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Upgrading the standard of higher education in developing countries through international cooperation

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Education, being a formal means of acquiring knowledge, is a universal heritage of mankind. It is a basic factor for the accumulation of human capital and societal development. Institutions of higher learning not only reflect, but also create and augment the stock of knowledge through research and innovation. Higher education in developing countries is facing diverse structural problems to pace with developed countries. This study is carried out to identify the nature of these problems and to assess the possibilities to overcome these problems through the process of reformation and international cooperation.

Key words: Education, developing countries, knowledge.

INTRODUCTION

In the contemporary era of globalization the importance of higher education is generally recognized for improving economic performance, promoting civil laws and increasing social integration. Developing countries are facing great challenge to meet the increasing demand for higher education and to develop their institutions of higher education in order to pace with the developed nations of contemporary world.

Education is a formal means of acquiring knowledge. It is the basic factor to develop human capital, the most influential form of capital, and a central factor of societal development. As education is the essence of a society, the development of educational institutions is a precondition for societal development. Education can be a means to analyse values and culture on rational basis, to differentiate between religion and tradition and to identify the bottleneck of spiritual and material development.

Education has its roots in family and it is organized by groups of people, but its nature is not a tribal or national one. It is rather a universal heritage of mankind. Although a part of education is always inspired by the faith of the people, yet it can be enriched by examining and understanding the practice of other societies. In this regard institutions of higher education can play their role by the progress of intercultural knowledge, cultural values,

research skills, scientific thinking and grouping action development of learning and teaching process beyond the borders (Huber, 2002).

Modern educational institutions of higher learning in developing countries have a relatively short history. Although the institutions are developed at a rapid pace in recent years, but their structures are still premature. Higher education in these countries is faced with great challenges related to financing and equitable accessibility of education, staff development, skills-based training, quality education in teaching and research, relevance of programs, outdated curricula, etc. (UNESCO, 1998; The World Bank, 2000). Therefore, it is necessary for developing nations to prepare plans for educational development, consciousness raising as well as technological and professional skill development (Etaat, 1999; Zolfaghari, 2003). Upgrading educational standard of an institution of higher learning in a developing country means to bring up the level of education of this institution to the level of international educational institutions which can be realized through the process of internationalization of education, namely active participation in the international educational and research programs (Henry et al., 2001). Development of international cooperation is not an end in itself but a means towards developing appropriate competencies in the students, staff and

faculty (Qiang, 2003: 250).

As international education varies from institution to institution, it is not quite easy to grade up the level to a uniformed educational standard. One way of dealing this matter is to study different educational standards of developed countries and to develop a national standard by integrating certain aspects of international education into the education of national consensus. This is a pragmatic approach that can be applied on long term basis. However, on short or mid term basis a certain national standard of developed countries or at least its parts can be applied to upgrade national level of education. Through a continuous process of examination and refinement national education can gradually be brought up to the level of international education. This study aims to address the following questions:

- (a) What are the important structural issues of higher education in developing countries?
- (b) How far these issues can be addressed through internationalization of higher education?
- (c) Does the recent experience of international cooperation provide strong evidence for resolution of these issues?

ISSUES AND REQUIREMENTS FOR REFORMATION IN HIGHER EDUCATION

Reforming means to reorganize an existing system or part of the system. In order to reform an existing system of higher education one has to identify the basic weaknesses of the system. Generally speaking following weaknesses can be found in an underdeveloped or developing system (The World Bank, 2000; Ginkel et al., 2002; Knight, 2006; Sarkarani, 2007).

Lack of awareness regarding the purpose of education

The primary purpose of education is to create awareness among students about the nature and purpose of human being. Through education the students may learn to solve the problems of life effectively. Traditional thinking and practice may hinder a positive development of education. These negative attitudes can be reduced through a purpose and reward oriented educational system (World Conference on Education, 1990: 36).

Inappropriate curriculum

Knowledge is not a static quantity. It changes with search, research and experience of a society. The nature of a positive change in knowledge is determined by a

corresponding change in positive experience and vice versa. The accumulation of knowledge is a precondition for successful life especially in a knowledge based society. In order to improve the stock of socially useful knowledge the curriculum of an education system must be reviewed and updated periodically. In post-colonial era one may observe overall growth in education. However, in many developing countries curriculum is increasing becoming obsolete which in turn cause to increase knowledge gap between developing countries and knowledge-based societies (Gillis, 1999: 15-17).

Obsolete methods of teaching and teacher training

Social development and change in a certain society, accelerated through scientific development and innovation, require a simultaneous change or at least adoption of innovative ideas and technologies. Obsolete ideas and technologies slow down the momentum of knowledge accumulation and socioeconomic growth process. Same may apply to the methods of teaching. In most developing countries traditional teaching based on 'rote learning' is common, with instructors doing little more in the classroom than copying their notes onto a blackboard' (The World Bank, 2000: 23). Modern approach toward learning is based on reflection. The classical "lecture-oriented" pattern of teaching is no more sufficient to achieve this purpose. In order to reflect socially useful ideas one may also has to make use of other innovative methods of teaching based on reflection and learning. These may be organized in the form of small seminars, presentations, project reports, group discussions, working papers, case studies, specified readings, portfolios, etc. While using these methods audio-video tools may be applied to enhance the effectiveness und usefulness of learning.

Scarcity of motivated teaching personnel and tools

In many developing countries education system is also deficient in quantitative terms. Here teacher-student-ratio is quite lower than in the developed countries. Teachers are often over-burdened and they can not give due attention toward their students. The scarcity of motivated teaching personnel or brain drain and loss of efficiency may be reduced through a system of incentives. 'Improving the quality of faculty is made more difficult by the ill-conceived incentives structures found in many developing countries' (The World Bank, 2000: 23).

Therefore, the educational services of teachers, researchers and administrators should be rewarded according to their performances. Similarly more attention should be given for teaching tools and other facilities. Class rooms are often not equipped with teaching

instruments like white board, overhead projector or beamer. The facility for internet is almost missing in normal classrooms.

Incompatibility of theory and practice

In a knowledge based society theory must reflect practice and vice versa. The compatibility of theory with practice can effectively bring positive change in the society. A practice oriented theoretical approach has to address the real problems of life. Theorization of societal concerns may help to solve these problems and improve the quality of life. Therefore the compatibility of theory and practice in teaching and research is a comprehensive tool of modern education. Higher education in developing countries often lacks links between university and industry. A 'top-down' mechanism has not reflected active involvement of industry in knowledge and innovation activities, and a 'bottom-up' experience usually faced great difficulties for broadening the impact of the technical solutions. A possible way to bridge this gap is to build complementarities between these experiences with the interaction of public and private sectors (Sutz, 2000).

Incompatibility of learning and examination

Compatibility of learning and examination means to examine what one has learnt. Learning means appropriation of knowledge. Learning process is initiated by individuals themselves and motivated or accelerated by the others. Assessment plays an important role in the learning process. Therefore, information about assessment shall be a part of ongoing learning process (Shepard, 2000). People have different capabilities and attitudes toward learning. Selection of a certain discipline by a student does not necessarily mean that the student is inclined to learn all possible aspects of that discipline. Very often students are inclined to learn particular aspects of certain discipline. A comprehensive education system has to integrate general and particular aspects of different disciplines in curriculum. Similarly a flexible system of learning and examining can be evolved by allowing individual choices. The appropriation of general and particular knowledge of a certain discipline by individuals can be purposefully utilized by organizations.

Lack of research activities

To do research after completing education is a misconception. Research should rather be accompanied by education. Research is not a piece of chain of a certain process, but a process in itself. Definitely there are well recognized

methods of research. However, these methods should be gradually applied in education so that a culture of research may be developed among students. During study students should become in habit of applying scientific methods at least in some areas of their study. Business organizations can not often carry out research activities to enhance efficiency due to lack of funds, personnel or research facilities. With the collaboration of academic research and business activities useful results can be achieved for the society. Recent growth in the higher education institutions of developing countries has diverted many public sector universities from pursuing research, and their financial situation is further diminishing their research capabilities (The World Bank, 2000: 25).

Lack of library and laboratory facilities

Libraries and laboratories are not only knowledge assets, but also symbols of congealed labour and capital of a society. They are the bases for transformation and accumulation of knowledge. Developing these facilities means strengthening knowledge based education. Thus they ought to be considered as strategic assets of educational system. The development and maintenance of these facilities is faced with certain problems in developing countries. Many public sector universities in Africa and Asia often devote up to 80% of their budgets to personnel and students maintenance costs, leaving few resources for infrastructure maintenance including libraries, laboratories, equipment and supplies, etc. (The World Bank, 2000: 25). Moreover, lack of awareness among users to use these facilities often causes great material and spatial losses. Therefore, it is necessary to develop a system of responsibility of users to avoid such losses.

Lack of group or project work

No society is in a position to achieve great societal objectives without contribution of group works. After the family groups are important organizational factors of a society. Group work may enable individuals to improve individual performance through group feedback. Working in groups can inculcate individuals to realize personal interests in line with social interests. Culture of team work at educational level can provide seeds for the development of social capital. Social capital facilitates the creation of new intellectual capital and strengthens organizations (Nahapiet, 1998). Joint efforts melt out different capabilities required to achieve organizational objectives. Development of cooperatives, clustering of small and medium enterprises and corporate businesses are some reflections of group working. Hence there is a

dire need to organize group or project work in education and research activities.

Organizational problems

There are a number of organizational problems, which can be solved or at least reduced after their identification. Some examples of such problems are given as follows:

Presentation of educational institution

Presentation, in this age of virtual communication and information, means a short but comprehensive introduction of an educational institution specifically on internet. In this regard an institution should have at least bilingual web page, in native and in English language, to increase international visibility and enable mobility of students and staff. A website is guided by the core functions of an organization (Niyitegeka, 2007: 323). The basic features of the institution including vision, objectives, administration, teaching and research plan, tools and facilities of education and research, scientific cooperation and partners and other vital links must be presented in a simple but cognitive style. All links should lead the readers to specified and actual information and the readers must be able to browse freely between specified and general information. Symbols are quite important for presentations. However, objective symbols are preferable than personal symbols, because objective symbols express the inspirations of the people more effectively than the symbols of certain personalities. The objective symbols should primarily be composed of the subjects and objects of learning and research activities. They should express the aspirations of the students. Personal symbols should be confined to the personalities, who have greatly contributed for the development of education and research.

Learning plan, information and coordination

Learning plan generally includes plans for study, research and examination. What subjects or courses are offered? What is the duration of these courses? When and where these courses take place? Who are the instructors or supervisors of these courses? How these supervisors are to be consulted? What are pattern of examination? All such questions are addressed in a concise but comprehensive programme or plan. This plan may also include information like registration of students, academic services, hostel facilities, sport programmes, etc. The plan should be published well in time in book or virtual format. In this regard e-learning could be a cost effective device to disseminate information about various

study programs, coursework and its contents, research activities, teachers' strategies, planning and thinking, and student experience of learning (Shirley, 2001: 240)

Supervision of students

One of the missing links in the educational system of developing countries relates to the supervision of the students. Teacher and student together form a body of learning. The cohesion of this body is founded on mutual trust. Without trust no cohesion, without cohesion no body of learning. How can this trust be created and strengthened? It can be created through didactic qualities and close supervision of the students. In many developed countries teachers maintain close contacts with their students and they are well aware of strong aspects and weaknesses of their students. Usually these contacts are maintained through periodical (weekly) visiting hours. During these hours the students may discuss their problem or plans of study and research with their teachers or supervisors. Through exchange of information and recommendations different strategies can be adopted to overcome obstacles. A study on teacher-student relationship in the USA has provided evidence for substantial positive effects of this interaction on the academic and professional outcomes of the students (Kuh and Hu, 2001: 309).

Division of work

Work can be divided according to the function of work and the ability of workers. Functional guidelines are derived from the objectives of institutions. Efficiency of work could be achieved through a proper combination of inputs of work (that is, workers, machines, etc.) and a division of work among workers according to their functional ability. Work can also be divided into internal and external sphere. In internal sphere work or the ability of work is produced and in external sphere work is expressed. An example of internal work could be the work of a teacher produced through studying of teaching material and preparing himself/herself for teaching. Similarly research work of a researcher or administrative work of an administrator falls into same category. On the other hand teaching or supervision of student by teacher is the expression of work and therefore falls into the sphere of external work. Other examples of external work could be the expression or reflection of research work by a researcher or dealing with clients by an administrator, etc. The division of work enhance the efficiency of work and workers in favour of the clients of work. A more extensive division of work raises productivity because returns to the time spent on tasks are usually greater to

workers who concentrate on a narrower range of skills (Becker and Murphy, 1992: 1137).

Semester system

There exists a two semester system in many countries of Western Europe, namely summer and winter semester. Generally summer semester has a short duration from April to July and winter semester has a relative long duration from October to February. The duration of semesters is legitimized by climate. After summer vocation school education comes to an end and students normally start studying at university in winter semester. Summer semester is usually used for advanced studies and examinations, but basic courses are also offered in this time. The semester holidays are used for different purposes. Teachers may use them for research, reading and preparing themselves for next semester, taking part in different short courses and conferences as well as recreation. Students may use them for financing their studies by doing work, preparing themselves for different courses and examinations, internship and project work, reading and writing thesis as well as recreation. The timing of semesters of different universities generally correspond to each others. Therefore teachers and students are in a position to plan for work in semesters and holidays. They can easily shift from one university to other without losing time and money. By visiting different institutions and exchange of information both teachers and students may update their educational knowledge. In this way life in university is connected with the life of general society. A lack of link between university to university, university and society, work and recreation, as it often happens in most of the developing countries, may cause losses of time, money and efficiency. Such losses can be reduced by introducing a uniformed system of semesters and holidays. Irrespective of these benefits it is seldom possible to replace the existing annual system of developing countries with semester and credit system without some modifications, development of supporting infrastructure, and understanding of the context in which the system can be applied (Regel, 1992: 36).

University campus

In some developing countries, where the majority of population is inspired by Islamic faith, university's campus is divided into men and women section. This division of campus may create extra costs and loss of efficiency. Extra costs may be incurred due to repetition of teaching and research activities for men and women. The division of resources may end with a loss of efficiency in both campuses. Due to certain historical

reasons it may not be possible to have qualified personnel and appropriate infrastructure at both campuses. A concentration of academic activities in men campus may result in a loss of efficiency in women campus and vice versa. Keeping in view low level of spread of education among women, the efficiency loss by women may probably be greater than by men. In order to avoid extra costs and loss of efficiency two alternatives can be examined on merit basis. Firstly, university campus should be divided into men and women wing. This is definitely a twin-universities model. Let us assume that sufficient funds are there to organize both wings efficiently. Let us also assume that same courses are taught in both wings. How social articulation of men and women will take place after completion of study? Secondly, we may have a system of coeducation. Islam does not prohibit the social articulation of men and women, if it is within the limits of Islam. If Muslim men and women can perform pilgrimage together and Muslim women can pray behind Muslim men in a mosque, why then Muslim men and women can not sit in a class room in same or similar order? Similarly, rooms can be created for men and women in libraries and laboratories. The social articulation of men and women within Islamic limits at the level of university will positively influence the social articulation of Muslim men and women in the society at large. This may greatly contribute to the welfare of society. It is tradition rather than Islam itself that has constrained female education and created opposition to coeducation (El-Sanabary, 1993: 151).

Communicational links

Institutions of higher education in developing countries often lack communicational links with other universities at national and international levels. The relations of educational institutions of developed countries at international level are usually regulated through International Relations Office. Previously many universities had an office for public relations. However, the function of this office was limited to the public relations of university. With the development of inter-linkage of educational institutions and expansion of student exchange programmes there arose a need to have a competent office for the regulation of international educational affairs. Presently, many universities in Europe are equipped with this office. In Germany this office is usually called as International Academic Office. The function of this office can be manifold. It can be a platform of information about mother institution. It may also provide information about other educational institutions. It can regulate the international affairs of internal students and it may accommodate foreign students in mother institution. Development of inter-universities relations at international level is also a task of

this office. International exchange of students, academics and researchers as well as international conferences, workshops and other meetings are coordinated and facilitated through this office. Even in some universities the acquirement of external financial support for education and research is regulated through this office. Work at this office can be divided according to the nature and intensity of work.

INTERNATIONAL COOPERATION

International cooperation among educational institutions of higher learning is quite important to accelerate the pace of development. It can be a source to fill the gap between demand for and supply of higher education. For scientists in developing countries, the paucity of contact with the institutions of developed countries is often an impediment to their creativity and productivity. They lack a direct pipeline into current scientific awareness and lack opportunities for mainstream publications (The World Bank, 2000: 80). Through exchange of information knowledge can be updated and it may be an input for innovation. Updating of information can be a great source for expansion in the stock of available knowledge. Exchanging information also means confidence building. It contributes to a healthy development of organizations on mutual basis.

Rationale of cooperation between developing and developed countries

A number of scholars have worked on the rationale of international cooperation in the sphere of higher education (Scott, 1992; Warner, 1992; Davies, 1992; Johnston and Edelstein, 1993; Knight, 1997; De Wit, 2000). According to Knight there are political, economic, academic and cultural rationales of internationalization of education. Political rationale is based on security, stability, peace and ideological influence. Economic rationale emphasizes the importance of human resource development, economic competitiveness and institutional income. Academic rationale stresses to improve the quality of education as well as to achieve international academic standards in teaching and research. Cultural rationale explores the significance of improving inter-cultural understanding (Knight, 1997: 9-11).

Scope of international cooperation

Educational institutions of higher learning and research from developed countries, specifically from the transatlantic region (including USA, Canada and Western Europe), can be ideal partners for developing countries.

The main reasons underlying such cooperation can be summarized as:

- (a) Geographically speaking transatlantic region can be easily accessed by most of the contemporary developing countries of Africa, Asia and Latin America.
- (b) Most of the transatlantic and developing countries believe in regional and international cooperation and are interested in a multi-polar world.
- (c) Both sides are interested to develop efficient and sustainable structures in their respective countries and regions.
- (d) English language, which is used as media for education, can play a vital role for educational cooperation.
- (e) Transatlantic region has a well developed system of education and research. However, the system in developing countries needs to be updated and expanded.
- (f) Transatlantic region has already achieved an advanced stage of agricultural and industrial development and at present efforts are made to modernize its services sector.

Developing countries need to develop their economies of farms, industries and modernize services. Cooperation in education and research may produce new input for economic growth and social welfare in both regions.

Transatlantic region has well established democratic structures, whereas developing countries are relatively new democracies and wish to restructure and strengthen their institutions. Keeping in view the growth potential, the level of representation of each region in the other region could be upgraded. However, there are certain difficulties that can be removed through concentrated efforts. The image of each country/region has to be improved in other country/region. The necessity of reflection is greater for developing countries than in developed countries. Transatlantic region has almost a stable democratic system. Its institutions have already reached a certain level of maturity. The structure of power and decision making is widely decentralized. The infrastructure of education and research is quite developed. There exists a linkage between science and society. Therefore, basic institutional structures in developing countries have to be organized on democratic principles. The structure of decision making must be transparent and defined. In this regard media can also play a positive role to reflect civil society.

Another difficulty of cooperation is the internationalization policy of transatlantic countries. The policy is primarily based on the organizational ethic and geopolitical constraints. Transatlantic, specifically European, organizational ethic is strongly influenced by neighbourhood and regionalism. The creation of custom union, formation of nation states as well as European and North American integration are some examples of this ethic.

The rationale of this ethic can be found in the development of transatlantic relations between Europe and United States of America. After reunification of Europe the geopolitical constraint and expansion of European community have accelerated this trend. In other words internationalization policy of transatlantic countries seems to be inspired by a scale of preferences, that is, transatlantic region, developed countries of non-transatlantic regions, newly industrialized countries and developing countries. Keeping in view this internationalization policy, the opportunities and benefits of cooperation for each region/partner should be identified. What I get with cooperation and what I lose without cooperation? This approach requires transparency, reciprocity and interdependence.

How to create an international cooperation for higher education? It is not quite easy to achieve this objective despite of the fact that both cooperating partners can get the benefits of cooperation. Difficulties of creating cooperation may be manifold including difference of climate, culture, language and interests. Sometimes physical distance may also be a hindrance. Different pattern of organizations may also hinder the development of cooperation. Organizations can be different due to their stage of development. Difference of approach regarding time and work may also create problems to meet ends. Therefore, no unified method can be applied keeping in view the heterogeneous nature of possible obstacles of creating cooperation.

One way of addressing this problem is to organize bilateral visits. These visits can serve to create confidence and give opportunity to know partners and institutions. We must know people to win them for cooperation. People often like their traditions. Therefore, it is important to know the traditions of other people for better understanding. Through bilateral visits both sides get opportunity to assess the advantages of cooperation. This may also help to identify certain problems. The problems can then be sorted out according to their intensity.

Similarly, cooperation may take place on mutual basis at the level of students, teachers, educationists, researcher and administrators. Certain exchange programmes of mutual interest can be negotiated with the educational institutions of the developed countries. Exchange of information can also take place through joint research and publication work. A prominent feature of cooperation relates to graduate and postgraduate studies and research activities. This element of cooperation can upgrade educational and research institutions both in qualitative and quantitative term. At many universities in transatlantic countries one may get higher education in most subjects without restriction. In some cases scholarships are granted to the deserving students to cover the tuition fee and other charges. Another form of cooperation is to get consultancy services or scientific

collaboration in order to expand institutional infrastructure. In this way operative institutional structures can be expanded or new structure can be created.

Having said that now we proceed to the possibilities of upgrading the level of education and research in the institutions of higher learning of developing countries. The process of upgrading may take place in various stages, that is, observation, examination, experimentation, adoption and re-evaluation:

(a) We have to start with observing different structures of educational and research institutions of a developed country like USA. This may primarily include legal, administrative, educational and research structures of an institution.

(b) After observing these structures we may examine the relevance of these structures for the institutions of a developing country. This may be done by comparing the structures of both countries on certain criteria of efficiency.

(c) After having analysed the efficiency of certain structures one may experimentally introduce these structures or parts of them in the institutional setup of a developing country.

(d) A successful experimentation may end with an adoption or partial adoption of structure. Foreign structure may also be modified and adapted according to local requirement.

(e) Adoption of new structure in itself is not an end, but a means to achieve certain objective. The objective of this exercise is to upgrade the level of education and research. Therefore, new or modified structure must be useful, efficient and sustainable to meet the requirement of developing institutions.

For international cooperation selective excellence is an important strategy, where countries focus on building strength in a few selected scientific disciplines or areas which should correspond closely with a country's need and its comparative advantage (The World Bank, 2000: 82).

Despite a measured policy of internationalization there exist willingness on behalf of the transatlantic institutions, specifically from North America and Great Britain, to have partners for scientific cooperation from developing countries.

Experience of international cooperation

Some recent examples of successful cooperation between the institutions of higher education of developing and developed countries are mentioned as:

i) Rockefeller and Ford Foundation of USA initiated

Consultative Group on International Agricultural Research (CGIAR) with the assistance of World Bank and UNO agencies to address agricultural issues such as rice production, agro-forestry and irrigation. CGIAR experts trained scientists in developing countries who developed new varieties of agricultural products as well as appropriate methods of soil and water conservation. Thus, CGIAR effectively contributed toward green revolution to augment the provision of international public goods (CGIAR 2008).

ii) Similarly, University Science Humanities and Engineering Partnership in Africa (USHEPiA) was launched in 1994 with the cooperation of developed countries, specifically from the USA, to develop a network of African researchers capable of addressing the developmental requirement of Sub-Saharan Africa including universities in South Africa, Botswana, Kenya, Tanzania, Uganda, Zambia and Zimbabwe. USHEPiA facilitated educational exchanges of graduate students, lecturers and postdoctoral fellows. It promoted collaborative research on problems challenging Africa. USHEPiA awarded 51 fellowships, 13 PhD degrees, 5 master degrees and 3 short fellowships up till 2002 (Caz Thomas et al., 2002).

Through international scientific collaboration a number of developing countries have taken steps to forge stronger links between their academic and industrial sectors. In Brazil this interaction resulted in the development of alternative fuel that replaced half the use of gasoline automobiles with renewable domestic resource of energy.

Another example of successful cooperation is the Indian Institutes of Technology. During 1950s few institutes were established in India as replication of technical higher education of transatlantic region. The institutes were heavily funded by countries like USA and staffed by highly qualified faculty from India and the funding countries. Today, the Indian Institutes of Technology enjoy international reputation (The World Bank, 2000: 81-84). Some of these institutes are among the top 300 institutions of higher education in international ranking (www.topuniversities.com).

Recently, the Higher Education Commission of Pakistan took great initiatives to upgrade the standard of higher education in Pakistan. In this regard funds were provided for improving human resources, academic quality, curricula as well as research and development. International cooperation was sought in different spheres including hiring of foreign faculties, experts and consultants at university level. Bilateral visits, international conferences and creation of linkages between universities and industries were facilitated. Moreover, students were sent to the developed countries for graduate/postgraduate studies on merit basis (www.hec.gov.pk). As a result of these measures some of the universities engaged in international collaboration

improved in national as well as international university rankings.

CONCLUSION

International cooperation in higher education and research can play an important role in bringing scientific achievements in developing countries. However, these countries are still far behind developed countries in terms of scientific and technological capacities and achievements. Many useful ideas, innovations and inventions cannot be realized due to lack of support from business, government or international stakeholders. Inadequate resources for higher education and lack of research traditions are among the main causes of the deteriorating position of the developing countries in science and education. Therefore, visionary leadership is essential to reform the system of higher education, provide support for strengthening the scientific capacities of the developing countries and to promote scientific cooperation. The challenges of 'global village' in terms of sustainable development and intercultural understanding can be addressed through international cooperation. In this regard the international organizations have a vital role to support cooperation between the institutions of higher education of developing countries and the centres of scientific excellence of the developed countries.

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