

New dynamics in higher education: From development to sustainable development (reinventing progress)

Michel Drancourt



United Nations
Educational, Scientific and
Cultural Organization



World
Conference on
Higher Education 2009



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Published in 2009
by the United Nations Educational,
Scientific and Cultural Organisation
7, place de Fontenoy, 75352 Paris 07 SP
Printed by UNESCO

Graphic design – www.barbara-brink.com

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ED.2009/Conf.402/Inf.9
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Printed in France

Sustainable Thought and Confidence

by

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Preface to the study by Michel Drancourt

As a preface to the study by Michel Drancourt on higher education and sustainable development, I should like to consider two questions which, among others, have been central to our discussions when preparing the document he is offering us.

First, I shall refer to the key concept of education for “**sustainable thought**”. This is primarily intended to mean dynamically critical and creative thought which is likely to give each of us the potential needed to understand, keep pace with and anticipate the requirements and challenges of sustainable development.

“Sustainable thought” is given shape from the earliest years of education through a humanistic and cross-disciplinary approach capable of transcending the fragmentation of subject disciplines in our education systems.

Education for “sustainable thought” relies on the preservation of memory and on the humanities whose ultimate purpose is to hand down and instil into everyone the values and knowledge on which our future depends.

The growth of education for “sustainable thought” also relies on scholarly training which is constantly changing as a result of the progress achieved by research.

Through its subtly complex nature, “sustainable thought” lies at the heart of any form of active and responsible citizenship. It transcends specialized branches of education, enabling us to embrace with an objective sense of purpose our individual and collective commitments to our “Fatherland Earth”.

In its fundamental concern for creating, transmitting, assessing and preserving knowledge, higher education constitutes a decisive stage in training us throughout our existence to sustain *the adventure of the human mind*. Achieving this vital goal calls for innovative education programmes and teachers at all levels who are capable of assuming appropriate responsibilities, while receiving support and due consideration from other players in society, including individuals, communities, groups and institutions, etc.

The second question I wish to consider is that of **confidence**; this is something that has to be ceaselessly promoted in a society of knowledge, in which our potential and our actual achievements are steadily decreasing in proportion to the quite astonishing quantity of knowledge already at our disposal and yet to materialize. Whatever our level of education and our ability to use information and communication technology, none of us can hope to master any more than an infinitesimally small share of that overall knowledge. We are therefore obliged endlessly to develop and consolidate the ties that bind us directly to others in their recognized fields of expertise and proficiency and via appropriate institutions and networks, in order to access and obtain the information and data needed to take the decisions and make the choices incumbent on us throughout our lives as citizens.

In this respect, schools and universities represent very special places within which we should be able to discover with entire confidence and throughout life, the information and knowledge that we lack.

We cannot legislate for confidence in our educational and scholarly institutions. It is developed by regularly calling into question their responsibilities and aims and through their ability to lead us towards the truth.

It is under those circumstances that development will be sustainable, as Michel Drancourt – whose expertise is second to none – skilfully demonstrates in the light of his exceptional experience.

Foreword

What is society expecting from higher education and research? Support through the education and training of its managers in driving the present. Action to prepare for the future via progress in science and technology.

In fact, this pithy reply is most unsatisfactory as the answer depends on each particular country, its level of development and the policies adopted.

Because of the massive increase in population and in immediate needs, there is a great temptation to prioritize training for working life and a professional occupation. But the underlying purpose of any university is also to nurture discernment, individual thought and the desire to acquire knowledge. This tension between the reaction to visible (short-term) pressures and a (long-term) forward-looking approach is nothing new but it is stronger than ever.

We are indeed experiencing several revolutions simultaneously. They comprise the very current disorders caused by the malfunctioning of world financial activity, whose repercussions will shake up economic structures for years; and also transformations linked to sustainable development which will undermine more than at present the habits ingrained by the consumer society of recent decades, with its roots in cheap energy, as well as the limitless exploitation and gratuitous expropriation of nature and its resources which must henceforth be compensated (water, air, land). These revolutions are all the more challenging given the fact that for centuries changes occurred slowly. Most educators or trainers turned repeatedly to the past. If one considers the “historical” length of industrial society, it is equivalent to less than 5 minutes in a day. Yet more transformations have occurred in this short period of time than over the previous 1000 centuries.¹ It is thus hardly surprising that attitudes and above all the organization of societies are subject to so much debate.

As Marcel Boiteux (former Chairman of Électricité de France) reminded the Académie des Sciences morales et politiques français (French Academy of Moral and Political Science): “As a result of scientific progress, mankind has freed itself from the natural equilibria which for thousands of years governed the numbers of our species through starvation and illness. In turn, it is henceforth for mankind to

¹ *Les Crises et le XXI^e Siècle* [Crises and the 21st century], Jacques Lesourne Odile Jacob 2009.

replace the involuntary reflexes of nature with conscious patterns of behaviour, so as to re-establish new equilibria compatible with the awesome growth in the populations now expanding so rapidly on our small planet”.

The world of higher education and research is eminently involved in this challenge which is also an extraordinary human adventure. With that world immersed in urgent tasks, one may question whether it always and everywhere possesses the determination and means to progress from action in the interests of development to action on behalf of sustainable development. While such action will not release it from some of its responsibilities and commitments, it will additionally require a strong creative outlook, much realism in the face of changing circumstances, and considerable personal and public commitment to reinventing the nature of progress. This is true everywhere and especially so in those countries which were the first to invent industrial society, and may thus be tempted to prolong it at a time when we are experiencing an era of profound change.

To prompt suggestions intended to encourage and strengthen new dynamics in higher education, the following seven topics will be considered:

- 1) A review of changes in the global environment.
- 2) The difference between a developing society and a society of sustainable development.
- 3) The forward planning of higher education and research.
- 4) Cultural challenges.
- 5) Challenges of (political) organization.
- 6) Players in sustainable development and their training.
- 7) Developing a worldwide vision of the future.

The Global Environment

Though familiar enough, a few simple data of major importance appear to be overlooked whenever it really is necessary to take account of them.

Centuries elapsed before the number of human beings reached 1000 million in 1800. The figure rose to 1500 million in 1900. This relatively modest increase compared to increases in the 20th century had far-reaching consequences, if only in terms of the growth in the influence of America in all fields, including university education and research. However, Europe considered itself to be large and powerful, even if it had forgotten that in the 18th century China was already the world's most populated country. While contributing through emigration to an increase in the population of lands that until then were only sparsely inhabited, Europe asserted its economic and financial influence but without seeking to develop some form of higher education in countries in which its presence was felt, though there were a few exceptions. In most cases admittedly, prospective members of the managerial elite (in the Indies for example) received a British-style education. Only after the Second World War did national universities begin to spring up in countries that only a short time previously were still subject to external influence. At that time, the world population was still no more than 2000 million and university facilities were expanding slowly. In just 50 years, this population would triple to reach over 6000 million, which has led to a runaway increase in the number of people eligible for education and training, in higher education as at other levels. Soviet and American power centres each sought to attract as many devotees as possible, and what finally happened is now well known. Yet certain influences linger on, such as the Russian penchant for large-scale industrial facilities and the "hard sciences".

American influence has been largely exerted through basic training on the one hand,² and managerial training on the other, and many researchers and lecturers were attracted to American universities.

Continued expansion of the overall population for a few more decades (to reach some 9000 million before the middle of the century) will lead to a huge school intake in countries with often only modest school and university facilities, especially in Africa, creating the likelihood that their prospective elites will seek to settle elsewhere, unless – as in China – economic and industrial modernization encourages them to return. And if they do, the trend still has to become a deep-rooted one because emigrants who have lived abroad for years often form a distorted perception of their changing country.

Demographic trends are having and will continue to have considerable repercussions for economic activity but also for education, training and research. As Renault / Nissan Chairman Carlos Ghosn told a group of economists at the beginning of July 2008: “growth is changing location”. The places with a strong growth in demand will be the most populated regions in which progress has been the most marked. Local entrepreneurs will be compelled to step up their level of organization at each stage of economic progress and will thus be on the lookout for well-qualified workers and managerial staff. Will they always be trained elsewhere or will there be a trend towards establishing new universities as is already occurring, with possible sponsorship from American universities in particular? Competition between centres of excellence will be keen. Any universities forgetting that they are in competition with others are likely to be treated as second-rate. And as multinational enterprises become established, they will be well advised to rely on local management staff who are nonetheless capable of relating to the world at large. This is all the more likely to occur for the fact that multinational enterprises and their research departments are obliged to seek assistance from university research centres, as in the health sector in India.

Another aspect of the changing environment is the decreasing amount of time needed to circulate information and even knowledge worldwide.

2 The much-vaunted “Training within Industry” (TWI) in which business organizations are taught the art of training. “Job Instruction Training” led to the training in a short period of 1,750,000 specialists and management staff in American industry during the war. The Agency that ran the system was converted into a foundation for teaching about methods and simplifying work. These methods which resulted in a real breakthrough in training and productivity should be borne in mind for use in sustainable development.

The technologies underlying use of the Internet have been established for several decades but its expansion on a general basis is much more recent. It is worth recalling that its pioneers were researchers in the same centre who had developed a tool for conversing with each other. Development of the method involved owes much to firms such as Cisco. Its worldwide adoption is symbolized by Google, this almost universally used living encyclopaedia.

Internet is an out-and-out revolution in terms of its social, economic and political impact. Its increasingly general use (from 1994 onwards) coincided with the breakthrough in world trade and the globalization of enterprises.

The academic world has played a highly significant role in the emergence of the Internet, the use of which is bound to spread further, developing the scope for distance training and intercommunication, and also encouraging the existence of communication networks internal to particular institutions or firms (intranets) or more general in nature.

Of course audio-visual media, notwithstanding random political or religious prohibitions, had already fostered communication – even between people who were strangers to each other – and a different way of developing relations between human beings. But the Internet has changed the very nature of business activity and of social and political life (including its electoral aspects).

The instantaneous nature of (true or false) information may heighten its impact and also reinforce the appeal of what is short-lived. Higher education (like any form of education and training) should take account of this by attempting to oblige individual men and women, institutions and enterprises to position themselves in a spatial and temporal context.

The need for this is clear from countless university studies in which the excellence of ad hoc research carried out with special reference material too often exists alongside ignorance of historical or even recent trends and events. Be that as it may, the Internet strengthens the reality and major role of logistics in economics, by including in it research but also finance (sometimes for the worse).

Development and Sustainable Development

The foregoing discussion provides an explanation of how the approach to development problems has changed. The English language term “sustainable development” is doubtless the most explicit in highlighting its sustainability – or otherwise – from the physical standpoint (the earth and its resources) and the social angle (adapting political structures in the broad sense of the term, in order to face up to present and future challenges).

We are confronted by two demands.

First, there is the necessity for growth to satisfy the profusion of needs. In under 50 years, the world’s population is going to increase by an amount equivalent to its total strength in the middle of the 1950s. Over and above what is already required by a population of 6500 million people, it is therefore necessary to be capable of producing worldwide the same volume of output that was produced at that time. Admittedly, much was wasted and even then a certain Vance Packard in a premonitory book³ in 1960 condemned the “waste makers”. But supposing there were a conversion from the consumer society to the restrained economy, the latter would be inadequate to cope with the extra demand bearing in mind that, besides the further mouths to be fed, attention has to be devoted to improving the living conditions of at least one third of the world’s current population – at a conservative estimate – who still lack basic necessities. Well-meaning opinion calls for policies to limit growth. Yet the likelihood is that they would hit the poorest people without resolving the issues of subsistence and inequality

3 *The Waste Makers*, David McKay Co.

Secondly, we continue to have to contend with serious ecological risks, especially those resulting from excess carbon dioxide (CO₂). It will also be necessary to compensate for scarcities that are hard to offset or overcome, by applying new technologies which are initially costly and whose promotion is time-consuming.

In order to overcome this contradiction in association with all economic players (naturally including enterprises), it is crucial to activate research and innovation, along with further thought and discussion about social organizations – in the broad sense of the term – so as to encourage better control of development. This is an issue of considerable relevance even to philosophers.

The development society is the outcome of the race for learning with a view to dominating nature through improved knowledge of things and of mankind. By reducing ignorance, humanity reduces its dependence. The quest for mastery of the universe through theoretical understanding was extended in Europe by the confidence placed in technical expertise for furthering material progress and the march of civilization. “If the aim is to control the universe”, writes Luc Ferry,⁴ “this is definitely not out of any sense of fascination, but to achieve certain objectives synonymous with freedom and happiness” (see the American Constitution). But has not this search for ends turned into a machine for securing means? Many moral authorities (including Popes John-Paul II and Benedict XVI) have expressed the wish that human beings should consider the ultimate goals of existence more than they appear to at present.

The debate should be broadened to include constituencies other than those of the western world. Countries just entering the industrial era may have another perspective on present circumstances. In this respect, the refined world of teaching and research has a subject suitable for cross-functional dialogue. Yet this kind of activity should not overlook the positive aspects of previous achievements. The creation of wealth is a key condition for sustainable development. As long as basic needs remain unsatisfied, those who have nothing or very little view it as a luxury for the rich. On the other hand, once this basic stage has been surpassed, the prospect of involvement in the new phase of progress corresponding to the transition to sustainable development may be exhilarating and conducive to research, the modernization of education and training programmes, and positive relations between the education system and economic players.

4 *The New Ecological Order*, University of Chicago Press, 1995

The Forward Planning of Higher Education and Research

Need we remind ourselves that forward planning is not forecasting? It is an approach to action based on a vision of the future rather than on the extension of the present. It does not discount the past and aims to determine what is constant in societies.

What then are the changes that appear likely, or more precisely what are some of the factors that can or might shape higher education and research in the years ahead?

And what are or will be the constants that should be taken into account?

// Dynamic Factors

Noted here are some of those that have already been discussed from another angle. The huge expansion of the population has a “mechanical” impact on education in general and on higher education.

Millions of students

In 1999, there were 92 million students in the world and, in 2006, 143 million; 48% of them were women in 1999 and 50% in 2006.⁵ In the same years, the strongest growth occurred in the developing countries, from 47 million to 85 million (in round figures), amounting to an increase of some 38 million. This compares with a

5 EFA Global Monitoring Report (2009) ISU.

corresponding increase for the developed countries of around 36 million to almost 44 million, or a further 8 million. It will come as no surprise that student numbers in East Asia and the Pacific rose from 22 million to 43 million (an additional 21 million students in seven years). If the countries of South and West Asia are included (with 9.7 million students in 1999 and 17.2 million in 2006, or an increase of 7.5 million), it is clear that in 2006, the entire Asian region had again strengthened its overall presence in world higher education. On the other hand, the relative position of North America and Europe combined in the area of R&D expenditure remains much stronger. However, compared to Europe alone, the differences are lessening and even moving in the opposite direction. In 1990 R&D expenditure in the whole of greater Asia⁶ (including Japan) was PPP \$94.2 million as against PPP \$138 million for Europe. But in 2000, it became PPP \$235.6 million compared to PPP \$202.9 million for Europe.

Without seeking to draw permanent conclusions from data offered solely for information, the reality of the situation is clearly plain for all to see.

It is highly likely that the trend will be maintained. In less than a generation, the whole of Asia will occupy a very strong position in higher education and research. It remains a moot point as to which languages will be used. We shall reconsider this in due course, but English will continue to play a very prominent role.

Providing for people who are less young

In the view of many political and economic leaders, another unfolding trend still does not seem to be really decisive, namely the ageing of the population. It will inevitably continue to be variously reflected in data and the funding of social activities. One only has to think of pensions. Not so long ago, when people retired at 60, they could on average expect to live on their pension for some years (in the West). Yet pensioners in the West now often spend the same amount of time in retirement as their “working” time. Universities should exert a far greater influence than at present on necessary or desirable actions resulting from this trend.

For one thing and notwithstanding objections based on arguments belonging to a relatively recent past, it is clear that in the decades immediately ahead the funding of pensions will not be possible if working time fails to take account of demographic changes. Often reluctant to make “old” (45-year-old!) people work,

6 The data are not the same as for the students.

enterprises themselves – just like states, trade unions and political representatives (whose working life already often extends beyond the age of 65) – will be obliged to take account of increased life expectancy in their calculations and actions.

This adjustment involves continuing education and will do so to an increasing extent. Such provision will assume several forms. Within enterprises or clusters of enterprises, courses will be offered on an individual or group basis especially for those aged around 40 – a pivotal age in embarking on the second part of working life (up to the age of 65). The same will occur at the age of around 60 in the case of men and women wanting to pursue voluntary or even gainful activity for a further ten years (from 65-75). Incidentally, teachers will doubtless consider that they too should update their skills perhaps even more often than “typical” working people.

Moreover, it is pleasing to note that in American universities, very elderly professors and lecturers still exert considerable influence. To cite just one example, Peter Drucker at the age of 80 was still capable of initiating fresh ideas that took account of ongoing changes. He is mentioned because he is one of the first to have drawn attention to three central factors: the significance of different ages in working life; the “socialization” of capital through pension funds; and broad extension of the organizational model originating in enterprises to bodies, such as hospitals and some universities, whose management can use it as a basic model – the idea being that they should adopt its management methods but without those bodies copying every aspect of business organizations themselves.

A diversified world linked by common concerns

Let us begin with solidarity because the word is fashionable but also because action does not necessarily match official public rhetoric. First, the solidarity at issue here is not of the kind that comes naturally to mind, namely the need to provide assistance to those requiring it – a duty which is not disputed. But this particular form of solidarity should not conceal the need also for common awareness on the part of all human beings that they are travellers on the same ship. Yet the vessel is vulnerable and exposed to risks of an ecological nature, epidemics, nuclear risks and increasingly global threats of Mafia-inspired violence, not to mention ideological or even economic warfare.

The dangers are regional or global. Laws where they exist are in most cases national.

Higher education and research, which are driven by protagonists who have – or ought to have – a good grasp of what is universally significant, constitute a privileged arena in the search for the global common good and the rules that go with it. That same arena is also one which demands both awareness of the limits to human action and an ability to remember that without taking risks, science and technology would not advance. Depending on each historical period, opinion has either readily accepted the stages of progress (the advent of the motor car was not free from fatal accidents), or been scared of its own shadow through succumbing to the influence of studies that were pseudo-scientific or just biased.

Scientists with their familiar tendency sometimes to argue among themselves have to rise above certain disputes and gauge the impact that their views may have on public opinion. In this respect, it can never be overemphasized that they also have a duty to provide people with information and even popularize it, not so as to insist on their own point of view but to further understanding of scientific and technological trends among people averse to esoteric language. Solidarity must be increasingly in evidence so that global problems can be jointly confronted and resolved.

Four examples are considered here simply by way of illustration:

- **Health:** the conditions governing its quality depend on people's location, social environment and age. But many therapies are effective everywhere, and "western" medicine is coming to realize that it does not enjoy the monopoly of effectiveness. The further we advance, the more we should exchange experience, research and methods.
- **The sea:** among the preconditions for "sustainable ecology", cleaning up the sea is one of the most important. Because of the freedom with which the seas have been used since earliest times, everyone has assumed they owned the entire marine area and seabed. Yet as often occurs, property lacking a true owner or left freely available deteriorates. Despite its immensity, the sea is not the world's bottomless dustbin and of this there is growing awareness. But less attention is devoted to the subject than to monetary upheavals or the overexploitation of forested areas. Yet it is a truly global issue. In this

respect, it should be the focus of greater concern than is already the case in the teaching of science, law and economics and in laboratories.

- **The conquest of space:** this is mentioned here just for the record, as it was an adventure begun in a belligerent atmosphere – that of the cold war – and its protagonists have realized that, beyond the initial stages, it calls for an extensive deployment of resources.
- **Technology transfer:** Global solidarity presupposes a sharing of knowledge and expertise. A longstanding tradition – mercantilism – has compelled peoples to retain both for themselves. Yet history and especially that of the period subsequent to implementation of the Marshall Plan after 1945 demonstrates that the affluence of the “rich” is linked over time to greater prosperity of the poor.

Admittedly, by sharing knowledge and expertise, one runs the risk of attracting competitors. But if one refuses, one faces the far greater risk of revolts arising from extreme poverty and global imbalances.

Technology transfer is one of the most effective forces for progress when it is properly conducted, or in other words when those who transmit and those who receive nurture no mutual distrust. Increasingly however, the transfer of major technologies, such as those concerned with nuclear energy, can only be envisaged if it is associated with the acquisition or transfer of a universal consciousness of which some states today still seem incapable.

2/ Constants

The paradox of modern society is that its foremost constant is permanent change. This is well known in laboratories, as well as among those working in many fields such as management or marketing. But knowing or thinking about it is not enough.

The time lag between invention and practical application

Like the personal computer, the Internet – as has been noted – arrived on the scene in the 1960s but became available for extensive use a generation later.

Entrepreneurs with a sound perception of the future may be mistaken about the time at which a new technology is implemented. This applies to the now emerging e-books. But will they really be accepted and, if so, by whom and when? And to what extent?

The facilities required by clients or the uses of such technology also have to be borne in mind. It is worth recalling that Swift, the man who doubtless contributed most at the end of the 19th and beginning of the 20th centuries to the transport of refrigerated meat, was obliged to develop the “cold chain”.

Furthermore, the practical implementation of new technologies often calls for training networks for those wishing to use them. Thus when information technology got under way, IBM (and a few other organizations) was not just a forward-looking enterprise but also a universal “school”. Conversely, in some regions and especially Africa, there are factories that have never been used for a variety of reasons, and in particular because the personnel required – not to mention prospective customers or partners – have lacked training.

Creative Destruction

In coining the expression “creative destruction”, the Austrian economist J. Schumpeter, who became an American, sought to characterize dynamic industrial society in terms of its declining and expanding activities. An often repeated example has been that of the stagecoach replaced by the railway. Unfortunately changes do not occur in smooth succession and in the same centres of production. Post houses are replaced by garages. The men, technologies and capital are no longer the same even though there may be some overlap. The transition from a given state A to state B generally involves difficulties, apprehensions and individual and regional traumas. Developed societies exist in a state of virtually constant readjustment. A time lag sometimes occurs between what is taught in schools and universities and the practical conditions experienced by enterprises. To take just a mundane example, the machines used to train specialists may not always be nearly as up to date as those already installed in some firms.

This is why here, as in many other instances, constant regular contact between enterprises, schools, universities and of course laboratories, is useful and even necessary. Such contacts are that much easier to maintain with modern communication technologies. In scientific, medical or technological disciplines,

the relationships involved are relatively straightforward, whereas this is less so in social studies and the humanities. Yet the positive or negative effects of creative destruction may lead to the need for progress in organization, social policies and psychology.

This interdependence, along with the cross-functional dimension too, should become stronger in the human and medical fields. However, this does not mean that excellent specialists are capable of grasping the broader picture. Yet the art of doing so when action is needed is one of the increasingly pressing requirements of our societies in which, in the last resort, (single or collective) policy-makers are surrounded by advice that is remarkable but often uninformed about a particular innovation or inattentive to global realities. For example, while first generation green fuels are a means of offsetting certain local shortages, they have been introduced with little regard for one of the most critical scarcities for the future food supply – that of cultivable land areas.

Two unyielding constants

Both are easy to define but more complex to accept in practice. The first is a simple economic precept applicable to individuals, communities, states and the entire planet, namely that one should not consume more wealth than is produced over a given period.

Of course, the approach is conceived in overall terms. In many activities of a technical nature, more resources are consumed at the outset than are produced. Similarly, certain activities are by definition not profitable in the usual sense of the term, including those of the army and police, religious worship and the creation of works of art. However one cannot with impunity accumulate areas of loss that are not offset by the creation of wealth or remunerated external capital, to which there are also limits and which sooner or later, therefore, have to be repaid.

Discipline in this area is even harder to maintain given that expenditure without adequate resources is often regarded as a form of investment, in human “capital” or in art or charity. For this reason, bodies which incur it should be subject to accounting regulations in the same way as conventional “market” enterprises. The same applies to actions relating to sustainable development.

The other constant is the need for a final “decision-maker”. In enterprises, this corresponds to one or more top executive officers subject to the control of shareholders or sponsors. In the current period, the professional regulations governing management and certain decisions have too often been lax. It is also clear that the result of these “oversights” has been a full-scale crisis which is costing everyone dear, including those in no way responsible for it. Democracy presupposes at least a modicum of virtue. Without caricaturing Savonarola, it seems regrettable that this “intangible” reality has been overlooked. Moreover, the path towards a minimum of virtue everywhere is a long one. If the richest countries let fraudulent practice develop unheeded, how can they warn “poor” countries against it?

Some will perhaps say that consideration of these topics has little to do with the new dynamics of higher education and research. Yet is it not the role of those in charge of both to bring obstacles to progress into sharp relief and provide broad instruction regarding the conditions for new dynamics in society?

At this point we reach the cultural domain, an essential dimension of higher education and training, to some aspects of which we now turn.⁷

⁷ As regards this subject, see a book that is still topical: *L'enseignement supérieur et l'idée d'Université* [Higher Education and the University Concept] by Professor Alain Bienaymé (Economica, 1986).

Cultural Challenges

Two basic facts are at issue. On the one hand, non-Western societies have gained something from breakthroughs in science and technology while maintaining a fair share of their traditions; on the other, despite assertions of the need to preserve cultural roots, the main activities in high level education and research are conducted in “American”. Can this domination exerted by a single language be avoided?

Compliance with certain traditions is apparent in countries with ancient civilizations whether Japanese, Korean or Chinese. It also exists in what may be termed the Indian continent, which can admittedly trace its origins to many different sources. Do these traditions persist because entire segments of population have not really integrated into industrial (and consumer) society, or because they have not been totally snuffed out by “industrial” modernity?

In fact it depends on training methods and on whether social and religious forms of organization have been preserved. When they are of a fundamentalist, religious or ideological nature, they inhibit changes and stand in the way of certain kinds of scientific and technological progress, in medicine for example. Things remain at a standstill wherever society fails to recognize people's freedom of choice. While this does not rule out progress in science and technology, it is however likely to occur in the restrictive context of economies subject to total administration.

From the standpoint of training, countries wishing to retain their personality should definitely be concerned with preserving its character and identity. The teaching of history and philosophies may be of value in this respect. But guaranteed long-term preservation implies active participation in the history of the world as it

develops. The mining and mechanical engineering tradition in Germany contributes to the country's special character, and the subject areas associated with these occupations have not been stifled by modernity. On the contrary, tradition when properly understood has proved to be a permanent asset. Reconciling technology and tradition is harder when a country lacks the means to assert home-grown technological strengths. Such features are likely to be imposed from outside at the expense of its own distinctive qualities.

Furthermore, those who spread modernity, whether teachers or enterprises, should be aware of the likelihood that it may exert a dehumanizing influence which they will occasionally propagate themselves without realizing it. Any form of organization superimposed on ground that is not receptive runs the risk of failure or irregularity. In this respect, one might recall the verdict of the Franco-Swiss philosopher Jean-Jacques Rousseau regarding Peter the Great and Catherine II of Russia: "They wanted to make Germans or English people inhabitants of their country but would have done better first of all to concentrate on Russians!".

The other insidious tendency is more complex. It directly concerns higher education and research and relates to what Philip G. Altbach has called "the imperial tongue": the academic supremacy of English. The term "American" might be preferred given the relative influence of North America which carries far more weight than that of England in science and technology. But that is not the point. What counts is that English has become latter-day Latin. Countries in which it is not the natural language may regard themselves as colonized, particularly for the fact that while their managerial classes are expected to learn English, people of English mother tongue are not asked to take an interest in other languages.

Many researchers overlook highly significant research and first-rate teaching, for example in German, French, Russian, or Spanish (notwithstanding increasing use of Spanish in the United States). There is wastage of intellectual output and sometimes the risk of "single track" thought. If American or American-style economists had been better informed about European publications before 2007-2008, they would have been more effectively forewarned about the likelihood of crisis fuelled by a kind of short-term laxness and by an excessively financial and speculative approach to economic affairs.

The conclusion to be drawn is not that higher education should be transformed into a Tower of Babel in which mutual understanding is no longer possible, but

that no time should be lost in urging all non-Anglophone teachers to become competent in everyday English and native English educators to develop proficiency in other languages.

In this respect, the above-mentioned position of Philip G. Altbach⁸ is only to be commended. The English language, he maintains in substance, governs activity in science,⁹ education and training. Even if today's world bears little resemblance to that of the 13th century, the part played by Latin in European universities at that time is readily appreciated. It was to promote their "internationalization" and the ascendancy of the Catholic Church over intellectual and academic life. Only with the Protestantism of Luther and his Bible in German did national languages begin to supplant Latin.

Until 1930, German was widely used as a language of scholarship. Up to 1950, academic publications were often written in the mother tongue of their authors. But English was already used in all the Commonwealth States and, of course, the United States.

Since then, English has become the leading world academic language, to the benefit of viewpoints expressed in it and – indirectly too therefore – of universities which transmit it and educators who use it. This is nothing surprising. The United States in particular spends almost half of its R&D budget in the universities and attracts scholars and experts from all over the world. On the other hand, those who return to their country do not abandon the use of English. The same applies to "international" students whose numbers rose from 600,000 in 1975 to 1.8 million in 2000, and 2.7 million in 2005.

The main scientific and academic publications are written in English, and websites whose influence is steadily growing offer their services basically in English. In addition, more students are working in English in China than in the United States itself (given their numbers), and more in India than in Great Britain.

English is the official language of 70 countries. By contrast, it may be noted that no academic education is provided in an indigenous African language, alongside English (usually), French, Portuguese or Arabic. The hegemony of English is plainly apparent in most international meetings, notwithstanding the use of simultaneous

8 See *International Higher Education*, No. 49 (2007).

9 The other universal "language" is mathematics whose adepts are universally understood but only by those proficient in the subject..

interpretation. This gives teachers, experts and politicians who use English naturally a competitive advantage. A good example is provided by the Master of Business Administration (MBA), which was devised in the United States to meet the needs of American enterprises and which has become an almost universal model for the curriculum leading to management positions in firms.

The influence acquired by multinational companies has only fuelled the trend. In universities in countries in which English is not even the natural first language, MBA courses are offered totally or mainly in English. The impact of the language also has repercussions for the content of academic disciplines. Thus management governed by the achievements of financial markets has assumed excessive importance, as freely admitted by former General Electric Chairman, Jack Welch, who was nevertheless among those who promoted it.

Altbach points out, with examples, that articles published in English in a recognized journal are paid for, whereas for the same articles published in a national language this occurs to only a limited extent, if at all. Academic authorities are insistent in their requests for publications in English. Probably around 100 English-language university centres sponsored by universities in countries in the North have been established in recent years. There is no doubt whatever that numerous standards, education and training programmes and methods initiated in the United States are spreading throughout the entire academic and scientific community, including that of China.

The use of English is vital in securing a hearing at international level, so much so that a Dutch education minister has suggested that Dutch universities make exclusive use of it. Following a debate, the Parliament refused to do so, arguing that the Netherlands risked sacrificing its cultural identity. But many Dutch people speak foreign languages and those who wish to publish in English can generally do so. It may be added that this virtual obligation to use English for science and in the universities may be instrumental in creating a kind of social and psychological barrier within non-Anglophone countries between English-speaking people – often members of the managerial class – and the “locals”. Moreover, the problem has been pointed out in negotiations on the freedom of trade. Recommendations designed to achieve greater openness to outside influences even when they are not articulated in English have been directed towards the global academic system. The balance between what is “local” and “global” will be difficult to establish and maintain but the intellectual independence of countries depends on it.

Challenges of (political) Organization

Development problems are often overcome through the progress made in science and technology. But implementing them also calls for progress in how enterprises, institutions, countries and the world itself are organized.

We may recall that, for long periods, countries that are now wealthy were exposed to the periodic threat of starvation, even though food production was in principle adequate. As a result, speculators were blamed for hoarding during years of plenty so as to improve their income in lean periods. Two factors were decisive in reducing starvation and even eradicating it from many regions, namely technological progress conducive to arable land productivity and improved organization of transport. Indeed, famine was often rife in one region close to another one better endowed. But because of shortcomings in communication networks in particular, transport was poor even in countries considered rich at the time (such as France). And while it is still clear today that famine may have natural causes (for example excessive rainfall or drought), organizational barriers (including political ones) are definitely responsible for hindering or even preventing relief from reaching places where the need for its distribution is acute.

The keyword for the organization necessary to make the most of the potential offered by technology is productivity. As we know, it involves seeking constantly to do more and do it better with less, including fewer raw materials, fewer financial means, less wastage and less confusion in bureaucracy. For example, it is common knowledge that corn shortages in the former Soviet Union were caused by a lack of coordination between departments responsible for harvesting crops and those

responsible for collecting them. History – and military history in particular – is full of such examples. Contrary to a well-known quip¹⁰ that “all further material support will be provided”, the material support should if possible precede and accompany the action. The Normandy Landings of allied troops against Nazism in 1944 were of course a victory achieved by men, but they would not have occurred without a victory for logistics.

The success of policies for sustainable development also depends on logistics. Furthermore, it very often happens that technologies which are used successfully to overcome difficulties subsequently prove to have disadvantages. Here, the answer is not to discontinue the remedy but to search for others. A good illustration of this was in the battle against malaria caused by mosquitoes fought with DDT, which turned out to be noxious when it impregnated soil and water. But without it, malaria has reappeared and other kinds of action are required against mosquitoes.

For a long time, asbestos surface coverings were used as a protection against the risk of fire, until asbestos dust was found to cause cancer. Here too, therefore, the form of protection had to be changed. But in the meantime many fires were avoided.

It is also common knowledge that the use of nuclear energy calls for what is virtually military discipline in the factories producing it. Chernobyl was in the first instance a tragedy arising from inadequate supervision and organization before becoming a technological catastrophe.

To combat the risk of global warming caused by excess CO₂, which is increasingly attributed to human activity, far-reaching programmes are discussed at world level without the involvement of all countries in implementing them. Herein lies the debate of the century. The developed countries are those that have produced the most CO₂ since the start of the industrial era. China, which began much later but on a massive scale, now produces as much as the United States which has been the front-runner in (fossil) fuel wastage for decades. Asking the Chinese and other countries with emerging economies to abandon a better standard of living in order to avoid pollution and climatic disturbances is a sensitive matter. Their entire organization is geared to ensuring that their development catches up.

10 A remark attributed to General de Gaulle.

Unfortunately, the CO₂ produced is not confined within borders. The search for a more appropriate balance between the resources deployed to obtain energy and the impact they have on nature involves scientific, technological, political and financial measures which affect the very workings of industrial society. It is only by developing new technologies (and in particular the replacement of fossil fuels by fuels without CO₂) that the challenge will be met. Yet entire sectors of activity will have to be shut down or reconverted, as in the case of the car industry and forms of road transport. While people will be unable to do without vehicles for transport purposes, they will no longer be the same in two generations time. The entire organization of systems of production, distribution and application will have radically changed.

The same also applies to agriculture. Soil scarcity, which is relative but in places very real, and the huge increase in needs call for the gradual transition from agriculture with an excessively “quantitative” dimension to agriculture which is adapted in accordance with land characteristics, water resources and other factors. It will be just as productive overall but with more economic use of land, fertilizers and water. In addition, it is likely that a greater share of production in the “South” intended for rich markets in the “North” will find market outlets in its home region as living conditions there are improved. This is not to say that cherries will never be eaten in Paris in December, but rather that the supply routes of numerous food products will be limited. If there is real commitment to cutting back on CO₂ emissions, the ingredients in a jar of yoghurt hardly need to be transported millions of kilometres.

Once more, this is not a matter of piling on an increasing number of restrictions with excessive bureaucracy. The focus required is on global productivity which involves evaluating better than previously the real overall cost of human activity in economic, ecological and social terms.¹¹ The issue is all the more political for the fact that the needs of sustainable development are not considered everywhere in the same way (production methods, custom, etc.), and that progress in this area is easier to envisage and achieve when starting from scratch, rather than when adjusting what has been already been done. In addition, as no-one can claim to be the spokesperson for absolute truth and as science and technology are rapidly changing, diktats are as ill-advised here as anywhere else.

11 See *La Comptabilité* [Accountancy] by Arthur Cecil Pigou, a liberal economist and contemporary of Keynes who devised a form of accountancy that took borrowing from nature into consideration. It was not fashionable but now merits closer study than in the past.

The academic and research worlds which harbour intellectual passions bear major responsibility for growing awareness of the facts and preparing for the future, but also for attendant delays. Activity should be increasingly developed in an energetic but “enlightened” manner.

Players in Sustainable Development and their Training

In 2009, the French National Commission for UNESCO published a booklet on this topic. Its initial assertion is nothing short of commendable: “Sustainable development” is not an academic discipline. However, as a project for an inhabited planet, it could be realistic only if it takes account of what sciences say about the dynamics of this planet”. The document itemizes several recommendations intended for the UNESCO Chairs, mainly in order to secure acceptance of “practical know-how”, over and above knowledge and expertise.

It reflects perceptible concern for the implementation of training programmes which take account both of transnational requirements and varied kinds of situation.

In a more forward-looking approach, it might be thought that there is no further obligation to refer to sustainable development. It is the existence of this obligation which prompts our realization that the principle has not become ingrained. Yet might there not be, on the one hand, a type of development which needs to be adjusted here and there and, on the other, sustainable development whose disciplines one may or may not accept.

In fact, it is essential when one refers to development, that it is understood in its only conceivable form, namely that of sustainable development. It is this kind of development therefore which should gradually find its way into all educational content, be it scientific, sociological, technical, financial or economic, etc.

SRI

As an example, one may consider socially responsible investing (SRI), and trends in accounting techniques for appraising and ranking firms no longer on the basis of criteria concerned with their immediate financial results, but with overall results that take the requirements of “sustainable” development¹² into consideration.

SRI works to maintain effectiveness and an ethical outlook. Does respect for the environment have anything to do with effectiveness or ethics? In the long term, it is the condition for economic efficiency but it is also concerned with ethics.

In addition, it is responsive to another concern which is to really involve in the daily activities of enterprises, all their stakeholders, including shareholders and management but also employees, suppliers, customers, sub-contractors, and public authorities, and even certain representatives of civil society, even though their points of view are admittedly sometimes contradictory and cancel each other out.

In fact, the idea is that requirements that are not wholly financial should be taken into account. It is certainly concern for the long term that is the most significant over time. Yet this is insufficiently appreciated by many enterprises except those which invest over a period of 30 or 50 years, as in the fuel, transport or large-scale construction sectors.

Admittedly, the problem has less to do with enterprises than with general policy. Long-term measures are not immediately “profitable” in political terms, whereas short-term expenditure is often demanded by electors. Thus a central or regional government budget has to invest in universities while providing for their operational expenditure, or maintain a surplus of personnel in certain group activities.

Diversifying staff teams

Training for sustainable development is interdisciplinary and cross-functional. It does not run counter to the concerns of enterprises – far from it. According to a recent survey (5 April 2009) by Eurogroup for *l'Expansion / Le Figaro* dealing with the background of staff and their performance, a majority of enterprises quoted on the CAC 40 index in France felt that diversifying staff teams led to better

12 See *L'Investissement socialement responsable* [Socially responsible Investing], Cesar de Brito, Jean-Philippe Desmartin, Valéry Lucas-Leclin, François Perrin, Economica 2005.

results. This is consistent with a long-established finding which upholds the value of linkages between academic disciplines and players: many forms of technical and organizational progress have been the outcome of intercommunication between different technologies, disciplines and players from different backgrounds. In illustrating the need to solicit support from a wide variety of fields so as to improve management of the planet, “the vessel on which we are all travelling”, French philosopher Michel Serres, who teaches at the University of Stanford in California, considers demography, arable land, fishery resources, energy expenditure, the state of the ice field, global warming, gas and oil reserves, world hunger, life expectancy and biodiversity, etc.¹³

He might also have listed all sciences and technologies that should be activated for each to make further progress. For example if one wishes to overcome the problem of any possible epidemic, it is not enough to consult doctors; one often needs to examine production methods or patterns of existence.

Reliance on forward planning, which has already been mentioned, is essential for the training of teachers who in turn will train other teacher-educators. As Gaston Berger, the philosopher who “invented” forward planning remarked, to contemplate the future is to disrupt the present. Possessing an informed vision of the future situation surrounding energy may lead us to alter investment programmes here and now.

The difficulty stems from the fact that clear-sightedness regarding trends does not mean knowing for sure when major changes will occur. While variations in prices should be a factor in more accurate forecasting, recent fluctuations in oil prices show that changes never follow a gentle slope. From this one can appreciate how enterprises have difficulty in adjusting to periods of rapid technological change. It is not enough to learn properly what was done in the past. On the contrary, it is often better to be wary of it and take a chance with fresh approaches.

Policy-makers may have a considerable influence over training as well as behaviour patterns. If as President Obama has stated, the fight against climate change is a universal responsibility and some of the current economic crises may be tackled through reliance on green fuels and the green economy in general, changes

¹³ *La Guerre mondiale* [The World War] Michel Serres, Le Pommier, 2009.

will inevitably occur. Subject to one condition however, namely that words are followed by action, budgets and legislation.

Not everything will be done in a day, but what counts is the change in general direction. Already in the car industry, energy conservation is on the agenda with the search for sources other than oil. The trend appears to be well under way and should guide training programmes for engineers, as it now already does in certain research centres.

As the authors of the note from the French National Commission for UNESCO wrote: "it is of utmost importance to make people aware of the evolution in our scientific understanding of the world: change is an intrinsic characteristic of reality, brought to light by today's scientific discoveries. We leave behind the illusionary idea of a world in which the normal state of things would have been 'a harmonious equilibrium between man and nature' to discover that transformation, evolution is the rule. To put oneself in this perspective is not obvious: our traditional codes of ethics can be turned upside down. It is absolutely necessary to have professional actors in the service of sustainable development projects who have integrated the major paradigms of change in their personal culture".

It is desirable to ensure that people acquire an "integrative" understanding of the sustainable development issue. However commonplace the reminder, sustainable development will only be meaningful if social, environmental and economic aspects are brought together within a single dynamic current. An interdisciplinary approach is thus vital, as is the development of a cultural context in which teachers and students can understand the interaction between the foregoing three aspects. Effective action presupposes that local schemes will gradually become part of a single global strategy. Training those who will be actively involved in sustainable development is concerned with more than the acquisition of an interdisciplinary culture: they also have to be taught to work in interculturality.

The Worldwide Vision

Should one be fearful of the future? The changes needed also represent tremendous opportunities for action on the part of the next generations. The misgivings or even firm opposition engendered by the demands of sustainable development have to be seen in conjunction with the positive signs of its implementation.

Among those leaders in economic, political and social activities who will continue to play a major part in the transition from a development society, such as the one that has functioned for almost three centuries (18th-20th inclusive), to a society of sustainable development, universities and entrepreneurs are singled out for special attention. They will be obliged to confront two crucial needs at world level in the 21st century:

- The need for vigorous growth to satisfy the requirements of an enormous population.
- The need for restrained growth to limit ecological risks as far as possible.

While these two aims are apparently contradictory, one of the tasks of players in the emerging "new world" will be to make them compatible by ensuring that the concept of productivity materializes in its fullest possible sense.

The scale of the challenges involved must be countered with imagination, creativity, and self-discipline on the part of the men and women shaping the future. Scientists and teachers, along with those who run enterprises, will be all the more successful in their activities if as far as possible they conduct them jointly.

Universities as the melting pot of learning

The university is the location par excellence for building on knowledge and thus developing it, but also for preserving it. However different the world of the future will be from that of the present, it will not sweep away human experience in its entirety. But its sustainable development will only be possible with the support of fresh knowledge, and of training and experience which take account of constantly evolving circumstances at least as much as current ones. This forward projection is not a leap into the unknown. It implies above all that facts should no longer be the focus of wishful thinking but confronted as they are, so as to reach a sound diagnosis of the present which is necessary to prepare the road map for subsequent stages. The ability to ask questions will be required, as well as a capacity for criticism, in the concern to achieve or inspire action. An approach of this kind is only conceivable on a permanent basis if teachers and researchers have learnt to learn, to avoid simply falling back on what they already know. And it must also be combined with an effort to share and upgrade knowledge.

Researchers and teachers indeed have three central goals to pursue in the emergence of sustainable development:

- Creating awareness of the scale of the issues, but also ensuring that their partners and pupils contribute to the forward momentum of this extraordinary period of human endeavour. It unquestionably abounds with risks, but also with opportunities which need to be exploited in overcoming or lessening attendant problems.
- Becoming fully immersed in a culture which exalts the control of change through research and innovation. This implies focusing broadly not just on “intellectual” activity, but also on the methods to be adopted if sustainable development is to become a byword for hope rather than persistent obstructiveness.
- Devote some of their energy to circulating knowledge and information in language accessible to non-specialists, with help from journalists adept in communicating, as well as policy-makers. Scholars are also duty-bound to remind all those who exercise responsibility of the need to listen.

The ability required must clearly have a broad cultural foundation already referred to. Technical insights are needed to understand the world and how it changes, but a kind of broad general knowledge is crucial, among other things to provide basic education.

Two observations round off these general remarks. First the world of higher education and research is going to become increasingly extensive. It was concentrated in the industrialized countries and mainly the United States. This geographical supremacy will not disappear overnight. On the other hand, countries with emerging economies are already attracting new universities and research centres. The trend may result in fresh approaches to the economic and social problems that have to be overcome. As already noted, this applies to pharmacy and medicine but also to agricultural and food technology. A telling example is that of microcredit.

An activity with a very long history, microcredit has been modernized and developed on a grand scale in poor countries but also industrialized ones, among populations of very modest means. It was practised in ways that were informal or through low interest-rate collateral loans granted by pawnshops or mutual benefit societies in the agricultural sector. The system was promoted by a professor of economics, Muhammed Yunus, in Bangladesh in the 1970s. During a practical work session, he asked his students to question manufacturers of bamboo products (seats) to assess their possible credit requirements, which were real enough but no more than a few dollars. The sum was considered too modest by the banks which were also distrustful of insolvent creditors. Yunus decided to provide a few loans from his own pocket. Craftworkers (women as well as men) were thus able to buy greater quantities of bamboo more cheaply. They fully repaid the professor and some of them even created a few jobs. In 1976, Muhammed Yunus founded Grameen Bank which offered loans to poor people in Bangladesh and flourished, with several million clients. The technique spread via cooperative networks, such as those in Africa, Asia, the Philippines and even in France, with an Association pour le Droit à l'Initiative économique (ADIE),¹⁴ and in Belgium.

In 1998, Jacques Attali founded PlaNet Finance, an international organization for the development of microfinance. Mainstream banks decided to support organizations for microfinancing. In 2002, the World Bank compiled a list of 10,000 microfinance

¹⁴ Founded by Maria Nowak, President of ADIE [Association for the Right to Economic Initiative] and of the European Microfinance Network.

institutions in 85 countries, and over 130 million borrowers. Experience tends to demonstrate that borrowers who are poor but gainfully employed and committed to making a micro-enterprise work, whether alone or in a group (villages), repay their debts on time.

The year 2005 was declared the International Year of Microcredit. In 2006, the Nobel Peace Prize was awarded to Muhammed Yunus and Grameen Bank. The Chair of the Nobel Committee stated on this occasion that “lasting peace can not be achieved unless large population groups find ways in which to break out of poverty”.

The microcredit mechanism is suited to a great many regions in need of a form of local development that “experts” do not consider nearly as often as they should. Yet such development contributes to gradual improvements in the standard of living and can halt the population drift towards the enormous shanty town ghettos which are steadily expanding in Africa, Asia and Latin America. It is a step towards modernization.

This vast global experiment demonstrates how it is possible for academics or researchers in developing countries to devise previously untried techniques that are suited to situations for which conventional methods are inadequate. It will become increasingly apparent that this source of creativeness can be tapped on a substantial scale in research centres and universities based in countries with emerging economies, provided of course that “western” expertise is not disregarded, but also – as cannot be overemphasized – that one avoids just superimposing the most modern techniques on an environment not ready to accept them.

The second observation concerning the world of academics and scholars is of a very different kind. It has to do with the moral authority that they may (or may not) be able to influence over society.

No one should be offended by the remark that some people assert their beliefs so strongly that they forget that their views are not necessarily shared by everyone else. Others quarrel with one another about scientific or technological phenomena, new products (such as GMOs) or organizations that should be established (for example to study the next stages in the use of nuclear energy).

There is nothing unusual about the occurrence of disagreements which give rise to debates. However, they should not be conducted in such a way that the “public” have the impression that it is science which is mistaken. Mathematics is not to blame if models established by sorcerer’s apprentices have contributed to the recent financial excesses. The more likely culprit is the lack of critical acumen on the part of leading bankers who permitted the growth of mechanisms that they confessed they knew nothing about, and above all in disregard for the alarm bells that were ringing.

People should also be warned against any misconception regarding an ideal solution. Nothing is more detrimental to the credibility of scholars than plain facts that fly in the face of dogmatic claims. While one cannot of course endlessly weigh up pros and cons, there is no need when recommending an action to declare one’s infallibility. Scientific truth is evolutionary. The hardest thing of all is to get opinion in general to acknowledge that change is a constant. To put it another way, while it is inevitable and indeed desirable that ideas, methods and investment decisions should be subject to controversy, attention should also be paid to the question of diagnosis. At all levels involved in finding joint solutions to a particular problem, there must be initial agreement as to its constituent elements. This often takes time, but it is made up later. And above all public opinion, which witnesses the debate, is less inclined to feel that the policies implemented are heaven-sent because “experts” have so decreed it.

The world of higher education and research should naturally develop unperturbed by the concept of a universal rationale, while recognizing that it will then have to be expressed with due regard for its many diverse elements. But one vital requirement concerns us all, namely the evolution of the planet itself.

The principle of universality has to be paralleled by that of subsidiarity which, within a given context, leads to a search in the case of each country or organization for the adjustments required, without undermining the main lines of action. Indeed, is not one of the underlying goals of UNESCO to foster diversity within universality?

Enterprises at the heart of sustainable development¹⁵

The crucial needs of sustainable development are of three kinds, namely economic (making progress), environmental (protecting the planet) and human and social (respecting human beings and their rights). Here, the outstanding difference compared to former imperatives is the emergence of concern for the environment. Yet, now as in the past, the smooth running of society depends on the responsibility of its players, be they persons, public authorities, or enterprises.

In the conduct of individuals, attention is drawn to the significance of their choices – and especially those concerning consumption, investment and voting, provided they can be freely exercised – and of their social and societal activity.

As regards the role of the international, regional (e.g. European) and national public authorities, it may be noted that they possess restrictive legal, judicial and fiscal powers. They have to exercise them at the level over which their authority is effective, which is often inter-regional or international. They have to do so in a democratic spirit which avoids technocratic assumptions and the misuse of debilitating regulations. And they are also responsible for security in the broad sense of the term.

In the constant daily effort required to achieve development, enterprises have a decisive role to play. It is on them that the patterns characterizing modes of production, consumption, work, and the standard and style of living will largely depend.

Their prime commitment will remain the creation of wealth. One Francis Mer, at the time Chairman of Arcelor, said in April 2002: “it is currently fashionable to believe that development has been achieved. Nothing could be further from the truth. Development is necessary, first, because the chief purpose of the economy is not just to do better, but to do increasingly better, and to do so for the men and women whom it ultimately serves, which is a way of realizing that development involves sustainability, even though certain kinds of behaviour threaten both sustainability and economic activity, whether from an environmental standpoint in the strict sense, or in social terms”.¹⁶

15 See *Les arbres ne poussent pas jusqu'au ciel ...* [Trees do not reach Heaven ...] Michel Drancourt, Village Mondial, 2003.

16 *Développement durable, les patrons s'engagent* [Sustainable Development: management signs up] Le Cherche-Midi, 2002.

He added that sustainable development should not just be measured in quantitative terms, but be an integral part of the soul of an enterprise.

The search for profitability, a condition for development, will take place in a stricter legislative and normative framework than in the past. It will no longer be enough to comply with judicial and financial regulations. The three above-mentioned requirements will have to be satisfied, namely economic performance, the protection of the environment and concern for respecting men and women.

The management methods advocated for achieving quality clearly foreshadow those required in the approach to sustainable development. Both involve an effort to achieve savings (in raw materials, fuel, transport) and to use creative imagination to improve products and services and innovate. By making good use of technological breakthroughs in communication, the partners of enterprises contribute to their activities. By transforming the costs of sustainable development into long-term profitable investments, the search for profit is pursued.

Well-managed enterprises focus their attention both on current markets and those of tomorrow. They live in the present and the future, and are thus naturally future-oriented. They must become even more so by taking advantage of new technology and envisaging patterns of organization geared to the requirements of sustainable development. Accustomed as they are to weighing up the merits and demerits of schemes, so as to commit themselves when the positive outcomes seem certain to outweigh any disadvantages, enterprises will continue to have to remember that control over development depends on technologies which, in many cases, have yet to materialize. If conservative opinion were to prevail, rejecting any innovation whose long-term safety was not clearly demonstrable, they would no longer be capable of achieving what was expected of them. They have to take risks like any company wishing to progress. But they have to manage them to take account of the dangers at issue and the cost of keeping them at bay. This is a constraint that did not exist when industry first started up. It does not eliminate the inevitably unpredictable element in preparing for the future. Enterprises cannot assume sole responsibility for this, as it affects society as a whole. Herein lies the obligation on them to make use of information and communication to demonstrate that real economic, ecological and social security lies in moving with the current and not against it.

Two further observations will bear witness to the importance of enterprises in securing the general adoption of a policy for sustainable development. On the one hand, enterprises with multinational commitments can no longer limit their activities to “western” markets alone; on the other, enterprises in emerging economies are also becoming capable of globalization and joining the multinationals. In both cases, they are forming links with universities, as well as with high level training establishments and research departments.

Multinational enterprises are adapting to developing markets. Firms such as Nestlé or Danone are developing quality products affordable to those of modest means. With the full-scale industrial take-off of countries such as China and India but also Brazil, and notwithstanding the crisis of 2008-2009, the potential market of enterprises (like the different one of universities) is expanding by hundreds of millions of people. Increasingly, the considerable sums spent on R&D are becoming globalized. Thus Nestlé which employs over 35,000 people from 50 countries in its product testing and research centre networks cooperates with institutions such as the London Medical Research Council but also the Maternal and Child Health project in China.

A firm such as Essilor,¹⁷ which is very well established in Asia, approaches the Indian market with methods appropriate to the country. It has trained teams of ophthalmologists, oculists and nurses who cover the whole of a given region with daily stops in a typical settlement. The residents are informed beforehand and can come and be examined in one of the two vehicles for this purpose in the convoy, which is linked by satellite to a hospital. Visits are free of charge. If the patient needs just a pair of glasses, they can be prepared in another van and sold very cheaply. Where the diagnosis points to other forms of treatment, the hospital is consulted and, in serious cases, the patient is taken there with financial support if necessary. Essilor makes no profit out of this initiative but its reputation is growing, and shops selling its products in towns in which the customers are more solvent compensate for the costs incurred, which are regarded as a long-term investment.

Other enterprises pursue similar kinds of action, especially in the fields of medicine (against AIDS) or education and training (basic courses or higher level provision if employees are capable of undertaking it). As regards the role of multinationals in the “South”, it is set to develop on an impressive scale. They gain from being

17 A world leader in ophthalmic optics.

closer to problems of market penetration in industrial society and at the same time are obliged to maintain their profitability, often by seeking greater restraint. This is already apparent and will become increasingly so in the field of individual transport.

Furthermore, it may be observed that cars (and other “tools”) designed for emerging markets are attracting a clientele from “rich” countries, which may mean that some or all of the marketing revenue still in use is not geared to today’s circumstances.

‘Fatherland Earth’

The expression is attributable to Edgar Morin. It clearly makes the point that sustainable development is only conceivable on the basis of a global approach and an awareness of the solidarity between human beings and generations.

The challenges to be overcome are considerable but the actions required are no less so. With the advent of industrial society, the men who were its prime movers sensed that they were the pioneers of the future. Today’s men and women who are actively engaged in preparing for the future in enterprises, universities, laboratories and intellectual or social circles face a task no less exhilarating than that of their ancestors, while fully aware that changes in civilization are rarely achieved smoothly.

Everyone knows that a global rate of production of 2% a year results in a doubling of world production in 35 years, to its increase by a factor of 7.2 in 100 years, and by a factor of 50 in 200 years. It is pointless counting beyond that time frame as the figures exceed all bounds. Naturally, the more technology changes, the more growth becomes qualitative. Yet the fact remains that civilizations in the long-term future will be very different from our own.

In anticipating the probable long-term fall in demographic pressure, we have to devise the means of producing in 25 years twice as much wealth, with half the same quantity of natural resources (or less still). This is conceivable solely with sustained efforts to raise productivity which will only be achieved through progress in technology and organization. How could this occur if, through force of habit, individuals envisaged the future in terms of just their own personal context, and their “gains”, without thinking about events outside their normal frame of

reference, and without also imagining the satisfaction to be derived from active involvement in preparing for a world which remains to be invented?

These then are just a few data and ideas intended to fuel the new dynamics of higher education and research conducted on behalf of social progress and development.



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