Environmental and Social Assessment (ESA)
Establishment of University Innovation Hub
Varendra University (VU), Rajshahi, Bangladesh

January 2025

Digital Entrepreneurship and Innovation Ecosystem Development Project

Bangladesh Hi-Tech Park Authority (BHTPA)

ICT Division, Ministry of Posts, Telecommunications and ICT,

Agargaon, Sher-e- Bangla Nagar, Dhaka – 120

Name	**Digital Entrepreneurship and Innovation Ecosystem Development Project (DEIEDP) under PRIDE Bangladesh Hi-Tech Park Authority**
Report For	**Varendra University (VU), Rajshahi, Bangladesh**

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1. Introduction

1.1 Project Background

To make Bangladesh an IT and ITES-based prosperous country, Information and Communication Technology (ICT) has been performing an important role. The Bangladesh Hi-Tech Park Authority (BHTPA) was established in 2010 to accelerate the country's economic development, encourage digital entrepreneurship and generate private investment and employment in the IT and IT-enabled service (ITES) industries. BHTPA is also mandated to establish, operate and develop and expand Hi-Tech Parks (HTPs) and Software Technology Parks (STPs) at various locations within the country.

The World Bank's Private Investment & Digital Entrepreneurship (PRIDE) project is aimed to promote private investment and job creation in economic zones and digital entrepreneurship in hi- tech parks and software technology parks. The project will spearhead the adoption and mainstreaming of green industrial park concepts in the implementation and development of economic zones in Bangladesh. The project has four components. The first three components will be implemented by Bangladesh Export Processing Zone Authority (BEZA) and the fourth component will be implemented by Bangladesh Hi-Tech Park Authority (BHTPA). Components 1-3 are not discussed here as they are not under the jurisdiction of BHTPA. Only the activities of Component - 4 are discussed here.

Component – 4: Strengthening the Digital Entrepreneurship and Innovation Ecosystem Implementing Agency: Bangladesh Hi-Tech Park Authority (BHTPA)

This component aims to strengthen the foundation of the digital entrepreneurship and innovation ecosystem in Bangladesh. It will create the country's largest agglomeration of IT and ITeS companies in Dhaka's Software Technology Park -2 (STP-2) tower and promote digital entrepreneurship more broadly among young professionals and women. It will design and implement a program that supports digital entrepreneurship at three levels. First, it will establish modern and professional start-up and scale-up facilities and services in Software Technology Park's (STPs). Second, it will introduce entrepreneurship and innovation hubs in different public and private technological universities. This will also offer accredited and rapid training programs to budding entrepreneurs and managers in the IT and ITeS field. Thirdly, it will offer a media-based challenge program with grant prices to help change attitudes and attract more youth, women and young professionals to consider becoming entrepreneurs.

Sub-component 4.2: Bangladesh Hi-Teck Park Authority is going to develop an effective ecosystem with respect to digital entrepreneurship in Bangladesh and to upgrade existing innovation culture in the country. The intension is to establish University Innovation Hubs as the key driver to promote innovation culture and nurture future leaders for innovation and hence to motivate setting up new ventures and startup among new generation. Under this sub-component, University Innovation Hubs and Incubation centers will be established in some Universities in Bangladesh. Initially, Bangladesh University of Engineering and Technology (BUET), Chattogram University, Khulna University, Rajshahi University of Engineering and Technology (RUET), Shahjalal University of Science and Technology (SUST), Sylhet, United International University (UIU), Dhaka has been selected for the purpose. Four more universities including Varendra University (VU) are also in pipeline and hope to start the implementation work very soon. The sites of ten universities including these four universities have already been inspected. This ESA report has been prepared for the Varendra University (VU), Rajshahi Innovation Hub. It is based on ES (Environmental and Social) screening, site visits and information collected from the university authorities and consultations with relevant stakeholders.

1.2. Objectives of ESA

The objectives of the ESA are:

i. Identify and assess environmental and social risks and impacts during the pre-construction,

construction, and operation phases of the sub-component (University Innovation Hub) based on screening tests, site visits, information collected from university authorities, and consultations with relevant stakeholders.

ii. Develop a mitigation approach for the sub-components of environmental and social risks and impacts;
iii. Recommend specific measures to avoid or mitigate adverse environmental and social impacts and to enhance positive impacts.
iv. Prepare Environmental and Social Management Plan (ESMP) for managing the environmental and socials impacts and risks and;
v. Recommend suitable institutional mechanisms to monitor and supervise effective implementation of ESMP

1.3 Scope of the ESA

The scope of the ESA is to:

i. A general description of the project and existing physical, biological and socio-economic conditions;
ii. Identification and assessment of the potential impacts on the natural and human environment in the sub-component area, from the construction and operation phases;
iii. Consultation with the locals/stakeholders involving concerned people to identify ES risk and impacts consistent with screening examination.

1.4 Approach and Methodology

The preparation of this ESA report consists of the following sequential steps:

- Identification of all the activities to be undertaken under the component;
- Identification and screening of the environmental and social issues relevant to the proposed activities through a scoping process;
- Site visits to capture and verify environmental and social baseline;
- Identify prospective stakeholders and consult with relevant parties;
- Assessment of potential risk and impacts on relevant environmental and social parameters;
- Preparation of Environmental and Social Management Plan (ESMP)
- Preparation of Environmental and Social Monitoring Plan
- Environmental Specialist and Social Specialist of DEIED project visited the sub-component site on March 10, 2024, which helped to identify the environmental and social parameters/components (relevant to the sub-component actions) that are likely to be affected. The field visit also included a participatory approach, which involved discussions with relevant stakeholders in order to identify the perceptions and priorities of the stakeholders in and around the academic area. Information was also derived from secondary sources such as different reports, satellite imagery and Google maps etc.

2. Sub-component Description

Component 4.0 of the PRIDE project has two sub-components. Under sub-component 4.2, University Innovation Hubs will be established in different parts of the country including Dhaka, Chittagong, Rajshahi, Khulna, Sylhet, and Barisal divisions, to attract more students to become digital entrepreneurs in leading technical universities and business schools. Some of the universities have already been mentioned in Section 1.1.. Professional operators will be engaged to design, operate and then transfer the University Innovation Hubs to the universities in which they are embedded. The project will finance refurbishment/works, including retrofitting of existing buildings with architectural or building changes

that enable reduction of energy consumption, energy efficiency improvements in lighting appliances and equipment of the innovation hub spaces in existing universities as well as goods and technical assistance to ensure that the new facilities can attract top talent and service providers.

The UIHs will over time be expected to expand to add complementary innovation activities such as hardware prototyping spaces, joint research centers with industry, technology transfer offices, etc. This is in line with the University Grants Commission's (UGC) vision and objectives. The objective is to develop systematic programs that include investment into commercializing research and supporting innovative ideas so that UGC can demonstrate academia's role in the ecosystem. BHTPA will develop and mainstream innovation hub guidelines for university-based Innovation hubs, which will follow international standards and focus on outcomes and key principles that would allow flexibility to innovation, local customization and adjustments to develop suitable models for universities.

2.1 Planned Activities

- Identify key approaches for university innovation hubs through analyzing local context, potentiality and the prevailing skill gap, and propose program designs and strategies that will enable delivery of the promised results, including the preparation of annual work plans.
- Design, develop and deploy a management information system (MIS) and operational processes customized to local needs as well as necessary digital systems to manage and track the incubation program to be run under this project.
- Provide mentoring of the selected startups in developing their products/ services to commercialization by developing an innovation culture in hubs throughout the project period.
- Transfer the programs to the universities in which they are embedded to ensure program sustainability.
- This will include training-of-trainers activities - and overseeing on-the-job training through methods such as secondment and job shadowing.

2.2 Justification of Establishing an Innovation Hub at Varendra University

Establishment of an Innovation Hub at Varendra University will serve as a cornerstone of promoting academic research, entrepreneurial growth and technological advancement for the betterment of students, faculty and the wider community. The Varendra University Innovation Hub will be a multidisciplinary center designed to foster creativity, collaboration and the development of innovative solutions. It will provide students and faculty with the necessary resources and support to transform their ideas into real-world projects, contribute to academic achievement and for societal progress. Key Reasons for Establishing the Innovation Hub:

- Supporting Varendra University's Vision and Growth: The establishment of the Innovation Hub will position Varendra University as a leading institution for innovation and entrepreneurship. It will enhance the university's reputation, attract high-caliber students and faculty and contribute to its overall growth and success.

- Fostering Innovation and Creativity: The Innovation Hub will provide a dedicated space for students and faculty to engage in creative problem-solving and the development of innovative solutions across various fields. This environment will nurture innovative thinking and transform theoretical knowledge into practical applications.

- Entrepreneurial Spirit: Through entrepreneurship programs, mentorship and support services, the Hub will nurture an entrepreneurial mindset among students and faculty, empowering them to translate their ideas and research findings into impactful ventures and startups.

- Bridging Academia and Industry: The Hub will facilitate closer interaction between the academic community and industries, offering students hands-on experience with industry projects and encouraging research-driven solutions.

- Preparing Students for the Future Workforce: The Hub will provide students with practical experience in project development, critical thinking and teamwork. This hands-on learning will equip students with the skills and knowledge needed to thrive in the ever-evolving job market, making them more competitive and future-ready.

- Community and Social Impact: The Hub will play a vital role in addressing local community challenges by fostering socially relevant innovations. Through its initiatives, the Hub will actively contribute to sustainable development and improve the quality of life in this region.

2.3 Location of the Project

The permanent Campus of the university is in Chandrima, Bypass Road, Paba, Rajshahi established on 20 acres of land. On the 5th floor of the academic building of the University where innovation hub will be established in 8,113.00 sq.ft area. The campus site has been designed with social and environmental issues in mind. As a result, an attractive environment has been created on the campus.

2.4 Present condition of the proposed Innovation Hub site

The following figures show the present status of the site where UIH will be established at VU (Figure 2.1 -2.4).

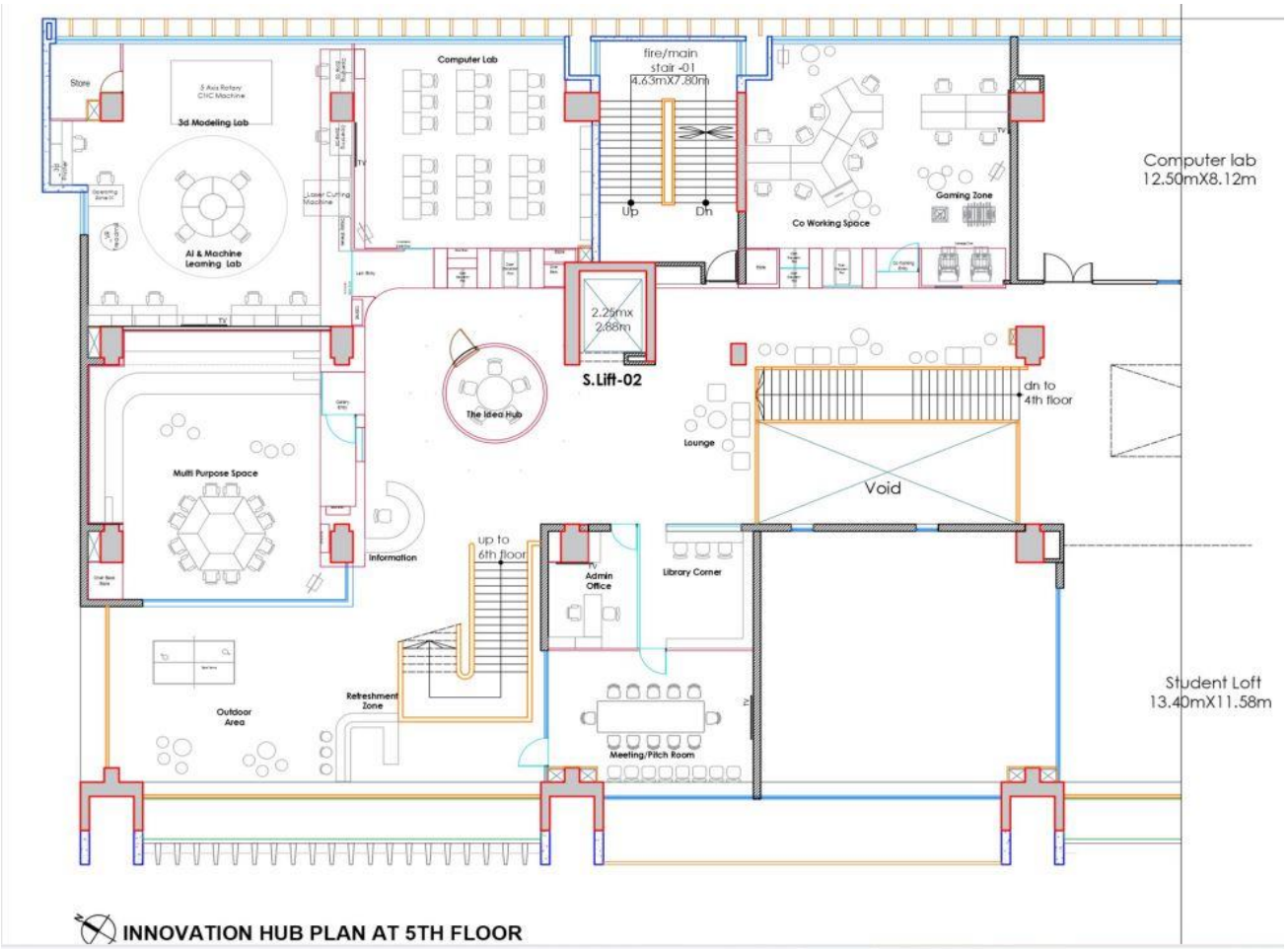
Figure 2.1: Front site of the university innovation hub

Figure 2.2: Proposed site of the university innovation hub on the 5th floor

Figure 2.3: Proposed site of the university innovation hub (5th Floor)

Figure 2.4: Proposed site of the UIH (5th Floor)

2.5 Proposed Interior Layout Plan with Planned Activities



Axonometric View

PROJECT: INTERIOR DESIGN OF VARENDRA UNIVERSITY INNOVATION HUB

CLIENT: VARENDRA UNIVERSITY

CONSULTANT: SYNTHESIS ARCHITECTS

DATE: 1st August, 2024

Multi Purpose Space/Gallery

PROJECT: INTERIOR DESIGN OF VARENDRA UNIVERSITY INNOVATION HUB
CLIENT : VARENDRA UNIVERSITY
NOTE: THIS IS JUST A FINAL DRAWING. ROOM DIMENSIONS AND SHAPE MAY BE CHANGED BY THE ARCHITECT FOR THE BETTERMENT OF THE PROJECT

CONSULTANT:
SYNTHESIS ARCHITECTS
DATE: 1st August, 2024

PROJECT: INTERIOR DESIGN OF VARENDRA UNIVERSITY INNOVATION HUB
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CONSULTANT:
SYNTHESIS ARCHITECTS
DATE: 1st August, 2024

Feature Wall By the Entry

PROJECT: INTERIOR DESIGN OF VARENDRA UNIVERSITY INNOVATION HUB
CLIENT : VARENDRA UNIVERSITY
NOTE: THIS IS NOT A FINAL DRAWING. ROOM DIMENSIONS AND SHAPE MAY BE CHANGED BY THE ARCHITECT FOR THE BETTERMENT OF THE PROJECT

CONSULTANT: SYNTHESIS ARCHITECTS
DATE: 1st August, 2024

Feature Wall with The Idea Hub

PROJECT: INTERIOR DESIGN OF VARENDRA UNIVERSITY INNOVATION HUB
CLIENT: VARENDRA UNIVERSITY
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DATE: 1st August, 2024

2.6. Estimated Budget for Innovation Hub

The estimated cost for the Innovation Hub is BDT. 1,70,00,000.00 (One Crore Seventy lac only)

2.7 Project Phases and Activities

The following are the three main project phases as planning and pre-construction, construction and operation and various activities under each phase.

2.7.1 Planning and Pre-Construction Phase

The planning and pre-construction phase of the sub-component involves the following activities. Since the component is planned to be implemented in phases, some of these activities will be parallel to earlier phases of construction.

- Environmental & Social Assessment (ESA) and the submission of the report.
- Preparation of the site
- Environmental and Social study for the ESA based on screening, site visit and stakeholder consultation.

2.7.2 Construction Phase

Mainly interior works will be done during construction phases. In addition to these main works other activities may be undertaken as needed. Major activities during construction phase of the component are as follows:

- Product + Testing Lab
- Product Prototyping Lab
- Reception cum waiting
- Co-working space
- Meeting room
- Head of Innovation
- Minitorium/Pitching
- Toilet and Fresh area
- Coffee Corner
- Main Lobby
- Open Area

2.7.3 Operation and Maintenance Phase

Some local activities related to the upkeep of the built or refurbished sites might take place during the operation phase. Along with this, the main activities of Innovation Hub will also start. Main activities during operation of the component as follows:

a) Create a co-working space
b) Space for pitching and training
c) Research and development activities
d) Incubation activities
e) Mentorship program
f) Networking events for linkage with potential investors

Varendra University has its own Operations & Maintenance department fully staffed with experienced

and trained engineers and operators for the smooth functioning of the activities. These personnel will be engaged during component implementation for optimal functioning of the activities.

3. Potential Environmental and Social Risks, Impact and Mitigation Measures

The objective of the project is to establish a world class business environment for targeted high growth industrial sector and new business and to develop indigenous technological capability for the development of the local industries. Thus, the IT Business Incubators will have a positive impact in innovation and entrepreneurship, research and development among IT Professionals, Entrepreneurs, and Graduates of the Academic Institutions.

Though the component's work is expected to have some positive social impacts, there may be anticipated some low or minor concern about the environmental and social aspects related to the activities of the project implementation period. For example, site preparation, preparation of labor camp (if any), renovation activities, setting up small stockyards for typical pre-construction phase activities. However, it is expected that the extent and scale of the impacts will be low and can be easily mitigated by applying the best methods and appropriate mitigation measures. Those mitigation measures should be in line with the provisions of the World Bank's ESF and in accordance with the requirements of national laws and rules.

There are some common impacts during pre-construction and construction/renovation phase for the establishments of the Innovation Hubs. For example, impacts during the construction/renovation phase may include:

- Operation of vehicles and equipment like, grinding machine, hammer drill, hammer saw etc. during site/floor preparation and construction, hauling of equipment is likely to increase the noise level and dust emission in the buildings
- Generation of solid waste (if any) can block drainage channels and contaminate land resources if not handled properly
- Since the Innovation Hubs will be in university areas where traffic movement is minimal, additional vehicle movement can create little congestions particularly in areas where the academic building is situated
- Interactions of students and teachers with workers can spread any contagious disease in absence of proper care.
- Female students can be harassed at any time if proper care is not taken against any SEA & SH

Positive Social Impacts

The proposed Project is expected to have some positive social impacts such as:

- In the long run, the work will contribute to an overall improvement in government effectiveness
- It will improve investment climate, and potentially contributing to more investment
- Will create new jobs in the IT sector of the country
- Will promote innovation and entrepreneurship, research and development among IT professionals, entrepreneurs, and graduates of the academic institutions.
- Also, in terms of the construction work to be undertaken, there are also several positive impacts associated with the civil works such as:
  - Employment of local labor, creation of jobs.
  - Improvement of associated existing infrastructure (improved waste management and sanitation facilities)
- Positive economic impacts on small market suppliers for raw materials needed during construction (i.e.,

building materials).

Negative Social Impacts

Community Health and Safety Risks

Since there are no mass level construction activities or civil work, the overall risk of the component's work is low. Though there may be a need for some construction (small construction or renovation or rearrangement) of the Innovation Hub within the existing building, it is expected to have minimal community health and safety risks. Construction sites may be a source of both liquid and solid waste if not properly managed.

Land and Livelihoods

The Innovation Hubs will be established within the university campus, the centers are likely to be housed inside existing buildings of the university. So, this will not affect the land or livelihood of the campus. Since the location of the component will be inside the university boundaries, there will be no land acquisition or people would need to relocate or resettle.

Impacts on Cultural and Historic Heritage

As the location of the sub-component will be inside the university boundaries, where there are no cultural or historic heritages in those locations. There is also no archeological site in the proposed locations.

Labor Influx

The Project is expected to stimulate minimal labor migration. Several features of the Project could prompt in-migration. For example, construction works, or establishment of innovation centers may require construction workers, IT professionals, administrative staff etc. This is likely to act as a magnet for people and are likely to attract some in-migrants. This may impact worker-student interaction, including harassment of students, possible clashes etc.

The construction related works for establishing the innovation centers expected to be minimal. Most construction workers will likely be young. And if they are far away from home on the construction job, they are typically separated from their family and act outside their normal sphere of social control. This can lead to inappropriate and criminal behavior, such as sexual harassment of women and girls, exploitative sexual relations, and illicit sexual relations with minors from the local community.

COVID-19 Health and Safety of the Workforce

The project will require construction workers that may raise issues with manual labor employment, particularly regarding potential transmission risks for any vector borne diseases both within the worksite and for nearby communities, although a large number of workers may not be involved under this sub- component. These risks are not only from workers that are mobilized locally but also workers moving from other regions/countries.

HIV & AIDS Impacts

If there is any migration, that will be very minimal, and it is not expected that it will have a major impact on health issues. But it cannot be denied that this low labor influx can have some behavioral influences that may increase the spread of diseases such as Human Immuno- Deficiency Virus (HIV), Acquired Immune Deficiency Syndrome (AIDS) and other Sexually Transmitted Infections (STIs)

Air and Dust Pollution

Traffic and construction/renovation work can contribute to air and dust pollution. This can lead to impacts on the surrounding environment of the buildings where the centers will be set up.

Noise and Vibration

Increased noise level (noise from the mechanical machinery and equipment, vehicles, construction and renovation work etc.) may occur during the establishment of the hub. If there is excessive noise and vibration it can cause nuisance to ongoing academic activities in the existing building.

Traffic

Though, there will not be heavily loaded transport for the construction work of the sub-project. However, as the site is within the university area where the roads are narrow, there may be some traffic congestion during the movement of loaded vehicles.

Typical Mitigation Measures

This ESMP highlighted a broad range of mitigation and enhancement measures to reduce negative impacts and enhance benefits of the establishment of the Innovation centers. Mitigation measures are identified and designed to avoid or eliminate or offset adverse environmental impacts or reduce them to acceptable levels during both construction and operation phases of a project intervention.

Due to the construction of a University Innovation Hub at VU, there may occur some environmental and social impacts. The mitigation measures corresponding to individual impacts and estimated cost are outlined in chapter 5.

4. Stakeholder Consultation

4.1 Introduction

The purpose of public consultation meetings was to invite comments and detailed suggestions on any environmental and social issues considered relevant by the people living around the site. The public consultation program is an essential part of the environmental assessment process and has been undertaken both formally and informally to ensure that the knowledge, experience, and views of stakeholders during the ESA work and mitigation measures and the suggestions from the stakeholders have been include in this ESA.

4.2 Approach and Methodology for Consultation

The approach undertaken for information disclosure and consultation involved the following key processes.

- Mapping and Identification of key stakeholders
- Undertaking consultation, interviews with the respective stakeholders
- Assessing the influence and impact of the sub-component based onstakeholder's comments
- Summarizing of key findings and observations from the consultation

4.3 Consultation

Stakeholder consultations at the beginning phase of the ESA preparation were held with the board chairman, teachers, students and VU University officials 10th March 2024. The key findings of the consultations are described in Table 4.1.

Table 4.1: key findings of the consultations

SL	Key issues raised	Participants/Type	Response
1	How they know about the project?	Students/ Faculty/ Teachers/ officials of VU University	Most of the participants said, they have heard from the teachers that an innovation hub will be established in VU University finance by the BHTPA.

2	Who lives and works near the project/sub-component site and how the project will affect their health and safety	Students, Teachers, Officials and Staff of VUUniversity	Students, teachers, officials and other staff will join the work during the day. Hence, noise during the construction/renovation of the Innovation Hub can cause minimal disruption to their academic sessions. They requested the project authority to be careful during construction/renovation period to take steps so the noise during construction work does less hamper.
3	Time of construction work and carrying construction goods to the site	DEIEDP/ BHTPA representatives, Environmental Specialist/Social Specialist, Project Engineers and University Authority/Contractor	Participants said carrying construction materials at night would be good. Construction work should be done during the daytime. Construction materials would not be carried to the location daily, but rather once or twice in a week. Participants suggested to carry the construction goods during weekends such as Thursday/Friday when offices, academic activities are off.
4	What measures should be taken regarding dust and other pollutions/ wastes during construction period?	DEIEDP/ BHTPA representatives, Environmental Specialist/Social Specialist, Project Engineers and University authority/Contractor	It has assured them mitigation measures are to be suggested in the ESMP report if any environmental impacts predicted during renovation/construction period on minimizing environmental pollution. Brick, sand, cement etc. will be kept inside the construction boundary covered by tarpaulin. It has also assured them high priority will be taken to minimize disturbance during construction. Regular spraying of water on the construction materials will also be followed to minimize the level of dust in the air. Participants were ensured that an indicative budget will be kept for the proper management of wastes.

5	Labor influx	DEIEDP/ BHTPA representatives, Environmental Specialist/ Social Specialist, Project Engineers and University Authority/Contractor	This is not a big construction work. Moreover, the number of laborers will not be high. There will be a labor management procedure and GRM process to mitigate the labor influx issue properly. University authority /Contractor will provide a room/camp with all facilities including water, toilet and living arrangements etc. Despite that, proper training will be arranged for the laborer, contractor and his representatives. Where SEA/SH will also be included.
6	Traffic management	DEIEDP/ BHTPA representatives, Environmental Specialist/ Social Specialist, Project Engineers and University Authority/Contractor	Participants agreed on the problem in case of any traffic management. Though it will be very minimal.
7	Occupational health Safety (OHS) during construction	DEIEDP/ BHTPA representatives, Environmental Specialist/ Social Specialist, Project Engineers and University Authority/Contractor	To ensure occupational health and safety during construction, OHS awareness training will be provided to all workers, contractors, staff and related persons of university. A full set of PPEs will be provided for ensuring the health and safety of laborers. Provision of PPE cost will be included in ESMP of the project BoQ.

5. Environmental and Social Management Plan (ESMP) including Cost

5.1 Introduction

Carrying out environmental and social screening of the sub-component, it appears that impact of the activities would not have any significant environmental and social impact, as there would not be construction of any new building under this sub-component and would include small scale civil work within the existing infrastructure. The University Innovation Hubs and incubation centers will be set up in the existing building of the university. However, this Environmental and Social Management Plan (ESMP) will ensure that all the activities of the component are screened out, and those activities are supported where the potential environmental and social risks and impacts are predictable, not

significant in magnitude and site specific with low probability of serious adverse effects to human health and/or environment.

Therefore, depending on the scope, design and location of the sub-project, establishment of an innovation hub will have very minimal environmental and social risks and impacts. As such this sub-project may fall under low risk as per WBs risk classification. Whereas according to national law, the sub-project activities is not listed in the schedule 07 of Bangladesh Environment Conservation Rules 2023. However, the screening report and public consultations suggest some mitigation measures to reduce negative impacts during construction and operation phases. The mitigation measures corresponding to individual impacts and estimated cost are outlined in (Table 5.1).

Table 5. 1: Identification of Potential Environmental and Social Impacts and suggested mitigation measures.

Activities	**Environmental and Social Impacts**	**Suggested Mitigation Measures**	**Time and Responsibility including approx. estimated cost in Taka**
A	B	C	D
Accommodation for Labor (If the university in its existing facilities can provide sufficient space for the laborers with all facilities mentioned in column C, then no separate labor shed will be required)	• Ventilation problem • Drinking water problem • Sanitation problem • Sewerage problem • Although there will be minimal labor migration, labor- student interaction can have an impact on students and staff if proper measures are not taken • This can lead to inappropriate behavior such as SH of female students and women.	• Proper ventilation facilities need to be required • Need to be ensured potable water • Toilet facilities with sufficient water supply and proper sewerage network need to be completed on time • Very minimal risk of Gender based Violence (GBV), SH, social disturbance, and communicable diseases due to the low-level influx of migrant workers. • Any GBV, SH and SEA cases will be referred to the appropriate authority (GRC) to redress the issue. • (If the university in its existing facilities can provide sufficient space for the laborers with all facilities mentioned above then no	• If required a labor shed for about 15-20 workers, Should be prepared before construction activities • The approx. estimated cost for this activity is Tk. 80,000 (Eighty thousand only) **Responsibility:** Contractor

		separate labor shed will be required).	
Construction activities inside the building and vehicle movement with construction materials	• Dust emission • Air pollution	• Control dust by spraying water on dust emitting materials during construction period • Uncovered aggregates and loose materials such as sand, construction wastes, etc. should be covered well. • Use tarpaulins to cover sand and other loose material when transported by vehicles • If possible, carry out construction work at night and minimize work done during the day • Regulate the speed limitation for vehicles inside the university • Care should be taken while moving construction materials/ accessories to the 5th floor and should be done after class period, not during class. Proper PPE should be worn to avoid injury to workers while carrying construction materials.	a. Water spraying at least 2 times/day and as per requirement. b. The approx. estimated cost for these activities is Tk. 20,000 (Twenty thousand) only **Responsibility:** Contractor

Personal Health and Safety kits including Dengue	• Without proper Personal Protective Equipment (PPE) it may cause fatal danger to the workers at any time which may endanger health and safety (OHS) of the workers • Due to Dengue infections without proper health and safety measures, it can cause serious human health problems	• Provision of adapted Personal Protective Equipment (PPE) i.e., Boots, Helmets, Hand gloves, Face mask, Ear plugs, aprons, eye protector etc. • Supply and ensure utilization of adapted PPEs to all labors involved in construction of proposed onsite developments. ▪ As much as possible maintain social distancing during construction works. ▪ Unnecessary movement should be avoided ▪ Used face masks should be disposed of properly. OHS training may be provided at the site for the laborers and related persons.	a. The approximate estimated cost for these activities is Tk.50,000 (Fifty thousand) only **Responsibility:** Contractor
Noise generation because of construction activities and workers movement	• Noise and vibration inside the building may cause a nuisance for the students and teachers and disturb any academic activities	▪ There is no possibility of using a generator for power supply but in any case, if a generator is used it should be arranged to reduce the noise. Must be covered with a canopy and use a silencer if necessary. ▪ If there is a need to cut any tiles, the noise should be kept to a minimum so that it does not go beyond the national standards. Possible measures should be taken to reduce noise from the work of tiles. ▪ Use noise barrier and absorbing materials in case of other noise sources as for example: Welding, Drilling,	a. The approximate estimated cost for these activities is Tk. 30,000 (Thirty thousand) only **Responsibility:** Contractor

		tiles fitting, mixture machine, woodwork, etc. ▪ Unnecessary movement of workers should be avoided during class-time.	
First Aid Facility	• Accidents can be severe without any onsite first aid facility	▪ Provide First Aid Boxes and Emergency Medical kits including sanitizer and any other related kits.	a. The approx. estimated cost for these activities is Tk. 30,000 (Thirty thousand) only **Responsibility:** Contractor
Placing of barrier and precautionary/signal/sign board/banner/Information about GRM Focal point	• If there are no safety barriers or boundary lines or signal posts, students and teachers may have an accident while passing through the site.	▪ Provide safety signage at construction site visible to all so that everybody can identify the area to avoid any accident ▪ Aware of the workers, students, teachers, and officials,' safety barriers should be placed, and precautionary signage/signboards/banners, etc. should be hung to avoid any accident.	a. The approx. estimated cost for these activities is Tk. 20,000 (Twenty thousand) only **Responsibility:** Contractor
Waste Management	• Without proper management of different solid wastes may cause pollution hazards and GHG emission	▪ "Segregation of different waste at sources and keeping the waste in separate colorbins (Yellow for general waste, Green for organic Waste, Red for toxic, hazardous, and e- waste). ▪ Transfer the wastes to the universities or City Corporation's designated dumping site. ▪ Incorporate Waste reduction principle	a. The approximate estimated cost for these activities is Tk. 20,000 (Twenty thousand) only **Responsibility:** Contractor

Firefighting facility	• There should be a firefighting system in case of an unexpected fire. Otherwise, it can lead to dangerous problems in and around the innovation hub floor.	▪ As per BNBC 2020, proper type and size of fire extinguishers should be installed at convenient points. ▪ Minimum four extinguishers need to be installed.	a. The approximate estimated cost for this activity is Tk. 50,000 (Fifty thousand) only. **Responsibility:** Contractor
Awareness Training on OHS, Capacity building, SEA, GBV and SH for the construction workers and related persons contractors and UIH	• Ensure that all site personnel including workers have a basic level of environmental and social awareness training	▪ Awareness campaign and provide training on the compliances of EHS/OHS including COVID-19 protocol to the employees and workers of the Contractor and including others. ▪ In the training program SEA, GBV and SH issues will also be included.	a. The approximate estimated cost for these activities is Tk. 70,000 (Seventy thousand) only **Responsibility:** Contractor

6. Environmental and Social MonitoringPlan

6.1 Introduction

Environmental and social monitoring plan is an essential tool about environmental management as it provides basic information for rational management decisions. The prime objectives of monitoring are:

- To check on whether mitigation and benefit enhancement measures are being adopted and are providing effective in practice
- To provide a means whereby impacts which were subject to uncertainty at the time of preparation of ESMP, or which were unforeseen, can be identified, and steps to be taken to adopt appropriate control measures.
- To provide information on the actual nature and extent of key impacts and the effectiveness of the mitigation measures which, through a feedback mechanism, can be taken into account in the planning and execution of similar projects in future.
- There are two basic forms of monitoring:
    - Visual observation or checking
    - Physical measurement of selected parameters (if required)

As the sub-component activities are minor in nature and the possibility of environmental and social impacts are expected to be very low, therefore, physical measurement of different parameters of water, air and soil and any other will not be required. But there should be regular checking and observations

by the contractors and PMU consultants to identify any aspects or impacts. The importance of this monitoring program is also for ensuring that the project/component does not create adverse environmental changes in the area and providing a database of operations and maintenance, which can be utilized if unwarranted complaints are made.

An Environmental and Social Monitoring Plan has been prepared (Table 6.1) for the execution as a means to mitigate or minimize the adverse impacts associated with construction and operational activities of the project/component on the natural and social environments.

6.2. Objectives

The objective of environmental and social monitoring during the construction and operation phases is to compare the monitored data against the baseline condition collected through the screening during the study period to assess the effectiveness of the mitigation measures and the protection of the ambient environment based on ESF guidelines and national standards. The main objectives of the pre-construction, construction and operation phase monitoring plans will be to:

i. Monitor the actual impact of the works on physical, biological and socioeconomic receptors within the project corridor for indicating the adequacy of the ESA;
ii. Ensure compliance with legal and community obligations including safety on construction sites;
iii. Appraise the adequacy of the ESA with respect to the project's predicted long-term impacts on the corridor's physical, biological and socio-economic environment;
iv. Evaluate the effectiveness of the mitigation measures proposed in the ESMP and recommend improvements, if necessary; and
v. Compile periodic accident data to support analyzes that will help reduce future risks.

Table 6. 1: Environmental and social management Plan - Monitoring Action

No.	Environmental and social Issues	Purpose of the Monitoring	Monitoring Method			Responsibility	
			Method of Collecting and Reporting Data	Location	Duration and Frequency	Implementation	Supervision
Purpose of the Monitoring							
1.1	Preparing ESMP	Ensuring the compliance with design and construction method and schedule	Preparation of report through Screening, site visit and visual checking	PMU and work site	During the design and pre-construction period	PMU	PMU, BHTPA
1.2	Existing Utilities	Implementation of ESMP	Obtain record of implantation	In the work site	Prior to contractor mobilization	Contractor	CSC/PMU
1.3	ESMP awareness Training	Implementation of ESMP during construction work	Obtain record of training	PMU/sub-project site	After workers mobilization	Contractor	CSC/PMU
2.0 Construction Phase							

2.1	Air quality	Evaluation of effect of the mitigation measures towards air pollution	Visual observation or checking & consultation with local people	In the work site	Visual monitoring on a daily basis	Contractor	CSC/ PMU
2.2	Noise & Vibration	Evaluation of effect of the mitigation measure towards noise pollution	Visual observation of the activities or checking & consultation with local people	In the work site	Visual monitoring on daily basis	Contractor	CSC/PMU
2.3	Waste Management	Evaluation of effect of the mitigation measure for waste	Record of kinds and quantity of waste, and the disposal method	In the work site and Worker's camp (if any)	Continuous, during Construction period	Contractor	CSC/PMU
2.4	Traffic Congestion	Evaluation of effect of construction schedule	Visual observation or checking & consultation with local people Record of accidents, Record of numbers construction	In the work site	Continuous, during Construction period	Contractor	CSC/PMU
2.5	Community health and safety	Evaluation of effect of the work safety plan	Visual observation or checking & consultation with local people	In the project area	Continuous, during Construction period	Contractor	CSC/PMU

2.6	Worker's health and safety	Evaluation of effect of the work safety plan	Visual observation or checking & consultation with worker	In the work site	Continuous, during construction period	Contractor	CSC/PMU
2.7	Post-construction clean-up	Evaluation the implementation of ESMP	Visual observation or checking & consultation with local people Reporting	In the work site	At the end of construction period along with the ESMP implementation	Contractor	CSC/PMU
2.8	Submission of ESMP implementation report	Evaluation the implementation of ESMP	Record of report submission	PMU and WB	At the end of construction period	Contractor	CSC/PMU

3.0 Operation Phase							
3.1	Air Quality		Visual observation or checking, and consultation with stakeholders, University O&M budget (if necessary) for periodic	Varendra University	During operation period	Varendra University	BHTPA
3.2	Noise Level		Visual observation or checking, and consultation with stakeholders. University O&M budget (if necessary) for periodic monitoring	Varendra University	During operation period	Varendra University	BHTPA
3.3	Awareness	To resolve the GBV, Equal opportunity issues	Ensuring training, information campaign and monitor: ▪ Number of trainings ▪ Number of awareness. Program ▪ Number of beneficiaries ▪ Monitor distribution of code of conduct	Varendra University	During operation period	Varendra University	BHTPA

			& G B V related cases				
3.4	Health & Safety		Visual observation or checking and consultation with local stakeholders. University O&M budget (if necessary) for periodic monitoring	Varendra University	During operation period	BHTPA	BHTPA

7. Grievance Mechanism

7.1 Grievance Mechanism Structure

The purpose of the GRM is to record and address any complaint that may arise during the project period effectively and efficiently. The GRM is designed to address concerns and complaints promptly and transparently with no impacts (cost, discrimination) for any reports made by project affected peoples (PAPs) and the complainants. Necessary signboard/billboard would be placed at the central places where people gather for sharing detailed information of the project.

DEIEDP/BHTPA Level Grievance Redress Mechanism

BHTPA level GRC may consist of the following members:

Sl. No	Name/Designation	Organization	Position in GRC
1	Director (Admin & Finance)	BHTPA	Convener
2	Project Director, DEIEDP	BHTPA	Member
3	Environmental Specialist	DEIEDP, BHTPA	Member
4	Social Specialist	DEIEDP, BHTPA	Member
5	Representative of University	University	Member
6	Deputy Director Planning &	BHTPA	Member
7	Assistant Director, DEIEDP	DEIEDP, BHTPA	Member Secretary

The BHTPA level Grievance redress committee (GRC) shall do everything possible to hear and determine the issues within 15 (fifteen) days from the date the case has been transferred to it from the PIU and University level. 7(Seven) days' time may be extended if within 15(fifteen) days the case will not be settled. To ensure impartiality and transparency, hearings on complaints will remain open to the public. The GRCs will record the details of the complaints, the reasons that led to acceptance or rejection of the particular cases, and the decision agreed with the complainants. The GRC shall communicate the outcome to the aggrieved PAP(s)/staffs in writing. The GRC shall maintain a record of all outcomes related to each case.

7.2 GRM Monitoring and Reporting

Day-to-day implementation of the GRM and reporting to the World Bank will be the responsibility of the Project Director. To ensure management oversight of grievance handling, the Internal Safeguard team will be responsible for monitoring the overall process, including verification that agreed resolutions are actually implemented.

7.3 GRM contact information -DEIEDP/BHTPA

Information on the project will be available on the project's website and will be posted on information boards in a suitable visible place on the project site. Detailed information of GRC contact person will also be available on information boards at project site. The point of contact regarding any grievances at DEIEDP/BHTPA is given below:

Description	Contact details
Company:	DEIEDP, Bangladesh High-Tech Park Authority
To:	Project Director
Address:	DEIEDP, Bangladesh Hi-Tech Park Authority, ICT Tower (9th Floor), E-14/X Agargaon, Dhaka-1207
E-mail:	pd.deiedp@bhtpa.gov.bd
Website & Telephone	www.bhtpa.gov.bd : : +88-02- 55006889 Mobile: 01819404730

ANNEX

Annex A: Sample Environmental Screening Form

Project Name: Varendra University Innovation Hub

Project details in brief:

Project location/s: 5th floor of the academic building Varendra Univesity Permanent Campus, Bypass Road, Chandrima, Paba, Rajshahi Bangladesh. The main campus site has been prepared over several years with close regard to social and environmental issues, and indeed, the architect, synthesis architects is a renowned specialist in the construction of environmentally sensitive buildings.

Project Details		
Sl.no.	**Components**	**Details**
1	Sub-Project components	The innovation hub is expected to have the following: 1. Co-working space 2. 3D Modeling Lab (Product and Testing Lab) 3. AI & Machine Learning Lab (Product prototyping lab) 4. Multipurpose Space (Meeting room) 5. Discussion Room (Meeting room) 6. Refreshment Zone (Coffee corner) 7. Admin Office (Head of Innovation) 8. The Idea Hub 9. Information & Lounge (Reception cum waiting) 10. Outdoor Deck area (Open area, Main lobby)

Proposed Resource Use

Sl.no	Proposed Resources	Area/ Quantity	Unit	Details
(i).	Land Area proposed to be used: Location wise (in sq km/sqm)	754	sqm	8,113.00 sq.ft square feet for permanent
(ii).	Estimated energy consumption for the Project Activities-Source wise	7,500	KWh	Electrical energy usage per month
(iii).	Estimated usage of water quantity for the project: ground water and surface water?	6,000	gallon	Usages per month

Baseline Environmental Conditions

Sl.no	Environmental Aspects	Yes	No	Details
1	Is the project site located on or adjacent to any of the following? Provide information for all sites and alignment of the project components/ subcomponents, associated activities; mention distance to these features in meters/kilometers			
i)	Critically Vulnerable Coastal Areas, Eco-sensitive Areas		no	
ii)	Cultural Heritage site, Protected monuments		no	
iii)	Natural Forests/ and protected areas Is the project in an eco- sensitive or adjoining an eco-sensitive area? If yes, provide details.		no	
iv)	Any other wetlands, mangroves, or estuarine regions?		no	
v)	Any natural habitat areas or areas with natural features?		no	
vi)	Any other Sensitive Environmental Components?		no	
vii)	Any Residences, schools, hospitals, sensitive receptors?		no	

viii)	Any culturally and socially important paths, areas/religious occupancies, burial grounds, tourist or pilgrim congregation areas, borders, etc.?		no	
ix)	Any Drinking water source, upstream And downstream streams use rivers, etc.?		no	
x)	Any Low-lying areas that are prone to flooding/ areas of tidal influence?		no	
xi)	Any areas affected by other disasters?		no	
2	Is the site in critical or overexploited condition?		no	
3	Is the area disaster- prone? If yes, list all Disaster zone categories applicable		no	
4	Describe the soil and vegetation onsite		no	
5	Is the site area and condition suitable for the proposed development?	yes		The space for the lab is contained with a fully developed
				and environmentally sustainable campus
6	Describe existing pollution or degradation In the site (s)		no	
7	Any other remarks on the baseline condition?		no	

Anticipated Environmental Impacts: Impacts on Land, Geology and Soils

Sl.no	**Impact**	**Yes/ May Create**	**No**	**Details**
8	Will the proposed project cause the following on Land/Soil?			
i)	Impact on Surrounding Environmental conditions including Occupation on Low lying lands/ f l ood plains		no	The lab is contained with a limited space on a fully developed and environmentally sustainable campus
ii)	Substantial removal of Top Soil (mention area in sqm)		no	
iii)	Any degradation of land / eco-systems expected due to the project?		no	
iv)	Loss or impacts on Cultural/heritage properties		no	

v)	Does the project activity involve cutting and filling/blasting etc.?		no	
vi)	Will the project cause physical changes? in the project area (e.g., changes to the topography) due to earth filling, excavation, earthwork or any other activity?		no	
vii)	Will the project involve any quarrying Mining etc.?		no	
viii)	Will the project/any of its component contaminate or pollute the Land?		no	

Impacts on Water Environment

Sl.no	Impact	Yes/ May Create	No	Details
9	Will the subproject or its components cause any of the following impact on Water sources (Quantity or Quality):			
i)	Will the activities have Proposed at the site(s) Impact water quality (surface or underground) and water resource availability and use? Will this subproject involve the dredging of water bodies, sea, canals, etc.		no	
ii)	Impacts on Water Resources		no	
iii)	Pollution of Water bodies/ ground water nearby or down stream		no	
iv)	Will the project affect the river /cannel flow pattern, stream pattern or any other irrigation canal?		no	
v)	Will the project result in stagnation of water flow or pondage or weed growth		no	

Impacts on Biodiversity and Host Communities

Sl.no	Impact	Yes/ May Create	No	Details
10	Will the sub project or its components cause any of the following impacts on Bio diversity or the neighborhood			
i)	Will the project necessitates cutting of? Trees/Loss of Vegetation		no	

ii)	Will the project result in Health & Safety Risks in the neighborhood including the release of toxic gases, accident risks		no	
iii)	Potential risk of habitat fragmentation due to the clearing activities? (e.g. Hindrance to the local biodiversity like disturbing the migratory path of animals /birds etc.)		no	
iv)	Potential Noise and Light Pollution or disturbance to surrounding habitats/ communities		no	
v)	Potential disruption to common property, accessibility, tra c disruptions, con icts or disruption to the local community within the subproject area?		no	

Impacts due to Storage and Wastes: Pollution and Hazards

Sl.no	Type	Yes	No	Details
11	Will the sub project or its components cause any impact due to storage of materials, wastes or pollution due to releases during various project activities			

i)	Will the project use or store dangerous substances (e.g., large quantities of hazardous chemicals/ materials like Chlorine, Diesel, Petroleum products; any other?	Yes		Limited, small-scale use of chemicals and materials for 3D printing, CNC machines, and PCB printing These will be subject to health and safety control.
ii)	Will the project produce solid or liquid wastes; including construction/ demolition wastes (including dredging, de-weeding wastes, muck/silt, dust); polluted liquids?	Yes		Minimal waste from the 3D Printer or any other machines. These will be subject to health and safety control.
iii)	Will the project cause or increase air pollution or odor nuisance?		no	
iv)	Will the project generate or increase noise levels which will impact surrounding biodiversity or communities?		no	
v)	Will the project generate or increase visual blight or light pollution?		no	
vi)	Will the project cause water pollution? (of water bodies/groundwater)		no	
vii)	Will the project involve dangerous construction activities which may be a safety concern to workers/ host communities		no	

viii)	Is there a potential for release of toxic gases or accident risks (e.g., potential re outbreaks)		no	
12	Describe any other features of the project that could in uence the ambient environment		no	

Suggested Environmental Enhancement Measures

Sl.no	Enhancement Measures	Yes	No	Details
13	Has the subproject design considered the following enhancement measures?			
i)	Energy conservation easures/energy recovery options incorporated in sub project design	Yes		The center will comply with university wide measures
ii)	Considered waste minimization or waste reuse/ recycle options	Yes		The center will comply with university wide measures
iii)	Rain water harvesting, water Recycling and other water resource enhancement measures	Yes		The center will comply with university wide measures

iv)	Considerations for extreme events, drought, ood, other natural disasters		no	
v)	NOC for water withdrawal from surface water source		no	
vi)	Mining Permit (for dredging)		no	
vii)	NOC for transportation and storage of diesel, oil and lubricants, etc.		no	
viii)	Others (Mention)		no	

Annex B: Sample Social Screening Form

Varendra University

Chandrima, Paba, bypass road, Rajshahi

Land Use, Resettlement, and/or Land Acquisition				
Sl.no	**Components**	**Yes**	**No**	**Details**
1	Does the project involve acquisition of Private land?		no	Included within the university campus. No land acquisition is required.
2	Alienation of any type of Government land including that owned by Urban Local Body?		no	
3	Clearance of encroachment from Government/Local body Land?		no	
4	Clearance of squatters/hawkers from Government/Local Body Land?		no	Included within the university campus. There is no squatters /hawkers in the are to clear
5	Number of structures, both authorized and/or unauthorized to be acquired/ cleared/			
6	Number of households to be displaced?		no	Included within the university campus.
7	Village common properties to be Alienated Pastureland (acres) Acquisition / Burial ground and others specify?		no	Included within the university campus
8	Existing land uses on and around the project area (e.g., community facilities, agriculture, tourism, private property) will be affected?		no	
9	Will the project result in construction? Workers or other people moving in to or having access to the area (for a long- time period and in large numbers compared to permanent residents)?		no	
10	Are financial compensation measures Expected to be needed?		no	

Land Use, Resettlement, and/or Land Acquisition				
Sl.no	**Components**	**Yes**	**No**	**Details**
Loss of Crops, Fruit Trees, Household Infrastructure and livelihood				
11	Will the project result in the permanent or temporary loss of the following?			
11.1	Crops?		no	
11.2	Fruit trees? Specify with numbers		no	
11.3	Petty Shops		no	
11.4	Vegetable/Fish/Meat vending		no	
11.5	Cycle repair shop		no	
11.6	Garage		no	
11.7	Tea stalls		no	
11.8	Grazing		no	
11.9	Loss of access to forest produce		no	
11.10	Any others-specify		no	
Welfare, Employment, and Gender				
12	Is the project likely to provide local employment opportunities, including employment opportunities for women?	Yes		The development of the innovation hub will encourage women to work here, and it will also include other ongoing community entrepreneurship project participants to use this hub
13	Is the project being planned with sufficient attention to local poverty alleviation objectives?	Yes		The development of the innovation hub project provides opportunity to local women and youth
14	Is the project being designed with Sufficient local participation (Including the participation of women) in the planning, design,	Yes		The local vendors and associated people will participate in the development of this hub
Historical, Archaeological, or Cultural Heritage Sites				
15	Historical heritage site(s) require excavation near the same?		no	
16	Archaeological heritage site(s) require		no	
17	Cultural heritage site(s) require		no	
18	Graves or sacred locations require		no	

Tribal Population/Indigenous People

Land Use, Resettlement, and/or Land Acquisition				
Sl.no	**Components**	**Yes**	**No**	**Details**
19	Does this project involve acquisition of any land belonging to Tribal people?		no	
Beneficiaries				
20	Population proposed to be benefitted by the proposed project	Approx. no.:		The center is designed not only for the use of the university of over 6,000 students but for the local community people also
21	No. of Females proposed to be benefitted by the proposed project	Approx. no.:		A specific number can be cleared once the center is developed
22	Vulnerable households/population to be benefitted	Approx. no.:		A specific number can be cleared once the center is developed
23	No. of Families to be benefitted	Approx. no.:		A specific number can be cleared once the center is developed