries will simply undermine the good intentions and actual execution. In the event that this policy framework is successfully carried out, carbon neutrality will be the result, thereby supporting the SDG objectives and what COP21 seeks to bring to fruition [52].

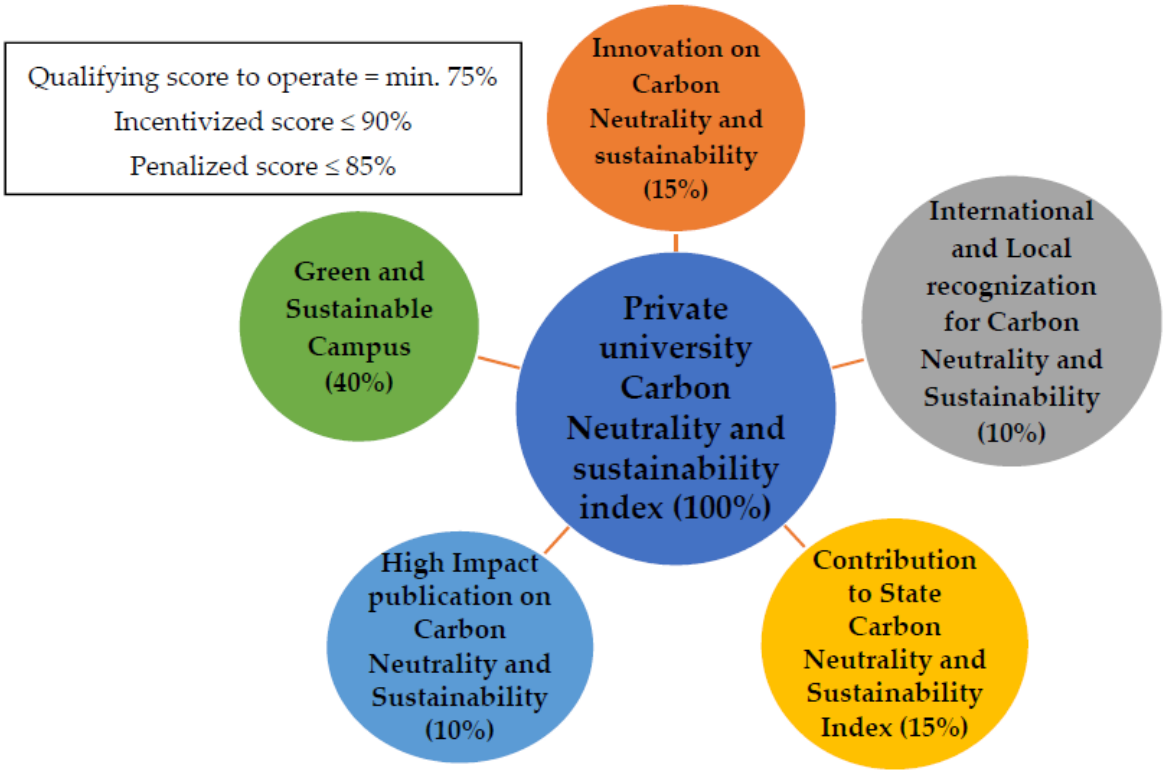


Figure 9. Private university carbon neutrality and sustainability index.

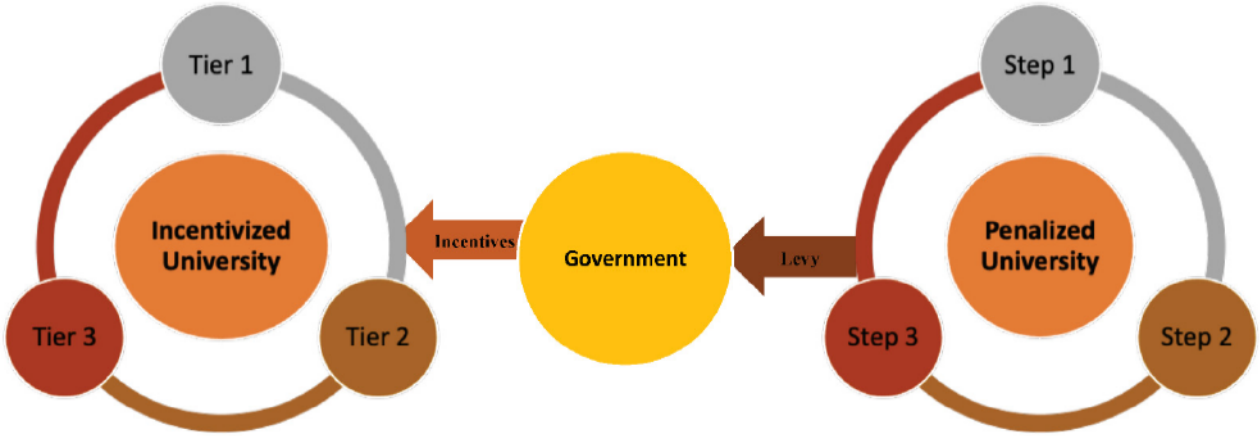


Figure 10. Incentivized vs. penalized approach.

5.2.3. Implication of the Policy Framework

The private university sector's evolution continues to this day in the world's developing nations. For example, the sector shares, respectively, 83%, 76% and 81% of total universities in southern Asia, Sub-Saharan Africa and Latin America [14]. The enrolment ratio in the private sector is not occurring at the same pace. For instance, in southern Asia, it shares only 49% of total university enrolment while the number of private institutions amounts to 83%. The same trend is also noticeable in other developing nations [21,22,25,28]. Middle-income countries, such as Malaysia, China and those nations in the Arab world, share a greater number of private universities and their enrolments are increasing. Most of this development is based in the regions' major cities and most of the universities' campuses are located in residential areas [21,26,28,39].

However, the private sector globally retains a handsome share both in terms of the number of institutions and enrolments [14,21,22,25,28]. The sector's expansion theoretically aimed to produce well-timed graduates in various fields of endeavour that were sustainable [14,21]. An effective response was expected of the private university sector so that ESD would be retrained [18,19]. Unfortunately, an over-emphasis on profit-making has derailed the value of ESD [14,32,35]. Consequently, the policy framework linked to incentivisation and penalisation will ultimately assist the private sector in responding to COP21, as suggested elsewhere [56,57]. Then the private universities can truly value the concept of ESD without sacrificing their profits. This policy framework is mainly applicable in the developing economies because the private university sector is about making profit and removing or negating policies and regulatory measures that discourage this.

Developing economies hold similar constraints, especially in developing the higher education sector. Therefore, this proposed policy framework may serve as the basis for other developing nations needing to design and implement their own policies. This policy framework may not directly be relevant to the public sector university system because of the operational differences of both sectors. However, the successful implementation of this policy framework by the private sector may motivate the government to create a financial mechanism for the public sector system to follow, and in this way, the public sector may be more responsive to ESD.

6. Conclusions, Limitations and Further Research

The United Nations has determined the Sustainable Development Goals (SDGs) that developing nations should achieve. However, it is not correct for a professional body such as the UN to standardise international ratifications that may not be able to consider local carbon neutrality targets and sustainability crisis agendas as well as ESD. If local think tanks fail to provide a rationale for carbon neutrality targets and the sustainability crisis and ESD—supported by a policy and legislative framework—then this has serious

implications for a country's economic development along renewable energy lines. Carbon neutrality targets and the sustainability crisis are now important international issues. The ESD concept is added so that the education sector plays the most critical role in addressing the sustainability crisis. The growth of the private university sector in Bangladesh has impacted on the WTO's "International Prescription" and dramatically altered the tertiary education system. A new national higher education policy structure is, thus, urgently required, one that is supported by inter-ministerial cooperation between SDGs and ESD. Given that the SDGs and ESD are integral to our research objectives, a revised national higher education policy framework should address issues such as the sustainability crisis, role of innovation and the green revolution policy framework without any further delay so that carbon neutrality will be achieved. Higher education is—as far as national economic development is concerned—the key. However, if education itself suffers from a sense of hopelessness, this would simply undermine what the government wants to achieve. Consequently, sustainable development will be compromised by the realities in which people live. The variables and weights of scores reported in this paper are only partially representative, which, to some extent, limit this paper. Further research should be done before implementing this policy framework, such as using a larger data set and more variables to cover all of Bangladesh.

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