

Madan Bhandari Memorial Academy Nepal

Concept Paper for Developing Technological University in Nepal

Introduction:

In the memory of late Madan Bhandari, the great visionary people's leader, Madan Bhandari Memorial Academy aims at developing a Technological university in Morang, eastern Nepal to prepare academically sound and technologically competent high level workforce that contribute to the socio-economic development and improving the quality of life of Nepalese people. The university is expected to play an important role for industrial development, productivity improvement and to improve the overall prosperity of Nepalese people by providing relevant, meaningful and practical technology-based education of high standard. The University will be a leading technological university in Nepal offering world-class programs in various technological areas needed for the development of Nepalese economy. The graduates of the University are expected to be innovative, research oriented and capable of providing services in the national and international competitive labor market. The proposed Technological University will (a) equip Nepalese people with advanced technological knowledge, skills, attitudes and sound research foundation, (b) prepare men and women needed for the industrial and economic development of Nepal, and (c) engage in research and development activities to explore meaningful and useful technologies to improve productivity and income of enterprises, and (d) to provide career pathways for the graduates of technical and vocational education. The proposed technological University is also expected to provide ripple effect to enhance income and earning of communities and general public through continuous research and development in the technological program areas that will be offered by the University. This proposal presents the context, rational, purpose and objectives, programs, benefits and beneficiaries and other conceptual description of the project.

Background/Context:

Poverty is widespread in Nepal. It has estimated that around 42% of the country's population lives below poverty level. The level of poverty is increasing in spite of a significant amount of foreign aid. Although poverty is the result of the multiple factors, the rapid expansion of population, unemployment and endemic under employment are three of the basic causes.

Although there are abundant of natural resources and high potential for economic development, Nepal remained as a country of low economic growth. With the capita income of about \$219 US, which is lowest even among the South Asian Countries, Nepal ranks one of the poorest nation in the world. About four-fifth of the total population have no access to sanitation and nearly half is deprived of potable water. Adult literacy rate of 38% and female literacy rate at 13% is the lowest in South Asia. Recently, Nepal was ranked 144 out of 174 countries in terms of an index measuring life expectancy, educational attainment and real income.

The agriculture sector in Nepal employs more than 80% of the labor force and contributes 52% of the Gross Domestic Products (GDP). However, the GDP contribution of the agricultural marketplace is declining. It is notable that more than 50% of the households own less than 0.5 hector of land. This amount of land holding is quite small for growing enough food to support a family for any time period.

Unemployment and underemployment is a serious problem in Nepal. Underemployment is a more serious problem than unemployment. It is estimated that 47 percent of those employed are underemployed. In order to improve employment situation in Nepal, policy makers have emphasized technical education. Technical education both in the public and private sector is expected to support various types of technical training programs to improve productivity and competitiveness of Nepalese workforce both in the local and foreign labor markets.

The main reasons of poor economic performance in Nepal are weak technological knowledge base, stagnation in the growth of business and industries, inability of properly utilizing natural resources and prolonged conflict and disturbance. But the time is favorable now for Nepal to make of the lost opportunities and speed up the process of national development.

There are some positive aspects that contribute to speeding the process. Some of these aspects are (a) the international trade and market share of Nepalese products is gradually increasing, (b) employment opportunities for Nepalese workforce having technological knowledge and skills has been dramatically increasing (c) there is high potential for creating and expanding small enterprises for rapid economic growth, (d) there is abundant of natural and human resources that can be transformed into productivity improvement and economic development. Some of the biggest roadblocks in harnessing these opportunities are the inadequate knowledgebase, lack of technological research and innovation, inadequate qualified technological experts who can help to transfer technologies to the enterprise level, and budgetary constraints in addressing the specified constraints.

Nepal has three types of human resource development challenges: (a) development of employment-based skills among unemployed/under-employed masses to increase the employment opportunities for individuals and supply basic and mid level skilled workforce needed for the business, industry and service sector development; (b) imparting skills for the development and expansion of small enterprises leading to employment generation (c) prepare high level world-class technological workforce who can harness the opportunities from globalization and liberalization of economies and support the enterprises to introduce innovative and marketable products and service through on-going research and development activities. The highly competitive workforce would not only help to boost the national economy but also take advantage from the growing economy of neighboring countries and abroad. This scenario builds the strong justification for developing an outstanding technological University of its kind that supports to address the human resource development challenges stated above.

The Concept of Technological University

The proposed Madan Bhandari Technological University, named after the great visionary leader of Nepal late Madan Bhandari, will be a reality of wishful expectation of many political leaders, technocrats and Academicians of Nepal. The University will be functioning with high-level technological innovation and research offering various programs of technological importance for the economic development of Nepal. The university will provide educational programs in relevant technologies of various types and levels with exceptional quality, strong linkages with national economy and labor market, and contribution to the overall transformation of society through technological knowledge and competence. The university will be guided with a VISION – ‘To become an outstanding Technological University at the cutting edge of knowledge that produces world class researchers, technologists and innovative leaders committed and competent for building prosperous Nepal where citizens enjoy a life of greater security, well-being and personal dignity. In order to translate this vision into reality the Madan Bhandari Memorial Academy is looking for an external support for developing a Technological University that will have a purpose to plan the development of technological education grounded with national values in agricultural and agro forestry -based, engineering, information communication technologies and technologies related to service occupations with a view to prepare qualified and competent human resources needed for national development and societal needs and requirements.

The Technological University will also focus its educational and research programs for the development and expansion of small enterprises not only in the urban centers but also in the rural areas for the purpose of generating employment and earning opportunities for deprived people. The proposed university will also provide the career advancement opportunities for the graduates of technical schools and polytechnics. The current programs of Technical schools and polytechnic operating under the Academy will be strengthened along with the development of a university with a established strong network with the feeder institutions and other national and international universities. The University will develop innovative prototypes, test them in community and disseminate them to the people targeting to raise the economic condition of general public.

The major strategies of the Technological University will be as follows:

- Development of fundamental and applied research for technological development and advancement;
- Formation and development of research and educational institutions;
- Collaboration with the leading scientific, educational, and industrial centers and the communities to promote relevancy and quality.
- Motivation of students, teachers, and other employees to integrate traditional academic values and entrepreneurial ideas;
- Harmonious development of an individual and specialists capable of leadership and effective teamwork, ready to succeed in the conditions of today's competitive environment;
- Providing life-long training and showing the pathway to a successful technical career with strong orientation to psychosocial dimension

Current Status of Technological University in Nepal

Council for Technical Education and Vocational Training (CTEVT), responsible national organization for the development and expansion of polytechnics has planned to develop five polytechnics in five-development region. So far, one polytechnic is being developed in Hetauda area and the other is under construction in Banepa Kavre with the help of the government of the People's Republic of China. Both of these institutions are being developed in the public sector offering programs of Technician Diploma level or below. There is no higher education institution in Nepal so far to provide higher technological programs allowing graduates of polytechnic institutions and technical schools to pursue higher studies in their technological field of study. So far, there are no Technological Universities as proposed in Nepal to fulfill such gap. Although Tribhuvan University and Kathmandu University are two universities offering higher education in Technical education, programs of these universities are highly academic in nature with minimum opportunities to practice in the real work situation. Besides, these universities are offering academic programs of conventional nature ignoring emerging technological areas, which are high in demands in the labor market. The technical education programs offered by these two universities are confined in city centers with limited access to young people who intend to prepare a career in occupation on demand. Therefore one exemplary Technology University is realized an urgent need in Nepal.

To develop a Technological University in diverse technologies offering the needs of various stakeholders is a challenging task. Technological University of at the initial stage of development requires heavy investment. Therefore, Madan Bhandari Memorial Academy is seeking financial and technical assistance from the external donor community for the development of an exemplary Technological University of international standard. The Academy, inspired by the great leader Madan Bhandari, is committed to equipped Nepalese people with technological knowledge and skills which help them to serve the nation that gives multiplier effect in national development and equip them to live a decent life with dignity and pride.

The Proposed Project

A number of factors as discussed in the previous sections are creating a favorable situation for need to develop a Technological University at Biratnagar, an industrial corridor in eastern Nepal. Madan Bhandari Memorial Academy is already initiating technical education and training institutes in Morong - Jhapa corridor in health, construction and agricultural occupations at the lower level. This establishes a foundation for developing a Technological University with adequate infrastructures and human resources needed to deliver technological programs on demand.

The Academy is dedicated to providing its students with an education that combines diverse traditions and innovations in the sphere of higher technical education. This particular feature distinguishes the University from other educational establishments. The leading role of Technological University and its significant influence on the Nepalese economy and culture is one of the uniqueness that the university intends to develop.

The proposed technological University intends to develop the following practices from the very inception of the university;

- Combination of research, education and training that provides specialists with profound academic knowledge;
- Substantial technological knowledge and practical training of specialists ensuring their better adjustment to the current national and international environment;

- The great demands on students and teachers that guarantee a high quality of education and training;
- Commitment to innovation, entrepreneurship and enterprise development urging students, teachers, scientists, and managers to find the most effective ways of performance and productivity improvement.

The Academy is seeking external assistance for developing technological University especially in the following areas:

- (a) Provision of technical assistance for developing a detail project document for the development of the university,
- (b) Development of the infrastructure, physical facilities and installation of equipment and furniture needed for minimum of six to eight prominent technological areas.
- (c) Development of technology teachers to carry out the teaching and research activities of the university in the identified technologies,
- (d) Provision for well equipped learning resource center/library and a computer lab
- (e) Other required facilities needed for the university

Size of Institution

For cost efficiency reasons as well as for meeting the very large number of technical manpower required for development, the proposed technological university will have a capacity of enrolling approximately 500 persons per year in the regular programs of the institution at the initial phase. It is envisioned that short durations training programs also will be offered mainly during mornings, evenings and on weekends serving approximately more than 1000 each year trained human resources of varying levels would be produced at the initial years of operation. The University will be preparing about 5000 technologists and researchers each year in various technological areas of economic importance in Nepal at its full-fledged operation.

Entry Requirement

The Technological University will be developed to provide career to those technicians who graduate from Technical Schools and Polytechnic institutions. The entry level for regular technology education in the polytechnic institutions and technological colleges will be secondary or higher secondary level general or technical education or equivalent qualification determined through cognition and skill test. (Diploma or 12th Grade pass). In all cases an entrance test will be administered to ensure academic capabilities, prior knowledge and gain further information for selection purposes.

For short duration technological training programs meant for meeting specific local employment needs. The entry requirement will be set according to the academic foundation needed to succeed in the training. It is likely that in many cases this will be for people who have not completed high school education. Again, to allow as broad opportunity for access as possible for the skill workers and technological workforce to advance their skills or pursue higher education with adequate provisions for preparation or bridge courses. An entrance test will normally be administered for entry into the degree offering educational programs.

Awards

Students successfully completing their program of study, whether of a longer duration or a shorter duration will be awarded certificates or diplomas as appropriate. Except for the longer duration training, which will be equivalent to the higher education degrees, training certificates and diplomas will be awarded to students completing short-term technological training programs or technological diploma program. Gradually, the University will add Masters Degree and Ph. D. degrees in various technological areas once the university gains maturity and sustainability. Undergraduate or graduate level courses offered within the Technological University system will be linked with developing technological areas and growing opportunities in the national and international employment markets.

Technological University, Morang will prepare high level technological experts, and middle level technical and advanced level technological workforce. Although most of the education programs will be at the tertiary level, some technological courses will be offered for gainful employment through technical education primarily at the post-secondary level with the active involvement and participation of the communities (industries). It is expected that the proposed Technological University will prepare technically competent graduates to take jobs in the national and international job markets. The university will provide longer duration Bachelor degree and post-Bachelor programs, a two years Associate Diploma programs and short duration technology programs targeted courses of post-secondary level emphasizing adequate academic foundation supplemented with practical skills that the graduates will have options either to take relevant jobs in the labor market or gain entrance into and succeed at higher levels of learning whether offered within the university, university affiliated polytechnic, or at the technological colleges of the university.

The above mentioned academic foundation will always be considered an additional element to the primary focus of the training being for the purpose of enabling the person to obtain immediate employment. Each polytechnic institution will focus upon 4 or 5 major areas of technology appropriate to the needs of the area where the institution is located.

At the same time, since it is unlikely that there will be other technical training institutions located nearby in many of the areas where university colleges are located, there will also be the provision for giving some technical training of short duration to meet local employment demands, particularly during mornings, evenings and weekends when facilities are not being used for the regular training program.

The main product of the polytechnics under the university will be technologists, researchers, technology teachers/educators with a broad base of technological concepts and skills in their field of study. The students will also have a good foundation in mathematics, science and English along with the sound technological knowledge and skills. However, the technological programs will be at the Bachelor, Masters degree with some Doctoral degrees few prominent technological areas.

Educational Areas

At this stage it is difficult exactly specify what technological areas to be included at the university. Specific technological areas can be fixed only after having a detailed study of needs of the private and industrial sector. However, Agricultural technologies, industrial technologies, information technologies, medical technologies and other relevant areas of technologies will be the programs at the undergraduate and graduate level. Based on the observation of the labor market, proposed University site, and future demands, the university develops institutions to offer undergraduate and graduate level educational programs in the following technological areas:

Agricultural Technologies

- Livestock Production
- Dairy Technology
- Veterinary Science
- Meat and Milk processing/products
- Horticulture
- Crop Science
- Agro-forestry

Information and Communication Technology

- Information technology
- Communication and media technology

Engineering

- Architectural technology
- Construction technology
- Mechanical technology
- Automotive technology
- Electrical and electronic Technology
- Chemical engineering

Biological Sciences

- Biotechnology
- Textile technology
- Environmental science and Engineering
- Food Technology (food processing)

Health Sciences

- Lab Technology
- Radiography
- Dental technology
- Bio-medical technology
- Pharmacy and pharmaceuticals
- Public health
- Medicine
- Nursing
- Health care management and administration
- Physiotherapy

Other Areas

- Computer application

Computer Technology
Computer programming
Secretarial and Office Management
Textile Technology
Plastic technology
Chemical Engineering Technologies
Urban planning and management
Water resource management
Hospitality Management
Business management
Technology education

External support and assistance required studying these areas in more detail and developing a detail proposal of the proposed university based on the feasibility study and needs assessment report.

Challenges

1. In order to develop a world class technological university capable of running programs of international standards, Nepal needs to develop technology teachers and researchers who can develop the University of Desired Standards. We have limited supply of such technology teachers in Nepal. Technology teachers available in Kathmandu are not willing to go to Biratnagar. Therefore the challenge is how to arrange technologists, professors and researchers in various technological areas in demand.
2. Another challenge is developing programs and infrastructure for the evolving university. We need technology professionals and educators for developing programs, curricula and other necessary resources needed to develop technological university as conceptualized. Also we require people having expertise and experience who are committed to support us in developing infrastructure with adequate equipment and educational facilities needed for the university.
3. In the process of developing infrastructure and programs of technological University require heavy investment. How financial resource needed for developing university to be arranged is most critical challenge.
4. Legal base for the university is the most essential requirement. Before putting a lot of effort in conceptualizing, planning and preparing for the university, an Act for the university should be passed from the parliament, which is also a challenge.

There may be many challenges and issues to be explored and to be addressed before developing a plan for the Technology University in Biratnagar.