# An alternative approach towards establishing the World-Class University in Mongolia

## Mrs. L.Oyuntsetseg, ScD., Professor

Deputy Director of Research & Innovation - Computer Science & Management School (CSMS)

Mongolian University of Science & Technology (MUST)

E-Mail: loyun2001@yahoo.com

# Mrs. Ts. Ganbat, Ph.D., Associate professor

Department of Business Administration -CSMS, Mongolian University of Science & Technology (MUST) E-Mail: tsganbat2003@yahoo.com

## Mr. Ambarish Pandey

Professor - Business Studies,
Ider University, Ulaanbaatar
PhD(ABD)- CSMS, Mongolian University of Science & Technology (MUST)

E-Mail: pambarish@gmail.com



## **List of Abbreviations:**

ADB : Asian Development Bank

ARWU : Academic Ranking of World Universities

ESDP : Education Sector Development Program

ICT : Information & Communication Technology

MUST : Mongolian University of Science & Technology

PSTT : Pre-service Teacher Training

R & D : Research and Development

SEDP : Second Education Development Program

TEDP : Third Education Development Program

TTI : Teachers Training Institute

WCU : World-Class University

# Views on the "World-class University:

Academicians have admitted that the great universities have three major roles:

(1) Excellence in education of their students; (2) Research, development and dissemination of knowledge; and (3) Activities contributing to the cultural, scientific, and civic life of society.

This can be referred as the University's capacity to compete in the age of global higher education marketplace.

**Excellence in education:** In order to achieve this goal, Levin, Jeong, and Ou(2006) suggest that the University requires,

- The resources and organization of undergraduate, graduate, and professional instruction and educational opportunities for students.
- Outstanding faculty, high quality teaching and other instructional activities, and availability of good libraries, laboratories, and other pertinent facilities
- Highly prepared and motivated students who serve to educate through their peer influence.

## Research, development, and dissemination of knowledge:

Embryonic identification, growth, and extension of concepts and ideas as well as their transformation into applications, goods, and services that enhance understanding and welfare are essential.

The world-class university serves as a Knowledge Society. And so Knowledge management (KM) is an integral part of the world-class university.

## Activities contributing to the cultural, scientific, and civic life of society:

This is largely dependent on the country's culture and varies significantly from one university to another but common features are conferences, publications, artistic events and forums as well as provision of services (e.g. medical clinics and hospitals or museums) that engage and contribute to the larger community including the regional, national, and international communities.

#### **Characteristics of World-class Universities:**

The few scholars who have attempted to define what world-class universities have that regular universities do not possess have identified a number of basic features, such as highly qualified faculty; excellence in research; quality teaching; high levels of government and nongovernment sources of funding; international and highly talented students; academic freedom; well-defined autonomous governance structures; and well-equipped facilities for teaching, research, administration, and (often) student life (Altbach 2004; Khoon et al. 2005; Niland 2000, 2007).

Another important characteristic is the ability and the privilege of these universities to select the most academically qualified students. For example, Beijing University, China's top institution of higher learning, admits the 50 best students of each province every year. Harvard University, the California Institute of Technology, the Massachusetts Institute of Technology (MIT), and Yale University are the most selective universities in the United States, as measured by the average Scholastic Assessment Test (SAT) scores of their incoming undergraduate students.

High proportion of carefully selected graduate students reflecting their strength in research activities of these institutions are another tendency of WCUs.

# Top 10 WCUs:

**Table 1 World Ranking** 

| World Ranking | University                                  |  |  |
|---------------|---|--|--|
| 1             | Harvard University                          |  |  |
| 2             | University of California, Berkeley          |  |  |
| 3             | Stanford University                         |  |  |
| 4             | Massachusetts Institute of Technology (MIT) |  |  |
| 5             | University of Cambridge                     |  |  |
| 6             | California Institute of Technology          |  |  |
| 7             | Princeton University                        |  |  |
| 8             | Columbia University                         |  |  |
| 9             | University of Chicago                       |  |  |
| 10            | University of Oxford                        |  |  |

(Source: ARWU, 2011)

## **Two Different Perspectives & Two Dimensions:**

- 1. Universities operate in both national and global contexts. The world-class idea falls into the global sphere. It assumes that the university is competing with the best academic institutions in the world and is aspiring to the pinnacle of excellence and recognition. National and even regional realities may differ. They relate to the need of the immediate society and economy and imply responsiveness to local communities. In these contexts, the nature of academic performance and roles may differ from what is expected at institutions competing in the global realm. To label one sphere world class while relegating the others to the nether regions of the academic hierarchy is perhaps inevitable, but nonetheless unfortunate.
- 2. Two complementary perspectives need to be considered in examining how to establish new world-class universities. The first dimension, of an external nature, concerns the role of government at the national, state, and provincial levels and the resources that can be made available to enhance the stature of institutions. The second dimension is internal. It has to do with the individual institutions themselves and the necessary evolution and steps that they need to take to transform themselves into world-class institutions.

#### **Government Role:**

In the past, the role of government in nurturing the growth of world-class universities was not a critical factor. The history of the Ivy League universities in the United States reveals that, by and large, they grew to prominence as a result of incremental progress, rather than by deliberate government intervention. Similarly, the Universities of Oxford and Cambridge evolved over the centuries of their own volition, with variable levels of public funding, but with considerable autonomy in terms of governance, definition of mission, and direction. Today, however, it is unlikely that a world-class university can be rapidly created without a favorable policy environment and direct public initiative and support, if only because of the high costs involved in setting up advanced research facilities and capacities. Altbach (2004) reports a late-19th-century conversation between John D. Rockefeller and the then-President of Harvard University, Charles

W. Eliot, in which Rockefeller asked Eliot what would be the cost of establishing a world-class university. Eliot's answer was "50 million dollars and 200 years." However, the University of Chicago was able, at the beginning of the 20th century, to achieve this goal within only 20 years, although the price tag at that time was already more than US\$100 million.

It is unlikely that a world-class university can be rapidly created without a favorable policy environment and direct public initiative and support, if only because of the high costs involved in setting up advanced research facilities and capacities.

Recent international experience shows that three basic strategies can be followed to establish world-class universities:

- Governments could consider upgrading a small number of existing universities that have the potential for excelling (picking winners).
- Governments could encourage a number of existing institutions to merge and transform into a new university that would achieve the type of synergies corresponding to a world-class institution (hybrid formula).
- Governments could create new world-class universities from scratch (clean-slate approach). (Liu, Wang and Cheng, 2011)
- -Government could bring the various universities under one umbrella to put join effort in the area of their own expertise to transform into WCU.

The pros & cons of each approach as discussed by Jamil (2006) are mentioned on the next page.

**Table 2 Approaches** 

|                             | Approach  |   |  |   |  |
|-----------------------------|---|---|--|---|--|
| Conditions                  | Upgrading existing institutions   | Merging existing institutions   | Creating new institutions  | Collaborative strategy  |  |
| Ability to attract students | Difficult to renew the staff and change the brand to attract students           | Opportunity to change<br>the leadership and to<br>attract new staff;<br>existing staff may<br>Resist        | Opportunity to select the best (staff and students); difficulties in recruiting top students to "unknown" institution; need to build up research and teaching traditions | Opportunity to<br>select students in<br>varied area of<br>study   |  |
| Costs                       | Less Expensive  | Neutral   | More expensive   | Less Expensive  |  |
| Governance                  | Difficult to change<br>mode of operation<br>within same regulatory<br>framework | More likely to work<br>with legal status<br>different from that of<br>existing institutions                 | Opportunity to create<br>appropriate regulatory<br>and incentives<br>framework   | Difficult to bring<br>various<br>independent<br>institutions under<br>one umbrella,<br>conflict of interest |  |
| Institutional Culture       | Difficult to transform from within  | May be difficult to create a new identity out of distinct institutional cultures                            | Opportunity to create culture of excellence  | Difficult to change existing culture  |  |
| Change Management           | Major consultation and<br>Communication<br>campaign with all<br>stakeholders    | "Normative" approach<br>to educate all<br>stakeholders about<br>expected norms and<br>institutional culture | "Environmentally adaptive" approach to communicate and socially market the new institution   | Difficult to apply<br>Lewin's change<br>model   |  |

(NB: Collaborative strategy is developed by the authors)

# A case study on Tertiary Education Reform in Denmark: The University Act of 2003 and 2007:

Through reforms in four key areas—institutional autonomy, institutional leadership, quality assurance, and internationalization—Denmark is in the process of transforming its university system into an independent sector contributing to broad national success by answering more effectively to the evolving labor market that it serves.

#### Government's Role in Education Reformation in Denmark:

# Institutional Autonomy: Increased Independence for Denmark's Universities

- As of 2003, all universities in Denmark are considered independent subsidiaries of the Ministry of Science, Technology, and Innovation.
- Funds are distributed based on established rates for research and on per student enrollments and completion, to establish more objective criteria for funding. Institutions are allowed to use their complete subsidies as they deem necessary,

- may also seek outside sources of funding to complement the state contributions, and may establish profit-making activities.
- Performance contracts, first introduced in 1999, serve as a type of contract between the government and an individual institution regarding how that institution will seek to maximize its individual strengths.

Institutions work to their strengths, as defined by themselves, and seek successes at points where they are most competitive.

## **Institutional Leadership**

- Leadership at every level is balanced within and outside.
- Governance of the institution is primarily in the purview of an external majority university board whose members are elected, not appointed, and includes representatives from both within and outside the university, including academic and administrative staff and students.
- Each university's rector serves at the will of the board.
- Deans are hired and supervised by the rector and in turn hire and supervise department heads.

According to Salmi & Liu (2011), while considering for the establishment of World-class University, the following key questions should be answered by the governments and institutions:

- Why does the country need a world-class university? What is the economic rationale and the expected added value compared with the contribution of existing institutions?

Explanation: The country is striving to establish leadership in the field of education. Brain-drain is matter of great concern so; WCU will be helpful in retaining the talent. Students from other countries will help in cash inflow.

- What strategy would work best in the country context: upgrading existing institutions, merging existing institutions, or creating new institutions?

Explanation: Collaborative strategy is expected to be the best strategy for the country as it is not only cost saving but also to provide opportunities to all the existing universities in excelling in their respective fields.

- What are the governance arrangements that must be put in place to facilitate this transformation and support suitable management practices?

Explanation: Modern and effective governance is suggested to facilitate this transformation. At present the governance is ineffective and the entire shortcoming should be removed by taking advice of experts from domestic and international marketplace.

- What level of autonomy and forms of accountability will be appropriate? Explanation: WCU shall be autonomous and free from government intervention. WCU shall be accountable for producing the quality result to satisfy the demand of the society.
  - What will the government's role be in this process?

Explanation: Government's role is vital in this transition stage. Apart from the land & financial assistance and tax relaxation, implementing congenial rules and regulation is suggested to the government.

- How can the institution build the best leadership team?

Explanation: Organizing refresher course, lecturers' capacity building, hiring the best professionals and brining in the quality projects in the field of Research & Development will be helpful in creating the best leadership team.

- In what niche(s) will it pursue excellence in teaching and research?

Explanation: As the country has many geographical disadvantages, the niche shall be Software, Medical and veterinary Sciences, Agricultural Sciences. Other areas can be added as per the societal need.

- What are the internationalization goals that the university needs to achieve (with regard to faculty, students, programs, and so forth)?

Explanation: At present, Mongolian Universities are weaker is diversity. The best talents from various friendly countries shall be invited for faculty and as students.

- How will success be measured? What monitoring systems, outcome indicators, and accountability mechanisms will be used?

Explanation: Experts' help is suggested to define success parameters and outcome indicators.

## **Education Sector Performance, Problems and opportunities in Mongolia:**

A report of ADB (2008) states that; in 1990, immediately before the break-up of the Soviet Union, Mongolia had a high gross enrollment ratio and adult literacy rate. Cessation of Soviet financial and technical support had a dramatic impact on educational provision, quality, and standards and by 1995 the gross enrollment ratio had fallen to 81%. Since this low point, Mongolia has made notable progress toward redeveloping its education sector. In 2006, the gross enrollment rate had recovered to 95% for primary and secondary education, and the adult literacy rate had been maintained at 97%. Annual public expenditure on education is high (about 7% of gross domestic product) in comparison with that of many neighboring countries.

The ongoing partnership between the Government and ADB and other major funding agencies (notably the Embassy of Japan in the education sector) has been a major factor in the speed of the education sector's recovery. ADB assistance for the education sector began with the Education Sector Development Program (ESDP), which was approved in 1996. ESDP succeeded in implementing measures to rationalize the education system, improve cost recovery, support privatization and private sector provision, strengthen management capabilities, and upgrade education content. It contributed significantly to increasing enrollment rates from 81% in 1996 to 91% in 2002, to decreasing dropout rates from 3.5% to 2.3% over the same period, and to improving the effectiveness of the system and the quality of education services. A post-project performance evaluation in April 2007 rated the program "highly successful". Under the Second Education Development Project (SEDP) and Third Education Development Project (TEDP), approved in 2002 and 2006 respectively, key initiatives supported by ADB have included inservice teacher training, development of curriculum and state education standards, enhancing education management and planning, and rehabilitation of schools and learning spaces. ADB's recent country assistance program evaluation report for Mongolia2 rated assistance to education as the best performing part of ADB's portfolio. The proposed Project and the ongoing TEDP are complementary: (i) TEDP supports the development of curriculum and education standards and the proposed Project will support development and provision of textbooks that incorporate the new curriculum; (ii) TEDP supports the national accreditation of teacher training institutes (TTIs) and the proposed Project will enhance overall quality of pre-service teacher training (PSTT); and (iii) TEDP supports in-service teacher training centers (focusing on moving from

lecturing to interactive learning, using computer-based problem solving techniques) and the proposed Project supports the use of information and communication technology (ICT) for education and the establishment of ICT centers of excellence (focusing on training and strengthening the skills of teachers to integrate ICT as a teaching and learning tool).

# The rationale for the system reforms:

# • Key Problems:

The Mongolian education system still faces rural—urban disparities in educational achievement; low quality of PSTT; inefficiencies in educational planning and management; and challenges in the provision of low-cost, high-quality textbooks and other learning materials, including the introduction and effective use of ICT in primary and secondary education across the curriculum. The physical infrastructure of TTIs is in urgent need of repair, which reflects shortages in government financing of higher education institutions.

Poverty is another major factor and according to World Bank Living Standard Measurement Surveys (1998–2002 and 2006), it is estimated as low as \$ 2 per day. Poverty has significant impact on school attendance and school quality.

Education Governance is poor in the country and this could be attributed the myopic view of the country's politicians. Politicians not only lack in foresight but corrupt also. Their individualistic thinking forbids reformation in any sector.

Poorly paid faculty staffs have no motivation to create or nurture talents. Also, they lack in putting knowledge and experience in practice.

Furthermore, the country's democracy is still young. The effect of communism can be easily seen at any workplace.

Although some overseas agencies' efforts are there to reform and or to improve the education system but these are inadequate and only short termed.

#### • Innovation:

Innovation infrastructure is not developed; knowledge and technology transfer mechanism is not well established. Inadequate activities to commercialize R&D and weak participations of Industries in the innovation development are also a matter of great concern.

## • Match-Gap Analysis:

Although Mongolia is rich in natural and agricultural resources, subject of research projects that are selected and implemented do not corresponds to market demands. Lack of coordination between industry and academic institutions is widening this gap.

#### The challenges:

Although there is no thumb-rule for making a world-class university or a fixed criterion to be ranked as the world –class university, the highest ranked universities are the ones that make significant contributions to the advancement of knowledge through researches, teach with most innovative curricula and pedagogical methods under the most conducive circumstances, make research an integral component of undergraduate teaching and produce graduates who stand out because of their success in intensely competitive arenas during their education and after graduation.

The country must choose from among the various possible pathways, a strategy that plays to its strengths and resources. International experience provides a few lessons regarding the key features of such universities- high concentration of talents, abundance of resources and flexible governance arrangements- and successful approaches to move in that direction from upgrading or merging existing institutions to creating new institutions altogether.

A long-term vision for creating world-class university and its implementation should be closely articulated with

- The country's overall economic and development strategy
- Ongoing changes and planned reforms at the lower level of the education system
- Plans for the development of allied higher education institutions to build an integrated system of teaching, research, and technology oriented institutions.

At this point it is important to clarify that the world-class universities are not only those who are research focused there are many other world-class higher education institutions that are not the research focused nor operate as universities in strict terms. The ultimate goal is to provide with the quality education and training that the higher education system is expected to satisfy.

#### **Country Specific Challenges:**

The challenges discussed above are more or less common for every country. In Mongolia there are many other issues which need to be addressed here:

- *Small population size:* the country's population is 2.8 Million only. To get talented students is a big challenge
- *Country attractiveness:* Mongolia is ranked lower in country attractiveness index, so attracting students from abroad will take considerably long time until the university has established it performance in education sector.
- *Inadequate government support:* Due to government's promises during the election, it has insufficient fund to aid academic institutions.
- *Climatic conditions:* Harsh weather condition prevents the students to pursue their studies in the country.
- *Image in international market:* Mongolia is import based country and its image in education sector is still not favorable. Education reformation is still in transition stage.
- *Education Governance:* The country is seriously facing the problem of effective governance.
- *Insufficient funds for Education sector:* The government's focus is to build infrastructure to support mining industry; still they don't have focus on reformation of education sector.

# Mongolian University of Science & Technology & WCUs: Miles to go

## **STRENGTH**

- Long standing performance, the first University in the country
- State owned
- Well qualified faculty
- Higher cutoff for students intake
- 6Specialized branches at different strategic locations
- Good infrastructure, bigger campuses
- 42 Research Centers, 45 Research laboratories, 1 Technology incubator center
- Financial aid for research projects.

#### **WEAKNESS**

- Almost no diversity in faculty and in students
- Insufficient funds for growth
- Country is still weaker in terms of its attractiveness in the field of education
- Less efforts in attracting research projects from foreign countries
- Weak in retaining students for higher studies (student migration rate is high)
- Standard of curricula is still not at par with the international standard
- Sub-standard library & laboratory
- Medium of instruction is Mongolian

## **OPPORTUNITIES**

- More collaborations with International Universities
- Bring in overseas funded R & D activities
- Advancement of curricula
- Greater diversity in Faculty & Students
- Creating more awareness in international education market
- Modernization of laboratories to encourage innovations
- Provision to study in English

## **THREATS**

- FDI friendly government policy is attracting many International Universities with bigger budget.
- **Brain- Drain** in the country is posing a challenge in recruiting talented students.
- Multinational corporations in Mining Sector are seeking to diversify in education.

Table 3 SWOT Analysis of MUST

## **Alternative Approach: 3 Forces - AGI Model:**

There are three active forces in knowledge capturing, knowledge processing and knowledge transforming. These forces are:

- Academic Institutions' issues and challenges
- Governmental Agencies' support to industries and Academic Institutions
- Industries' issues, challenges and expectations

WCUs have found a good balance among these forces.

Analysis of these forces helps not only in developing professionals but also in matching the demand and supply of human resource.

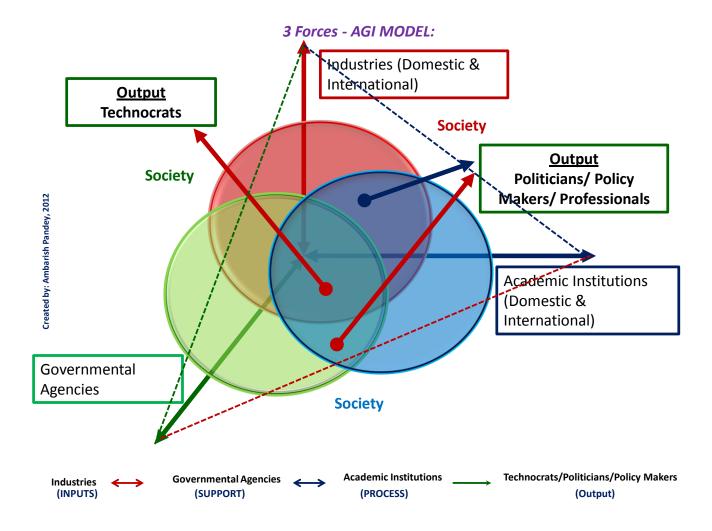


Figure 1 3 -Forces AGI Model

#### **Explanation of three forces AGI Model and their roles in Knowledge transformation:**

We started our discussion with two dimensions of WCU viz external & internal. In the three forces AGI model, the external dimension is broadly divided into two categories i.e. Industry and Government support making it three dimensional approaches.

## **Academic Institutions:**

This force works as a processor. Accumulating information from industries and support from Governmental agencies these institutions set their curricula as per the need & demand of the society. The outputs are highly skilled professional, politicians, technocrats and responsible civil societies. This is the most important point in finding the balance among these forces. WCUs are good at identifying the equilibrium point and develop the professionals who are highly skilled and meet the expectations of industries and society.

## **Governmental Agencies:**

Governmental agencies provide congenial environment to academic institutions and at the same time to international companies to have interaction with domestic institutions. Apart from monetary assistance to academic institutions these agencies also liberate the laws to attract international companies to bring R&D, consultancy, training projects etc. in the country. This force plays as pivotal role in knowledge transformation.

# **Industries (Domestic & International):**

This force acts here as customer. This is in form of Industries' need of skilled men power, technological advancement and challenges faced by them. Industrialists use their foresight and interact with the academic institutions to explain their expectations.

These forces are within the boundary of the society. Diverse society will be more favorable to make AGI effective. This can be an argument that Academic Institutions play the role of inputs rather than a processor and Industries play the role of processor rather than input. This argument is valid from another perspective, where industries are considered as the training providers to groom the knowledge of the students. But in the present scenario, the WCUs are considered as processor as they are focusing to produce the talents based on the industrial and societal needs.

#### **Conclusions:**

From the report it is concluded that the following areas need to be discussed further for decision making towards the establishment of WCU in Mongolia.

#### 1. Upgrading Existing Institutions

One of the main benefits of this approach is that the costs can be significantly less than those of building new institutions from scratch. This is the strategy followed by China since the early 1980s, with a sequence of carefully targeted reforms and investment programs. Indeed, Beijing University and Tsinghua University, China's top two universities have been granted special privileges by the national authorities, allowing them to select the best students from every province before any other university, much to the consternation of the other leading universities around the country.

# 2. Government Support:

Governments need, therefore, to construct a supportive external policy environment and create the financing and regulatory conditions that enable and encourage their universities to compete at an international level on a host of indicators on which the quality and relevance of university education are commonly assessed including reputation and awards, foreign students and faculty, and research grants.

- To grant management autonomy to the universities.
- To provide performance-based financing,
- Favorable taxation systems that allow companies and philanthropists to make tax-free donations to universities. The United States and India provide good examples of this practice.

## 3. Merging Existing Institutions:

Another possible approach to building up a world-class university consists of promoting mergers among existing institutions. France and Denmark are two countries that have diligently embarked on this path in recent years. In France, individual universities and *grandes écoles* are exploring the feasibility of merging on a regional basis. In Denmark, the government has set up an Innovation Fund that would reward, among other things, the combination of similar institutions. In China, too, a number of mergers have taken place to consolidate existing institutions. For example, Beijing Medical University merged with Beijing University in 2000; similarly, in Shanghai, Fudan University merged with a medical university, and Zhejiang University was created out of the merger of five universities. In Mongolia also, the School of Business and Trade is merged with National University of Mongolia.

The great advantage of mergers is that they can result in stronger institutions able to capitalize on the new synergies that their combined human and financial resources may generate.

# 4. Collaborative Strategy:

The problem in merging is that one existing university has to lose its identity and managing change in this scenario would be challenging. Collaborative strategy can be implemented at national and at international levels simultaneously. This strategy has been partially implemented by MUST. For example, MUST is finalizing its collaboration with International University of Japan (IUJ) and IEC in India. For multi dimensional and faster development at lower money involvement, this strategy is suitable for the country.

#### **References:**

- ADB (2008). Proposed Asian Development Fund Grant Mongolia: Education Sector Reform Project. Retrieved on May 19<sup>th</sup>, 2012 [online] Available at http://www2.adb.org/Documents/RRPs/MON/39254-MON-RRP.pdf
- 2. Academic Ranking of World University (ARWU), 2011: [online] Retrieved on May 20<sup>th</sup>, 2012 http://www.arwu.org/ARWU2010.jsp
- 3. Altbach Philip G. 2004. "The Costs and Benefits of World-Class Universities." Academe 90 (1, January-February).[online] Retrieved May 18<sup>th</sup>, 2012. Available at <a href="http://www.aaup.org/AAUP/pubsres/academe/2004/JF/Feat/altb.htm">http://www.aaup.org/AAUP/pubsres/academe/2004/JF/Feat/altb.htm</a>
- 4. Levin H.M, Jeong D.W, Ou Dongshu, 2006. "What is World Class University?" [online] Retrieved on May 18<sup>th</sup>, 2012. Available at http://www.tc.columbia.edu/centers/coce/pdf\_files/c12.pdf
- 5. Mongolian University of Science & Technology [online]Retrieved on May 18<sup>th</sup>, 2012 Available at http://www.must.edu.mn/must\_en/modules.php?R\_Id=5
- 6. Salmi J, Liu N.C (2011). Paths to a World-Class University (V 23): *Lessons from Practices and Experiences*, Sense Publisher, Taipei
- UNESCO (2007). Science & Technology Master Plan of Mongolia-2007-2020. [online]Retrieved on May 18<sup>th</sup>, 2012. Available at <a href="http://unesdoc.unesco.org/images/0015/001514/151490E.pdf">http://unesdoc.unesco.org/images/0015/001514/151490E.pdf</a>
- 8. Denmark (2007)<a href="http://www.ubst.dk/en/laws-and-decrees/Ministerial%20Order%20concerning%20the%20Act%20on%20Universities%20%28The%20University%20Act%29.pdf">http://www.ubst.dk/en/laws-and-decrees/Ministerial%20Order%20concerning%20the%20Act%20on%20Universities%20%20The%20University%20Act%29.pdf</a>

#### **About the Authors**

## Ms. Oyuntsetseg L.:

Graduate in Labour Economics from Economic Institute, Irkutsk, Russia, 1982-1987. Post Graduate in Economics from Mongolian National University and PhD in Economics, 1998. Second Post Graduate Study in Plekhanov Academy of Economics, Russia and ScD in Economics, 2009. I have got 20 years of experience of teaching at CSMS, MUST, Ulaanbaatar.

Publications: 17 books and handbooks, 35 training materials, 87 papers. Main research field: Productivity, Quality and Innovation management, Problems of economics and industry development, Knowledge management and economics. Dissertation topics: Improving Productivity management in Light Industry of Mongolia(PhD, 1998), Building National Innovation System in Monglia(ScD, 2009).

Currently I am working in CSMS (MUST) as Vice director for Research and Innovation.



#### Ms. Ganbat Ts.:

Post Graduate in Computer Science and Information system from the Institute of Management, Moscow and PhD from Institute of Educational Management, Mongolian University of Education, Ulaanbaatar, have got 23 years of versatile experience of teaching at CSMS- MUST, Ulaanbaatar. More than 20 papers have been published under my name. I play active role in decision making and participative management programs at CSMS. Prior to teaching, I was actively engaged with The Mongolian State Youth Organization as an Instructor. Currently I am working with CSMS (MUST) as Associate Professor in the Department of Management Studies.



# **Ambarish Pandey:**

Graduate in Physics from Banaras Hindu University, India and post graduate in Business Management, have got 15 years of working experience of managing International Business (including 4 years of teaching business management at Undergraduate & Postgraduate levels in Mongolia). Currently I am lecturing at Ider University as Professor- Business Studies and pursuing PhD in Business Management from the School of Computer Science and Management, Ulaanbaatar, Mongolia, under the supervision of Ms. Ganbat Ts. -Associate Professor, School of Computer Science & Management. The research topic is "KNOWLEDGE MANAGEMENT IN ACADEMIC INSTITUTIONS".

