

**UNU/UNESCO International Conference on  
PATHWAYS TOWARDS A SHARED FUTURE:  
CHANGING ROLES OF HIGHER EDUCATION IN A GLOBALIZED WORLD  
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**THE MAIN THRUSTS OF UNESCO'S ACTIVITIES  
IN HIGHER EDUCATION**

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## I. Introduction

Institutions of higher education are critical catalysts for a country's adaptability and economic and social development, indeed its standing in the international competition for power and influence. Many countries are currently undertaking an overhaul and revamping of their university system – often at considerable cost and at a daunting scale. The quality of higher education will determine the scientific discovery, innovation and exploration of the future. While the competition among institutions of higher learning remains a powerful driver of innovation and change within individual countries or among some select countries, this competition now occurs increasingly and quite publicly at the global scale, as a consequence of the increased globalization of academic concerns. As policymakers, business leaders and universities must rededicate themselves to creating comprehensive learning and discovery environments, to ensuring quality education and to designing entirely new models and methods of teaching, UNESCO as the multilateral institution to promote international cooperation through education must review and adapt its orientations and engagement.

This must take account also of a new trend, namely the increasing privatisation of higher education especially in the developing world – where it has thus far been a virtual government monopoly. No longer will be affordable schooling for all, close to home, paid for by state and/or federal governments at all levels be the overriding guiding principle for all levels of education. Education is the largest and most costly societal system. It comprises 1.3 billion students and teachers in the formal educational system with a total public expenditure for education amounting to US\$ 1,400 billion – of which some 1,200 billion are spent in industrialised countries and only 200 billion in developing countries. Higher education alone is globally a US\$200 billion enterprise, involving 18 million students in almost 4000 public and private colleges and universities. This overshadows by far the often vilified military-industrial complex.

## II. UNESCO's strategic framework

UNESCO's Medium-Term Strategy articulates the strategic vision and overall programmatic direction for action in all of UNESCO's five domains at the global, regional and country levels for a period of six years. The current strategy will lapse at the end of 2007 and will be succeeded by a new one for 2008-2013, also called document 34 C/4. The roadmap of the 34 C/4 is translated into three consecutive biennial programme and budget documents (document C/5). The challenge is to ensure a **reliable linkage** and **coherence** between C/4 and C/5 ('**seamless transition**'). In the next period, all UNESCO action will be driven by and organized around specific and complex global challenges and problems, calling for a mobilization of all of UNESCO's core competences. **A broadened interdisciplinary** and **intersectoral engagement** are integral parts of the programming process.

A single unifying **mission statement** for the 34 C/4 – to be adopted by UNESCO's General Conference in November 2007 – will guide UNESCO's action across all its areas of competences. It reads:

***"As a specialized agency of the United Nations, UNESCO contributes to the building of peace, the eradication of poverty, sustainable development and***

## ***intercultural dialogue through education, the sciences, culture, communication and information”***

Clearly, higher education and research are poised to make a major contribution to this mission. - The strategy consists of five **overarching objectives**, of relevance for the entire Organization (not only a particular sector) expressing the unique core competencies of UNESCO and its comparative advantage and 14 **strategic programme objectives** which translate these overarching objectives into programme-relevant and thematic terms, combining both sectoral and intersectoral responses to the global challenges identified. Africa and gender equality are accorded priority in all of UNESCO's domains.

In implementing its medium-term strategy, UNESCO will perform five distinct, established functions, namely

- laboratory of ideas
- standard-setter
- clearing house
- capacity-builder in Member States and
- catalyst for international cooperation.

### **III. Towards knowledge societies**

In all domains, there will be a growing **focus on global knowledge exchange, networking, policy and advocacy**. Here UNESCO can capitalize on its comparative advantage – defined by its universality, its convening capacity, its mandate and advisory role in its areas of competence, its pluri-disciplinarity and its ability to mobilize and interact with various constituencies – governmental, non-governmental and the private sector. UNESCO, as a global clearing house and knowledge broker, collects, generates, processes, standardizes, synthesizes, disseminates, transfers and applies knowledge in a continuous cycle. The introduction of ICT innovations will open up opportunities for accelerating the flow of knowledge, making it more widely available and, often, enriching it in the process. UNESCO must follow a two-track approach: exploiting traditional technologies to the fullest and taking full advantage of new developments, maximizing the potential of ICTs to contribute to the realization of the MDGs. UNESCO is more than a mere broker of knowledge, rather it is well-positioned to contribute to a clearer understanding of the priorities for scientific knowledge and knowledge management. Worldwide, **knowledge societies** will continue to develop and grow. As a result, there will likely be fierce competition for knowledge within a global labour market, bringing about brain drain and outsourcing. Access to knowledge has become a question of social justice and a critical factor for individual development, careers and success. Capacity-building at various levels is a unique means to enable individuals and institutions to access, utilize and sustain knowledge and skills. UNESCO's efforts in this area comprise numerous components - both in education, including in particular higher education, as well as research and knowledge creation. The modern university is the ideal environment for the creation and transfer of knowledge that drives national competitiveness in an increasingly global era. Institutions of higher education are destined to play a fundamental role in knowledge societies, based on radical changes in the traditional patterns of knowledge production, diffusion and application. Over the past 50 years, these institutions – modelled for the most part on the European university –

have experienced an explosive growth in student numbers. Educational provision is becoming more varied as knowledge advances. Constraints on government spending are inducing more and more establishments to envisage other modes of financing, notably from private sources. As a result, higher education in most countries now consists of a complex network of public or private institutions – polytechnics, engineering faculties, business and management schools, distance education centres, research laboratories, or company subsidiaries.

While there is no single organizational model, it is important to ensure emerging systems of higher education a high enough level in terms of quality, relevance and international cooperation if they are to play their full role as key components in building knowledge societies. Generally speaking, most United Nations agencies, programmes and institutions have a purely sectoral approach to these problems. UNESCO is the only one in a position to undertake this mission in an interdisciplinary manner and to carry out the tasks needed to ensure the quality and relevance of systems of higher education, induce innovation, link it to science education and research, while at the same time furthering the development of international cooperation in this field.

In its 2005 World Report “Towards Knowledge Societies”, UNESCO has developed a set of ten recommendations for the attention of governments on all levels, governmental and non-governmental organizations, and the private sector and civil society. Let me adduce some of the recommendations pertinent for the present conference:

- *Invest more in quality education for all to ensure equal opportunity.* This must include a strengthening of the productive capacities of knowledge as well as an increased mobilization of resources in favor of education for all through a better partnership between developing countries, donor countries, civil society and the private sector. The contribution of institutions of higher education to lifelong education for all must be encouraged by adopting diversified class schedules and designing relevant formulae. All of these steps must benefit in priority the poorest and most marginalized populations, as well as vulnerable groups such as orphans and people with disabilities. Access to education and quality education must be thought of as interdependent and inseparable needs and rights. Education must teach learners how to cope with the challenges of the twenty-first century by encouraging, in particular, the development of creativity, the values of good citizenship and democracy, and the skills necessary for everyday and professional life. Education investments must aim to improve the learning environment and the status of all the teaching professions.
- *Widen the contents available for universal access to knowledge.* The main knowledge centres, such as institutions of higher education, research centres, museums and libraries, should play a greater role in the production and spread of knowledge through better networking made possible by low-cost high-speed connections. The availability and spread of knowledge in the public domain, especially in science, must be integrated into respective policies and laws. The creation of portals of protected works unavailable on the market should be encouraged – subject to the agreement of publishers and copyright-holders – by any entity interested in investing in them: libraries, companies, administrations, and international and non-governmental organizations.
- *Develop collaboratories: towards better scientific knowledge sharing.* Collectively managed scientific cooperation networks and infrastructures accessible to researchers from several countries and regions, including those working in

developing countries, should be set up. These collaboratories, which enable scientists separated from each other by huge distances to work together on specific projects, offer an outstanding way of sharing and spreading knowledge more effectively. Setting up collaboratories might lead to the creation of sustainable platforms for sharing knowledge, research and innovation between the planet's different regions, especially along the North-South and South-South axes.

- *Move towards knowledge certification on the internet: quality labels.* It is important to promote thinking about the technical and legal feasibility of knowledge certification norms and standards with the aim of ensuring users' access to a certain number of reliable, relevant contents, especially in the area of scientific information. With regard to the internet, it would be advisable to encourage the setting up of norms and objective guidelines enabling web users to identify sites whose information is particularly reliable and remarkable because of its quality. The definition of norms and standards, necessarily a multidisciplinary task, could unite the efforts of public and private educational, scientific and cultural institutions, as well as the relevant international non-governmental organizations. For example, it could lead to the introduction of quality labels covering a very wide range of knowledge.
- *Increase women's contribution to knowledge societies.* Gender equality and women's empowerment must be at the heart of the constituent principles of knowledge societies. The public domain of knowledge must include the contribution of women's specific knowledge. It is important to facilitate women's acquisition of skills and abilities that meet their specific development needs. It will also be important to work towards eliminating gender disparities with targeted measures, such as creating scholarships for girls, setting up special times to allow women in developing countries to become familiar with the internet, increasing the number of female teachers, promoting continuing training opportunities for women and taking steps to encourage their access to scientific research and technological engineering.

#### **IV. Education – UNESCO's vision and role**

Ever since its inception in 1945, UNESCO has a long history in higher education and the field of scientific research. However, this paper will only focus on the developments and orientations over the last decade.

Education is at the heart of sustainable human development and is the key means to achieve the Millennium Development Goals (MDGs), in particular its overriding goal of halving poverty by 2015 and the objectives of the two education-related MDGs. Human security and economic prosperity depend on the ability of countries to educate all members of their societies to be prepared to thrive in the rapidly changing world. An innovative knowledge society prepares its people to not only embrace and adapt to change but to also manage and influence it. Education enriches cultures, creates mutual understanding and underpins peaceful societies. UNESCO reaffirms the vision of education as a human right and as an essential element for the full development of human potential. It will particularly focus on bringing all the benefits of education to the poor, to women and girls, to the excluded, the marginalized and those with special needs - especially in Africa and in least developed countries.

UNESCO's strategies, approaches and modalities of action will take as their basic tenets the following, which pursue the six Education for All (EFA) goals adopted at the 2000 Dakar World Education Forum:

- education is a human right;
- education includes both formal and non-formal systems; and
- education for all refers to all levels of education, i.e. early childhood to higher education.

UNESCO works on all aspects and levels of education, from early childhood to higher education including formal and non-formal approaches, in a holistic, system-wide, value-based and integrated manner. UNESCO will continue to ensure global EFA coordination and assist national leadership through policy advice and capacity-building to achieve the six EFA goals. It pursues its mandated role in coordinating EFA partners and maintains their collaborative momentum towards the attainment of the six EFA Goals and the education-related MDGs. The "Global Action Plan: improving support to countries in achieving the EFA Goals" provides the platform for collaborative action in support of country efforts to achieve the EFA goals by 2015. UNESCO is also monitoring the progress made by preparing the annual *EFA Global Monitoring Report*.

Beyond, UNESCO provides a platform for intellectual and thought leadership aimed at promoting dialogue and exchange of information among all educational stakeholders on issues, themes and factors that have an impact on the quality of education. It promotes development and implementation of innovative practices in the field of education to improve, monitor and assess education of quality, document and disseminate such practices and assist in setting standards, norms and guidelines for action. This includes the integration of innovative ICT-based approaches in learning at all levels of education and in teaching, including the development of ICT competency standards for teachers. UNESCO is developing on-line educational applications and repositories of open educational courseware.

UNESCO's normative actions to promote quality education as a fundamental right seek to enable people to manage and respond to a changing and challenging world which demand different skills and knowledge; critical thinking and innovativeness; as well as the ability to absorb and analyze information. Quality education will be grounded in international and regional legal instruments, including the Convention and Recommendation against Discrimination in Education, the Convention and Recommendation on Technical and Vocational Education, the Recommendation concerning the Status of Higher-Education Teaching Personnel, and the Recommendation on the Recognition of Studies and Qualifications in Higher Education. Teachers remain the critical element for successful learning outcomes. HIV/AIDS is a threat to both expansion as well as raising the quality of learning, and must be addressed at all levels.

Moreover, UNESCO draws on the contribution of research policy networks working on obstacles to the implementation of the right to education. Educational reform and innovation at country level is being supported both through the provision of technical assistance and policy advice and through institutional capacity development in policy and planning as well as implementation, monitoring and assessment of achievements.

All this is exceedingly relevant for higher education. Higher education is also closely linked to the natural and the social and human sciences, which are critical for poverty alleviation and sustainable development. A primary role of UNESCO is to support Member States to develop their national science, engineering, technology and innovation policies, to build individual and institutional capacities, to strengthen higher education, innovation and scientific and technological research, to foster regional and sub-regional cooperation and collaborative research, and to spread scientific results. Dialogue, cooperation and networking, among various stakeholders and centres of excellence as well as South-South and North-South cooperative programmes are particularly important features of such efforts. The promotion of science, engineering and technology, as well as environmental and ethics education at all levels is indispensable in this context.

## **V. From the 1998 World Conference on Higher Education (WCHE) to the intersectoral platform to strengthen national research systems**

The Organization has been working for decades to assist Member States, their higher education institutions and other stakeholders, especially with respect to the follow-up to the World Conference of Higher Education (WCHE), held in Paris in 1998. Furthermore UNESCO engaged in

- consolidating and strengthening the UNITWIN/UNESCO Chairs Programme;
- promoting quality assurance and accreditation and the academic mobility of students and staff
- developing policy options for an education response to emerging challenges of the knowledge society, such as the internationalization of trade in higher education and to all forms of cross-border provision of education;
- supporting Member States to improve the quality of teacher education and in taking account of the emergence of a new professional role for teachers; and
- strengthening national science and innovation systems for higher education and research.

WCHE provided the basic international framework for action in the area of higher education through the adoption of the 1998 [World Declaration on Higher Education for the Twenty-first Century and Framework for Priority Action for Change and Development of Higher Education](#). The debates yielded basic principles for higher education development worldwide, involving, *inter alia*, a global network of 400 focal points, an international follow-up committee (60 experts) and five regional committees (60 experts) linking specialists to monitor renewal and to stimulate action at national, regional and international levels. 600 WCHE documents can be consulted on the electronic archive via the WCHE website ([www.unesco.org/education/educprog/wche/index.html](http://www.unesco.org/education/educprog/wche/index.html)).

As a follow-up activity to both WCHE and the subsequent 1999 World Science Conference, held in Budapest, the UNESCO Forum on Higher Education, Research and Knowledge was established in 2001 in order to strengthen research and knowledge management as drivers of economic and social development in Member States and for the pursuit of the MDGs, especially poverty eradication and sustainable development.. It constitutes a platform for researchers, policymakers and experts to engage critically with research issues and research findings. The objective is to widen the understanding of systems, structures, policies, trends and developments in higher education, research and knowledge. Every year, Global Forum events are organized at UNESCO. Parallel

meetings and activities are organized in the regions, contributing to shaping the global agenda. These activities serve to highlight and focus research areas and to bring out challenges facing institutions and countries. In this way, the Forum seeks to build on and complement existing and ongoing research, and to facilitate networking and synergistic partnerships between actors. The activities of the Forum are supported by a Global Scientific Committee and five regional Scientific Committees.

Five years after WCHE, UNESCO organised a WCHE + 5 event (Paris, 2003) bringing together its partners in higher education (over 400 participants from 120 countries) to identify changes that have taken place in higher education since 1998 and to discuss their consequences, to identify examples of good practice, and more particularly, to try to define future action at the level of Member States and of individual institutions. The next global event is envisaged for 2009.

The Draft Programme and Budget for 2008-2009 envisages an intersectoral platform on strengthening national research systems involving four Major Programmes of UNESCO and the UNESCO Institute for Statistics (UIS). It builds on the results of the 2004 and 2006 editions of the UNESCO Forum on Higher Education, Research and Knowledge. The platform shall also draw on the contribution of the UNITWIN/UNESCO Chairs programme, the results of the UNESCO-supported policy dialogue and capacity-building for the formulation of national science, technology and innovation policies, the strengthening of research-policy linkages in the field of the social and human science policy elaboration. The platform will aim at strengthening UNESCO's contribution to integrated approaches facilitating the creation and strengthening of national research systems, linked with the development and implementation of holistic science and innovation policies and a strengthening of higher education institutions, particularly in the least developed countries. It will also seek to identify and respond to national priority needs of developing and in particular least developed countries, with emphasis on the integration of national research systems and science policies into an overall national strategy for sustainable development. Furthermore, the platform will promote enhanced cooperation and networking with other United Nations entities, regional organizations, in particular the African Union, committed to a strengthening of science, technology and innovation strategies and the development of requisite national capacities.

Action will also seek to integrate the ethics of science and technology into the institutional framework of national research systems, in cooperation with national ethics and research committees, to monitor the contribution of national research systems to sustainable development, particularly of social development and to support research-policy linkages regarding social transformations and social development.

## **VI. Promoting quality assurance in cross-border higher education**

As a response to the ethical challenges and dilemmas facing higher education in an era of globalization, UNESCO launched in 2002 a Global Forum on International Quality Assurance, Accreditation and the Recognition of Qualifications. Its mission was to provide a platform for exchange between different partners and to initiate a debate on the social, political, economic and cultural dimensions underpinning the nexus of globalization and higher education. The participants agreed that there was a need to build bridges between education (i.e. academic values and principles) and trade in higher education services and that UNESCO, the World Trade Organization (WTO) and the OECD could act as complementary organizations providing a joint forum to address both the cultural and commercial aspects of trade in higher education. Furthermore, the



Forum agreed that existing instruments, such as the regional conventions on the recognition of qualifications, could be adapted to address new challenges associated with globalization in the context of the values put forward in the WCHE. As part of this framework, UNESCO and OECD jointly developed Guidelines for Quality Provision in Cross-Border Higher Education - finalised at the end of 2005 as an educational response to the General Agreement in Trade and Services (GATS) – which provided an international framework to promote dialogue and international co-operation between providers and receivers of higher education, with a special focus on student protection.

The Second Global Forum, which was held in 2004, examined challenges to “Widening Access to Quality Higher Education”, an issue at the heart of policy debates worldwide. It also proposed a strategy aimed at capacity-building for quality assurance and accreditation for traditional and cross-border higher education, based on a review of existing needs in different regions of the world.

The Third Global Forum to be held in 2007 in Dar-es-Salam, Tanzania, will deal with International Quality Assurance, Accreditation and the Recognition of Qualifications. It will focus on learners and the new higher education spaces as well as the challenges related to the recognition of qualifications and quality assurance. The Forum will also focus on, and further develop, the issue of providing learners with tools for informed decisions, and overall it will serve to foster South-South cooperation.

## **VII. National capacity-building for higher education and research**

UNESCO's work in the area of higher education – carried out by the Education sector and the six (category I) UNESCO Education Institutes - is very much linked to helping achieve the broader objectives of EFA and the MDGs. UNESCO has been working to build and strengthen the capacities of Member States at the national level, particularly in developing countries, countries in transition and post-conflict countries, to implement reforms of higher education systems, to establish new universities, also by promoting South-South and triangular South-North-South cooperation. The institutes have been providing training for teachers and national educational planners and administrators, in-service training on the use of ICTs for education and innovative pedagogy, and encouraging research and exchange with other education related training and research institutions. An example is the reform of higher education systems that was undertaken in South-East Europe through the UNESCO-CEPES project “Ten Years After and Looking Ahead: A Review of the Transformation of Higher Education in Central and Eastern Europe”. It resulted in 12 case studies on CEE countries, a position paper on the “Further Development of Higher Education in South-East Europe”, and a publication of the CEPES quarterly review *Higher Education in Europe*.

To strengthen the capacities of Member States, UNESCO has been providing assistance in developing new policies and strategies that ensure equal opportunity and wider access to quality higher education through mechanisms such as e-learning, distance education and electronic networking and assistance to teacher training institutions, especially in sub-Saharan Africa (see below). Several activities have been implemented with a view to introducing ICTs into teacher training curricula or providing ICT concepts to university instructors as well as to non-formal trainers through community centres. Sharing of experiences in using ICT tools and best practices has been promoted through regional and subregional efforts. For example, in Asia and the Pacific UNESCO Bangkok functions as a regional clearing house for ICTs in education

in the region. Through UNESCO's Fellowship Programme, the Organization has been contributing to the enhancement of human resources and national capacity-building.

UNESCO has also been working to revise conventions on the recognition of qualifications, and establish national quality assurance and accreditation systems through the application of the UNESCO-OECD guidelines in cross-border provision. In this regard, support has been given to developing regional recognition instruments (e.g. launch of the Arusha Convention); capacity building (e.g. Mediterranean Convention on Recognition of Diplomas and ICT-enhanced distance education, with an IIEP developed e-learning tool for quality assurance; implementation of a distance education course on international credential evaluation by CEPES); and the launch of a pilot project for designing an information tool on recognized higher education institutions.

### **VIII. The promise and impact of e-learning**

Several ICT-based networks and e-education approaches underline their potential for capacity-building. The Internet makes possible the virtually costless distribution of academic course materials around the world, potentially enriching the education of both individual learners and students enrolled in colleges and universities. Electronic access to books and scholarly journals that might enhance both education and research is expanding rapidly. These developments have great potential. In 2002 MIT inaugurated its Open Course Ware project. Today, two-thirds of its courses have materials available on line, free of charge. The course materials include syllabi, study guides, examinations, problem sets and assignments given to students, lecture notes in some cases, and, in a few cases, videotaped lectures. About 50 institutions around the world have followed MIT's lead in putting course materials on line, and the University of Texas has established a Web site that allows faculty anywhere to submit their course materials for posting. A recent survey showed that 77% of the off-campus users of MIT's materials are from outside the United States. It also revealed that 47% of the users are individual learners, 32% are students enrolled in classes at another educational institution, and 16% are teachers seeking to design or improve their own courses. Materials such as those posted on line by MIT have great potential for enhancing the quality of education around the world, especially if used judiciously by faculty to strengthen the content of their offerings. There is similar potential in the use of entire lecture courses from world-class institutions. The combination of on-line lectures and course materials developed by global experts with a local instructor to interact with students could become an exciting and effective new approach to strengthening the curriculum in universities around the world.

The objective of the ICT-based *Resource Centers Network* in sub-Saharan Africa is designed to enable the development of capabilities for delivering training in the countries of the Great Lakes region and to build the capacity of end users - learners, teachers, trainers, and managers. - The *African Virtual University project* represents another capacity-building effort of an intersectoral nature, aimed at forming local capacity for developing tertiary courseware and for developing a quality assurance policy and methodology. - The *Space for Science project* aims at the provision of scientific information and services to South East European (SEE) research and academic institutions in cooperation with peer entities in Western Europe, taking advantage of the instantaneous links provided by satellite technology. - UNESCO provides expertise to the *African Institute of Science and Technology* and participates in the design of the campus network and related teaching processes. -- The *Avicenna project* is a self-

sustainable virtual university, based on cooperation between institutions of Mediterranean countries. It focuses on the use of ICT-based knowledge centers to exchange course materials suitable to build capacities.

Research and higher education professionals have also been mobilized to contribute to policy developments in the social, cultural, scientific and economic spheres not only through the UNITWIN/UNESCO Chairs networks but also through other approaches: policy forums that bring together academic and research staff, university managers and officials from relevant government ministries (e.g. Global Forum); research publications and bulletins; and public/private partnerships (e.g. with Hewlett-Packard). Inter-university cooperation has been supported through the UNITWIN/UNESCO Chairs Programme, which serves to advance research, training and programme development in higher education by building university networks and encouraging transfer of knowledge across borders. Today 618 UNESCO Chairs and 67 UNITWIN Networks exist under the Programme, involving over 740 institutions in 125 countries. A number of UNITWIN/UNESCO Chairs have morphed into international networks (e.g. ORBICOM), and the Global Network for Innovation in Higher Education (GUNI) in partnership with the United National University, and the Palestinian, European and American inter-university cooperation through the PEACE Network (Palestinian-European Academic cooperation in education). Recently, a UNITWIN network has also been created among Chairs involved in intercultural and interreligious dialogue.

As a result, education decision-makers have been equipped to understand and respond better to global developments in higher education policy through publications (e.g. on implications of GATS) and capacity-building workshops (e.g. South Asian sub-regional workshop on cross-border regulation). Options for retaining qualified individuals to enhance national development have been piloted through increasing the attractiveness of higher education institutions (e.g. grid computing technology project) and through encouraging self employment and endogenous economic growth with entrepreneurship training.

## **IX. Teacher training**

UNESCO has been particularly active in providing global leadership in teacher training and related policy issues. UNESCO is tackling the critical problem of improving and expanding teacher education through action affecting teacher-policy and teacher education in sub-Saharan African countries, where troubled educational and working conditions, as well as the impact of the AIDS pandemic, have created significant teacher shortages and impeded teaching-quality. The aim is capacity-building of lead teacher training institutions, to substantially increase the numbers of qualified teachers, especially those in primary education. Increased attention will be placed on ICT-based programmes, especially for in-service professional development, and on flexible-intensive community-based initiatives that seek to increase teacher recruitment and training among women and educated unemployed.

To address the acute shortage of teachers in sub-Saharan Africa, where an estimated 4 million additional teachers are estimated to be required by 2015 to meet MDG 2 alone, - as mentioned above - UNESCO launched in January 2006 the Teacher Training Initiative for sub-Saharan Africa (TTISSA) to help increase the quantity and improve the quality of the teaching cadres in sub-Saharan Africa. The TTISSA initiative is linked to UNESCO's two other EFA core initiatives: the Literacy Initiative for Empowerment (LIFE)

and the Global Initiative on Education and AIDS (EDUCAIDS). Through TTISSA, the Organization will work to

- improve the status and working conditions of teachers;
- establish coherent management and administration structures;
- harmonize teacher policy and development goals; and
- enhance the quality and coherence of the professional development of teachers.

To achieve these goals, the Organization has been assisting Member States with policy development; reviewing, supporting, and producing evaluations/studies and toolkits; organizing regional workshops; and reviewing and developing teaching and learning materials for HIV/AIDS, literacy, life skills, education for sustainable development, science and technology education. All 46 sub-Saharan African countries will progressively participate by 2015 in TTISSA through a series of four-year cycles. 17 countries have been chosen as the initial reference group for 2006-2009. These 17 countries are: Angola, Burkina Faso, Burundi, Cape Verde, Central African Republic, Chad, Congo, the Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Madagascar, Niger, Nigeria, Sierra Leone, the United Republic of Tanzania and Zambia.

## **X. Promoting university networks**

Knowledge is expanding rapidly and diversifying through the establishment of new crosscutting disciplinary communities organized in the form of networks around international symposia and specialized research journals. International networks are an example of self-organization and their creation will spread rapidly within institutions of higher education.

The emergence of university networks does not however prefigure the eclipse of universities and academic institutions. There will always be a need for fixed geographical locations, laboratories and teaching institutions, bringing together researchers, lecturers and students, with permanent – and therefore public – sources of funding and hierarchical organizational patterns. However, the expansion and diversification of jobs, of knowledge and of the disciplines underlying them, mean that hierarchical structures may be supplemented by decentralized structures, organized along network lines. This kind of network organization is starting to develop within inherited institutions in both industrialized and developing countries. A policy-making lesson may be derived for the future: developing countries that have invested insufficiently in university-type institutions could and – above all, should – think of *investing in network organizations* that anticipate the foreseeable development of academic institutions. This is all the more advisable since the economic costs of academic networks are much less than those involved in the creation of large university establishments.

Paradoxically, the organization of research and higher education activities in international regional networks offers developing countries an unexpected opportunity to participate in the new international architecture now taking shape. There is a window of opportunity for the developing countries to participate in the university networks that are going to be set up and developed. In the follow-up to the 1998 World Conference on Higher Education, UNESCO has already contributed to this networking of higher education and research by creating and developing the UNITWIN/UNESCO Chairs Programme. Networking enables developing countries to establish a higher education

system or to improve its quality without having to wait to secure large investments or to be in a position to make long-term commitments.

IIEP supports a number of training and research institutions and networks, which include: the Asian Network of Training and Research Institutions in Educational Planning (ANTRIEP), the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ) and the ForGestion expert network for Latin America.

## **XI. Building higher education capacities for sustainability**

UNESCO can bring about a better understanding of sustainability, its underlying ethical premises and strategies to generate sustainable, healthy and safe living conditions for present and future generations. The Organisation is in a unique position to advocate the merits of scientific knowledge and to disseminate best practices and results widely through international cooperation. Furthermore, UNESCO will be able to facilitate dialogue and networking among the scientific community and to provide a bridge for interaction with decision-makers and the public-at-large. New research networks will work on a better understanding of the “right to enjoy the benefits of scientific progress and application” as stipulated in the Universal Declaration of Human Rights. Particular emphasis will be placed on promoting access to scientific knowledge – also through the use of media and ICTs - science education and education for sustainable development. All this will be done to foster the emergence of a *science culture*, which is an important component of inclusive knowledge societies, committed to gender equality and the mobilisation of youth.

Action will also seek to integrate the ethics of science and technology into the institutional framework of national research systems, in cooperation with national ethics and research committees, to monitor the contribution of national research systems to sustainable development, particularly of social development and to support research-policy linkages regarding social transformations and social development. Top priority will be given to Africa and action will be undertaken in collaboration with the MOST regional networks, relevant UNESCO Chairs, National Commissions, ISSC and regional social and human sciences consortia as well as entities such as CODESRIA in Africa and FLACSO and CLACSO in Latin America. UNESCO’s Social and Human Sciences Sector will undertake capacity-building in the field of ethics and bioethics at different levels, including institutionally and at individual levels through the Ethics Education Programme and the creation of networks of experts in ethics teaching.

To harmonize capacity-building efforts in marine sciences, and hence to maximize their impact, UNESCO’s Intergovernmental Oceanographic Commission (IOC), and in particular its capacity-development section, coordinates closely with other capacity-building efforts of IOC programmes and with IOC regional offices. Furthermore, IOC coordinates and collaborates its capacity-building efforts with the UNITWIN-Chairs, as well as with UIS and the UNESCO-IHE Institute for Water Education. In particular, this concerns an extensive survey of marine institutes and capacities by country, which could take the form of an atlas or world report on oceanography. - IOC Chairs have been integrated with the revamped UNITWIN-Chairs policy of UNESCO. In this context, marine science Chairs have been encouraged to coordinate projects that span a network of universities. As regards the engineering sciences, technical capacity-building activities conducted by UNESCO include a virtual library for engineering education and sustainable development in Africa, being developed at the University of Khartoum.

As a measure that will impact the development of capacities at the institutional level, a UNESCO Chair has been established for South-South Co-operation for Sustainable Development at the University of Para in Belem, Brazil. Furthermore, ERAIFT in Kinshasa, DRC, has committed to develop a programme of South-South as well as complementary South-North-South triangular activities research and capacity building exchanges focussing on the themes of biodiversity, climate change and sustainable development.

To further strengthen support to Africa, the Director-General has outlined in a report for the 177th session of UNESCO's Executive Board in October 2007 UNESCO's contribution to the implementation of Africa's Science and Technology Consolidated Plan of Action. African Heads of State and Government had adopted a Declaration in Addis Ababa in January 2007, which called on UNESCO to work closely with the African Union (AU) and its New Partnership for African Development (NEPAD) to implement the Plan of Action. To assist the AU/NEPAD in that regard, the Organization will focus on providing assistance in the areas where it has a comparative advantage in order to promote the *symbiotic relationship* between scientific research and higher education. In the area of higher education, UNESCO will work to build the capacity of Member States in science and technology by creating centres of excellence and strengthening national science systems for higher education and research; expand the UNESCO Chairs network; and ensure the implementation of sub-regional integrated scientific and technological education programmes, in particular the African Distance Training Networks. UNESCO will also provide support to assess the curricula of higher education institutions to ensure that they are capable of creating a critical mass of African scientists and technicians with the skills to engage in frontier life sciences and increasing access to, and sharing of, affordable state-of-art class research facilities for African scientists working in Africa in genomics, bioinformatics, gene technology, immunology, etc. Through its International Basic Sciences Programme (IBSP) and in close consultation with the Interagency Cooperation Network on Biotechnology (UN-BIOTECH), UNESCO will mobilize its networks and work with scientific NGOs to encourage intra-regional exchange and cooperation, including through the recently created Regional Center for Biotechnology Education and Training in India, a category II center under the auspices of UNESCO. Emphasis will also be placed on encouraging South-South co-operation with a view to strengthening existing infrastructure.

## **XII. Pathways for the future**

The forces of globalization have made possible greater international cooperation in higher education. Such cooperation can contribute to peace and security among nations. Encouraging the flow of students across national borders; facilitating international cooperation in research; and supporting efforts to make educational and scholarly resources freely available on the Internet, will help reduce barriers imposed by national legal systems.

“Of the forces shaping higher education none is more sweeping than the movement across borders. Over the past three decades the number of students leaving home each year to study abroad has grown at an annual rate of 3.9 percent, from 800,000 in 1975 to 2.5 million in 2004. Most travel from one developed nation to another, but the flow from developing to developed countries is growing rapidly. The reverse flow, from developed to developing countries, is on the rise, too. Today foreign students earn 30

percent of the doctoral degrees awarded in the United States and 38 percent of those in the United Kingdom. And the number crossing borders for undergraduate study is growing as well, to 8 percent of the undergraduates at America's Ivy League institutions and 10 percent of all undergraduates in the United Kingdom. In the United States, 20 percent of newly hired professors in science and engineering are foreign-born, and in China the vast majority of newly hired faculty at the top research universities received their graduate education abroad. " (Richard Levin, President of Yale University, October 2006 to the UNESCO Executive Board).

The bottom line is that the flow of students across national borders — students who are disproportionately likely to become leaders in their home countries — enables deeper mutual understanding, tolerance and global integration. Many universities are encouraging their own students to spend part of their undergraduate experience in another country. Universities are also establishing more ambitious foreign outposts to serve students primarily from the local market rather than the parent campus. And true educational joint ventures are gaining favor, such as the 20-year-old Johns Hopkins-Nanjing program in Chinese and American Studies, the Duke Goethe executive M.B.A. program and the MIT-Singapore alliance, which offers dual graduate degrees in a variety of engineering fields.

In the emerging knowledge societies, exponential growth in the quantity of knowledge produces a growing gap between those who have access to knowledge and culture, and learn to master them, and those who are deprived of such access. It is not sufficient to reduce the "digital divide"; we must also reduce the "knowledge divide", which is liable to grow exponentially. Training in the new information and communication techniques requires a high level of education, knowledge of English and the art of navigating in an ocean of information. Above all, it must not be accompanied by the temptation of compiling and juxtaposing information rather than using it as building blocks for constructing and organizing knowledge. The future of knowledge societies therefore rests in large measure on the excellence of the training of teachers, whose tasks and functions are destined to become more diversified in pursuit, among other things, of the objective of education for all. Hence, the importance of ensuring the relevance of higher education systems for the promotion of a healthy social and political climate within a country along with economic and cultural development. Political leaders should assign institutions of higher education a small number of crucial missions: producing, disseminating and upgrading knowledge; training teachers; and transmitting knowledge to society at large. Moreover, one of higher education's key functions should be to update knowledge, on a lifelong basis, in fields subject to constant changes. Institutions of higher learning are also places for dialogue and for the confrontation of viewpoints. This is why the new systems of higher education contribute not only to the production, transmission and upgrading of knowledge but also to education for citizenship.