Notes on Chitlang Visit by Research Area Identification Committee Members

4-5 September, 2019

1. Objectives

The proposed Madan Bhandari University of Science and Technology (MBUST) is to be located in Chitlang, one of the wards of Thaha Municipality, Makwanpur district. Besides the broader nation-wide objectives of producing competent human resources in science and technology it could also change the development landscape of the region where it is situated. It is only normal for the people of Chitlang and Thaha municipality to expect the University to contribute directly to their development process.

The main objective of the Chitlang (ward # 9, Thaha Municipality, Makwanpur) visit (4-5 September 2019) was thus to observe the place, and interact with the general public including local government officials and entrepreneurs to understand the situation, and identify how the University could support their development endeavors.

The specific objectives of the visit were:

- To interact with local communities to understand their views, aspirations and concerns regarding the establishment of MBUST at Chitlang.
- To familiarize oneself with the different locations/sites of the university in Chitlang.
- To identify possible research areas in the economic sectors - tourism, mountain/hill economy, energy and water resources and Information technology in order to improve the livelihood of hilly people of Nepal.
- To prioritize possible research areas where MBUST will initiate research in order to improve the qualities and quantities of products to add high value by developing an efficient delivery mechanism in the above mentioned economic sectors.

2. Orientation program

The orientation program was organized on 3 September 2019 at Center for Energy Studies (CES) building of Institute of Engineering (IOE). All 17 members of Research Area Identification Committee (Table 1) attended the program. Prof. Rajendra Dhoj Joshi (Chairperson of the Board) highlighted the objectives of the Chitlang visit and establishment of MBUST.

Prof. Bhakta Bahadur Ale explained the logistics for the trip.

3. Stakeholder consultations

Mr. Parshuram Shrestha, Chairperson of Ward 9 of Thaha Municipality had formally invited for stakeholder consultations members of local communities representing different sectors of the society as women, tourism business persons, farmers, school headmasters and teachers, business persons and other local community people. Thirty-two local participants along with ward Chairman and members were present in the interaction program in addition to 16 members of the team. Mr. Labsher Bista, Mayor of Thaha Municiplity also joined part of the consultations.

The local economy of Chitlang is largely agricultural followed by tourism and other businesses. Vegetables are produced significantly, and exported to neighboring districts including Kathmandu Valley but also beyond international borders to India. Farmers are taking new initiatives towards new products like kiwi, and goat cheese. These products have access to very good markets in Kathmandu Valley. Chitlang is a tourist attraction for both domestic and foreign visitors. There are several road connections to Chitlang from Kathmandu – nearest being via Chandragiri hill, which is connected to Tribhuvan Park, Thankot via cable cars.

In the tourism sector, homestay is popular, and its number is increasing. Many new houses can be seen targeting homestays, and guest houses. Hotels and resorts are also appearing. The unspoiled natural landscapes together with the Indrasarovar lake are great attractions for domestic tourists who want to get away from the hustle and bustle of city life.

During interactions with the local stakeholders including Mayor, ward Chairperson, entrepreneurs, and other local residents good potential in organic farming, and tourism development was underscored.

Trekkers as well as visitors prefer to view the natural beauty of the mosaic ecosystem, panoramic view of the mountains, fruit orchards, goat cheese industry and organic food. However, the poor trekking route and under construction roads cast a fear of weakening the tourist attraction to visit Chitlang, which the locals too fear. Community sought support for the Swachhand Bhairav High School, which has generously agreed to transfer its land to MBUST was emphasized. The need for formulating strategies for enhancing the opportunity for school graduates to get enrolled into the university.

4. Key insights and observations

The sustained development of Chitlang hinges upon i) its comparative locational advantages of unspoiled natural setting with historical significance and proximity to the large market of Kathmandu Valley, ii) agriculture pursuits specializing in marketable and marketed vegetables, and iii) nature based tourism.

a. Tourism:

The serene natural environment with mystic weather and nearby Indrasarovar lake are the main attractions for tourism – particularly for domestic tourists. So, the tourism development calls for maintaining and sustaining the natural environment it has. Hiking seems to be one key activity and developing facilities along the Indrasarovar, such as trekking trails with signposts, and cycling routes are some of the possibilities to attract more tourists and also lengthen their stay. Agriculture farms can emerge as resort areas. Cycling routes can be identified and developed from Kathmandu. For hospitality services, training facilities need to be organized for the local residents. One museum showing its history as a trade route could also be an option. Some old settlements with traditional architecture would definitely add value to tourism since Chitlang is an attractive place with both tangible and intangible heritages.

Designing and developing trails with necessary facilities like resting benches, toilet facilities, clean drinking water for hiking can be other attractions for tourists.

At the moment the slow progress in upgrading of Chitlang-Thankot Road construction has hampered the visit of locals as well as foreign tourists to Chitlang and Kulekhani areas.

b. Mountain/hill economy:

Haphazard urbanization needs to be controlled from the very beginning with well planned development strategies which i) actively engage the locals from all quarters, ii) maintain the natural setting, iii) enhance the economic productivity through comparative advantage of specialized farming of vegetables, and natural scenic beauty.

Haphazard urbanization can be controlled through proper land use planning, along with building codes which commensurate maintaining the natural environment.

Growth in population is slow. However, the increased demand for housing would rise, and bringing the need for settlement patterns best suited for the region. Land ownership pattern would influence, the concept and construction of multi-storey residential buildings in a suitable zone with other open areas. The concept of land and house pooling, and apartment ownership will be opportunities to the locals in the area. For other isolated houses, independent supply system for the utilities can be thought of – such as solar lighting and heating, rain water harvesting and water recycling for water supply etc.

Chitlang is witnessing growth in commercial farming in vegetables, with markets in nearby districts particularly in the Kathmandu Valley. Going organic would definitely add economic value. New farming technologies, and introduction of new agricultural and livestock products like kiwi and goat cheese are always possible, and need to be researched. Thaha municipality is famous for green vegetables and this municipality supplies vegetables to Kathmandu valley throughout the year. Due to closure of road to Thankot from Chitlang the vegetables are transported via Dakshinkali and Palung. These routes are long and costly, and with high transportation cost increases the price of vegetables to consumers.

In the near future, there is provision of constructing tunnel from Kathmandu to Chitlang by federal government and the slow expansion of road construction is hampering the transportation of goods and people to and from from Chitlang at the moment. There is no provision of drainage system, limited water supply and lack of sufficient irrigation for cultivation. Inappropriate motorable road construction has created landslides in many places in hilly areas including Thaha Municipality. Construction of road using dozer without proper design, lack of drainage and mud materials are the main causes of landslides. Numbers of new road networks or excavations have tremendously enhanced on the fragility of the mountain and hilly terrains.

Settlement pattern seems to be a mix of traditional and modern. Traditional settlement seems more natural and the modern not well planned and organized. Locals shared their settlement plans in connection to the University complex building process which is envisaged to retain the natural beauty of the Chitlang valley. They urged the MBUST Board to consider the matter in priority.

The area under consideration has significant forest coverage of various medicinal herbs like chiraito, lauthsalla, eklevir, majitho, banmula, pakanved, and thulookhati. Utilizing these herbs for economic value needs to be thought of.

c. Energy and water resources:

Energy is needed for cooking, heating, running appliances and transportation. Fuelwood and LPG are used for cooking and heating in hotels and residences. Electricity is used for lighting and running

appliances. Limited use of solar water heater was observed. Trucks and jeeps are used for transporting goods and passengers. Motorcycles are the common means of transport at local level.

Solar PV is not widely used. This technology can be used for harnessing energy during sunny days and even used for pumping water for pumped storage power generation during night or peak hours.

No water springs were seen at the dedicated sites of MBUST. Rainwater harvesting and ground water drillings are options to meet the required amount of water for the university.

Water augmentation shows high possibility. Adjoining forest ecosystems lying under community forestry regime seems forest coverage with canopy greater than 70%. Community forestry is mixed having broad leafs with Quercus dominance mixed with pine. Kulekhani watershed is Nepalese Alder (Alnusnepalensis) dominant.

High rate of annual rainfall pattern shows Kulekhani Indrasarovar reservoir is successful for capturing optimum rainfall available in the region/watershed. Natural environment, geographical setting, available vegetation pattern seem favorable to augment water level both to enhance natural rainfall and groundwater recharge.

New plantation (forest species), horticulture, agriculture and ground coverage have added strength to store and recharge ground and surface waters.

The site does not show proper solid waste management. Waste is neither segregated nor managed properly. Increasing human population and activities will definitely aggravate the problem. Locals share the problem. However, there is no organized effort. Awareness raising leading to change in behavior followed by waste management is urgent.

d. Information technology:

It was requested by the stakeholders to create database of existing tangible and intangible heritages, biodiversity, natural resources of Chitlang village.

MBUST can act as an information hub from where the villagers can retrieve related information for their business.

Development of virtual tourism packages of different hiking routes in Nepal can be an attraction to increase the flow of tourists in Nepal in future.

5. Summary

- Proximity to Kathmandu, natural environment, commercial farming practices, and good connections to national road network are the strengths of Chitlang.
- Commercial organic farming, nature-based tourism, and new agriculture and livestock products including herbal medicines are the growth promoting areas and opportunities.
- Thankot-Chitlang road is very vital for the communication, transportation of goods and passengers including tourists. Completion of repair of this road will increase the activities along the Chitlang, Markhu, Kulekhani areas.
- Town planning at Chitlang is essential to maintain the heritage, culture and aesthetic views of city in future. Otherwise, haphazard construction will damage the image of existing Chitlang.

- Establishment of database of natural resources, heritages etc. of Chitlang is a need. Introducing e-commerce will help to the delivery and consumption of products of Chitlang directly to the stakeholder.
- Biomass and LPG are used for cooking and heating by the residents and hoteliers. Encouraging the use of electricity will limit the use of LPG and save the forest. There will be shortage of water supply in future with the increasing number of hotels and increasing population. So drinking water supply through deep boring and rainwater harvesting should be considered as alternative solutions to meet the growing demand.

6. Future action plans (recommendations)

- There will be high demand of water in future to meet the growing demand of inhabitants, tourists including the staff, students, and faculties of MBUST. Introducing technologies related to rainwater harvesting, groundwater drilling, waste water treatment will help to meet the demand. Also tree planting should be initiated in open spaces to increase the watershed areas.
- Organic farming can be one of the sources of income generation to locals. A detailed study of high value crops, quality seeds and cultivation methods and delivery mechanism is needed. This includes identifying and developing new technologies for organic farming and irrigation.
- Use of renewable energy sources for cooking, heating, and lighting will replace the consumption of fossil fuels like LPG. Introducing solar PV, solar thermal energy, improved cook stoves and solid waste management will be one of the best options.
- Introduction of e-commerce for marketing the local products to consumers at the earliest possible time will enhance the capacity of local business.
- Creation of data base of existing heritages, biodiversity, natural resources of Chitlang will be very helpful for future planning and development as well as tourist attraction.
- Supporting in town planning of Chitlang to preserve heritage, culture and improve livelihood and encouraging building houses using local materials like stone, wood etc. Also developing building code will be helpful for building houses. Building codes with some measures of incentives if the codes involve restrictions for some places e.g. maintaining the traditional architecture may involve additional restrictions over the general building codes.
- An integrated planning based upon the present land use with analysis of carrying capacity for coming 20 years projection.
- Developing tourism facilities like trekking trails, cycling trails, signposts, museum.
- First and foremost an inventory of land use map covering the 10 categories listed by recently approved Land Use Act 2076 (2019) Government of Nepal gives a broad overview of the planning for the project. Forest ecosystem types with dominant species categories, home gardens, agriculture, rangeland, waterbodies, fallow lands, built in areas and land with other uses can provide an insight for future planning.

A team was composed of experts and professionals of different disciplines representing urban planning and architecture, engineering, water resources, biotechnology, IT, environment, economics, as well as policy fields.

Table 1: List of Research Area Identification Committee members:

Name	**Subject**	
Prof. Rajendra Dhoj Joshi	Electrical Engineering	Chairperson
Prof. Bhakta Bahadur Ale	Mechanical Engineering	Member
Prof. Sanjay Nath Khanal	Environmental Science	Member
Prof. Bhola Nath Pokharel	Agricultural Economics	Member
Ex. Secretary Janardan Nepal	Education Management	Member
Prof. Madan Koirala	Environmental Science	Member
Ex. Executive Director Som Nath Poudel	Hydropower Engineering	Member
Lecturer Basanta Joshi	Electronics Engineering, Artificial Intelligence	Member
Prof. Bhuban Bajra Bajracharya	Economist	Member
Prof. Chiranjivi Shrestha	Economist	Member
Prof. Gaurishankar Manandhar	Biotech	Member
Associate Prof. Jagat Kumar Shrestha	Civil Engineering	Member
Prof. Sangeeta Singh	Urban Planning	Member
Prof. Shankar Prasad Bhandari	Management	Member
Lecturer Sanjeev Maharjan	Mechanical Engineering	Member
Prof. Triratna Bajracharya	Mechanical Engineering	Member
Mr. Shambhu Prasad Adhikari	Management, Finance	Member

Pictures of Chitlang Visit

Discussion on the objectives of visit to Chitlang ward #9, Thaha Municipality, Makwanpur at Center for Energy Studies, Institute of Engineering, Pulchowk on 3 Sep 2019.

Members of Research Area Identification Committee sharing their experience at Markhu on 4 September, 2019 ahead of consultations at Chitlang

Members of Research Area Identification Committee at consultations with the local community of Chitlang on 4 September, 2019.

Members of Research Area Identification Committee reviewing the outcomes of September 4 meeting with the local community on 5 Sep 2019 at Markhu.

Members of Research Area Identification Committee and Chitlang community discussing on the outcomes of the visit on 5 September, 2019 at Chitlang.

Members of Research Area Identification Committee visiting the sites of MBUST at Chitlang on 4 Sep 2019.

Goat cheese factory visit on 5 Sep 2019 and factory owner Ashok Singh Thakuri explaining the cheese making process.