UNIVERSITIES AS CENTRES OF RESEARCH AND KNOWLEDGE CREATION:
AN ENDANGERED SPECIES?
GLOBAL PERSPECTIVES ON HIGHER EDUCATION

Volume 12

Higher education worldwide is in a period of transition, affected by globalization, the advent of mass access, changing relationships between the university and the state, and the new technologies, among others. Global Perspectives on Higher Education provides cogent analysis and comparative perspectives on these and other central issues affecting postsecondary education worldwide.

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This series is co-published with the Center for International Higher Education at Boston College.
Universities as Centres of Research and Knowledge Creation: An Endangered Species?

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The UNESCO Forum on Higher Education, Knowledge and Research is pleased to present the book entitled *Universities as Centres of Research and Knowledge Creation: An Endangered Species?* This volume emanates from the Global Colloquium of the UNESCO Forum (Paris, 29 November – 1 December 2006) on this same theme.

It is important to situate this book in relation to the aims of UNESCO Forum and, thus, to contextualize the specific issues related to research universities today. The UNESCO Forum focuses on the role and status of national research systems and international trends in this domain in relation to the challenges posed by the knowledge society of the 21st century. Located at UNESCO and supported by the Swedish International Development Agency (Sida), the UNESCO Forum provides a platform for researchers, policymakers and relevant stakeholders to engage critically with the key elements unpinning research systems: *policy trends, infrastructure, human capacity, and investment*. This project has assured follow up action for two major UNESCO conferences, the 1998 *World Conference on Higher Education* and the 1999 *World Conference on Science*, and links closely to the intergovernmental programme for the *Management of Social Transformation (MOST)*, located in the Sector of Social and Human Sciences.

Since 2001, the UNESCO Forum has consolidated its efforts to bridge research and policy in a number of ways through facilitating and broadening the space for critical debate and through revisiting the established and dominant views so as to re-conceptualize future directions. To date, its various strategies for attaining these goals – *mobilizing experts, stimulating global and regional debate, producing and disseminating research, promoting strategic partnerships, facilitating communication and strengthening the systemic approach* – have yielded creditable results. The UNESCO Forum believes that it is central to reaffirm the importance of research at the current moment given the rapid developments since 2000 in knowledge production and management and their ramifications for social change and progress. Research on research has become, therefore, even more crucial and is now well recognized as a major field of enquiry for international organizations, charged with advising their member states about the questions involved. In this regard, the World Bank, the OECD and other important stakeholders are key partners of the UNESCO Forum.

The UNESCO Forum pursues a systemic approach to the analysis of research so as to address strengths and weakness, as well as specific issues and concerns, in a critical manner. This work will embrace research in both industrialized and emerging contexts, as well as researchers whether reputed or at the start of their careers. The central objective is to promote ongoing research and to place significant results in the public eye. Consequently, research may be more original, innovative and effective, thus leading towards more sustainable human development.

Today, unprecedented emphasis is being placed on research as key motor for advancing the knowledge society and its offspring, the knowledge economy. Con-
sequently, “research on the state of research” has moved high on the priority agendas for governments, for their specialized agencies and bodies devoted to this area, and for higher education institutions. Thus, it becomes essential to map and analyse systems to acquire an understanding of their functioning and of their future requirements. This systemic approach necessitates the study of specific issues arising from the various areas involved. In this regard, key challenges for research systems worldwide, and the contribution of higher education in addressing these, merit serious actual and forward-looking analysis.

Against this background, the central premise of the UNESCO Forum’s 2006 Global Colloquium was that research is a key ingredient in the institutional identity of universities and an indispensable prerequisite for a successful programme of teaching and public service. The Colloquium studied why major differences in research intensity and capacity exist amongst the world’s universities and what strategies are needed to moderate and overcome these inequalities. To address this question, there were three main foci: research capacity, research productivity, and research relevance and utility. The Global Colloquium emphasized that research capacity is a necessary but not sufficient condition for research productivity which, itself, must be assessed in terms of the utility and relevance of the results obtained.

Authors from twenty countries from all regions of the world analyse aspects related to the overall theme of this book, thus attesting to the diversity of issues facing research universities today.

We express our appreciation to the book’s editors, Professors Hebe Vessuri (Venezuela) and Ulrich Teichler (Germany) who are members of the UNESCO Forum’s Global Scientific Committee. Dr Daniel Lincoln (USA) is thanked for his assistance with the technical editing of the chapters. Many thanks go also to those who helped to turn the contributions into a camera ready manuscript, namely to Helga Cassidy and Dagmar Mann (Kassel, Germany).

Last but not least we would like to thank Dr Ana Lucia Gazzola, Director, UNESCO/IESALC, Caracas (Venezuela) and Dr Joseph Massaquoi, Director, UNESCO, Nairobi (Kenya), for supporting the realization of the project.

We wish to recall that a Summary Report of the 2006 Global Colloquium, authored by Professors Hans Weiler (Germany), Sarah Guri-Rosenblit (Israel) and Akilagpa Sawyerr (Ghana) captured the rich and varied outcomes of this important international conference. This can be consulted on the UNESCO Forum’s website (www.unesco.org/education/researchforum).

Both this book and the Summary Report of the 2006 Global Colloquium are intended to provide a global range of insights both for policy makers and for higher education and research communities. Cooperation between these bodies is essential to deal with the main challenges related to the role of research universities as central components of knowledge systems in the 21st century.

Mary-Louise Kearney
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Higher education is an essential institution of the contemporary world. One notes today efforts to harmonize the role and form of advanced learning across very different countries; attempts to avoid the pitfalls of a “one-size-fits-all” approach; the persistence of geographical (institutions are local) and temporal (institutions need time to evolve) specificities; and a renewed interest since the 1990s in the role of higher education institutions in economic and social development.

A recent analysis of the role and potential of higher education policy recognises that the latter is most often a mixture of idiosyncratic approaches, where emphasis is placed on the national characteristics of higher education systems. These approaches may be functional or political, support extreme or moderate vertical diversity, academic or utilitarian norms, and so on. The flow of influence has been multidirectional across countries and regions. Europe has historically provided the world with a range of models of the university but other regions, such as North America and particularly the United States, have also provided institutional blueprints to be adopted, adapted, deformed and recreated. The results are heterogeneous, and offer a broad range of novel combinations.

No matter how much change has been triggered, externally or internally, it appears that debates in both the developed and developing world have progressed through similar stages to the current iterations. Rich and poor countries face diverse problems, and their social contexts are widely varying, but this does not affect all aspects of the higher education system. In fact higher education institutions exhibit a remarkable number of similarities, independent of geography, resource base and historical tradition, and accelerating globalisation is leading to common configurations, problems and solutions.

This book does not aim to provide a worldwide balance of higher education. It primarily addresses the variety and gaps in higher education across the globe, concentrating on the challenges to transitional and developing countries. It addresses the related issues of research capacity, research productivity, and research relevance and utility. Research capacity appears as a necessary, but not sufficient,
condition for research productivity; and research productivity must be assessed in terms of utility and relevance.²

Blueprints and Realities

The public discourse on the strengths and weaknesses of certain configurations of higher education is ongoing, but for quite some time certain arguments have been popular in economically advanced countries. One of these is the notion of individual, “world-class” universities in a global setting; the competition implied in this notion was spurred by the success story of American elite universities, the highly stratified educational and social systems of some Asian countries, and the need for developing countries to concentrate scarce resources. The notion of the “world-class” university is closely linked to the idea of excellence in research performance, which has fired the imagination of many in the developing world, even where enabling conditions are lacking.

However this is not the only successful model available. In Europe, countries such as Germany and The Netherlands have ensured a similar level of quality across their universities. And while Britain and France accepted a certain degree of vertical diversity, they also have strong mechanisms to keep differences of quality within limits. In this region a “gold standard”, i.e. a normal standard that is widely applicable, can thus be identified. The opportunity for student mobility between universities during the course of study in most European countries has not been undermined, and a relatively open labour market for all graduates remains in place.

By contrast, in the USA a highly stratified model of higher education is the object of both high praise and harsh criticism. In discussing the essential characteristics of research universities, Bienenstock draws on the experience of the Ivy League institutions. Among their characteristics he emphasises the high-quality academic staff committed to research and teaching, an intellectual climate that encourages scholarship, facilities in which teaching and research can be performed effectively, funding for operations, instruction, and research, and high-quality leadership. The Ivy League universities are among the foremost institutions of the world; yet there is mounting doubt whether they may legitimately and usefully be taken as a yardstick for all other institutions. The 10 or so institutional members of the Ivy League, which have long flourished as the very top institutions in the USA both socially and academically, increasingly see their predominance defined by the great magnitude of their wealth —relative to their modest size, and to the rest of the higher education universe.³

This notion of the research university is propagated by international organisations in their advice to policy-makers in peripheral countries, through an idealised model of research performance and productivity; these “recipes” are in turn reproduced without sufficient analysis or critique. The dominance of the North American model and its idea of the university exercise a powerful and often disruptive influence on the world scale, and they are unrealisable even across the rest of the USA.
As Ordorika poignantly argues, harnessing public research universities in developing countries to the new economy and the hegemonic discourse of globalisation has implied both a reduction of public resources and the privatisation of higher education supply and financing. Standardised measures of academic output become an international homogenising force that throws universities of diverse origins, traditions, and roles into a competitive arena, in uneven conditions and with unequal chances of success; this naturally erodes public universities’ commitment to the broader society. In the narrowly defined idealisation of the North American elite model, the implicit message of “do as we do” may be harmful and dangerous when it is held up elsewhere as the only framework for good practice.

Critics of highly stratified systems argue that debates have taken a different direction in rich countries, particularly with regard to perceptions of credential value (as an entry-level qualification for higher-level careers); in several European countries for instance, a university degree implies the right to embark on a career, and to practice in related professional areas. Also, the American model as commonly recognised corresponds more to the Ivy League than to the American state universities, whose roles and missions are more complex and contradictory. In the current quest of ultra-elite institutions to gather talent from all over the country, public schools are being drained accordingly; this polarising effect is as damaging in the United States as it is in the rest of the world. All the news from developing country institutions has long included great concern with brain drain, which draws their best human resources away to opportunities in the North.

An example of this is enunciated by Varghese writing with regard to India, notes the aggravating chain reaction and comments that in India, “… major research establishments have abandoned their efforts to locate eminent scholars”. Recent trends in secondary and tertiary education sectors are moving towards non-science courses, and science seems to be losing ground to other disciplines, particularly professional courses. A few universities have even closed down their basic science departments. Varghese also highlights an increase in the number of Indian students seeking admission in foreign countries, particularly the USA. He envisages that if the emigration of brilliant scholars to other countries continues, India will face a shortage in R&D personnel very soon.

The New Public Management Movement

Governance reforms in the last decade in several European countries, and major developments in their research policies, were inspired by so-called New Public Management (NPM). Cutbacks, deregulations, and privatisations were deliberately employed to alter the structure and policy development process of public sector organisations, with the purpose of making them more efficient and effective. Leišytė analyses how research policies are perceived by several research units in England and The Netherlands, and explores how basic research units respond to this changing institutional environment. While some of the policy changes are perceived as possible enablers, others are seen as a threat to research units’ core activities. According to Leišytė, the perceived threat to basic research is that the choice of research problem, traditionally self-driven, becomes driven by external...
users; and this happens despite the strategic responses of these units to seal off their preferred research problems. In another defence mechanism, researchers tend to address their research to mixed audiences, staying within the mainstream rather than innovating.

Such groups are increasingly resource-dependent, due to a reduction in unconditional university funding; they increasingly have to “earn their money”, internally via teaching or externally via competitive research funding. Success or failure in the acquisition of new research skills, and the gain of credibility in basic research units, thus has serious implications. Yet the strength of the research base for innovation lies in its diversity, and placing too much pressure on “building on excellence” policies can undermine this broader base. Managerial models that require industrial developments to drive change must be carefully revised before they are applied.

Leišytė’s recommendation is particularly relevant for developing countries, characterised as they are by additional insufficiencies in human resources and innovation systems. In this context, elements such as the indicators and measurements of periodic Research Assessment Exercises (RAE) become much more problematic, if they are not altogether absent. Due to the inattention by legislative bodies to academic accreditation matters, a great many academic curricula have lost track of the evolution of knowledge in very competitive markets. At the same time, internationally recognised and standardised testing processes may not be suited for countries whose languages of instruction differ from those of the assessing bodies. Many developing-country universities have their own methods of assessing applicants due to limited resources, but these tend to become obsolete.

Assessment of the students, programmes and institutions of developing countries is thus a key concern. Khasawneh et al. observe that the list of the Times Higher Education Supplement, ranking the world’s top 200 universities, features very few academic institutions from developing countries. They attribute this to the fact that, for the most part, the ranking institutions also happen to draw on industrialised economies. Countries of the Organisation of the Islamic Conference (OIC), for example, had only one university in the Times list (the Malaya University), an inclusion the authors attribute to the existence of some core basic industries in Malaysia. Related to this growth of interest in competition and institutional promotion, Abdul-Razak and Mohamed describe the clearly managerial strategy (flowing from the NPM rhetoric) pursued by university officials at the Universiti Sains Malaysia to promote the research dimension as a way of life and institutional norm among its academic staff.

Since 1976, Brazil has developed an original and valuable evaluation system of graduate programs through the Coordinating Agency of Evaluation of Graduate Programs (CAPES), and Ribeiro rightly argues that evaluation is increasingly a tool for policy-makers and programme administrators, and not only for rankings. He points out that although there is broad agreement on the quality and efficiency of postgraduate education in Brazil, thanks largely to CAPES, the Brazilian educational system as a whole still suffers from notable insufficiencies: most students who go into private, for-profit higher education institutions in order to get a first
degree in Law or Business are unable to practice their respective professions because the professional associations do not consider that they satisfy minimum standards. No more than 10 percent of Law degree holders are allowed to practice by Brazilian Bar Association; no more than 30 percent of Business degree holders work in their field; and only some 70 percent of medical doctors exercise their profession. Ribeiro calls for greater involvement of the postgraduate system in the revamping of previous levels of education, starting with undergraduate programmes where minimum standards of quality should apply. “Mandatory solidarity” will be in place from 2010, where stronger institutions and programmes in the South-Eastern and Southern part of the country will be urged to proactively help those in the Amazon region, the Northeast and the Centre/West.

The Elusive University-Industry Link

A number of contributions in this volume emphasise the production of human capital to support and sustain national development goals. The university is seen as having to fulfil manpower needs, presumably through emphasis on undergraduate teaching and on teaching institutions in general. These contributions start from the diagnosis that developing countries are suffering not only from low-quality tertiary education, but also from a lack of industrial research—a consequence of the missing core industrial base. In past decades many of these countries relied on natural resource exports to drive their economies, and very few have managed to foster the emergence of an industrial core.

Since the early 1990s some of the most dynamic developing economies have reduced the economic gap, both in terms of R&D investment and scientific impact. But this catching-up is uneven in terms of how much countries are committing to R&D and innovation (relative to their economic size) and what they are able to generate in terms of impacts and outputs. The differences seem to be rooted in the specifics of each nation, which need to be better understood and compared. In Latin America for instance, interest in university R&D and its participation in the wealth creation process is noticeable in several countries but local governments finance most of the research carried out in Latin American universities; the results obtained are mostly in basic research. Yutronic recounts the case of Chile, where since the beginning of the 1990s the government created mechanisms to increase R&D investment, foster links between universities and companies, and attract industry investors. One of these stimuli is competition among technology-based consortia, the latter made up of companies and universities from Chile and abroad.

New Market Conditions: Inequality and Irrelevance

The realities of the marketplace suggest that the disproportionate influence of a small number of institutions—and the inequities this fosters—will only grow, accelerating the deterioration of many others that have a vital role to play in training the next generation. This is the subject of passionate debate worldwide, and flows from globalisation and its ensuing social and cultural transformations. One
argument for globalisation is its potential for poverty reduction in the developing world, through the creation of an environment more conducive to economic growth and knowledge transmission; this requires closer scrutiny. The principal manifestation of openness is trade liberalisation and capital movement, which presumably affects growth. However growth has been empirically shown to relate to inequality, particularly with regard to income distribution. Inequality also underlies many phenomena that, at least potentially, could delay growth and poverty alleviation: chief among these are social and political instability and conflict. In short, poverty reduction requires a combination of higher growth and a more “pro-poor” distribution of its gains.

Empirical evidence shows that in early development stages, the growth of agriculture has a far greater impact on poverty than that of other sectors. Technical progress and innovation, on the other hand, are heavily dependent on skilled and educated labour: technological change tends to be labour-saving and skill-biased, and is complementary to capital and skilled labour; conversely it is a substitution for unskilled labour, and tends to increase social inequalities. Furthermore, the privatisation of research may have adverse effects on access to new technology by the poor. The resulting widening productivity differences help to explain cross-country inequality. In the Caribbean and according to Aponte-Hernández and Molina Iturrondo, new modes of delivery and the increasing penetration of transnational commercial providers threaten Caribbean institutions: their retention of students, not to mention of potential expansion and diversification, are directly affected, this in conditions where knowledge is already largely imported.

On the other hand, equitable access to knowledge is a recognised factor of sustainable development in the 21st century. Zakri points out that collaboration between knowledge-producing institutions, the government, civil society and the private sector should be promoted, and that foreign aid should strengthen developing countries’ own capacities for knowledge production. Zakri also recommends that policies and practices be made more relevant to current knowledge, and that universities play a central role in this by channelling lessons learned to local policy-makers.

The West is not totally alien to these concerns, and Bernatchez writes of Quebec, the francophone province of Canada, where a new dimension has been added to the higher education policy agenda. Some influential figures in university research, contrary to the commercial logic inherent in technological innovation, see in “social orientation” a convergence with more universal and anthropocentric notions of the university idea. Bernatchez suggests that two main models inspire the actors: one based on the market, aiming at the market environment, competition, intellectual property activities, and following a logic of privatisation, well-identified deliverables, and measurable, short-term results. The other model is based on the citizen and on new ways of doing things as a response to social needs; it emphasises the common good, the social environment, cooperation, intellectual property activities of the “copyleft” sort, and a logic of knowledge diffusion in the longer term. This type of dichotomous approach is found repeatedly in debates on the strategies and solutions to development problems.
The Challenges of Poverty

Some of the contributions in this volume discuss conceptual, technical, and practical issues related to poverty. Together they make a strong case for moving beyond income in any assessment of poverty and inequality, to a closer look at shortfalls and differences in areas such as higher education and research. Very often in developing countries, sheer lack of resources and (in some cases) lack of will to carry out the goals and objectives of policy documents render the latter into vacuous statements, to which reference is made symbolically and with little or no practical effect. Sub-Saharan African universities for example are known to be severely under-funded, fragile, and susceptible to the vagaries of political and military events. They also suffer from a lack of clarity and articulation in matters of governance, as demonstrated by constant shifts in ministerial responsibility for science and higher education. Poor remuneration of staff leads to shortages, a majority of academics at post are young and inexperienced, and the rate of brain drain is high. Massaquoi describes the kind of research capacity that poor countries need: humility, curiosity, audaciousness and intellectual rigour. As they relate to development, higher education and research face challenges that are simultaneously epistemological, ethical, and technological.

Poverty is not restricted to sub-Saharan Africa, even if, of the 50 states officially identified by the United Nations as “least developed” (LDCs), 31 are to be found there. According to UNCTAD’s Least Developed Countries Report 2007, the key to sustained economic growth and poverty reduction in LDCs is the development of productive capacities and the related creation of productive employment. The debate on world poverty and well-being has clearly evolved from economics to broader conceptualisations. Dominant meanings and measurement of well-being reflect the position of (development) economics within development studies, and the ongoing tension between economic hegemony and multi-disciplinarity over the role of R&D, higher education, and others.4

It will always be necessary to refer to poverty in full awareness of the “footnote problems that arise in the differences of definition, classification, and measurement, regarding both poverty and development indicators. Against this background, Nouroudine considers the failure or very partial success of development projects in agriculture, fishing, and business in very poor countries. Among the factors involved, ignorance by international donors (or the foreign contractors engaged by them) of local realities is largely to blame. The recently created university in the Comoros is doubly concerned, as a tool for development and in its role of articulating action with knowledge in order to take root in Comorian society. In moving from maladjustment to local participation, Nouroudine argues the need to understand the limitations of participation before overcoming them. Can one speak of “participation” in a university as in a development project? Nouroudine orients research to the service of development, and universities serving development must likewise face the obstacles inherent in imported organisational models.

Papoutsaki argues that “Research lines, departments, faculties, laboratories, diplomas, pedagogy, courses, are often the same as those in the former colonial power; and the scientific culture of the teachers/researchers often refers to foreign
problems and realities. De-contextualisation of knowledge is not a problem in itself, but becomes one since no conceptual and methodological adaptation is attempted. The demand that universities deal with local development challenges implies adjustment in the kinds of research and research capability to be developed, and their links to training, education, technological innovation, and employment. Papoutsaki considers the question of research quality from the viewpoint of a society or a region’s specific knowledge needs, revisiting external factors such as the value of Western education, knowledge, and research methods (and the role of foreign research training). Indigenous perspectives on research must be strengthened in higher education through “cross-pollination”, and Western research methods that reinforce dependence and provide inadequate solutions should be reassessed. Do different epistemologies require different research approaches? Papoutsaki addresses the search for research methods that are appropriate to non-Western societies and to developing countries, and insists on the importance of incorporating research training into the undergraduate level, given the potential impact: an increasing number of students would learn how to do research in their communities, and those who might later go abroad for further study would also be more aware of differences and possible synergies.

New Trends in Gender Participation

In the last decade and in most countries, women have improved their participation in scientific research. Inequalities and disparities persist in educational opportunity and access to the labour market, but one region in which changes are evident is Eastern Europe, in the wake of the economic and political transformations of the early 1990s. Simieńska describes the case of Poland, where the number of female students increased fivefold (as against a fourfold growth of male students). In scientific fields professional careers have been dominated by men and until recently, women were almost completely absent in the world of science especially at the highest levels. Statistical evidence suggests that many assumptions regarding the lower research productivity of women were unfounded, and that gendered research productivity is distributed differently over time. Younger, female scientists are becoming impatient, confronting what they perceive as persistent gender discrimination in scientific work.

The Continuing Legacy of Colonial Science

Colonialism has had complex and often contradictory effects, notably the creation of long-term dependencies well after independence. The colonial legacy has influenced the institutionalisation of science in the new nations, and impinges in strikingly different ways upon today’s developing countries; this is true even of those within the same region, as is the case in sub-Saharan Africa. Bellakhdar mentions for instance the double gap that followed colonisation in Morocco: with archaic academic knowledge (the Qarawyîn) on one hand, and with the new sciences (the “management science” for economic and/or professional application) on the other.
The university and its traditional theoretical emphasis are somewhere in the middle, and the result is the consumption of different types of knowledge rather than its production. What is more, the great majority of Moroccan students are enrolled in social and human science courses: only four percent in engineering and one percent in medicine. The Moroccan university, by privileging information over training and maintaining multiple discourses (archaic, traditional, modern), arguably prolongs discursive options indefinitely and slows the emergence of a contemporary research spirit. Modern rationality and its methods of analysis are neutralised, and even recent reforms risk meaninglessness.

**Political Instability and Civil Wars**

Political instability has led to the closing of universities in many countries, has set local science back decades, has sometimes led to the total suspension of research, and has sent waves of academics and scientists to other parts of the world. However the will to progress persists in very difficult conditions. Despite weak financial means and a recent history of genocide, civil war, and political unrest, the Great Lakes region of east Africa features several common endeavours between the universities of Rwanda, Burundi and the eastern Democratic Republic of Congo. Gahama draws for inspiration on the Inter-University Council for East Africa (involving 47 institutions from Kenya, Uganda, and Tanzania) and proposes regional thematic programmes in a network of centres of excellence: environmental protection, good governance, new information technologies based upon local cultural systems, and the reduction of poverty. His ultimate goal is the suggestion of a regional research centre.

Despite some positive initiatives, many higher education and scientific institutions in sub-Saharan Africa remain fragile and susceptible to the vagaries of political and military events. In a recent report on the region’s national research systems, these were characterised as operating in a “subsistence” mode, namely as an assemblage of fragile, disconnected and under-resourced institutions that produce knowledge for their own use only; they do not export knowledge, nor do they make any significant contribution to national- or global-level knowledge production.

**Shaping Developing Countries’ Science: The Role of International Agencies**

International agencies such as the Carnegie Corporation, the Ford and Rockefeller Foundations, USAID, Norad, IDRC, Sida/SAREC, The World Bank, and many others (as well as international research-supporting bodies such as CGIAR, WHO etc.) are significant both for what they have accomplished (helping to maintain minimal scientific production in many countries), and for what they have not (fostering long-term sustainability of a local science base). Nevertheless, some institutions have remained sources of significant capacity-building and continuity.

The policy of privileging basic education expenditure over higher education, reflecting the positions of The World Bank and other leading donor agencies, held that the social rate of return on investments in basic education was higher than that
in higher education; this has proved very damaging, not only to universities but to research and scholarship in the countries concerned. Thus at a time when university enrolments increased exponentially in many African and Latin American countries, their institutions were thrown into deep financial crisis: laboratories and libraries were not maintained, teaching spaces were overcrowded, and top academics left en masse for other parts of the world.

Over-Adaptation and Technology Development

China is a fascinating ongoing social experiment, of huge proportions. It is also a key to our common global future, including with regard to commercialising trends in higher education. Two contributions on China in this book sample the challenges of adaptation, here to application and technology development. Their complementary analyses of commercialising trends in Chinese higher education reveal how difficult it is to establish a balance in this environment, where innovation is a top priority on the government agenda. Xue emphasises the contrast between the theoretical division of labour among institutions in a national innovation system and the blurred reality of interwoven relationships among universities who have become major market players. Chen, Sanders and Wang highlight the fact that most Chinese universities have converted themselves into corporations, and explore the lasting effects of this trend on institutional research capacity and productivity.

Xue focuses on the environment that generated intimacy between universities and industry, and calls attention to weak industrial R&D capacity by reference to an innovation survey of large- and medium-sized industrial firms in six provinces and cities (conducted in 1996). Xue finds that the lack of industrial R&D capacity acts as a “pull” factor, opening up opportunities for university research to obtain major funding through technology contracts. The “push” factor is the gradual re-orientation of the higher education system and of government policy, reducing the appropriations for Chinese universities while stimulating industry research funding (rapidly becoming a major source of income). Such transformations have yielded many economic benefits, although Xue concedes that there are also some serious problems to address.

Chen, Sanders, and Wang are concerned that because academic, economic, and political capital have been allocated to the lower end of scientific and technological projects (due to the ease and speed of the latter’s commercialisation), this has led to a deterioration in research capacity. Thus in parallel to the growth and competitiveness at the lower end, there is stagnation in the innovative capacity at its frontiers. Despite the recent 2006 strategy for strengthening China’s scientific and technological progress in the next 15 years, which includes reference to the innovative capacity of universities, institutional conditions remain China’s weak point.

Subordinate Integration into Research Networks

International scientific cooperation has been growing, and there is an obvious element of “democratisation” in the relationships related to knowledge production. A
group of dynamic developing countries, that includes not just the so-called BRICS (Brazil, Russia, India, China and South Africa) but also others such as Turkey, Poland, Mexico, and Argentina, have reduced the gap with the developed world in terms of both R&D investment and scientific impact. However the national benchmark of inputs and outcomes masks important diversity, regarding not only how much these countries are committing to R&D given the size of their economies, but especially what they are able to generate. As Kreimer and Meyer point out, “subordinate integration” is a further characteristic of science produced on the periphery: the definition of research agendas is often produced in central research groups, and subsequently adopted by the “satellite teams” as a precondition for their integration. More often than not, these agendas respond to the social, cognitive, and economic interests of dominant groups and institutions in developed countries. The visibility, quality, and relevance of local research may thus be at odds with its potential local effects, and the most internationally integrated groups from developing countries tend to develop routine activities; these include controls, tests of established results, and overseeing local researchers’ subordinate work on established themes and concerns. Problems, priorities, and aims may be quite distant from the concerns of the local teams’ own national contexts. These arguments are well illustrated by a case study of research on Chagas’ disease in Argentina, and of the contrary effects of centrally defined research agendas.

Concluding Remarks

The situation of the developing world is often paradoxical, and the recognition of wasted opportunity and talent is painful. Ancient intellectual traditions have yielded splendid results, even in recent times, and this frequently occurs in the absence of a clear goal for research in the countries concerned. The common thread in the developing world is heterogeneity: history, economics, and differing endowments have made for distinct national conditions, reflected in turn in the universities and their work.

Any social ill we face today involves science and technology, both as cause and solution: hunger, waste, the threat and reality of war, environmental degradation, HIV/AIDS, tuberculosis and the like, genetically modified foods, climate change, energy, transportation. These require a better understanding of the ways in which science and technology shape the world, and in which they themselves result from history, politics, and culture. Science and technology are beacons of modernity, driven by the interests of advanced countries and by the attempts of developing countries to master them. There have been difficulties of consolidation however, and a lack of clear development formulas; the poor, backward countries are always the ones doing the catching up.

Western science has a hegemonic role, providing an “international professional” within an “epistemologically shared universe” and a hierarchical system where everybody finds their place. As an international social institution, Western science replicates a model in which scientific exchanges occur between metropolis and province, empire and outpost, core and periphery; in other words, between the global and the local.
The contemporary world also includes those who were part of the instrumental-ity or governance of modernity but who, for reasons related to economic status, race, or gender, were excluded from its norms of rationality and prescriptions of progress. The discontents of modernity lead to a sometimes concurrent picture of knowledge, to differing forms of identity and agency, to alternate descriptions of the world. The local is an infinite repository of diversity and although there are obvious tensions between local and scientific knowledge, educational systems in the South must pay increasing attention to local needs —including the necessity to reassess and revalue traditional knowledge. Research on the obstacles to more equitable local participation in higher education and innovation has led to new programs and methods, and there are innovative approaches to knowledge that take into account local conglomerates of practice.

There is no disjunction between the global and the local, but rather a continuum with innumerable mediations, including anchorage in national systems of innovation. Some economic sectors and cognitive fields are more linked to local spaces, others to national systems, and some exceed national limitations altogether.

Universities are the proverbial sites of instrumental reason and hegemonic techno-science. Will they become sites for the (co)production of knowledge and new socio-cultural orders, zones of barter and synthesis featuring different types of knowledge that compete for epistemic validity or are actively hybridised? Reducing poverty requires that poor countries master, improve, and produce knowledge, and that they invest in innovation. This involves a revision of the relationships between research, innovation, and socioeconomic development. One limitation is unquestioned faith in scientific research as the only solution for developing countries; science or scientific research is no panacea. This is not an argument against science; to the contrary there is much to be gained if research is recognised for what it is: a lever of development, where other conditions are also present.

The canonical view of unfettered research is not necessarily the most appropriate to follow, for the kinds of problems and challenges countries face differ considerably. One way of harnessing science and technology is in the production and use of knowledge for sustainable development, in which the principles of freedom, justice, and equity prevail. Overall, the rules and conditions of the new international agenda tend to hinder the use of policy as a form of strategic intervention in developing countries. Public policies on science and technology, which could help to foster comprehensive national science and technology capacities and technological learning and innovation, necessarily suffer in the current framework.

Despite the rhetoric that research and the scientific establishment ultimately serve “social appropriation”, there is a simultaneous impulse for a greater role of the market and international competition; so while the desirability of alleviating poverty is universally accepted, real policies to achieve this are severely restricted by the market context. But the question remains: Will economically less privileged countries have to espouse epistemic homogeneity in order to increase the quality and relevance of research? Will they advance only through “subordinate integration”? Or will the progress of research elicit a wider range of epistemic thrusts and modes of contribution?
NOTES


3 Higher education is increasingly becoming a tale of two worlds, as pointed out in a recent *Business Week* article (10 December 2007).


UNIVERSITIES AS CENTRES OF RESEARCH AND KNOWLEDGE CREATION: AN ENDANGERED SPECIES? SUMMARY REPORT

PREFACE

The Background: Terms of Reference

The central premise for the Colloquium was that research is a key ingredient in the institutional identity of universities and an indispensable prerequisite for a successful programme of teaching and public service.

The principal question that the Colloquium has had to deal with is why major differences in research intensity and capacity exist among the world’s universities, and what can be done to moderate and overcome these differences.

In answering this question, the Colloquium has addressed the related issues of research capacity, research productivity, and research relevance and utility: research capacity is a necessary, but not a sufficient condition for research productivity and research productivity has to be assessed in terms of the utility and relevance of the research produced.

Important Reminders: Themes of the Opening Session

The Opening Session of the Colloquium was notable for bringing together some important reminders on several aspects of the Colloquium’s overall theme, including these:

– There is a close and indispensable relationship between research and teaching (Coacher Matsuura, Director-General of UNESCO).
– Knowledge needs to be given a more prominent role in the development discourse (Gun-Britt Andersson, Ambassador, Permanent Delegate of Sweden to UNESCO).
– There is a serious danger in treating education in fragmented segments and stages: UNESCO has a systemic mandate for the education system as a whole (Thandika Mkandawire, Chair, UNESCO Forum Global Scientific Committee; Director, UN Research Institute for Social Development).
– All developing countries have to have a functioning and effective research community (Berit Olsson, Director, SAREC/Swedish International Development Agency).

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Priorities for the development of research are relevance, quality, and international cooperation (Georges Haddad, Director, Division of Higher Education, UNESCO).

There is a serious danger of a digital divide leading to a technology divide which, in turn, leads to a knowledge divide (Walter Erdelegen, Assistant Director-General for the Natural Sciences, UNESCO).

Contributions and Debates: Research Capacity, Productivity, and Relevance

In a combination of keynote addresses, invited guest presentations, and working sessions based on contributed papers, the Colloquium examined the three central themes of research capacity, research productivity, and research relevance and utility. While the three themes proved to be suitable foci for the discussion, they also were found to be interconnected in several important ways: research productivity is very much a function of research capacity, and the relevance of research findings is an important element in validly assessing universities’ research productivity. A second overall observation pertains to the often dramatic differences in research intensity between different regions of the world, most notably between rich and poor countries, but also within many countries. Lastly, the problems that universities in many parts of the world face in mounting and sustaining adequate programmes of research are seen as precipitating a genuine crisis of higher education.

RESEARCH CAPACITY

The report on this theme starts out with a definition of the ingredients of research capacity (i.e., what it takes to develop and sustain research capacity), then proceeds to identifying the principal problems universities face regarding their research capacity, and concludes with what the discussions at the Colloquium suggest as an agenda for future development.

Ingredients: What does Research Capacity Consist of?

(1) Capable researchers: Research capacity consists primarily, though by no means exclusively, of people capable of conducting research: faculty, research staff, graduate students. The principal dimensions of peoples’ capabilities for research have to do with training and selection, i.e., the quality of preparation in research design, research methodology, and research organisation (with special emphasis on the ability of critically assessing and interpreting research concepts and results), and with the criteria for selecting people into positions of research responsibility.

(2) Time: Even carefully trained and selected researchers need time to be able to achieve competent and significant research results; very often, the burden of heavy teaching and advising loads and of other, sometimes extra-university, responsibilities keeps otherwise capable researchers from living up to their research potential.
(3) **Infrastructure**: In virtually all areas of research, although to varying degrees, research capacity depends upon functioning and adequate infrastructures: laboratories, libraries, access to digital and computational resources. In many parts of the world, perfectly capable researchers find themselves thoroughly frustrated by the absence or inadequacy of available infrastructures. This has important implications for strategies of research funding inasmuch as funding the direct costs of a research project is rarely enough as long as funding is not also provided for the indirect costs of the infrastructure needed for a given project.

(4) **Research climates**: Good research is only possible in a situation where research is valued, supported, and autonomous; too often, these conditions are not met. Research requires support from both political leadership and public opinion, and the media play a particularly important role in cultivating a climate of valuing research and researchers, and of granting them the freedom of discovery without outside intervention. There is an inherent tension between the autonomy of research and the knowledge needs of society, but this issue can only be resolved by continuous dialogue rather than extrinsic dictates being addressed at the research community. This open dialogue is an important part of a cultural climate conducive to good research.

(5) **Funding**: Good research does cost money, and often a great deal of money. The importance of good research for the economic and social well-being of a society has to be reflected in the amount of financial resources made available for research; good research cannot be had cheaply. Just as important as the adequacy of the funds is their dependability: researchers have to be able to count on predictable levels of support over time, as most research is medium- or long-term in nature. Similarly, indirect funding for research infrastructures is as important as the direct funding of project costs.

(6) **Structural conditions**: The institutional structure for research in many parts of the world is suboptimal. Resources and facilities are unduly dispersed and duplicated, economies of scale rarely achieved. A review of such structures is in order so as to pool capacities (as between university and extra-university research or across regions), share facilities and avoid unnecessary duplication. International cooperation and the sharing of resources across borders can play an important role in enhancing the structural conditions for good research.

(7) **Research ethics**: An important and often underestimated ingredient in research capacity is the existence and observation of a research code of ethics which helps keep researchers resist the various temptations that result from outside research funding, conflicts of interest, or sheer pressures of work. These ethical standards are indispensable for maintaining the integrity, openness, and transparency of the research process, and to safeguard intellectual property.

(8) **Critical perspectives**: Criticism and critique keep research from becoming self-serving and introvert, and it is an important part of research capacity to develop and sustain the ability to critically examine one’s own research and that of others. It is good research practice to question the assumptions, the methodology, and the results of research, and to explore alternative explanations for any given set of findings. By the same token, it is part of any good research training to inculcate these kinds of critical perspectives in the preparation of future researchers.
Problems: What Are the Deficits of University Research?

It is a particular challenge to summarize those many contributions that addressed the problems that research at universities faces in many parts of the world. Some of those problems originate in the universities themselves, but the more serious and most intractable ones tend to arise from the universities’ environment. It would therefore be difficult to arrive at an adequate analysis of the deficits of university research without taking into account a wide range of factors external to the university. Here again, it is important to point out the many ways in which the different facets of this diagnostic are interrelated; clearly, to give but one example, the international migration of research talent (“brain drain”) has a great deal to do with deficits in research infrastructure and financial stability, just as the incidence of institutional conflict in higher education is but one aspect of the changing role of the state.

(1) The changing role of the state: Most notable among these external factors is what several contributions have described as the changing role of the state with regard to higher education and research. While there are still a considerable number of societies, notably in the richer part of the world, where the state plays a rather active role in sustaining and, indeed, advancing higher education and research, there seems to be a growing tendency for the state to yield both its regulatory and its supportive functions to the market and the private sector. This places higher education and, especially, university research into a new kind of jeopardy and at the mercy of forces that are not necessarily interested in the advancement of open and autonomous research.

(2) Crises of identity: The choice of research agendas and research priorities is one of the most significant aspects of the autonomy of researchers and research institutions. It is here that, particularly in the South of the international system, autonomy is most severely compromised by the – conscious or semi-conscious, voluntary or involuntary – adoption of external research agendas that reflect other societies’ knowledge priorities and that tend to marginalize the knowledge needs of the institution’s own society. This uneven struggle between autochthonous and extraneous research priorities (which is often accompanied by similarly intense struggles between different theoretical frameworks, paradigms and methodologies) appears to lie at the very heart of what was frequently described as a veritable crisis of identity in higher education in much of the poorer part of the world.

(3) Migration of talent: There is, and has been for some time, a conspicuous amount of migration of scholarly talent, most of it from the poorer to the richer parts of the world system, and very much to the benefit of the latter. While there has been a certain degree of re-migration in recent years (e.g., from North America to India), the overall effect on the research capacity of poorer nations has been distinctly unfavourable, especially since there often is a kind of chain reaction where one migrant is followed by his or her students, etc. It is difficult to see how the sustained development of research capacity in the developing world can be achieved without changing the pattern of migration to a significant degree in the direction of providing scholars with meaningful options for staying. Appeals to
national loyalty and solidarity will remain relatively ineffective, however, unless reasonably attractive research opportunities are being provided.

(4) Inadequate infrastructures: Among the most significant deficits motivating promising young scholars to emigrate is the inadequacy of research infrastructures in many universities. To be expected to perform quality research with inadequate or outdated equipment, uneven or non-existent library holdings, and limited access to digital information and data bases continues to be a source of great frustration among researchers especially in the South. Even though by now the inadequacy of libraries could technically be overcome through digital access, the cost of site licenses for online journals and access to online data bases proves prohibitive for many universities in poor countries.

(5) Lack of financial stability: Lack of funding for research is seemingly ubiquitous, but what is particularly detrimental to sustaining good research is the lack of predictability of such funding as there is. Good research in most areas of knowledge requires time and an effort over the long haul; not knowing whether funds that are available now will be available a year or two from now stifles precisely the kind of research that provides solid and well-founded results from sustained inquiry. Furthermore, funding that only covers the direct cost of research is particularly hazardous for universities in poor countries whose limited regular budgets are not sufficient to provide adequate infrastructures and support services for research.

(6) Isolation of scholars: Time and again, and often with a great deal of emotional intensity, the Colloquium witnessed testimony of the tremendous isolation of scholars in the world’s poorer countries. This isolation has several dimensions, all very detrimental to scholarly productivity and success: isolation from relevant scholarship in other parts of the world, the lack of a critical mass of interested and interesting colleagues in one’s own university or even country, and most of all isolation from a sustained interaction with a lively broader research community. Gatherings like the Colloquium were given high marks as a rare opportunity for meeting colleagues with similar interests, for exchanging experiences and research findings, and for keeping abreast of important developments in the field.

(7) Gender gap: Even though the attendance at the Colloquium was remarkably well balanced in terms of gender distribution, the same cannot be said for the world of research on the ground. There, women’s access to, and success in, research careers still reflects rather uneven chances and the effects of traditional views of the role of men and women in academia. This clearly varies by region, cultural context, and academic discipline, but on the whole a great deal remains to be done – in poor as well as rich countries – to provide women with equal opportunities in research careers.

(8) Institutional conflict: A final concern that loomed large in the Colloquium’s discussions was the effect on research of a growing trend of institutional conflict and violence at universities in many parts of the world. Often these conflicts have a proxy quality in that broader societal and political conflicts get projected onto university campuses, often seriously disrupting both teaching and research. What has been said before about the need to sustain research over time is particularly pertinent here: the kinds of discontinuities that get introduced into the life of uni-
versities through conflict and violence are particularly serious and consequential as far as research is concerned.

Agenda: What Challenges Lie Ahead?

The analysis of what good research needs and what kinds of problems research faces at the world’s universities lead the participants in the Colloquium’s discussions to a considerable number of suggestions and proposals for further action. The principal items on this agenda for further developing research capacity at universities are summarized in this section of our report. As the problems to which this agenda is designed to respond have been described in some detail in the previous sections, the various items on this agenda will be self-explanatory and are only briefly annotated.

1. **Building research capacity**: This item is intentionally placed at the top of the agenda: Without a substantial effort of building sustainable research capacity – in the encompassing sense described in the section on the “ingredients” – there is little hope for overcoming the crisis that characterizes the prospects for research at many universities, especially for many of the poorer countries. This effort will require the joint mobilisation of national and international energies; while it has many facets, it will need to concentrate on the preparation and the support of capable research personnel.

2. **Rethinking the research agenda**: At the same time, there is a substantive side to the agenda for mobilizing research. What is needed here is a major effort to rethink the priorities for the kinds of research that universities should focus on. This is obviously a task that will lead to different results for different countries, regions, and universities, but it is instructive to look at a sample of the issues that, during the Colloquium, were identified as being in particular need of scholarly attention:
   - The connection between research and the social project of development
   - The importance of creating and sustaining autochthonous knowledge (as distinct from externally defined knowledge)
   - The need for a critical examination of the notion of research “relevance”, and the implications of such an examination for defining research criteria
   - The importance of identifying the role of language in research, particularly in view of the de facto emergence of English as a research lingua franca

3. **Develop research on research**: It may sound strange, but the Colloquium has shown again that one of the least researched subjects is research: we have very little secure and valid knowledge about the conditions under which research is conducted, the factors that make for good or bad research, the way incentives and disincentives work in research, etc. One of the urgent needs for the future – and one for which the Forum appears to be particularly well suited – is therefore a much more systematic programme of rigorous research on research. Among the issues that were identified as being particularly in need of further inquiry were the following:
– Understanding the political dynamics of research systems, both within institutions of higher education and throughout their social, economic and political environment
– Analyzing the contribution that the entire educational system, including the schools, can and should make to the building of research capacity
– Disentangling the complex relationship between autonomy, accountability, and transparency in the world of research, and inquiring into the effects of research assessment on faculty motivation, independence, and performance (what one speaker called “the control of academic productivity”)

4) Rethinking the criteria for research quality: There has been substantial criticism at the Colloquium of the notion that there can be a one-dimensional set of criteria for assessing the quality of research regardless of where, by whom, and on what subject it was performed. Instead, there appears to be a need dealing with the assessment of research quality in much more differentiated ways, taking into account the research setting, the kinds of research questions asked, the methodological orientation, and the utilisation of research findings. This is not to argue for rank relativism in assessing research, but recognizes that research quality is not entirely independent of its relevance and utility.

5) Creating centres of leadership and excellence: Even under the best of circumstances, not all universities around the world can be centres of excellence in research. Such centres are necessary, however, and need to be distributed much more equitably than is currently the case. There is thus a strong argument for a future agenda that seeks to identify, support and strengthen institutional settings that have the potential for becoming centres of research leadership and excellence at both the national and the regional level. These centres are to serve both as models for what research-based universities can accomplish and as resource centres for advice and assistance to other institutions.

6) Fostering research cooperation: In a related sense, there appears to be a great need for research cooperation among universities both nationally and across borders. Much of this need is the result of limited resources at any one institution and of the economics of complementarity, but there is also a feeling that this kind of cooperation will broaden the perspectives of individual researchers, encourage fresh approaches to research, and overcome the isolation of researchers. There is a strong case for cooperation among universities within the South, but also a very open and favourable perspective on cooperation between Southern and Northern institutions, provided it works in both directions.

7) Building institutional networks: While inter-institutional cooperation on specific research projects is highly desirable and desired, there is an even stronger case for sustained cooperation in the form of institutional networks with dependable resource bases, a division of research labour based on the strength of particular units of the network, and appropriate governance mechanisms. Such networks will allow cooperation not only on specific projects, but will facilitate mounting and sustaining medium-term research programmes with clear priorities.

8) Research training: The key to strengthening the personnel component of research capacity is clearly adequate research training, and there was strong support at the Colloquium for major investments in establishing, strengthening, and sus-
taining training programmes for young researchers at universities, especially in the South, including appropriate scholarship programmes. Only training programmes of high quality and with access to actual research opportunities during training will effectively obviate the need for young researchers from the South to seek training in the North, which often becomes the first stage of talent migration. Realistically, however, it is recognized that there will continue to be a need for highly specialized research training in the North as well, and it is important that qualified researchers from the South have access to these training opportunities.

(9) Publicizing good research practice: Good research and good research practice can have a powerful impact on the overall quality of the research enterprise, but only if people know about them. There is thus a case for making good practice in university research much better known nationally, but especially internationally. Here again, an institution like the Forum is seen as having a unique opportunity to affect research quality through the exchange and dissemination of information on particularly successful, particularly innovative research and research training programmes.

(10) Enhancing public support for research: In many societies, North as well as South, the appreciation by the general public of the vital role of knowledge and research in the improvement of social and economic life leaves a great deal to be desired. If research is to obtain the public as well as private resources that it obviously needs (and that may have to be taken from other worthwhile pursuits), this can only be achieved on the basis of a strong public belief in the essential function of research and research-based universities. This belief needs to be cultivated and nurtured on a sustained basis, and both researchers themselves and the media have a particularly important role to play in this process of making research and its relevance more transparent.

(11) Equalizing digital access: The wide-ranging digital availability of huge quantities of information, data, and literature is one of the most striking changes in the technological environment in which research and universities operate. The problem, however, continues to be access to what is technically available, and it is here that a significant cleavage exists between richer and poorer institutions. Major and urgent changes in the legal and financial arrangements for the use of online data and other research information are needed to make this wealth available to researchers who are already handicapped by the lack of adequate library resources and other infrastructure.

(12) From “brain drain” to “brain gain”: It was encouraging to see how, on several occasions, the Colloquium refused to accept the migration of scholarly talent from the South to the North as inevitable. In addition to providing more attractive conditions for researchers in the South, there were a number of suggestions and, indeed, examples where cooperative research ventures with the involvement of both Northern and Southern institutions had resulted in reversing some of the trends of talent migration, thus turning “brain drain” into “brain gain”.

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RESEARCH PRODUCTIVITY

This section of the report seeks to highlight the main points raised in the relevant plenary sessions and in the parallel discussions on research productivity through a conceptual framework of seven pairs of contrasting trends. Living in a very complicated world, we have to adjust ourselves to operate with contradictory and contrasting trends. We do not normally have the privilege of choosing either one or the other, but rather have to find a rather delicate and subtle balance between various trends. These conceptual pairs can also be used as a tool for cross-country or cross-institutional comparison by offering a continuum along which an institution or a research system can be placed.

Globalisation Trends – National Context

Considering that we cannot eliminate globalisation trends, even if we do not like many of their results, we have to adjust to them and see what can be gained from them, while at the same time taking care of the national context. These globalisation trends, while facilitating networking, collaboration, and flexibility between systems, also threaten the stability, security and identity of universities, as the keynote address of Imanol Ordorika has shown. Often this results in the marketisation of higher education, in decreased public trust in higher education and in greater pressure for accountability. In the wake of these trends, there is also an emerging super model of productivity of world class universities, reflected in many league tables and a special sub-set of studies comparing different league tables, with some countries and some institutions already headhunting for Nobel Prize laureates because they will automatically improve their standing in some of the rankings.

Ordorika himself provides a good example of a most successful and independent product of a super league research university like Stanford. He chose to pursue his graduate studies not in Mexico, but in Stanford and then returned to Mexico, using the skills he acquired for a critical analysis of globalisation in higher education and research. This is one of the examples for what Arthur Bienenstock described as building the capacity of faculty members in other countries.

The issue of the role of the super league research university brings to mind an anecdotal story about a meeting between John Rockefeller and Charles William Eliot, one of the legendary presidents of Harvard University (1869-1909). When Rockefeller decided he wanted to establish the University of Chicago in the 1880s, he approached Eliot and asked him how he was going to build a university like Harvard. Eliot responded that one needs, first, at least fifty million dollars, and secondly, two hundred years. So John Rockefeller went ahead establishing the University of Chicago; it took him a little more than fifty million dollars and a little less than two hundred years, but the point of the story is that good universities do not get created in one day nor in one year, nor even in ten years.

On the other side of this pair of contrasting trends stand the demands for more attention to the national context of higher education and research, a theme to which, among others, the keynote address of Abdul Hamid Zakri made some very significant contributions. Some examples will exemplify how important the linkage
between national cultures and academic cultures is. Looking at the idea of the research university from a historical perspective, it is less than two hundred years that Wilhelm von Humboldt’s idea of a research university was initiated in Germany (at the Berlin university that now carries his name) and exported to all over the world, including the United States. But the very special cultural and social setting of the United States gave it a different kind of direction and its own identity. By now, most of the leading world class universities are in the United States, not in Germany, and Germany is now looking to the United States for the reform and improvement of its universities.

There is, as we have once again seen in this Colloquium, a huge difference between research universities in the North and the South. But that is not to say that only the North is producing significant research products and advancing human knowledge, but we have also heard of many leading research projects in developing countries. We have heard of Chile’s accomplishments in astronomy, India’s achievements in computer science and mathematics, China’s work in seismology, efforts in Africa to establish national R&D centres of excellence, and many other examples that would go beyond the scope of this report. There is important research being done in developing countries, at different levels of infrastructure and capacity, but with significant results, even if not all of them can become world class universities.

Applied Research – Basic Research

Most of the presentations at this Colloquium put a great deal of emphasis on the importance of applied research from different perspectives: systems of innovation, networks of excellence, science and technology, the involvement of business in research, etc. The presentation on China by Xue Lan reported on the triple helix of the connection between industry, government and universities; fifty per cent of research in China is sponsored by industry and the corporate world, which obviously has an impact on the content of research. Reports on India emphasized the fact that there, most of the research is done in the applied field. The presentation of Abdul Razak and Ramli Mohamed on Malaysia outlined five generations of research, over which the head of the traditional research pyramid was turned upside down. The first generation of “ivory tower”, or pure and basic research, had led to a fifth generation of an innovative kind of research in which products are produced and money earned.

By comparison, very little was said in this conference on basic research and on the fact that basic research is deteriorating in many countries. In Israel from year to year, fewer students apply to physics, maths and similar subjects. Most are interested in business administration, law and computer science. Fortunately for the international research community at large, the leading research universities are making a special effort to maintain their contribution to basic research.
Accountability – Increased Autonomy

There is considerable contradiction in the position which many governments are taking. On the one hand, they are retreating from their responsibility for sustaining universities and university research and give the universities more autonomy to be entrepreneurial and to define their own research policy. On the other hand there is a great deal of pressure for greater accountability on the universities’ performance, as reflected in ever new “excellence indicators” and in the emergence of new evaluation bureaucracies. In the course of the discussion, universities were frequently admonished to make more of the opportunities presented to them by being given more freedom by the government, especially in terms of defining their own research priorities. Even under conditions of deteriorating conditions and decreasing resources, it was said, universities should seek to benefit from the greater autonomy they now have. On the other hand, there was strong opposition to using “autonomy” to justify burdening the universities with the full impact of shrinking resources.

Competition – Collaboration

Another contradiction results from the fact that universities are asked to work in a conflicting world. On the one hand, they are told to thrive and develop through competition. On the other hand, they are being told to collaborate with one another. This is perhaps more of a contrast than of a conflict. It is inevitable that, in the world of higher education as elsewhere, there is competition for scarce resources, be it research funding, good faculty or good students. Perhaps this is why, as was reported from some African countries, it is often difficult to convince scholars to collaborate with other scholars, and one should not underestimate those difficulties. At the same time, organisations like the Forum are indispensable vehicles for bringing about and sustaining more cooperation – both North-South and South-South – in research and knowledge sharing, especially among institutions that are relatively isolated from the international research community. One particular form of cooperation that across disciplinary boundaries, received a great deal of support in the Colloquium as well; it was observed that research is moving at an accelerated pace from disciplinary to interdisciplinary modes. Research cooperation with the business sector was also mentioned as being in need of further development.

Public Sector – Private Sector

The public sector in higher education is almost everywhere characterized by a great deal of diversification and by diminished funding. The effects of these developments on university research vary. While the decrease in financial resources is, as has been shown elsewhere in this report, a major threat to both the quality and the quantity of research, diversification does lead in some countries to a division of labour. This results in new concentrations of research excellence, coexisting with other institutions of higher education that are primarily geared to teaching.
The private sector in higher education is even more dramatically diversified. It consists, on the one hand, of the highly research-intensive super league private universities in the United States and a few other countries and, on the other hand, of a growing number of for-profit institutions, most of which are not doing research at all. In some countries, primarily the successor states of the former Soviet Union, the latter are playing a most important role in higher education, and have a considerable impact, for better or worse, on the quality of a growing number of graduates.

**English – Other Languages**

There is little doubt that, some dissenting voices at the Colloquium notwithstanding, English has in fact become the lingua franca of the international research world. Researchers who want their publications to be read, who want the results of their research to be heard, who want to participate in the scholarly discourse in this globalized world, need to do so (at least also) in English. This does mean that English-speaking countries in the North as well as the South are at an advantage because of their command of English. Like many other countries, Israel has had to deal with this issue over the course of its history, first arguing over German vs. Hebrew and now arguing over teaching more and more in English.

At the same time, this by no means relegates other languages to the realm of insignificance as far as research communication is concerned. A number of examples were mentioned in the discussions where research findings get communicated and debated in more than one language, and where both local languages and international languages other than English provide access to users of knowledge that are not as easily reached by communications in English.

**Intellectual Property – Intellectual Philanthropy**

A great deal was said in the course of this Colloquium about how important it is in the developed and developing world to develop and register patents and to abide by copyright regulations. What was less frequently mentioned was the nature of higher education as a public good and, in that connection, the issues of open source and open library. Clearly, more open access to sources of scholarly information, libraries, and software codes would tremendously benefit especially research in those countries that suffer from severe shortages in more conventional research facilities. To date, as was pointed out several times, this access is still prohibitively expensive. Organisations like OECD, the World Bank and UNESCO, but also companies involved in producing the appropriate technology, are being called upon to make their influence felt in the direction of making these vital resources for research more openly and equitably available.
RESEARCH RELEVANCE AND UTILITY

The report on this theme takes the form of a number of more general reflections on the Colloquium which are presented in the form of observations and/or questions prompted by the contributions and discussions in the various sessions.

The Importance of Context

Context has been mentioned frequently as an important determinant of research, but it seems important not simply to recognize context and walk away from it, but to focus more on the implications of different kinds of context. In doing this, it helps to look at extremes – for example, Stanford University and the University of Ghana. It becomes immediately clear that the context in which these two institutions operate and do research is dramatically different, and no useful purpose is served by denying or disregarding that difference. One conclusion to be drawn from acknowledging that kind of difference in context is the need to talk about different functions of research.

Different Functions and Criteria of Research

While all societies have a need for knowledge, there are differences in the function that university research can serve. Universities such as Stanford that are much more generously endowed and equipped may be able to serve a broader range of functions in a global context, even beyond the needs of their particular environment and society; universities like the University of Ghana need to concentrate first and foremost on the present and future knowledge needs of their own communities. This difference in function is to be kept in mind as one looks at global developments in higher education and research, and at league tables and similar rankings. Relevance and utility of research have to be seen and judged with these distinctions in mind, and are not amenable to one-dimensional rankings.

Local and Global Sources of Knowledge

At the same time, communities need and deserve the most relevant knowledge, regardless of its origin. Even with limited means at their disposal, universities are thus under an obligation to seek out both local and global knowledge to the extent that it serves the knowledge needs of the local community. While in many institutions in the South the institutional research agenda is determined by local knowledge needs, in dealing with this agenda both local and global insights need to be drawn upon. An important aspect of the capacity of local universities is therefore their ability to draw as effectively as possible on the global pool of knowledge that is the heritage and property of all mankind. Of particular significance is the ability to “customize global knowledge” for local needs. Many examples were given during the Colloquium: the green revolution, the development of the ORS, injectable contraceptives, the case of Chaga’s disease, and many others.
Research and Poverty Alleviation

There is a widespread assumption that a direct linkage exists between good research and the alleviation of poverty. As some of our discussions have shown, the nature of this relationship deserves some further scrutiny. Indeed, there is a great deal of evidence that the relationship, to the extent it exists at all, is rather indirect in the sense that good research tends to affect such things as the improvement of nutrition or agricultural production which then, in their turn and under favourable policy conditions, will contribute to the alleviation of poverty. The lesson here is to tread more carefully in inferring immediate causal relations, and to look more closely at the sometimes indirect nature of such relationships.

Rankings, Globalisation, and Relevance

The fascination of all universities with league tables and rankings is as understandable as it is problematic. Clearly, the international political economy of higher education is such that certain universities are, by virtue of their location, much more likely to show up on these tables than others. A very important question against this background is thus why such rankings should matter, and whether they are valid instruments for assisting universities in the assessment of their own utility. How can universities, in other words, reconcile the often conflicting mandates of international competitiveness and of meeting its obligations to the knowledge needs of the local community? In case of irreconcilable conflict, which should take precedence: looking to international competitiveness or meeting local knowledge needs? This question is important not only for universities, but also for those agencies that fund university research; it is important that they, as well, recognize this conflict and the need for universities to balance these conflicting expectations.

Faced with this dilemma, it is worth considering much more seriously whether there should not and could not be alternative kinds of ranking that take more explicitly into account the degree to which universities and their research programmes serve the knowledge needs of their local communities and societies, without necessarily compromising the standards of what is internationally considered good research.

Creating Ownership in Research

Time and time again, contributors to the Colloquium were critical of the distance between the research community and the people whose lives and well-being research is ultimately supposed to serve. This distance not only lies at the heart of a widespread lack of public support for research and its cost, it also contributes to a situation in which much research is oblivious to the true knowledge needs of a society. There is thus ample reason for seeking ways to bring people closer to research and researchers, to make research and both its costs and its benefits more transparent, and to create genuine ownership in research on the part of a broader public. Both research and society would be the beneficiaries.
GENERAL CONCLUSIONS

In reflecting on the rich and varied results of the Colloquium’s discussions, a number of general observations on the principal theme of the Colloquium – universities as centres of research and knowledge creation – stand out as being in particular need of attention and further action. In this final section of the report, these observations are being summarized under the heading of four principal theses:

– research in higher education is worldwide in a precarious situation,
– there are major cleavages in the world of research and higher education,
– an important agenda of key issues lies ahead, and
– the Forum on Higher Education, Research and Knowledge can play a critical role in pursuing this agenda.

The Precarious Nature of Research

The Colloquium provided ample evidence for the fact that research at universities is, from a worldwide perspective, an endangered species indeed, although to different degrees and for different reasons in the North and the South. Universities, especially their teaching, service, and knowledge transfer functions, but also their societies suffer from the absence, weakness, and irrelevance of research; knowledge is too critical and too precious an element in development and human well-being for its systematic nurturing through research being dispensable. In this context, basic research is particularly vulnerable because of its comparatively high cost and its lack of immediately demonstrable utility.

Major Cleavages

It should be equally clear that when we talk about the world of research, we are not talking about something that is made of one cloth. The world of research as this Colloquium has portrayed it is a world of deep and widening cleavages, and one would nurture an illusion if one were to disregard or disparage the depth of these cleavages. The principal cleavages that the Colloquium has highlighted have to do with

– different research capacities,
– different research agendas,
– different research contexts,
– different research criteria,
– different research climates, and
– different research partnerships.

The Colloquium has provided a great deal of evidence for the existence of these cleavages, but has also, in a more encouraging vein, shown a number of interesting examples of how some of these cleavages can be moderated and even overcome. At the same time, it has demonstrated that many of these differences – such as the differences in research agendas and research criteria – contribute significantly to the richness and variety of the world of research and knowledge.
Priorities for Looking Ahead

As one looks ahead from this Colloquium, a large and almost overwhelming number of tasks await those concerned with the development and improvement of research and knowledge generation. Four areas of action do appear, however, to have a particular claim on priority:

1. Networking, cooperation, clustering: Given both the scarcity of resources and the considerable degree of fragmentation and dispersion in the world of research, sharing and cooperation become imperative mandates for the further development of research. Resources, facilities, and people can and should be brought together in research pools where labour can be divided and limited resources go farther; modern information and communication technology makes such pooling more feasible than it ever was. Competition and cooperation, as a previous section of this report has pointed out, are not mutually exclusive; indeed, becoming and remaining competitive in the world of research requires cooperation.

2. Building research capacity: It is probably no accident that, in this summary report, the section on research capacity has turned out to be considerably longer than those on the other two themes of the Colloquium. Building and sustaining research capacity – in the encompassing sense described earlier in this report – remains the key to ensuring a competent and lively research programme at our universities. Given the particularly serious deficits of research capacity in many universities in the South, it will not be possible to accomplish this task without a major, but disinterested involvement of the research community in the North.

3. Criteria for “good” research: There is an urgent need for a critical discourse on what we mean by “good” research. The fact that there is no single yardstick for assessing the quality of research across all disciplines, regions, and cultures does not make the question of research quality irrelevant; indeed, it makes it all the more important to place the question of appropriate criteria for assessing the quality of research on the agenda wherever research is being conducted. There certainly are elements that all serious research activities have in common; it is hard to conceive of good research, for example, without decent evidence and without an explicit, transparent set of methodological ground rules. Beyond that, however, different purposes, different kinds, different traditions of research do need to examine critically their own criteria. The process of communicating about these reflections on criteria across the international world of research should be one of the most exciting chapters of future research cooperation.

4. The new politics of research: Already the Forum’s first Colloquium in 2004 brought out strong evidence that when we talk about research and knowledge, we talk about a profoundly political issue that has to do with the allocation of values and resources, the definition of meaning, and the determinants of power. This Colloquium has developed this important discussion further and provided new indications that we are not doing ourselves a favour by denying the political nature of knowledge and the profoundly political quality of the process of knowledge production.

But there is a further dimension of the politics of knowledge that this Colloquium has highlighted: the need for what one could call a political culture of research
There was clearly no need to persuade the participants in the Colloquium of the importance of support for research, but it is a very different story outside that select group. Sustained support for research has something to do with a society’s norms and priorities, and it is here that a political struggle for the central role of research and knowledge for a society’s future will have to be fought.

The Role of the Forum

This Colloquium has shown that the world of research owes a debt of gratitude to the Forum on Higher Education, Research, and Knowledge and to the institutions and the people who sustain its work, notably the Government of Sweden. The Colloquium has also shown, however, that the work has only just begun, and that a great deal more remains to be accomplished. Among the many things that need to be done, some are such that they could be done particularly well by the Forum, possibly better than by any other institution.

This report will conclude with briefly describing five such tasks where the Forum appears to have such a comparative advantage and should seriously consider playing a particularly active role:

1. Help overcome isolation: As this Colloquium has shown, the Forum does provide an excellent instrument for overcoming or at least moderating one of the major concerns of researchers in many parts of the world, notably the South: their isolation and, indeed, loneliness. Few international organisations have the reach and, by now, the reputation of the Forum for bringing together people not only from very different parts of the world, but also from very different institutional contexts: universities, research institutions, governments, NGOs. This very valuable role needs to be pursued and further strengthened – at the regional, but especially at the international level where regional experiences can be exchanged and assessed.

2. Foster research cooperation: By the same token, the Forum could and should become more of a catalyst in fostering and supporting research cooperation across national and regional boundaries, South-South as well as South-North; the need for such cooperation has been amply documented elsewhere in this report. It should be understood that it is the researchers and research programmes that need to do the cooperating, but the Forum could very well serve as an initiator and supporter of such cooperative ventures, joint projects or research networks. And it should not refrain from bringing its experience and expertise to bear upon assessing the success of such ventures, including making suggestions for their further improvement.

3. Support research on research: Our lack of knowledge about, and understanding of, the conditions under which research takes place around the world remains an important handicap on the way to broadening and improving research. Research on research is, as we have shown in this report, an important priority for the years to come. While the Forum is not in a position to undertake this kind of research, it should make stimulating, supporting, and evaluating it one of its top priorities.
(4) **Publicize good research practice:** Making best practice known is one of the most effective instruments of improving practice, and that certainly applies to the world of research as well. There are, as this Colloquium has once again demonstrated, excellent examples of good research practice in all parts of the world, South as well as North, and the Forum would be in an excellent position to gather, organize, and disseminate them effectively and on a sustained basis; websites, blogs, electronic newsletters etc. could be helpful instruments for such an initiative.

(5) **Become a catalyst for research training:** Research training will and must remain the responsibility of research-based universities and their graduate programmes, but the Forum could make a tremendous difference as the engine behind a major expansion and improvement of research training, especially for researchers from the South. This would require material and financial support for select scholarships and other training cost (including possibly a major fundraising initiative among donors), but could also include the very useful function of a clearing house where information on particularly promising approaches to the training of researchers could be assembled and disseminated.

**NOTES**

1 Sections 2 and 5 were written by Hans Weiler, section 3 by Sarah Guri-Rosenblit, and section 4 by Akilagpa Sawyerr.

2 This report is based on the presentation of the three general rapporteurs at the concluding session of the Colloquium. The principal points made in the keynote addresses, the opening session, the invited guest presentations, and in the reports on the 12 parallel sessions have been taken into account in this presentation.