Training of actors
for sustainable development

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Challenges faced by the
Sustainable Development Pole of UNESCO Chairs in France

Publication coordinated by Patrick Blandin

French National Commission for UNESCO

Foreword

In the 21st century mankind has reached a point in his evolution where the benchmarks of the past are no longer enough to guide the present and prepare for the future; it is thus important that the university community reasserts its interest in concrete issues, encourages the planet's development and significantly contributes to training and research applications, especially for the poorest countries.

UNESCO, by launching 15 years ago a programme for UNESCO Chairs, at a moment in time when globalisation was just beginning to make itself felt, sought to offer, on an international scale, a system to establish networks on a certain number of topics. It is up to the Chair Network to develop their own different types of cooperation, but also with others which deal with closely-related fields of study.

It is in this manner that the Poles of Excellence saw the light of day and that eight UNESCO Chairs in France associated themselves to constitute a sustainable development pole: the objective is to initiate and implement common projects which bring to the sustainable development concept a new impetus, taking into consideration a vision of the world and its evolution.

With different approaches to this problematical issue, the eight Chairs propose rich and original experiences for training in higher education and offer interesting complementarities, as well as possibilities of synergy. In elaborating together a publication on "training of actors for sustainable development" which illustrates the concrete experience of the Chairs in question, their directors naturally wished to contribute directly to UNESCO's major forum "World Conference on education for sustainable development".

The French Commission for UNESCO wishes to express its thanks to the directors of each of the eight Chairs for their important contribution, as well as to the coordinator of the publication, Professor Patrick Blandin,

Professor at the National Museum for Natural History and Co-Director for the UNESCO Chair “Development and Integrated Land Use”.

When the conclusions of the seminar were made, the Director of the UNESCO Institute for Education in Hamburg, Adama Ouane, and the Deputy Secretary General of the French National Commission for UNESCO, Jean-Pierre Regnier, underlined the richness of the contributions made during the two-day seminar and once again, stressed the importance of the partnerships established.

Introduction

The “Sustainable Development” Pole of UNESCO chairs in France has the objective to contribute to the training of actors for authentic sustainable development, according to a conception progressively built up during the 20th century, in the long development of which UNESCO has played an essential role since its creation.

Its conception is rooted in the values promoted by UNESCO: contributions to peace, to the reduction of poverty, to dialogue between civilisations, to the recognition and promotion of the diversity of cultures of mankind. This means giving a central focus to both Ethics and Science.

Taking into consideration the topics specific to each Chair, the sustainable development Pole is based on established scientific principles, with a concrete interdisciplinary approach as much as needs be, notably between exact and natural sciences and social and human sciences.

Promoting sustainable development involves the training of actors, and implies mobilising different skills to serve human enterprises which express concern for the present and for the future: this, with respect for and taking into account the diversity of cultures. To contribute in an efficient manner to the training of such actors, the challenges to be faced are many. They are more particularly so in a context of higher education, which is not always adapted culturally and technically, to the development of inter-disciplinary, inter-institutional and inter-continental training curses.

Sharing a common vision of that which could be authentic sustainable development, beyond the conventional speeches or circumstantial declarations, the Chairs of the sustainable development Pole have worked together on the characterisation of these challenges and shared ways in which they could be dealt with. The current document is the fruit of this collective work.

Chapter 1
Sustainable development: a vision to be shared

The idea of sustainable development came about as the result of a long story, about which we would like to recall several important landmarks. In referring to this story and keeping in mind values adopted by UNESCO, we realised that we shared the same conception. It seemed to us important to formalise it as it is the background to training objectives for actors in sustainable development, and because we wish to share this conception with everybody who participates our training.

1.1 The advent of sustainable development – a long route

It is taken for granted that we attribute the conception of sustainable development to the World Commission on the Environment and its Development report, known as "The Brundtland Commission", published in 1987 under the title "Our Common Future". In fact, this concept is the result of a vision which progressively came to fruition, not without debate, mainly through the international milieu for nature conservation. Not without debate because, very early on, two visions of man's relationship with nature came into confrontation. In the USA, at the end of the 19th and beginning of the 20th centuries, John Muir and Gilford Pinchot were emblematic protagonists. The former represented the advocates of wildlife conservation, an image of the splendours of God's creation, the latter those of the conservation of national resources with the object of their sustainable exploitation. The movement for the protection of nature, from the moment of its first international congress, held in Paris in 1923, at the National Natural History Museum, tried to associate these two ideas.

The International Union for Conservation of Nature (IUCN) was founded at Fontainebleau in 1948, at the invitation of the newly-created UNESCO and the French Government. There were debates between advocates for Nature Protection in the strict sense of the word and those who thought more in terms of conserving natural resources. The Introduction to IUCN's Constitution, attempting to resume the viewpoints, foresaw the idea of sustainable development. Anticipating the progressive dwindling of natural resources, the text insisted on the necessity to convince mankind of the vital importance to protect, even regenerate these resources, and to use them sparingly; this to guarantee world prosperity and future peace. One fact seemed to be essential: emerging from World War II, the founders of IUCN, associated with UNESCO, established a direct link between sustainable management of natural resources and world peace.

As soon as it came into being, the IUCN, in collaboration with UNESCO, emphasized the necessity to develop all avenues of scientific research concerning the protection of nature, notably ecology. In 1949 they organised a "technical conference" at Lake Success in the USA. Among the resolutions formulated, the essential one concerned the development of human ecology, a development recognised as one of the first and most important responsibilities of the IUCN and the UN Specialized Agencies concerned with the utilisation of natural resources. The idea was to study the regions representative of the bio-geographical areas by highlighting the inter-relations between soils, water, plants, animals and humans. And the project was expressly pluridisciplinary: it implied mobilising physical and biological scientific methods, those of human ecology, medicine, sociology, anthropology, genetics, economic and psychological sciences. It was already the spirit of UNESCO's Man and Biosphere (MAB) which originated in the inter-governmental conference entitled "Biosphere Conference" organised in 1968 by UNESCO in collaboration with the IUCN. Many conservationists pleaded again on that occasion that Nature should be protected from man, an inevitable cause of disturbance when not an outright destructor. By declaring that the use and conservation of natural resources should be on an equal

footing rather than the contrary, and by affirming that this implied promoting inter-disciplinary scientific approaches, this conference clearly defined the bases of the sustainable development concept without precisely using this expression.

An important step forward was made in 1972 when the United Nations Conference on the Human Environment was held in Stockholm. Following this, as of 1975, the IUCN prepared a "world strategy for conservation". The UN Environmental Programme and UNESCO made contributions to this strategy. The final document, published in 1980, is entitled "World Strategy for Conservation. The Conservation of Living Resources for Sustainable Development".

For the first time, the expression "sustainable development" appeared in a document produced by international organisations. This document was published on the one hand in English, on the other in French. The translation of the English term "sustainable" by the French term "durable" has often been criticized. A clarification would therefore seem to us to be useful. The basic idea of "the World Strategy for Conservation" is that development is possible only in as much as it is supported in the long-term by the functioning of ecological systems, on the condition then that their capacity to produce and recycle are not overstepped. All development which reduces these capacities, through overexploitation or through destruction, is in itself not sustainable given that in the short or long term it could not be "supported" by exhausted ecological systems. Those who imagine that certain kinds of current development should be maintained in the long term when they reduce the capacity to uphold ecologic systems commit, knowing or unknowingly, a grave mistake.

1.2 Sustainable development, a set of projects for society

The World Commission on the Environment and its Development put forward a definition for sustainable development, to which reference is usually made. The report clearly affirms that sustainable development can only be a political project, based necessarily on convictions of an ideological order, that is to say on a vision of the human species and its fate: it concerns a project for humanity, the inhabitants of a unique planet. This project, which we rediscover in the objectives for the Millennium proclaimed by the United Nations Organisation is, after all, man's wellbeing, the wellbeing of each person within his particular community, not only in the social sense but also the sense of his ecological community. In a certain way, it is his striving towards the concretisation of Human Rights for mankind today and tomorrow.

A passage in the Brundtland Commission text appears to us to be of special significance: "sustainable development is not a state of equilibrium, but rather a process of change". Advancing the idea of a permanent change, forsaking that of equilibrium, would call for a revolution in our code of ethics. In fact, this leads us to reflect in terms of "better-being" rather than well-being and to accord as much importance to action which improves as to an ideal status, which anyway it is impossible to fully achieve. It also implies giving to existing diversity less of an inheritance value than of a potential-for-the-future value.

Unfortunately, but it is no doubt characteristic of its time, the Brundtland Commission does not take into account the cultural diversity of humanity: it only mentions – it is obviously fundamental – the disparate situations between the poor and the rich. In reality, the multiple societies of mankind live in very different ecological contexts and in socio-economic conditions which vary immensely. Culturally speaking, they are diverse and this diversity is today accepted as a basic value as much as that of existing diversity. The sustainable development of humanity cannot thus be a process of cultural homogenisation, of standardizing the ways we live. It has sense only if it is

the result of particular projects, desired locally, adapted to local circumstances, but planned with an optic of planetary solidarity, considering the Biosphere in its global context.

Because we contribute to the training of people from many countries, many cultures, living in lands with different ecological and human histories, we have the conviction that sustainable development cannot be concretised except by assuming and enhancing this diversity. That is why, in searching to express simultaneously the double dimension of sustainable development, local and global, we propose the following definition:

"Development is a set of procedures by which a particular society looks for ways and means to create the best conditions for the material, intellectual, and spiritual "better-being" for each of its members. Such development is termed "sustainable" when the environmental, economic, social and cultural conditions created by this society, at a given moment, according to its values, do not diminish ways and means at the disposal of future generations to create, in their turn, the conditions for their "better-being" according to their own values. Human societies being diverse, their projects will necessarily be too. But sustainable development cannot be achieved unless local projects are elaborated keeping in mind planetary solidarity, because the planet and all humanity which dwells therein make up a unique ecological system, forging, with the passage of time, a unique history".

1.3 A scientifically-based conviction

"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. We retain two established scientific facts:

- The ecosphere – the earth's ecological system – is in continual transformation since its constitution, its emergence, its expansion and the

diversification of its life forms are aspects of this process. At the same time, life is becoming a more and more powerful factor of ecosphere transformation, with the technical and demographic developments of the human species.

- In this general movement of planetary transformation, life continues thanks to its capacities for self-reproduction and adaptation: the possibility for change, or adaptability, is, paradoxically, the condition for the sustainability of life. This adaptability is closely linked to diversity, such as it exists at a given moment, at all levels of the organisation of life's systems, societies of mankind included.

Development, such is our conviction, can thus only be sustainable if the capacities of adaptation are maintained, even amplified. Humanity should thus have as objective the sustainability of life's aptitude to evolve, at the local level as much as at the global level of the ecosphere. In other words, development can have a future only if it ensures the sustainable adaptability of the Biosphere, enhancing its diversity at all levels.

Chapter 2
Training challenges for sustainable development

Each one of us is first and foremost a potential actor, if not an effective one, in the sustainable development dynamics. Education, at the primary and secondary levels, should thus have the objective to train citizens so that they will be capable of understanding what is at stake for the future and how to conduct their lives accordingly. At the higher education level, the perspective is different: the question is to train "professionals" whether they be researchers or people investing technically in the elaboration and implementation of sustainable development projects. These professionals are involved in these projects as specialists and not just as citizens. They should know how to contribute, or mobilise the necessary technical skills, and at the same time be able to influence the procedures in hand in order to act jointly towards achieving real sustainable development in the sense that we have described above.

We have discussed the possibility of defining the "vocations for sustainable development". The common concept of "vocation" appeared to us to be too humble to designate that for which our Chairs are conceived. In fact, the idea behind vocation is often associated with that of "know-how". Our Chairs can, of course, ensure the acquisition of specific knowledge, but they aim, more generally speaking, to train people capable of identifying know-how for the implementation of a specific project, followed by effectively organising it. Still more important, these people should be able to:

1. act in such a way as to ensure that debates are efficient;
2. demonstrate that technical solutions can be found when necessary;
3. show how common objectives can be reached;
4. explain how to share a vision of the future.

An appropriate word to designate these professional actors for sustainable development would be: “facilitators”. The objective of our Chairs is thus, in the end, to help in the acquisition, over and above knowledge and know-how, of what we propose to call “knowing-how-to-act”.

Designing training programmes adapted to such objectives is not a simple matter in the classical university context. Little by little, we hope the professionals in sustainable development whom we train should make up a body sufficient in number to contribute to the creation of new relations between society and training structures, in order to bring about, on a more permanent basis, new training innovations. Four major challenges have to be faced.

2.1 The cultural challenge: promoting diversity and assuming change

Working for sustainable development means having a care for others, near or far, in space as in time. We consider, consequently, that our training requires the clear conviction that sustainable development, as a human enterprise, is necessarily based on a vision of mankind which assumes the past, proposes a future and situates it, as a result, in the context of the planetary ecological system. Such a vision finds its roots in values.

To train actors for sustainable development, we need thus to foster real enlightenment in the field of ethics. In the spirit of UNESCO, it would appear to us essential to attribute an important role to solidarity as a value, all the more so since scientific data underscore the space-time interdependence of societies and their environments. Recognition of diversity as a basic value is just as fundamental: the acceptance of other people, the recognition of the identity of others, is morally vital. Scientific reasons again support this by emphasizing that diversity is the first condition for adaptability.

Similarly, 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.

Finally, it would be advisable to acquire an understanding of the "integrative" dimension of the sustainable development issue. This has no sense, it is mundane to repeat, unless we associate social, environmental and economic aspects with the same objectives. Inter-disciplinary training thus imposes itself as part of the cultural context allowing students to understand the interactions between the three dimensions of development. In fact, without this understanding, there cannot be any efficient "knowing how to act" at the local level. And this efficiency cannot be limited to "local actions". Sustainable development does not only imply integration of social, environmental and economic aspects at the local level: it aims to integrate local projects in a solidarity project on the planetary scale: this in a context of recognition and valorisation of the diversity of situations. The training of actors for sustainable development cannot thus be limited to the acquisition of an inter-disciplinary culture: it is also necessary to learn how to work in an inter-cultural context.

2.2 The professional challenge: development of new skills

In the field of sustainable development, the NGOs are crying out for ever more important expertise in all areas. Similarly, there are increasing demands for professional training, basic and lifelong, emanating from local

bodies within the framework of a certain number of territorial vocations and for instigating policies of decentralised cooperation, or co-development. The same such needs appear in enterprises.

More than vocations in the traditional sense of the term, we are talking here about emerging professions, characterised, above all, by a capacity to intervene in multi-actor situations, quite often of a complex nature. This implies, apart from eventual specific scientific and technical knowledge, analytical capacities, whilst elaborating projects, guiding procedures, eventually during on-going conflicts. Professionals capable of "knowing-how-to-act", these new actors in the service of sustainable development should, furthermore, show capacities to adapt to the diversity of situations where they are called to intervene. Furthermore, it would also be indispensable that they dispose of a solid knowledge of professional deontology.

Designing courses to train these professional "facilitators" within the framework of basic training and that of lifelong training, is clearly a challenge in the context of higher education. The challenge is in fact even larger. It is more and more evident that initial training for engineers, whatever their specialisation, should include a component concerning the sustainable development problem. The challenge is not only to make them aware of the problem but to help them acquire capacities for resourcefulness and especially to work with professional "facilitators", whose role and legitimacy they should understand.

All sustainable development pursuits result in the elaboration and implementation of specific projects, undertaken by specially-trained actors. Research may indeed be necessary at all phases. It often calls for different procedures to those for classical academic research because they have to be conceived for and in action, that is to say in interaction with a great number of actors engaged in development processes. The training of "committed researchers" constitutes, as a result, an important challenge for the University, notably because it requires new kinds of evaluation methods for research and researchers.

2.3 The pedagogical challenge: from know-how to knowing-how-to-act

People who participate in training for interventions in projects for sustainable development are of various origins, and with extremely varied levels and backgrounds of knowledge and know-how. To enable them to acquire and develop the required competencies to become real professionals poses many problems, as much for the training content as for the choice of pedagogical methods. Basically, it implies:

1. Ensuring a good balance between the acquisition of knowledge, of know-how and of knowing-how-to-act;
2. Acquiring concrete experience of the wide range of situations, approaches, and concepts about sustainable development, according to cultures, the socio-economic and ecological situations;
3. Developing their autonomy, personal commitment and capacity to work in multi-disciplinary and multi-cultural teams at the same time;
4. Acquiring capacities for self-evaluation, personal as well as collective for team work;
5. Acquiring capacities to work out transversal, interdisciplinary approaches;
6. Acquiring capacities to organise participative processes for the different actors and find solutions for conflicts;
7. Acquiring strong principles of professional deontology.

2.4 The challenge for follow-up training: the creation of a trans-national community of professionals

We are contributing to the training of a body of professionals sharing a vision of sustainable development, knowing how to act, a deontology… Beyond this, there is the question of creating and keeping alive a network of trans-national actors for development, capable of organising exchanges

aiming to capitalise and share their professional experience and to develop, in this way, lifelong individual training. The objective is to establish, in the service of authentic sustainable development, that which certain people call "trans national citizenship", fostering UNESCO's values.

Chapter 3
Challenges being faced: the experiences of some UNESCO Chairs

Faced with the diversity of the challenges and that of the actors involved in development, each of the UNESCO Chairs from the sustainable development Pole offered a specific response, according to the field of competence. However, united in their endeavours and without exhausting all possibilities, the following examples illustrate the measures and practices which give vent to the common objectives of the Chairs.

3.1 A Mediterranean Network of Engineering Schools: innovation and education for sustainable development

3.1.a An innovating project: improving security for Mediterranean Maritime Transport

It is difficult to take into account the innovative measures which contribute to the evolution processes of the planet. On a daily basis, innovation should allow for a better understanding of the challenges connected with sustainable development. The Mediterranean Network of Engineering Schools (RMEI) which receives the support of the UNESCO Chair, aims to foster innovative projects in the Mediterranean Region, which, apart from their scientific interest, enable teachers, researchers and students to work together, to get to know each other better and to better understand the challenges to be faced by each country.

Among the challenges for engineers, it was decided to propose a project in connection with maritime transport for containers. A first phase consisted in organising a consortium of MNES universities interested in this ambitious

project. The MNES thus conceived a European project which was accepted within the framework of the European Programme "In Med. Invest". This initiative, known by the name of "Med-Tracking" now includes organisations exterior to MNES: it concerns investment companies in the Mediterranean area as well as industries and services dealing with maritime transport.

The container business in the Mediterranean represents some 30% of the world's shipping circulation. With the 2013-15 inventory of a unique market, the Mediterranean is obliged to work out a vision of the future based on trustworthiness and security, innovation, research and training. This new service is clearly seen as an ambitious tool in order to make the Mediterranean an international reference for sustainable development. After a preliminary phase devoted to an analysis of needs, the consortium will propose research topics which could bring about the development of a new service.

The MNES, eager to share its work, is looking for countries equally concerned with these preoccupations, with which it could collaborate, such as those bordering the Euro-Mediterranean area (example: Russia). It is also concerned about the training which it will be necessary to propose in order to ensure the success of the project. The processes developed with the "Med-Tracking initiative" are of the order of "vigilance monitoring techniques". The future activities should go above and beyond the initial phase.

3.1.b Education for student engineers for sustainable development

The 45 institutions which make up the Mediterranean Network of Engineering Schools-MNES (Réseau Méditerranéen des Ecoles d'Ingénieurs) want to train a type of engineer who will have extensive economic and social responsibilities during the next 40 years. In response to this demand by the students, it is important that they get experience in their everyday lives of the fundamental principles for sustainable development. One of the major challenges which have to be faced is the introduction of these concepts in

the teaching of traditional scientific and technical subjects for the training of engineers.

We believe that the future lies not in the implementation of new training but unquestionably in the recognition of sustainable development, in all its dimensions, in basic teaching. Thus the key question is availability of teachers: this is not to call into question their motivated interest or goodwill. It implies the difficulty to overcome the emotional character of education for sustainable development and to provide concrete examples.

The interest of the MNES is to encourage the confrontation of diverse experiences and their mutual interests. It is also important to make sure that the entire community benefits from concrete case studies. It is for this reason that we organise workshops and seminars which will encourage dialogue between teachers and businessmen. Thus in 2007 we organised workshops dealing with such topics as water resources management, cindyniques (sciences concerned with dangers for the environment) and questions about energy, as well as a more general seminar on education for sustainable development, which took place in Barcelona in February 2008. In the same spirit, various think-tank groups working on specific training programmes have enabled, among other things, the MNES to participate in the setting up of a Masters for maritime security and protection of the environment, delivered at the University of Rome La Sapienza.

This activity is in its early stages and many meetings are still necessary to enable sustainable development to become an integral part of training for the Mediterranean experts.

3.2 "Green" biotechnologies in the service of sustainable development

3.2.a The professional challenge

The professional challenge for the UNESCO BIODEV Chair was to establish an integrated network for Research and Distance-Learning in the field of agro-industrial bio-technologies in the service of sustainable development. The objective behind this was to train future professionals endowed with a professional deontology and having capacities for research and complementary expertise, thanks to multi-site teaching at an advanced level dispensed by professors, researchers and teacher-researchers in the field of bio-technologies. The Chair is organised in the form of a network consisting of important North-South partnerships, including, on the one hand, the "Université de Provence" with two associated research units at the IRD (Research Institute for Development) and INRA (National Institute for Agronomic Research). All these entities are regrouped within the Advanced School for Engineers at Luminy (ESIL) in Marseille. On the other hand, there are 12 research and training centres from 8 Southern countries, i.e. Brazil, China, Madagascar, Morocco, Mexico, Senegal, Tunisia and Vietnam.

The objectives announced by the UNESCO BIODEV Chair were twofold:

- Take part in the International Higher Education Training effort which is part of UNESCO's more general programme for "multi-purpose university staff", and to
- Carry out national research projects aimed at sustainable development for the Southern countries, in particular as concerns the protection and enhancement of genetic heritage in newly-developed and developing countries.

The UNESCO BIODEV Chair proposes an International Master's Programme dealing with the training of professionals for sustainable development in the field of bio-technologies. This specialised programme makes up one of the components of the Master's curses co-designed by the "Université de Provence" and the Mediterranean University which specialise in Microbiology, Vegetal and Bio-technology Biology (MVBB). A multi-site Distance Teaching system has been proposed and validated by the Ministry of Higher Education and Research for the BIODEV programme. This International Master 2 BIODEV Training Programme is open to the most qualified students from the teaching institutions of the 8 Southern countries which are partners, such as France, and this for the basic and the lifelong training components. Courses followed by students in the lifelong training stream can be spread out over a period covering two years according to the commitments of those in training. In order to be registered for this training, the courses and supervised work are at their disposal "on-line" through Distance Teaching, in the French or the English language, according to choice.

3.2.b The challenge for follow-up training

International recognition was given to a body of professionals working for sustainable development via the 2006 Research Award (subject: Environment) delivered by Veolia: Laureate: Professor Sami SAYADI, Tunisian partner for the UNESCO BIODEV Chair, relating to studies carried out in common on: "Towards an optimal qualitative use of waste products from the extraction of olive oil : anti-oxidants and energy biogas (Internetsite:www.leprixlarecherche.com). Extract from the site: "The Research Award engenders interest and enthusiasm on the part of French-speaking researchers; in 2006 one-third of the competitive researchers represented 33 nationalities; 5 awards treating 5 subjects were distributed. The Awards were effectively distributed on 28 November 2006 at the Senate in Paris."

This Research Award "rewarded and legitimised on an international scale" more than 15 years of work for sustainable development, undertaken by

North-South partnerships via several organisations, two of which are partners in the UNESCO BIODEV Chair: Dr S. Sayadi (Sfax Biotechnology Centre at the Laboratory for Bio procedures in Tunisia) and Mr Labat (Research Institute for Development, UMR180 for Microbiology and Bio-technology in High-Temperature Zone Environments ; the Anaérobie Team, Marseille) and their respective teams.

Our aim, through this example, is to keep alive, expand and perpetuate this type of trans-national network of professional actors for development, to create "trans-national citizenship" in the service of sustainable development in the field of "green" bio-technologies, showing respect for the environment and for man and the biosphere.

3.3 Membrane science applied to the environment and development

Summer schools organised by the UNESCO SIMEV Chair and in great demand by many developing countries are oriented towards the theme "water and health – research via membrane technologies".

Thus, the 4th Summer School took place in Dakar on the 6th, 7th and 8th of June 2007 and resulted in the initiation of an action to de-fluorinate drinking water from a well in a village of 800 people (Ndiaffate), Senegal. An excess of fluoride leads to the brittleness of bones and teeth, the deformation of the skeletal frame. The Pall Company, which presented itself at the Summer School, offered to take charge of the problem. Experiments were conducted in a laboratory, followed by experiments in the field as of June 2008. These helped us to face the challenges of the dilemma, and as in all our actions, from different angles. Thus, for this particular project, we had to deal with:

- Firstly, a professional challenge: it was necessary to train a scientist from the University of Dakar in the precise knowledge of membrane techniques, but also in all the technologies of the environment,

automatisms ... of the machinery provided. An engineer from the Pall Company spent a week in the field. A scientist, engaged to follow-up operations on the spot, came to France for three months. After many negotiations, the equipment was paid for by the CNRS, AIRD and many NGOs.

- But also a cultural challenge because we can only progressively change the habits of people drinking water from wells, their own well (depriving themselves of drinking water from a neighbour's well) which means admitting that it is "probably contaminated by elements harmful to health". To face this cultural challenge, four ONG students, "multi-purpose engineers" from the Advanced National School of Chemistry in Montpellier were going to spend a week in the village to discuss with the autochthons about the "respect" which must be shown for water (we must not pollute it), its "value" (we must not waste it).

3.4 Earthen architecture, construction cultures and sustainable development

3.4.a The training of conservationists for African architectural heritage

Created in 1998 on the initiative of UNESCO's World Heritage Centre, in partnership with CRATerre-ENSAG (International Centre for the Earth Construction-School of Architecture, Grenoble), UNESCO's Pole of Excellence Chair "Earthen architecture, construction cultures and sustainable development", ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property, Rome) and the cultural institutions of 44 countries in Sub-Saharan Africa, the "2009 Africa Programme" took up the pedagogical and professional challenges whilst at the same time contributing to the socio-economic development of communities concerned and the valorisation of cultural diversity. This programme is

based on the pooling of professional knowledge for the conservation and management of earthen architecture. It is a challenge which was proposed by the organisation to cover a period of 10 years, to include training and seminars (alternatively in French and in English) in 15 different countries and with the objective of realising projects in 25 countries, with the creation of a network of about 500 professionals for the entire sub-Saharan region. This represents:

- A professional and economic challenge to stimulate the training and launching of activities which should create employment in the cultural heritage tourist sector;
- A cultural challenge which gives priority to know-how, to artisans, to skills, to local labour and to regional cultures in traditional building techniques;
- A pedagogical challenge adapted to the African context with theoretical courses and practical applications using methodologies, pedagogical tools and materials which encourage the involvement of professionals and local communities in the management and the protection of their heritage.

The management of follow-up training consists of pedagogical tools at the disposal of participants and professionals, on-line on the Programme's Website. This consolidates and enhances the expertise acquired during the implementation of specific projects and also reinforces the training capacities of the two regional institutions: African Heritage School (Bénin) and the Center for Heritage Development in Africa (Kenya). A guidebook entitled "Cultural Heritage and Local Development" destined for local African communities has been edited, in cooperation with the France-UNESCO Convention. Contributions were made by almost 40 African authors, who will participate in the 2009 Africa programme. Professionals, who have participated in the network during the course of the last 10 years, continue to be involved in sub-regional collaborations for specific projects, either within the

framework of associations created by professionals, or between institutions. 299 professionals for African heritage have been trained in 10 regional management courses and 8 technical courses concerning conservation. 510 professionals have taken part in a programme of 20 seminars on associated topics.

3.4.b A new pedagogical model for Earthen Architecture in the Rhone-Alpes

It was at the request of the Association "Isère, Porte des Alpes" ("Isère, Gateway to the Alpes"), consisting of 48 communes in the North of the Isère Department and their keen desire to revalorize their cultural tradition of the "pisé" building method (with a mixture of clay-straw), an expression common to the architectural heritage of the Region, that the UNESCO Chair "Earthen Architecture, construction cultures and sustainable development" undertook an extensive public enquiry. It presented a real cultural challenge, both pedagogical and professional, which came about through the organisation each year, from 2000 to 2006, of an important festival called "Grains d' Isère" and enhancing architecture, arts and sciences. This festival lasted two weeks, end of May/beginning of June, and was organised by the "Grands Ateliers de l'Isle d'Abeau" (main workshops in the city of Isle d'Abeau) a centre for advanced training for schools of architecture, engineering and arts, and organised in collaboration with the students in training for a post-Master's DSA-Terre (Advanced Diploma for Architecture), developed under the auspices of the UNESCO Chair and the students of the Master's programme "Architecture and cultural construction" from ENSA (School of Architecture) Grenoble. The latter proposed an important programme of activities for schools at primary and secondary levels in the Isère Region in order to bring to the attention of teachers, schoolchildren and students their cultural heritage, construction and architectural values in building with natural materials for sustainable development.

These activities were also open to the general public. Students built prototypes for energy-saving housing using natural materials and local woods, thus illustrating the merits of their research for sustainable housing to decision-makers, enterprises and other professional branches of the building trade. Simultaneously, the 6 manifestations of this festival enabled them to elaborate a very big pedagogical and inter-active exhibition "building with natural materials" ("Grains de bâtisseurs"). Around 100 experiments were proposed to visitors which enabled them to understand the functioning of this type of building with natural materials, their properties, their performance, their potential and ecological merits for environmental-friendly housing. This exhibition, which is in an elaborate museographic form, will be presented at the "Cité des Sciences et de l'Industrie" (city of sciences and industry), in Paris in 2009.

Over a period of 6 years the "Grains d'Isère" festival has attracted the public from universities and international citizens from all walks of life. More than 15 000 visitors expressed their interest. The pedagogical and cultural model of the festival has since been adopted by other foreign partners in the UNESCO Chair who have taken part in the festivals and in turn reproduced this new didactic approach concerning building with natural materials in their own countries.

3.5 Health and sustainable development: training of trainers in pedagogy and clinical research and epidemiology in medical sciences

The (ICDFSMF) International Conference for Deans and French-Speaking Medical Faculties to which this Chair is attributed, has for the last 25 years conducted concrete cooperation activities which have aimed to foster excellence in medical training, first and foremost for the trainers, in all Member Faculties and in particular those in developing countries. In this

way, the ICDFSMF has directly contributed to the promotion of health, one of the first conditions for sustainable development.

A dynamic and original project, undertaken during the last 4 years, has strived to create in African Medical Faculties in the Sub-Saharan Region, a clinical and epidemiological research potential carried out in these countries by researchers from the South, for Southern countries, with objectives and projects which they have themselves defined.

This operation has been undertaken in three phases:

- Organisation of intra-faculty seminars to inform and train young and interested teachers in research methodology. Such seminars have taken place in Yaoundé, Lomé, Bamako, Bujumbura, Abidjan, Cotonou, Dakar and Libreville.
- Identification and local choice of two head teachers by Faculty who have both benefited from an appropriate theoretical and practical higher education which led to an annual research project, which was evaluated in a new collective seminar and led to a publication.
- The third phase, in progress, should lead to the setting up, in each faculty, of a Clinical Research Centre animated by local head teachers and open to all teams for training and guidance in their clinical and epidemiological research projects.

3.6 Development and integrated land-use: training to "know-how-to-act" in the inter-disciplinary and multi-cultural context

Within the framework of the UNESCO Chair "Development and integrated land-use" France runs a DESS (a diploma for advanced specialised studies) which has been in operation for a number of years now and which

was transformed into a Masters in 2004. This training was launched in 1969 in the form of a post-university course by the French National Commission for UNESCO, as a follow-up to the Conference on the Biosphere (UNESCO, Paris, 1968) in the spirit of what was to become the Programme entitled "Man and Biosphere". It accommodated 15-18 students each year with many different nationalities (one-third are French, two-thirds foreigners). Since 1994 it has accommodated roughly 50 different nationalities. About half are students coming from French-speaking countries and are well represented (Africa, the Middle East); the remainder are mainly from South America, the Eastern European countries and, more rarely, from Asia.

The objective of the Master is to train professionals in regional development work in a perspective of sustainable development and who should thus be capable of tackling the social, economic and ecological aspects in an integrated way. Since its creation – at the time, this was a real innovation for France – there has been a lasting characteristic in this training: its interactive pedagogy, implemented in some of its most original teaching sequences. It concerns, on the one hand, a study tour undertaken by the entire group of students at the beginning of the academic year, and, on the other, a collective and practical course lasting several months on a subject of a professional nature in the territorial development programme. Other activities, more punctual, contribute to an active exchange, for example, through a seminar organised by and for the students where each one presented an exposé on his personal work or on his country.

Inter-activity is, in fact, stimulated by the extensive diversity of the geographical origins of the students (often from three continents and occasionally from four), the university training and in some cases the first professional experience; finally the cultural references of each one. True, some explanations are time-consuming in the group, calling for patience by the others, and tensions are frequent: the students, however, learn how to overcome them.

The topic of the professional training course is elaborated in partnership with the university's pedagogical team and local communities. The students' work consists first of all in organising themselves in groups and establishing a programme of the "project management" type. The first step is the reformulation of the question posed. It is followed by technical studies, step-by-step reports to the local council, and finally the presentation of the final report. This is evaluated not only from the academic viewpoint but also from the professional viewpoint: the report should be an effective tool for those in authority. All these steps are strictly supervised by the pedagogical team. This pedagogy is particularly adapted to the professional aspects of the training because the framework of local development is compelled by its activity to carry out multiple exchanges (with citizens, with voters, with business enterprises, the State, etc).

Beyond the purely scientific and technical aspects, the training thus enables the students to develop their capacities to listen, negotiate, manage conflicts, organise and manage projects. It is thus not surprising that many former students recognise, in retrospect that learning about cultural differences when working on a common project is one of the most character-building elements of this year of personal study. In order to make sure that this experience lasts, the graduates who work in all four corners of the earth can meet again in discussion forums, the development of which is foreseen, so that they can become real trans national instruments of lifelong training.

3.7 Training sustainable development professionals in the service of international solidarity projects

3.7.a The cultural challenge

Within the framework of the Bachelor's degree "international solidarity project engineering", the Bordeaux 3 UNESCO Chair proposes a short study module on relationships in inter-cultural situations. This is conducted by the

CILO (Communication interculturelle et logiques sociales) team which creates specific tools for the purpose of inter-cultural communication.

The main objective is to design a reference document to decipher the misunderstandings setting the pace of relations between the different social groups, in local districts as much as in the international arena. The cultural reference systems are explained by the right-to-make-mistakes parameter (a protection parameter to cope with everyday risks to life), which, at all times and in all places, swing between two extremes:

- Precariousness, with which many people in difficulty are confronted, either in their home countries or which force them into migratory situations;
- Maximum security provided by the established statutes in industrialised societies.

Given these two powerful tendencies, each person, each social group works out their compromises.

Insecurity engenders conservative rationales and objectives in terms of survival, which underscore most collective actions: significance of social relationships considered as an existential response, socio-political structures focusing on people, ideas as to timing which make the management of forecasts difficult.

Conversely, security imposes a scale of values focused on the function independently of the person who occupies it. It takes for granted socio-political structures which depend on legal entities where anonymity is the guarantee of a certain equality, sometimes to the detriment of social relations: the State, the Administration, the Judicial System are legitimised through their capacity to treat anonymous citizens equitably. Security suggests continuity in time. Historical and geographical examples enable us to illustrate the diversity of social and cultural logics, their complimentarity and potential to evolve.

3.7.b The pedagogical challenge: between knowing and knowing-how-to-act

The professional Bachelor's degree "international solidarity project engineering" proposed by the Bordeaux University 3 UNESCO Chair to train professionals in sustainable development is part of a pedagogical process applied to other training courses in this professional sector:

- Multi-disciplinarity: depending on a broad basic training but having reference to various disciplines (sociology, management, economy, geography, etc.) and also extra-curricula disciplines (project management, relations in intercultural situations, management of conflicts):
- Involvement of professionals: 40% of the teaching is ensured by professionals who are closely associated with the pedagogical team, as much for the recruitment of candidates as for the management of refresher courses and teaching projects, as for the supervision of refresher courses and tutored projects, project advocacy and juries for examinations. A monitoring council for the Bachelor's degree is, in any case, set up every 18 months with professional partners to evaluate and eventually redefine the teaching contents
- Learning about the collective dimension of the metier: group work goes hand in hand with individual work, the analyses of group dynamics and the role of each participant; they are an integral part of the teaching. Mediation techniques and management of conflicts are dealt with, as well as participative approaches and the relevant tools.
- The importance of practical refresher courses (one day per week with a local association, four months in a southern country) to practice the skills acquired and understand the connection between the theory, the models and concepts, on the one hand, and the concrete experiences on the other.

- Development of comportment, relational and situational capacities which correspond to knowing how to behave. These skills will, from the outset, be part of the selection criteria to gain admittance to the training but the latter will endeavour specifically to reinforce them. Therein, without doubt, lie the essential interests in this training as for others in sustainable development. Master the complexity of this metier; be capable of adapting oneself to a very varied public and to situations in constant evolution.

3.7.c The professional challenge: to develop new competencies

The UNESCO Chair to train professionals for sustainable development proposes a Bachelor's degree built around the metier of an actor for the development of international solidarity. The focal point of this metier was defined through research previously carried out in collaboration with universities and professional partner organisations, both in France and abroad. The results of this research were then confronted with existing authorities in referential frameworks connected with closely associated fields of work.

Based on his training and previous experiences, voluntary or professional, the student in initial or lifelong training, validates and strengthens his range of competencies. Furthermore, he carries out analyses relevant to his individual range of competencies in order to better prepare his training project (choice of topics for the supervised project, choice of refresher course, etc.) and to focus his search for post-training employment in a pertinent way.

Among the training contents, project management is essential, with work involving direction, transfer of expertise and institutional strengthening of partnerships. Animation, negotiation, mediation are the chief competencies, with the accent on collective work. We also approve of alternating conceptual work, relational work, and work in monitoring/evaluation/capitalisation. The pedagogical dimension of the work of an actor for development, with a view to a transfer of expertise towards Southern partners, is very important. Finally, an aptitude to manage conflicts and to animate the networks should

be approached with a strategic objective, taking into account the methods of intervention by different actors, contextual aspects and the rapid evolution of situations.

3.7.d The post-training challenge: to create a trans-national community

The UNESCO Chair responsible for the training of professionals for sustainable development is establishing a follow-up system for former learners, a study of the evolution of job offers, of potential employers with a view to improving the training they offer and adapting it to the needs of the professional sector which works towards sustainable development in southern countries.

More globally speaking, the objective is to provide the training in question with a real international dimension which will enable the validation of the expertise and knowledge identified in an international context, the qualifications for the metiers themselves being created in a mobile and inter-culture framework which at the same time conditions the expertise required and the modalities for apprenticeship.

The network for social management training created around the UNESCO Chair, groups together universities, professional organisations, NGOs, associations capable of proposing training in real-life situations in different cultural contexts and with varied pedagogical resources on offer. A new approach to knowledge and inter-cultural exchanges is rendered possible: the actor for development is thus in a position to fully assume his catalytic role in the emergence of a local civil society, which is both trans-national and global.

This network functions with training projects such as the creation of a Bachelor's degree for local development in Morocco in 2006, within the framework of the Tempus meda JEP 312003 project, the support for the creating of a Masters degree in Morocco, Bulgaria, and Madagascar,

and exchanges related to research work carried out on the topics studied within the training: employment, activities, expertise in local development, expertise-based approaches and benchmarks for types of training, actors for development, in particular enterprises, questions of gender and evaluation.

3.8 Organising a training activity which respects the sustainable development process

The Masters in "engineering of training and employment systems" at the University of Toulouse 1 is intended for French-speaking people throughout the world. The training consists of using Internet technologies via a non-synchronised model: the students participate at a moment in the day which is convenient to them and the activities can be spread over several days; particular importance is attached to bringing together classes made up of people from different cultures and geographically far apart.

From its conception, the Masters received assistance from the UNESCO Riifadel Chair and adopted the concept of sustainable development, which is the nucleus of the pedagogical preoccupations. In fact, in its functioning, this training takes into account the processes which have a relationship with the three mainstays of support for sustainable development, that is to say the social, environmental and economic dimensions.

This Master's easy accessibility (via Internet technologies), the facility to work with partners (University Agency for French-speaking countries), Riifadel, International Organisation for French-speaking countries, the possibility to have a personalised course programme (allowances for the constraints of future users and territorial problems) but also the inter-generational and inter-cultural approach strengthen the links between social and environmental difficulties and make for a training which is worth the effort.

In the same way, by limiting impacts on the environment, such as frequent journeys, keeping dispatching of teaching materials to a minimum, using low-cost micro-computers, reducing the use of paper, experimenting with an educational model using low-energy consumption, in partnership with the University Agency for French-speaking countries, we strengthen the economic and environmental link and take care to achieve training which is feasible.

Finally, the choice of the economic model for the Masters is made with an economic solidarity approach in order to balance receipts and expenses, whilst proposing different rates according to the categories of the clientele. Financial aid is available in the form of study allowances which are proposed by the University Agency for French-speaking countries, French Embassy services for Overseas Cooperation and Cultural Activities and the UNESCO Chair. The social and economic link is thus taken into account and this makes the training more equitable.

The synergy between the "Masters-UNESCO Chair" is a strong response, in terms of territorial development, to the issue of training and economic development. The specificity of the distance education model makes, in addition, for a training which respects the processes of sustainable development: thus viable, workable and equitable.

ANNEX

Technical Background Information Sheets for UNESCO Chairs

UNESCO CHAIR ON INNOVATION AND SUSTAINABLE DEVELOPMENT

Established in: 2005
Chairholder 651: Léo Vincent - ECM
Contact: École Centrale Marseille-Technopôle de Château Gombert-38, rue Joliot Curie-13451 Marseille Cedex 20, France
Phone: + 33 6 72 15 74 99
e-mail: leo.vincent@rmei.info

The chair provides support to the Mediterranean Network of Engineering Schools that includes 45 universities from 12 Mediterranean countries.

Northern-Hemisphere Partner Institutions: UNESCO, Spain: UPC Barcelona, UPM Madrid, UPV Valencia, France: ECN, ENSAM Aix, ISEN, ISITV, Polytech Marseille, Polytech Sophia, Greece: NTUA Athens, U. Patras, U. Aristotles Thessalonicki, Italy: U. Genova, U. Napoli Federico II, U. Roma La Sapienza, Poli Milano, Portugal: U. Coimbra, Turkey: ITU Istanbul and ICES Moscow

Southern-Hemisphere Partner Institutions: Algeria: ENP, ENSH and ENTP, Israel: Technion Haifa, U. Ben Gurion Negev, Libya: Al Fateh, Morocco: Hassania, Mohammadia, ENIM, ENSA, ENSAM Meknes, INPT, Al Akhawayn, Palestine: IUG, Tunisia: ENIG, ENIM, ENIS, ENISo, ENIT ENSI, EPT, SupCom and INSAT and PUC Rio

Objectives of the UNESCO Chair for Innovation and Sustainable Development:

To educate students of engineering in sustainable development so that they become civic-minded engineers.

To meet their expectations, we want them to study in a daily environment that bears the mark of sustainable development and to gain perspective in their acquisition of engineering techniques and science. Hence we encourage student mobility, support

teachers by juxtaposing experiences, and foster scientific collaboration in the major areas relating to sustainable development (water, energy, risk analysis ...)

Training in Sustainable Development

Sustainable development must not be taught as a new subject; rather, its concepts should be introduced in all the teaching of engineering science and technology. Besides its incorporation into course content, sustainable development must be experienced through sound management methods, lectures, study projects and out-of-school activities.

The RMEI also helps set up more specific masters degrees (maritime safety and environmental protection, renewable energies ...)

Teaching and Associated Research for Sustainable Development

The network strives to develop partnerships in the scientific subject areas of engineering related to sustainable development.

Special groups operate under the responsibility of Mediterranean scientists to promote the research indispensable to the furtherance of sustainable development in the Mediterranean, to improve water-resource management and the local management of renewable energies, the consideration of climate change in urban management, and the secure monitoring of goods in the Mediterranean (European Med-Tracking contract achieved in November 2008).

Meetings on particular themes among RMEI members bring together companies engaged in sustainable development.

Co-operation is being put in place with universities from outside the Mediterranean.

UNESCO CHAIR IN BIOTECHNOLOGY FOR SUSTAINABLE UNESCO CHAIR IN BIOTECHNOLOGY FOR SUSTAINABLE DEVELOPMENT (BIODEV)

Established in: 2002
BIODEV Chairholder: Marc Labat (IRD-UMR180)
Contact: IRD-UMR180 case 925, U. Aix-Marseille, 163 av. de Luminy, 13288 Marseille, France
Phone: +33 (0)4 91 82 85 85
Fax: +33 (0)4 91 82 85 70
e-mail: labat@esil.univmed.fr

Diploma Courses: Master of International Research, major: BIODEV (MRIB)

MRIB diplomas awarded: 20-25/year (over 100 Dual South-North degrees validated since 2002)

Northern-Hemisphere Partner Institutions: UNESCO, Université de Provence, IRD, INRA (France)

Southern-Hemisphere Partner Institutions (8 countries): UFPR, Brazil; UAM, Mexico; IAV-Hassan II & UCAM, Morocco; ASC & AF, China; UA, Madagascar (since 2004); INSAT & CBS, Tunisia (since 2005); UH, Vietnam (since 2006); and UCAD, Senegal (since 2007).

Objectives of the UNESCO BIODEV Chair:

– To promote an integrated system with theory taught through distance education, followed by practical training in eco-friendly microbial biotechnologies for sustainable development;

– To facilitate collaboration between research institutions of the North and the South (8 countries involved);
– To focus particular international research work on the protection of biodiversity and the development of national microbial genetic heritages; and,
– To train sustainable-development players in "green" biotechnologies through the creation of an international, interactive, and high-level distance-education system, delivering multi-site multi-continent (Europe, Latin America, Africa and Asia) training.

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The 5-year course for over 100 students, mostly from the South, to train as agents of sustainable development, specialising in "green" biotechnologies, was made possible through the creation of an international, interactive, and high-level distance-education system (graduate level), organised in well-matched modules to provide multi-site and multi-continent training (Europe, Latin America, Africa, and Asia).

Teaching and Associated Research for Sustainable Development:

The content of the academic and practical training on offer centres on national biotechnology priorities and is taught by professors and specialised researchers from each of the 8 countries involved in the BIODEV chair. The teachers from the 8 countries are involved in joint South-North research. The content of the academic and practical training on offer centres on national biotechnology priorities and is taught by professors and specialised researchers from each of the 8 countries involved in the BIODEV chair.

SIMEV UNESCO CHAIR

Membrane Science Applied to the Environment

Established in: January 2004
SIMEV Chairholder: Professor Louis Cot
Contact: IEM (UMR 5635) – CC 047,
2 place Eugène Bataillon, 34295 Montpellier Cedex 5, France
Phone: +33 (0)4 67 14 91 01
Fax: +33 (0)4 67 14 91 19
e-mail: Louis.Cot@iemm.univ-montp2.fr

Objectives of the UNESCO SIMEV Chair

To train scientists and decision-makers through research and training for the application of new membrane technologies, (now flourishing worldwide), aimed at sustainable development in the area of water, agri-food, and energy through the creation of training cycles and distance teaching in developing countries. The Chair currently has 14 partners from 10 countries.

Partners Institutions

– Universities of Bucharest (Romania), Monastir and Sfax (Tunisia), Mohammedia, Fes and Kenitra (Morocco), Niamey (Niger), Dakar (Sénégal), Lomé-ESTA (Togo), Santa Catarina and Valparaiso (Chile), Tepatepec and Tecamachalco (Mexico), CRAER Nouakchott (Mauritanie).
– Global Water Partnership West Africa (Sénégal)

Research

Training periods in IEM are organised for scientists from countries concerned by the chair.

UNESCO CHAIR IN ARCHITECTURE, BUILDING CULTURES AND SUSTAINABLE DEVELOPMENT

Established in: 1998
Chairholder: ENSAG, Hubert Guillaud , architect, professor, CRATerre-ENSAG
Contact: CRATerre-ENSAG, Ecole Nationale Supérieure d'Architecture de Grenoble, BP 2636, 60, avenue de Constantine, 38036, Grenoble, cedex 2, France
Phone: +33 (0)4 76 69 83 81
Fax: +33 (0)4 76 69 83 69
e-mail: hubert.guillaud@grenoble.archi.fr

Diploma Courses: DSA-Terre (Diplôme de Spécialisation et d'Approfondissement-DSA)"Architecture and Heritage", Specialised post-master's degree in earth architecture.

DSAs awarded: 20-25/year (over 80 diplomas since 1998; Over 200 diplomas since the course began in 1984 as post-diploma of architecture or specialised engineering entitled CEAA-Terre and later DPEA-Terre)

Northern-Hemisphere Partner Institutions: UNESCO: Division of Higher Education and World Heritage Centre; Ministry of Culture and Communication – Architecture and Heritage Directorate (France); UNICA (Italy), Escola Superior Gallaecia (Portugal), Misereor (NGO Germany).

Southern-Hemisphere Partner Institutions: (17 countries): LOCOMAT (Burkina Faso); CECTech and ATBU Bauchi (Nigeria); Free State University (South Africa); Makerere University (Uganda); CEPAB (Cameroon); AMICOR (Republic of Congo); IPU icaLI (Tanzania); Gbamga Technical Training Centre (Liberia); ENA (Morocco); UNIMEP (Brazil); Universidad Nacional de Colombia, Fundación Tierra Viva, and PROtierra (Columbia); ITESO and CIPTEV (Mexico); FAU Montevideo and Salto (Uruguay); FAU Santa Fe and CRIATIC-FAU-UNT Tucumán (Argentina); Auroville

Earth Institute (India); Haft Tappeh Research & Training Centre – ICHTO and UNI Yazd (Iran); DOA-Mokpo National University (Republic of Korea).

Objectives of the UNESCO Chair in Earthen Architecture

- to promote and accelerate the dissemination within the international community of scientific and technical knowledge about construction and earthen architecture in two areas:
- Building culture and world heritage; and,
- human settlements and eco-responsible habitat;
- to facilitate the establishment of teaching and technical training, research, experimentation, and communication: specialised academic instruction and practical training, internship and diploma thesis;
- to broaden the training of trainers: teachers from tertiary and technical education; and,
- advocacy and social work to further sustainable development: public awareness.

Training in Sustainable Development

"No material is useful in and of itself but rather for what it can do for society" (John F.C. Turner). Building cultures (knowledge and know-how) using soil (mud), a widely available, economical, low-energy, and non-polluting material, provide outstanding advantages for sustainable development. At the boundary between the cultural diversity of built heritage assets and the production of habitat with "cultural value", the rehabilitation of earthen architecture is a driver of local development that facilitates access to housing by the disadvantaged and contributes to greater social and economic sustainability. At the same time, soil's ecological properties make it an inescapable resource of environmentally-sensitive and eco-responsible architecture. Training professionals is a major challenge.

Sustainable-Development Teaching and Research:

Teaching:

- Specialised Post-Master's degree DSA-Terre (2 years) by ENSAG;
- Professional intensive course (1 to 3 weeks); earthen construction and low-cost habitat;
- Academic instruction and professional training, regional and international seminars, in the following fields:
- education in earthen architecture;
- conservation and management of earthen-architecture assets;
- human settlement and habitat; and,
- Vrebuilding after natural disasters (earthquakes, floods, cyclones).

Research:

- Building materials and systems, architecture and building cultures, conservation, eco-housing for sustainable development.

UNESCO CHAIR
TRAINING OF TRAINERS IN PEDAGOGY AND CLINICAL RESEARCH AND EPIDEMIOLOGY IN MEDICAL SCIENCES

Established in: January 2007
Institute of higher learning: Université François Rabelais, Tours, France
Contact: CIDMEF Faculté de Médecine – 10 boulevard Tonnellé 37032 TOURS Cedex, France
Phone: +(33)2.47.37.66.73
Fax : +(33)2.47.36.62.07
e-mail: gouaze@med.univ-tours.fr rolland@med.univ-tours.fr

Chairholder: Prof. André Gouazé in collaboration with Prof. Jean-Claude Rolland.

Partner Institutions:

AUF – OMS – CAMES

French-speaking faculties of medicine in sub-Saharan Africa, the Maghreb, Central Europe, France, Belgium, Switzerland, Quebec, Vietnam, Laos, Cambodia, Lebanon, Haiti (100 member faculties)

Activities:

Organised by 3 boards

Scientific Advisory Board

- Development of multimedia libraries and training of librarians/ documentalists.
- Teacher training in clinical-research methodology: Inter-faculty seminars, training of local-area counsellors, creation of clinical-research centres.

Teaching Board

- Inter-faculty teacher-training seminars
- Required skill sets
- Professional activity days every two years
- Preparation of candidates for the exam of the African and Malagasy Higher Education Council (CAMES), to become upper-secondary/university teachers.

Assessment Board

Evaluation of the curricula and teaching of faculties of medicine based on self-assessment and factoring in the local and regional context (40 evaluations to date).

Outlook

To pursue and expand concrete activities: teacher training, evaluation, clinical research (most particularly in developing countries).

CIDMEF: Conférence Internationale des Doyens et des Facultés de Médecine d'Expression Française

CIDMEF: Conférence Internationale des Doyens et des Facultés de Médecine d'Expression Française

UNESCO CHAIR
Development and Integrated Land Use

Established in: 1994
Chairholder: Jean-Pierre Prod'homme, Professor Emeritus AgroParisTech (rural sociology), in collaboration with Patrick Blandin and Nathalie Machon (MNHN) and Arnaud Martin (Montpellier 2).

Contact: 16 rue Claude Bernard, 75231 Paris Cedex 05, France
Phone: +33 (0)1 44 08 16 33.
Fax: +33 (0)1 44 08 18 55
e-mail: prodhomm@agroparistech.fr

Diploma Courses: Master 2 "development and integrated land use" (DAIT). The MNHN is the agency co-ordinating the training.

Diplomas Awarded: about 15 per year (MNHN and Montpellier 2 University, in partnership with AgroParisTech)

Northern-Hemisphere Partner Institutions: AgroParisTech, Muséum National d'Histoire Naturelle (MNHN), Montpellier 2 University

Southern-Hemisphere Partner Institutions: Geography department, Catholic University of Chile; Geography department, Belgrade University (Serbia); Other institutions anticipated from several countries.

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Objectives of the UNESCO Chair

The masters degree in development and integrated land use is designed to train professionals from various fields of activity in the principles of, and approaches to, land use and territorial development, with a view to sustainable development. Each group includes graduates and professionals from a wide range of horizons, and this diversity of experience and culture further enhances the training.

First taught in the 1970s, the course produces two very positive results: Graduates become part of an effective network for collaboration in the various fields; Moreover, the training is a benchmark for similar courses provided in several countries.

UNESCO CHAIR IN TRAINING OF SUSTAINABLE-DEVELOPMENT PROFESSIONALS

Established in: 2001
Chairholder: ANNIE NAJIM, INSTITUT D'AMÉNAGEMENT, DE TOURISME ET D'URBANISME, UNIVERSITÉ BORDEAUX 3
Contact: Domaine universitaire, université Bordeaux 3, 33607 PESSAC, France
Phone: 33 (0)5 57 12 21 78 or 20 98 Fax: 33 (0)5 57 12 45 35
e-mail: annie.najim@u-bordeaux3.fr

Diploma Courses: Vocational bachelor's degree in "international solidarity project engineering"

Diplomas Awarded: 20-25/year

Northern-Hemisphere Partner Institutions: UNESCO, European Union, AIF, AUF, Vigo University (Spain), Sofia University (Bulgaria), Fulda University (Germany), Namur University (Belgium), IUED (Switzerland), Conseil Régional d'Aquitaine, municipality of Bordeaux + NGOs and association-based networks + social and solidarity enterprises (fair trade, solidarity tourism).

Southern-Hemisphere Partner Institutions: University and Association-Based Networks 6 countries: Morocco, Palestine, Senegal, Algeria, Tunisia, Madagascar

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Objectives of the UNESCO Chair for the Training of Sustainable-Development Professionals

- To produce instructional engineering for the training of middle managers in development and international solidarity;

- To facilitate collaboration between universities and associations in order to capitalise on experience gained in the field of sustainable-development training; and,
- To foster research into the skills of development professionals aimed at developing a reference set of jobs, activities, skills and training courses.

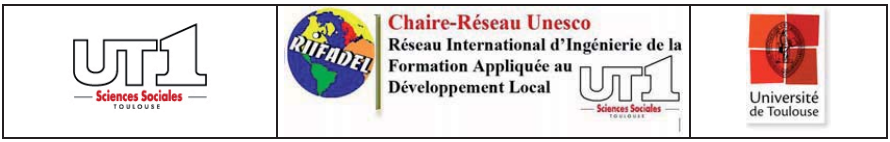
Training in Sustainable Development: Main Instructional Goals

- multidisciplinarity and importance of project-management training;
- involvement of professionals to make the training operational;
- learning the collective dimension of the job through relevant exercises;
- importance of practical training in international and intercultural contexts;
- development to of behavioural and situational skills; and,
- consideration of the ethics of sustainable-development occupations.

Sustainable-Development Teaching and Research

To produce the instructional tools required for the training of middle managers in development and international solidarity, the Chair develops research with its network of partners on the following subjects:

- players in local governance and the interactions among them;
- skill set of the development officer;
- gender issues in social development; and,
- evaluation of development projects.



UNESCO CHAIR INTERNATIONAL NETWORK IN ENGINEERING OF TRAINING APPLIED TO LOCAL DEVELOPMENT

Established in: October 1998
Riifaldel Chairholder: Jean-Louis Hermen (Université Toulouse 1- CNRS)
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Diploma Courses: Master 2 "engineering of training and employment systems" (IFSE)

IFSE Masters degrees awarded: 50-60/year

Northern-Hemisphere Partner Institutions: Agence Universitaire de la Francophonie, Organisation internationale de la francophonie, Far Network (agricultural and rural training), founding member of the X3C network with the University of Andorra and Polytechnic of Catalonia, University of the French West Indies and Guiana, etc.....

Southern-Hemisphere Partner Institutions (9 countries): National University of Vietnam, Hue University (Vietnam), Cesag (Senegal), the Polytechnic School of Yaoundé (Cameroon), Djibouti University, Chapingo University (Mexico), Guatemala University, El Salvador University, University of Honduras, University of Cuba.

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Objectives of the UNESCO RIIFADEL Chair:

– To be an international centre of excellence in training engineering applied to local development and employment with a view to the completion of specialised studies and research focusing on sustainable development;

– To educate professionals in training and employment systems by country-contextualising the master's course using open-learning and distance-training methods; and,
– To develop technical assistance for the implementation of "training/local development" projects via a network of consultants dealing particularly with the use of new education technologies (such as open learning and distance teaching).
