



United Nations Educational,  
Scientific and Cultural Organization

*the new*  
**Courier**

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A photograph of a woman in silhouette carrying a large, clear plastic water container on her head. The container is filled with water and reflects the light. Another person's hand is visible in the foreground, reaching towards the water. The background is a bright, hazy landscape.

**Water  
for people  
water  
for life**

**Genetic Data  
Promises and progress**

**World Heritage  
The new jewels**

**From information society  
to knowledge societies**



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"Of all the social and natural crises we humans face, the water crisis is the one that lies at the heart of our survival and that of our planet earth." So said UNESCO Director General Koïchiro Matsuura on the occasion of the launch earlier this year of the *World Water Development Report\**, a comprehensive state-of-the-resource document jointly compiled by the 23 United Nations agencies, programmes and commissions dealing with water.

Depending on factors like population growth and policy choices, between two and seven billion people, in as many as 60 countries, will face water scarcity by the middle of this century. And while 6,000 children are now killed each day by water-borne diseases, water quality will steadily worsen in the years ahead as a result of the two million tons of waste currently dumped into rivers and lakes every day.

Presented on the eve of the third World Water Forum (Kyoto, Japan, March 2003), the *World Water Development Report* stigmatized the political inertia surrounding the looming crisis. Of all the targets set to improve water management by a long list of international conferences "hardly any," says the report, "have been met."

UNESCO, which together with the UN Department of Economic and Social Affairs is leading system-wide efforts in this the International Year of Freshwater, sent a strong signal of its determination to help developing countries to strengthen their capacity to address critical water issues with the creation last March of the UNESCO-IHE Institute for Water Education in Delft, the Netherlands. Long established as a world-class scientific institution, the Institute will become the hub of a global network of UNESCO-related regional centres, UNESCO Chairs, networks and partnerships in water education and capacity building serving the Organization's 190 member-States.

Inform, educate, train professionals, build up capacity: It's a question of survival.

*Michel Barton*

\*see : <http://www.unesco.org/water/wwap/wwdr/index.shtml>

## Beating SARS virtually

School-children and university students on mainland China and in Hong Kong continued their lessons online from their homes after schools were closed at the height of the SARS outbreak earlier this year. University teachers in Hong Kong were even able to administer exams online, allowing students to finish their semester despite the extreme disruption to classes caused by the epidemic.

Less fortunate were some 500

students from China, Taiwan, Hong Kong and Singapore who had enrolled in summer courses at the University of California in Berkeley. The university told them not to come because it did not have the capacity to deal with the "labour intensive measures" that would

be necessary if any summer students became ill and needed to be quarantined. Other US universities did not follow suit. UC Berkeley has since created a prevention and response plan to help the campus – and other institutions – cope with public health threats such as SARS.



© Jan Zdarski Jr/East News/Gamma, Paris

## Convention for Migrants



© UNESCO/Jean Mohr

On July 1, 2003, the International Convention on the Protection of the Rights of all Migrant Workers and Members of their Families came into force. Its main objective is to act as an instrument in the fight against violations of the human rights of migrants, one of the most vulnerable groups of any population, especially if they have no official papers. There are an estimated 175 million migrants, 60 percent of them living in Europe and North America. Of the 22 countries so far to have ratified the Convention, most are countries of emigration. None of the major countries of immigration have ratified to date.

<http://www.migrantsrights.org>

## Vienna's "Mona Lisa of sculptures" stolen

The *Saliera*, or 'salt cellar', a gold, enamel, ebony and wax sculpture by Italian Renaissance goldsmith, Benvenuto Cellini (1500-1571), was stolen from Vienna's Art History Museum in May this year. Valued at an estimated US\$57 million, the *Saliera* depicts two gold figures – a goddess representing Earth, and bearded Neptune, with his trident and shell. The salt was served in a miniature ship, and pepper in an ionic temple, on either side of the figures. Commissioned by King Francois I of France, the *Saliera* is arguably the most beautiful work produced by the Florentine

master. It was later offered to Archduke Ferdinand of Austria. The Viennese authorities have asked Interpol to help recover the stolen masterpiece.



© Kunsthistorisches Museum Wien, Kunstammer



## Play power

A US research centre has succeeded in building a supercomputer by hooking 70 Sony Playstation 2 game consoles together in a fast network. For a \$50,000 outlay, the unit delivers some 500,000 million operations per second (or 0.5 teraflops). The world's fastest computer, NEC's Earth Simulator, can perform about 40 trillion operations per second (40 teraflops), but cost more like \$400 million. The Playstation-based supercomputer was built by the National Center for Supercomputing Applications (NCSA) at the University of Illinois (USA). It uses the so-called 'open source' Linux operating system, which is constantly being updated for free by the scientific community worldwide.



© National Center for Supercomputing Applications/University of



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## Kissing Prince Charming goodbye

Prince Charming is a myth, and "happy ever after" often is not. So say private girls' schools in the US, which have declared "financial literacy" an educational priority. The aim is empowerment, says the 103-member National Coalition of Girls' Schools, stressing that (American) women today earn 25 percent less than men, spend about one third of their lives alone and, too often, in poverty.

The playing field will only be level, says the Coalition, when girls and women are able to control their financial destinies. To get there, students in Coalition schools are following courses that teach them about compound interest and credit

card debt, retirement planning and refinancing mortgages. They're learning how to write a business plan or uncover the mysteries of stocks, bonds and mutual funds.

"We'd rather give (girls) a heads-up earlier in life; make sure they understand that part of their responsibility is to be a player and not just a bystander" said Coalition Executive Director Whitney Ransome. "But it's a seismic shift – bit by bit, school by school, almost girl by girl." <http://www.ncgs.org>



© Miss Porter's School, Farmington, Conn/NCGS

## Africa: warning of future conflicts

Since 1970 there have been 30 armed conflicts on the African continent, says a new report entitled "Peace in Construction"\* published by *Rencontre Africaine Pour la Défense des Droits de l'Homme* (RADDHO), a civil rights NGO based in Dakar (Senegal), set up in 1990. According to the report, 19 countries in sub-Saharan Africa are showing "warning signs" of a crisis, or are in the fragile process of rebuilding peace on this continent "ruined by wars." West Africa remains the most threatened region, with Burkina Faso, Côte d'Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Mauritania, Nigeria, Sierra-Leone and Togo as warranting "surveillance." Central



Africa takes second place, with seven countries identified as at risk, while Eastern and Southern Africa have only one "bad" example each.

With *Peace in Construction*, RADDHO hopes to alert the international public to the risks of conflict and thus to encourage their prevention. The NGO is proposing to organize an international conference on the issue and recommends the adoption of a "Universal Declaration of Peace."

\* so far only available in French as *La paix en construction*

## Avant-garde or vandalism?

Works of art must not be interfered with. But who says so? Two recent incidents have put this unwritten axiom into question. The Egyptian Museum in Berlin recently exhibited the famous polychrome bust of Nefertiti (1372 B.C.) with the "addition" of a naked bronze body, provoking widespread indignation. The Egyptian authorities have now asked for the work of art to be returned.

And at the Modern Art Oxford museum (UK) Britpop brothers, Jake and Dinos Chapman have "rectified" a complete series

of etchings by Francisco de Goya (1746-1828). The artists replaced the faces in the 83 prints of the *Disasters of War* series with the heads of clowns and animals. The edition the artists used was printed in 1937, from the original plates, at the height of the Spanish Civil war.

The question these acts raise is, is it illegal for the owner of a work of art to deface it, even if for a limited period? There is no clear-cut answer. Some consider such actions as avant-garde art, others as straightforward vandalism.

## Discovered in America

In June 2003, a team of archaeologists from the French *Institut de recherche pour le développement* and of Ecuador's National Institute of Cultural Heritage discovered the vestiges of a 4,500-year-old civilization in the western Amazon. Five receptacles – bowls, small dishes and a mortar – figure among these remains. The motifs of feline heads, serpents and birds of prey found on the vessels are reminiscent of the great Andean Chavin and Cupinisque cultures. Experts say the finds are all the more interesting as they were made in a humid tropical forest area,

which is not propitious to conservation and has been little explored by archaeologists. <http://www.Ird.fr>



© Laurence Billaut/IRD (fold out)/Francisco Valdez /IRD, Ecuador



© SPL/Cosmos, Paris

## Male chromosome gets a reprieve

Scientists may have saved the reputation of the 'Y', or male-determining human chromosome, whose functions were poorly understood. Researchers from the Whitehead Institute for Biomedical Research in Cambridge (USA) and Washington School of Medicine in St Louis (USA) have identified some 78 genes on the chromosome, instead of the 40 or so it was thought to contain. And these genes are by no means useless. Apart from determining gender,

they may play a role in male fertility and protect men against osteoporosis, a disease that, as a result, mostly affects women. It was also thought that, unlike the other chromosomes, which are found in pairs, the solitary Y chromosome had no way to correct genetic mutations and preserve its genes. However, it seems that the Y chromosome has its own protection mechanism, using mirror-image copies of the same genetic sequences as a kind of back-up.



## The big lesson

How do you get decision-makers to defend the principle of parity between boys and girls at school? On April 9, 2003 (during a week of celebrations for Education for All from April 6-13), at the initiative of the organizing committee for the Global Campaign for Education for All, the Guinness Book of World Records was re-written when the record for the "biggest lesson in the world" was beaten. The same lesson on the theme of educating girls was followed simultaneously by 1.8 million people in more than 150 countries. The countries with the highest number of participants

were Bangladesh, India and Brazil. The previous record was held by a "class" of 28,000 people in the United Kingdom.



© UNESCO

talking to

Abdelwahab Meddeb

# Sweeping our own backyard



*The Tunisian writer and poet examines the genealogy of Islamic fundamentalism. In the current climate, he believes that self-criticism is the surest way to lift the Muslim world out of the moral and political crisis it is plunging into*

**Do you see terrorist attacks as a religious phenomenon or a symptom of the political frustration of Muslims?**

★ The fundamentalist movement is fed in two ways. It is an insurrectionary, revolutionary movement and a phenomenon that draws on elements of history and the Islamic tradition. However, one cannot say that the attacks are a religious phenomenon. The use of suicide in the name of politics or religion to kill blindly has never existed in Islam, never. Some people claim the contrary, referring to the attacks perpetrated by the Ismaelians in the Middle Ages. But that was a very specific phenomenon. These were attacks by the thousand-year-old Shi'ite movement against the Sunni authorities. And the Ismaelians carried out political assassinations in a highly targeted way, without ever harming civilians. They targeted their enemies, the theologians or representatives of authority. No, what is happening today has a lot more to do with the Western nihilist movement.

© UNESCO/Niamh Burke



The May 2003 bomb attacks in Casablanca were, for some Muslims, signs of a malady in Islam



© Benito/Gamma, Paris

#### What do you mean by that?

★ This movement began with the anarchists in the 19th century. It was described by Dostoyevsky in *The Possessed*. It drew its followers from the ranks of the frustrated. The Italian writer Solmi showed that the typical revolutionary comes from semi-intellectual circles, often school teachers, in other words aspiring intellectuals, who lack what it takes to be recognised as such. In the same way, the Muslim terrorists recruit semi-literate people. Given the demographic circumstances and the spread of mediocre education, these semi-literates constitute an immense mass of people gnawed away by resentment. Many Muslims cannot bear the position of weakness that they have occupied since Bonaparte. Since the end of the 18th century, Islam has not found ways to face up to the Western hegemony. Many people currently feel so powerless in the face of the American hyper-power that sacrificial violence seems to them to be the only response.

#### You say in your book *La Maladie de l'islam* (*The Malady of Islam*) that this religion is, more than any other, fertile ground for fundamentalism. Why?

★ It is true that the form of radicalism that preaches *takfir* (excommunication) sprang from the first sect of Islam, the kharijites, beginning in the 7th century. It is also true that a debate began raging with the second generation of Muslims, often ending in armed clashes between literalists and allegorists, in other words those who held that the Koran has only one meaning and those who believed its message was ambivalent and therefore open to interpretation. However this debate is not unique to Islam, it runs through all religions. All systems generate a sickness, a malady. If Christians are doing better than others these days, it is because they have spent centuries denouncing the malady of Christianity. All that is new in the Western tradition after the Middle Ages has been built on the criticism of religion, against itself. Thinkers from Erasmus to Schopenhauer, including Voltaire, Nietzsche and Kierkegaard, have all denounced the evils of Christianity. They attacked both its driving force and its illusions.

The problem is that in Islam, this kind of criticism has hardly even begun. Even enlightened Muslims cannot bear to have

the metaphor of a malady applied to their beliefs, which is why the title of my book in Arabic had to be changed (see box). However, since the terrorist attacks in Riyadh and Casablanca, this metaphor has started to appear, even among theologians. Of course, I am not saying that other religions do not also need to examine their conscience. But it is not my job to write about the malady of Judaism or Protestant Puritanism. I prefer to sweep my own backyard.

#### Could you outline the development of fundamentalist Muslim ideology?

★ This ideology originates from a combination of three things. For the first, you have to look at the text of the Koran itself. There is, for example, the infamous “verse of the sword” which gives the order to pursue and kill all polytheists. The fundamentalists argue that this verse cancels out all the nuances of tolerance found in the Koran. The second element refers to the literalist thinking that developed over the centuries, and which found a spectacular incarnation in Ibn Hanbal (780-855), the founder of one of the four schools of orthodox Islam. This theologian fought against the mu’tazilites, the rationalist current supported by the Baghdad authorities in the 9th century. He was imprisoned and persecuted for his hard-line beliefs. After his death, his disciples radicalized his thinking. For example, fundamentalists today, who claim to have their roots in Hanbalism, often evoke *takfir*, even though Ibn Hanbal challenged this notion. The second key figure in this traditionalist trend is the Hanbalist thinker Ibn Taymiyya (1263-1328). Within his monumental body of work is a little book entitled *As-siyassa ash-Shar’ia* (“Politics in the name of divine law”), which is like a bible for the fundamentalist. In his time, Ibn Taymiyya was criticized, even from within the Hanbalist school, and spent part of his life in prison. But today, he is a central reference point for fundamentalists.



The third pillar of fundamentalist ideology is a figure called Ibn Abd Al Wahhab, who called for a radical return to the most literal interpretation. Taking up the theory of Ibn Taymiyya, he refused any form of intercession between God and man. He was responsible for the disappearance of all the tombs of saints on the Arabian Peninsula and the destruction of the rites of popular Sufism, which were very rich from an anthropological point of view. The ideas of Abd Al Wahhab (1703-1792) were decried while he was alive, but later became the official doctrine of Saudi Arabia.

#### And what are the external causes?

★ They go back to Bonaparte's expedition to Egypt, and the momentous encounter with the West. The people of the Middle East discovered that Europe was powerful and that henceforth they themselves would occupy a position of weakness. The first reaction, around 1830, was Muhammad Ali's plan to modernize Egypt. The intellectual Rifaa Al-Tahtawi (1801-1874) represented this school of thought. He undertook the huge job of translating scientific manuals. In the politico-theological sphere, sheikhs Al-Afghani (1838-1897) and Muhammad Abduh (1849-1905) then created what we call the *salafiyya*, a form of fundamentalism, not to be confused with Muslim fundamentalism.

#### What is the difference?

★ Afghani and Abduh were defeated historically but their approach was wider. What were they searching for? They wanted to return to the foundations of Islam and adapt them so that Muslim societies could rebuild themselves, taking Western contributions into account, particularly democracy and parliamentary government. Their plan was to use these concepts to fight against the hold of colonialism and local despotism. In fact, they used to meet in a cafe in Cairo called *Al-Barlaman* (the Parliament).

#### How did we get from this modernist fundamentalism to Muslim fundamentalism?

★ It was a gradual process. Rashid Ridha (1865-1935) served as an intermediary link in the ancestry of this form of fundamentalism. He began by taking up the ideas of Abduh and criticising Wahhabism, making a name for himself in the early 20th century, and eventually taking power on the Arabian Peninsula in 1932. But towards the end of his life, Ridha changed his opinions and wrote a text supporting Wahhabism, which was not as opportunist as it sounds. He pointed to the evolution of man at a time of colonial conquest which sparked the rise of anti-Western feeling.

#### So fundamentalism was born in the 1920s...

★ Yes, with Rashid Ridha's pupil, Hassan Al-Banna (1906-1949), who remains famous for creating the Muslim Brotherhood (Al-Ikhwan Al-Muslimun) in Egypt in 1928.

### At a glance

► Born in Tunisia in 1946, Abdelwahab Meddeb moved to Paris as a student, where he studied literature and art history. Poet, novelist, essayist, and translator, he has a deep understanding of both Western and Arab culture. He is editor of the international French-language literary journal, *Dédale* and is currently Professor of Comparative Literature at the University of Paris X in Nanterre. He has published a dozen books in French, including *Talismano*, Bourgois, Paris,

1976 (republished by Sindbad, 1987); *Phantasia*, Sindbad, Paris, 1989; *Aya dans les villes*, Fata Morgana, Saint-Clément, 1999, *Matière des oiseaux*, Fata Morgana, Saint-Clément, 2001. His latest work, *La Maladie de l'islam*, Seuil, Paris, 2002, (published in English under the title, *Malady of Islam*, Basic Books, New York, 2003) has attracted considerable international interest. So far it has also been translated into Arabic, Bosnian, German, Italian, Portuguese, Spanish, and Turkish.

Next came a virulent wave of anti-Western sentiment, with democracy portrayed as trickery and an ideology of domination. If democracy existed, Hassan Al-Banna asked, how could there be colonialism? He concluded that Muslim countries do not need the West but instead need to renew their political systems in their own way. You could say that there was a move from a watchword of modernizing Islam to another, which preaches an Islamization of modernity. For example, instead of defending the parliamentary system, we turn to the Koran and substitute the word *choura* for the word *barlaman*. But *choura* has nothing to do with parliamentarianism. It is not founded on elections or equality, but is simply a matter of consultation, to guide the prince in making decisions.

#### How were these ideas received?

★ At first, the Muslim Brotherhood experienced repression, nationalist tyranny and the emergence of the post-colonial totalitarian State. Despotism has traditionally taken place where there is little State intervention. But in an age of technical progress, all Arab countries have moved towards maximum state intervention. The model of the party-State has triumphed. And the fundamentalists have gained ground as this model has reached its limits. They benefited from





© Stephan Gladieu/Gamma, Paris

Members of the religious party Jamiat Ulemai-Islam, close to the Taliban in Afghanistan, at a meeting in Peshawar (Pakistan)



the failure of Arab nationalism, the defeat by Israel in 1967, the failure to develop and from the elimination of any form of political expression. The rise in power of the Saudi rulers after the 1973 oil crisis added a new element. Petrodollars helped the spectacular spread of a hard-line form of Islam, founded on a single orthopraxy: the strict observance of prayer became the basis of social censure and wiped out local practices in favour of a uniform Islam.

#### But how did we veer towards terrorism?

★ The end of Nasserism and the arrival in power of Sadat in Egypt saw a migration of semi-literate Egyptians to Saudi Arabia, where the Muslim Brotherhood had married their ideas with those of Wahhabism. Then there was a second, explosive, encounter in Afghanistan. Egyptians, Saudis and Pakistanis joined together in the  *jihad* , orchestrated and supervised by the United States to fight against the Soviet invasion. You know what happened next.

#### How do you see the future?

★ Today, the Muslim world is in a state of civil war. But internal criticism is growing. The French revolution of 1789 was preceded by two centuries of intellectual effort. Faced with violence, critical thought is spreading, particularly in the

Shi'ite world. In Iran, the concept of  *vilayat e-faqih*  introduced by Khomeini has been criticised by theologians. In Iraq, the idea of spiritual caliphate, which presupposes a separation of religion from politics, seems to be gaining ground among the Shi'ite majority. As for Saudi Arabia, if it does not want to implode it must resolve the contradiction between its religious discourse, which leads to anti-Western sentiment, and its geo-political alliance with the United States.

#### And which way is public opinion likely to lean?

★ Since the 1970s, a diffuse fundamentalism has developed in Arab-Muslim societies. But that may be beginning to ebb away. The terrorist attacks in several Muslim countries have shocked the public. The challenge now is to separate Islam from Islamism. We must make sure that Islam plays a role in the war against fundamentalism.

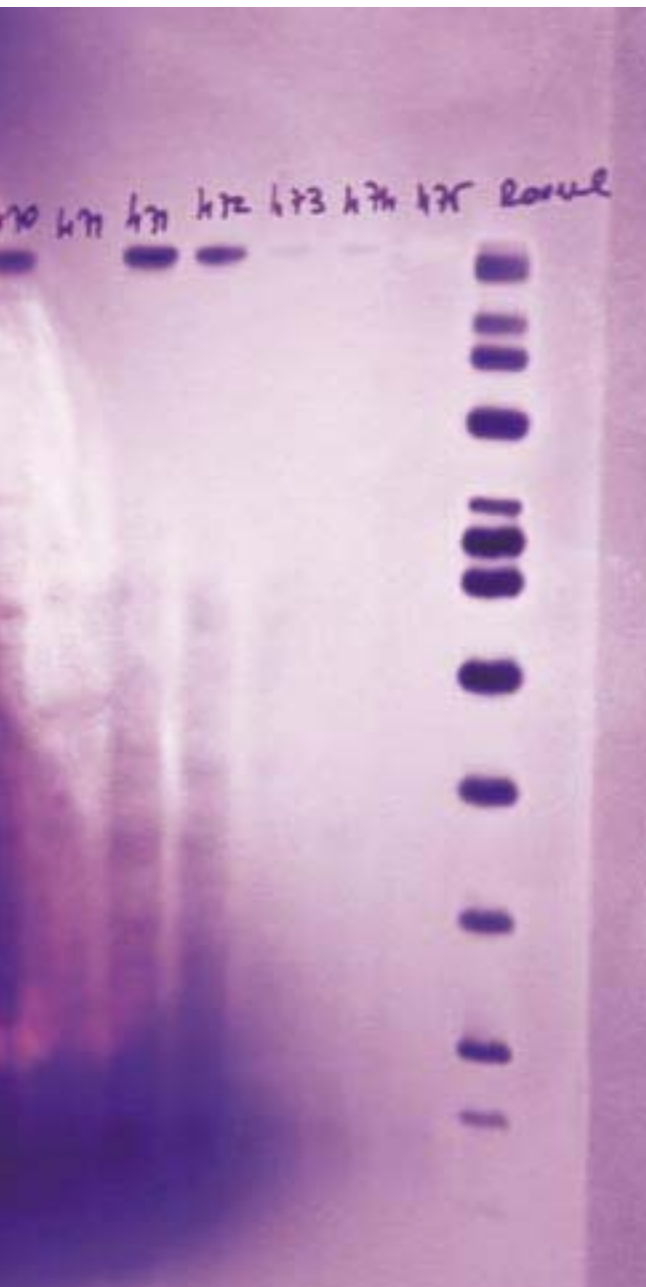
Interview by Sophie Boukhari and Bassam Mansour



# Genetic Data: Promises and pitfalls

**H**uman genetic data, gathered through biological samples (blood, tissue, saliva, sperm, etc.) play an increasingly important role in our lives. They are already providing answers to questions asked by judges and police, such as proving paternity or identifying sex offenders and accident victims. In varying

degrees, they also answer medical questions. Genetic tests can detect such illnesses as Huntington's disease; other tests, indicating only a predisposition, provide invaluable information for prevention. Research based on human genetic data promises more tests of increasing reliability as well as new approaches for understanding and treating many diseases.



© Patrick Landmann/Gamma, Paris

*Human genetic data already tell us much, and promise to tell us much more. But there are fears that they will lend themselves to uses that are contrary to justice and civil liberties, and will open the door to discrimination. To better understand the complexity of these problems, it is useful to examine concrete situations. Some examples follow*

**1** *Because one of her parents died of Huntington's disease, a North American woman decides to take a genetic test to find out if she too will develop the neurodegenerative disorder. The probability is 50 percent. A genetic counsellor advises her to take out life and health insurance before taking the test. Should the test results be positive, he explains, not only will she be condemned to illness, she will also no longer be eligible for insurance, as no company will accept her if she discloses her status. And if she conceals a positive test, she is committing fraud, and the company can cancel her policies. Shortly thereafter, she finds out that the test results are positive. Knowing she will develop the disease, she tells a certain number of people. She is soon fired, despite having received praise and a promotion in the previous eight months for her work. Seeing all this, her relatives – especially her sisters – decide not to take the same test.*



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## PREDICTIVE TESTS

An estimated three to four thousand diseases (Huntington's disease, cystic fibrosis, neurofibromatosis, Duchenne dystrophy, etc.) are directly related to hereditary genetic alterations. More complex hereditary genetic alterations can increase an individual's risk of developing common diseases (cancer, cardiovascular disease, diabetes, etc).

Many genetic tests exist that can identify these alterations or mutations. Kits usually costing between US\$100 and US\$200 are available for more than 400 diseases and hundreds of others will arrive gradually on the market. Some tests, such as the one for Huntington's disease, have the particularity of being categorical: if the test is positive, the person is certain to develop the disease. But the great majority of tests, such as those for certain cancers, only indicate that you may be predisposed to a certain disease, which does not mean you are definitely going to develop it.

## DISCRIMINATION FOR INSURANCE

The economic mechanism of insurance is based on the fact that it is not individuals who are being insured but groups. For each accident or illness, there is a given statistical risk (which may have to be adjusted according to the person's age or



© Patrick Aventurier/Gamma, Paris



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environment). The whole system depends on the good faith of the contracting parties. If a large number of people ask for life insurance because they have found out that they have a higher than normal risk of getting cancer, it skews the mechanism. Insurance companies fear these 'fraudulent' clients, but they are not at their mercy. They can try to prove that the insured person cheated by neglecting to inform them of his or her condition.

The balance can also be tilted in the other direction, posing a different threat. Insurance companies can be tempted to use the increase in genetic testing to their own advantage. Without going as far as to impose the tests on their clients, they can persuade them to get tested by offering lower rates. We could then end up with two-or even three-speed insurance: clients at risk (those with a known predisposition to a serious disease or refusing to take the test) who would pay the highest premium, and clients lucky enough to draw a winning number in the genetic lottery who would get the best rates.

## DISCRIMINATION BY THE EMPLOYER

It seems evident in our example. But it could have taken another more insidious form, with the employer waiting a little longer to get rid of the "problem" employee so that no one would suspect the real reason for firing him or her.

Discrimination can also take a more active form. In our example, the employer merely reacts to a test that the employee has freely chosen to take. But an employer can initiate genetic screening. For example, employees of the *Ernesto Orlando Lawrence Berkeley National Laboratory* discovered by chance that they were being screened: women were tested for pregnancy, Afro-Americans and Latin-Americans for syphilis and Afro-Americans for the genetic trait for sickle cell disease. Railroad workers employed by the *Burlington Northern Santa Fe Railroad* discovered that the company had used blood samples from at least 18 of them to screen them covertly for a predisposition to carpal tunnel syndrome (CTS), a musculoskeletal disorder impairing manual ability, which can be costly to employers. What was the

**Crime investigators routinely use genetic data derived from traces of blood, etc. But what happens to these data afterwards?**

*Burlington Northern Santa Fe Railroad* planning to do with the results of this illicit test?

Discrimination, furthermore, is not always easy to prove. Where does one draw the line? Not assigning a worker with a predisposition for CTS to a job where he/she will have to operate a jackhammer can be interpreted as a preventive measure, taken in the employee's best interest.

## REFUSING TESTS

Such discrimination obviously discourages potential candidates from getting tested, depriving them of the advantages that early diagnosis can entail. And because of such reticence, scientists risk being deprived of valuable information.

2

*In the 1980s, a resident of Seattle (Washington) suffering from leukaemia was admitted to a renowned university hospital in California. He underwent a splenectomy (removal of the spleen). Without asking the patient's consent, a researcher examined the tissue taken and discovered an interesting substance. A patent was taken out which benefits five parties – the doctor, the hospital, a researcher, a genetic institute and a pharmaceutical company – but not the man whose cells contained the substance. He sued in a California court. The court upheld his claim on one count – the lack of consent – but denied him a property right, as such a right would block scientists' access to the cells they need. What would be the outcome of a similar trial today, given the continual evolution of jurisprudence? All would depend on where the trial was held, as certain states such as Georgia and Oregon are more protective of the biological "owner".*

## CONSENT

The patient consented to have his spleen removed as part of his treatment for leukaemia – but not to have it used for research. Only much later, in 1983, when the patient began to wonder why he had to go to California to give samples which could have been taken in his home town, was he asked to sign a waiver, giving up his rights to any product that could be derived from his blood. He refused to sign and sued when he discovered that the doctor and other parties had filed a patent application in 1981.

The normal conditions for consent are that it has to be prior, freely given, and informed. In other words, the person must know in advance that his sample will be used to produce human genetic data; he or she must be under no physical or psychological pressure; and he or she must understand to what end the human genetic data are being produced (possible advantages and disadvantages, guarantees stipulated). Sometimes, in addition, consent must also be explicit, i.e. the purpose of the sampling must be clearly defined.

## CHANGING THE OBJECTIVE

As far as the patient is concerned, the samples were taken with a therapeutic aim: in other words, as part of his care. At the beginning of the treatment, the doctor had the same objective. But he added another when he realized that his patient's blood contained an interesting substance. This resulted in taking samples that were useful for research but perhaps not to the patient. It also explained why the sampling had to be done in the doctor's California hospital, to ensure he could work on the samples exclusively. Changes of objective are sometimes even more clear-cut. Imagine that a country has decided to create a genetic data bank including all of its citizens, with the aim of using research to improve health care – but that the collected data were then made available to the police to hunt down criminals. Ethically, the change in purpose is unacceptable. For politicians seeking popularity, however, it might be tempting.

## PROPERTY

Who owns what? Marie Curie never patented radium. She discovered it but did not invent it. One could say the same of genes – scientists discover them or one of their functions but they do not invent them. This has not prevented thousands of patent applications from being filed. More pertinently, to whom does a sample containing genetic data belong? Common sense says it is the property of the person who supplied it. But does it no longer belong to him once it is extracted from his body? Without claiming an absolute property right, does the person not at least have a say in what use is made of his cells or a product derived from his cells?

A few years ago, scientists gave little thought to these issues. As long as the patient had consented



## Towards a Universal Declaration

**Human genetic data** will soon have an international declaration that sets out the ethical principles that should govern their collection, processing, storage and use. This draft declaration,

which aims to provide preliminary solutions to extremely complex issues, will be submitted to UNESCO's September-October 2003 General Conference.

to giving cells or tissues, they considered themselves free to use them in their research. But the problem is more crucial today. Using human cells or tissues, or by analysing data derived from them, hundreds of biotechnological companies are competing in the race to produce all kinds of tests or treatments. Millions of dollars are at stake, which explains the multiplication of the number of genetic data banks. This is a market that can only expand so it would be advisable to establish more precise rules.

**3** *Send us some of your saliva, you'll be helping science and we'll give you shares in our company! This intriguing message circulated on the internet. A company based in Brussels (Belgium), called Spitters, planned to create a genetic data bank available to both state and private researchers. Its earnings would come from the pharmaceutical industry that would have to pay for access to the data collected. The DNA would come from millions of samples of saliva the company hoped to stock. The "donors" who wanted to receive shares in the company also had to fill out a medical questionnaire via the internet. The company guaranteed anonymity. The start-up failed, as did the corporation behind it, Starlab NV/SA. After it filed for bankruptcy, 500 saliva samples were put up for auction, along with the office furniture, although the sale never took place.*

### SAMPLES

They are often insignificant: a drop of blood, a smear on a coffee cup, a paper napkin left on a table, a cigarette butt, wax scraped from a hearing aid etc. But in the hands of a laboratory, these little scraps are sufficient to draw up a DNA code.

Police searching for evidence obviously appreciate the benefits. The situation is more troubling, however, when you can find ads on the internet for genetic tests, notably paternity tests, which are carried out in dubious conditions. When certain laboratories guarantee anonymity, they mean for the person who supplied the sample, but not the person from whom the sample was actually taken. That person has not given his consent, and his anonymity is at risk. The problem is serious when we consider that when someone is trying to find their biological father, their real aim is often a legal one.

### CONSENT

Spitter and Starlab had everything going for them. Well-known scientists were involved and the companies, though unusual, could prove their reliability. Yet people who gave samples of saliva thinking they were contributing to scientific research came close to seeing their 'donation' sold at auction, possibly to be used to a completely different end. The case illustrates the problem concerning the link between consent and ultimate objectives.

If someone agrees that genetic data from his or her sample can be used for a certain purpose, it is disturbing to see the data being put to another use unless he or she has again been asked for consent. The issue is rarely raised, but a lot of genetic data collected for a specific temporary use are later 'recycled' for other purposes. When a husband gives a sperm sample to help police investigate his wife's rape, he believes that the sample, once it has been used in a process of elimination in order to isolate the sperm of the rapist, will be destroyed, along with the genetic data extracted from it. In many cases, he is wrong: the data end up in police files where samples from suspects, innocent people and even victims, are stored together, if only for simplicity's sake. To take another example, when a fireman, knowing he could die in the line of duty, gives a blood sample to help with the identification of his remains and spare his family further suffering, he does not know that the companies running the DNA banks sometimes sell data to laboratories.

*Pierre Gaillard*





Hurricane Luis  
6 September 1995  
1422 GMT  
DMSP F12 OLS - TIR

# The time of sands...

*Tropical storms and hurricanes in the Caribbean regularly wipe out beaches. With 'wise practice' they usually come back in time. But tourism development is not always so wise*

Every year hurricanes like Luis (above) batter the Caribbean Islands

Everyone in the Caribbean remembers "Left-handed Lenny." Lenny was the hurricane that came from the wrong side. Most hurricanes in the Caribbean start in the Atlantic Ocean and move through the islands from east to west. "Hurricane Lenny was different," remembers Gillian Cambers, a beach erosion specialist who lives in Puerto Rico. "It started off the coast of Colombia in the western Caribbean, and instead of moving north or west, as the forecasters predicted, began moving east. It got stronger as it went, building up bigger and bigger waves." In a couple of days in mid-November 1999 it had caused physical damage to the islands estimated at around US\$269 million, without counting loss of revenue. For Grenada alone, one of the worst hit, the damage was over US\$94 million, or 27 percent of its GDP<sup>1</sup>.

"No warnings had been given, no boats had been pulled up," recalls Cambers. "And, strangest

of all for many islanders, there was no wind. It was the waves that wreaked havoc. Most of the tourism infrastructure is concentrated on the west coasts of the Caribbean islands, because they are sheltered from the prevailing easterly winds. But they were not sheltered from Hurricane Lenny. Houses disappeared, hotels and roads were damaged and flooded, fishing boats were lost, and the west coast beaches in every island in the chain from Tobago in the south to the Virgin Islands in the north were eroded, just one month before the start of the tourism high season. The economic impact was huge. Hotels had to close for months, in some cases more than a year, to try to repair the damage and put back their beaches."

Lenny caught the islanders out, but they are used to hurricanes. In the Caribbean, there is a hurricane 'season' that runs roughly from June to November. And, before tourism became a significant money-earner, experience led islanders

to build either inland, or a reasonable distance from the coast. “Lenny didn’t do much to the inland infrastructure,” says Arlington James, of Dominica’s Forestry, Wildlife and Parks Division, “but the waves from Lenny did affect the coast. Some beaches were only just recovering from tropical storm Iris, Hurricane Marilyn and then Hurricane Luis that hit us in the space of two weeks in 1995. And before that, we’d been hit by Hurricane Hugo in 1989. Belle Hall, a very wide and popular beach up north is now just a strip of boulders.”

## PREVENTION IS CHEAPER THAN REPAIR

But Dominica has little tourism, unlike most other Caribbean islands. And tourism often means beachside hotels and refreshment stalls. When a beach disappears after a hurricane, not only is the main tourist attraction lost, but ill-placed hotels, roads, water supplies and shops often go with it. And, increasingly, some islands depend on tourism. In 2000, for example, visitors spent some \$277 million in Saint Lucia, accounting for over 40 percent of its Gross National Product.<sup>2</sup> Yet much of the damage could be avoided. “People often feel they must build right on the beach, and it is hard for planning authorities to convince them otherwise,” explains Gillian Cambers. “But beaches are dynamic features, always moving and changing shape. We draw a line on a map, a solid, permanent line, and this represents the coastline. In fact, the coastline, or the area where the sea meets the land, is a moving zone, varying in position according to the tides, waves and storm conditions, the time of year, sediment and other factors.”

“By allowing beaches the space to move, there is a good likelihood that they will be conserved in the long term,” she adds. Instead, out of ignorance, or an attitude of ‘it won’t happen here’, developers still build too close to the water. And in often-misguided efforts to protect the beach or the infrastructure, they, or local municipalities, build protective sea walls or erect groynes into the sea to lessen the impact of waves. But both measures are often counterproductive. Sea walls invariably increase beach erosion, while sand tends to build up on one side of a groyne and disappear on the other.

“Beach erosion is very complex,” says Gillian Cambers. “And, while every beach is different, there is also no single erosion mitigation method



© Gillian Cambers

that works everywhere.” A UNESCO project monitoring changes in beaches over time<sup>3</sup> has shown that, over a ten-year period, two-thirds of the beaches monitored showed erosion, while the remaining third were either building up or showed no change. This uniqueness of beaches and preventive measures is one reason UNESCO has been working with ten island authorities in the Caribbean to produce a series of tailor-made brochures aimed to raise awareness and to give very specific guidance on building precautions on a beach-by-beach basis<sup>4</sup>.

“We use the brochures with our students, non governmental organizations and environment groups,” says Benjie Farrell, of the Environment Department, St Kitts.

“Most of our population are familiar with the issues, but we still need to emphasise attitude change in the coastal zone.” And, to prove his point, he says that, in a recent development, “twenty acres of harbour were reclaimed from the sea, and filled in with boulders. Now it’s a shopping mall. It’s affecting the wave patterns in the area and these are affecting the adjacent beaches.” And the added irony of this is that offshore sand is often used to make the concrete for the buildings. But, in time, they will probably all return to the sea – and end up as beaches again.

*Peter Coles*



1. USAID, April 17, 2000
2. Compendium of Tourism Statistics, 2000, World Tourism Organization.
3. ‘Managing beach resources and planning for coastal change’, or COSALC
4. <http://www.unesco.org/csi/wise2b.htm>





© Gillian Cambers

**Pinney's Beach (Nevis) before Hurricane Luis (left) and after (above)**

© Gillian Cambers



© Gillian Cambers

**Top right: building fences to retain dunes. Above: Maunday's Bay (Anguilla) after Hurricane Lenny**

## Beach erosion

▶ **About 20 percent of world population** (some 1,147 million people) live within 30 km of the nearest coastline. In small island developing states, like the Seychelles, and some Caribbean islands, this figure can be more like 90 percent. The coastal zone has the highest diversity of plant and animal species and many small islands are almost entirely dependent on their coastal resources (e.g. fishing, tourism, etc). But all coasts worldwide are under threat from various aggressions, such as sea level rise as a result of global warming, destruction of protective coral reefs and mangrove forests (which act as natural wave-breaks), beach erosion, increased storms, land-based pollution, unsustainable development, etc.

▶ **Beaches are naturally**

**dynamic**, constantly eroding and being replenished. They absorb the shock of large waves and storms and, unimpeded, can 'retreat' inland, reverting to their earlier position months or years later. But solid structures, like roads, sea walls and the foundations of buildings, when too close to the beach, prevent this natural process and inevitably lead to erosion. In some African states, like Nigeria, parts of the coastline are disappearing at as much as 20-30 metres a year.

▶ **Dunes also provide a protective barrier** against waves. When dunes are removed for development, (or destroyed by hurricanes), beach erosion accelerates dramatically. Techniques exist to encourage their reformation, like erecting picket fences to trap sand. But these take time to work.

Similarly, eroded beaches can be replenished artificially by extracting sand offshore and dumping it on the beach. Wealthier Caribbean beachside hotels often do this following a hurricane. But it is expensive and can cause other problems.

▶ **Beach erosion is not just a problem** for small islands and developing countries. The US state of Florida spends around \$8.6 million every year on erosion management. This includes regular beach monitoring. And thanks to such monitoring (often by volunteers) in Caribbean islands, it has been possible to develop individual profiles beach-by-beach over several years, showing which are most vulnerable. This is needed to draw up guidelines on 'wise practises', such as the series of booklets produced by UNESCO (see main story).

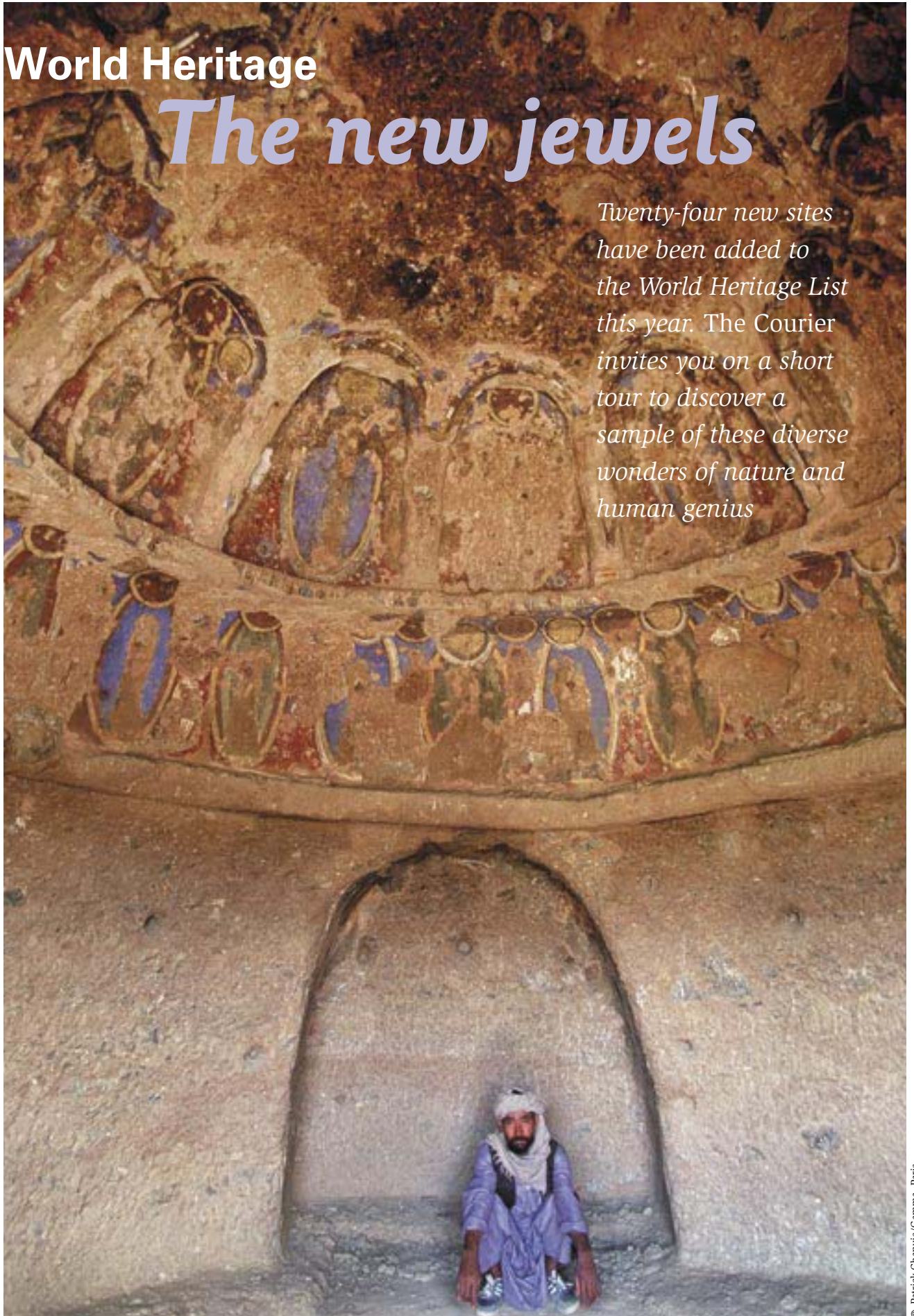
## World Heritage

# *The new jewels*

*Twenty-four new sites have been added to the World Heritage List this year. The Courier invites you on a short tour to discover a sample of these diverse wonders of nature and human genius*



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© Patrick Chapuis/Gamma, Paris

The World Heritage List now numbers 754 sites of “outstanding universal value”, including 582 cultural, 149 natural and 23 mixed sites.

Five natural sites were added to the List at the latest session (June 30-July 3) of the World Heritage Committee: Purnululu National Park (Australia), Three Parallel Rivers of Yunnan Protected Areas (China), Uvs Nuur Basin (Russian Federation / Mongolia), Monte San Giorgio (Switzerland), and Phong Nha - Ke Bang National Park (Vietnam). Nineteen new cultural sites also received the “world heritage” label this year: the cultural landscape and archaeological remains of the Bamiyan Valley (Afghanistan), Quebrada de Humahuaca (Argentina), Historic Quarter of the Seaport City of Valparaiso (Chile), Jewish Quarter and St Procopius’ Basilica in Trebic (Czech Republic), James Island and Related Sites (Gambia), Rock Shelters of Bhimbetka (India), Takht-e Soleyman (Iran), Ashur/Qal’at at Sherqat (Iraq), the White City of Tel-Aviv – the Modern Movement (Israel), Sacri Monti of Piedmont and Lombardy (Italy), the Mausoleum of Khoja Ahmed Yasawi (Kazakhstan), Franciscan Missions in the Sierra Gorda of Querétaro (Mexico), Wooden Churches of Southern Little Poland (Poland), Citadel, Ancient City and Fortress Buildings of Derbent (Russian Federation), Mapungubwe Cultural Landscape (South Africa), Renaissance Monumental Ensembles of Úbeda and Baeza (Spain), Gebel Barkal and the Sites of the Napatan Region (Sudan), Royal Botanic Gardens, Kew (United Kingdom); Matobo Hills (Zimbabwe).

## IN HONOUR OF BAMIIYAN

The chilling images of the Buddhas of Bamiyan exploding in March 2001 are still fresh in our minds. Two years on, the cultural landscape and archaeological remains of the Bamiyan Valley have become part of the heritage of humanity, symbolizing the international community’s hope that intolerance will never again lead to such crimes against culture.

Located in Afghanistan some 250 km west of Kabul, the site showcases the artistic and religious developments which characterized ancient Bakhtria from the 1<sup>st</sup> to the 13<sup>th</sup> centuries.



© UNESCO

In the first centuries of our era, the artistic expression of Gandhara Buddhist art was born of the meeting of Greco-Roman, Indian and Parthian influences. For the first time, sculptors carved the Buddha in human form. From the 8<sup>th</sup> century, Islam spread through the Bamiyan Valley, gradually replacing Buddhism. The presence of Buddhist monasteries and sanctuaries alongside ancient fortified edifices from the Islamic period reflect this legacy.

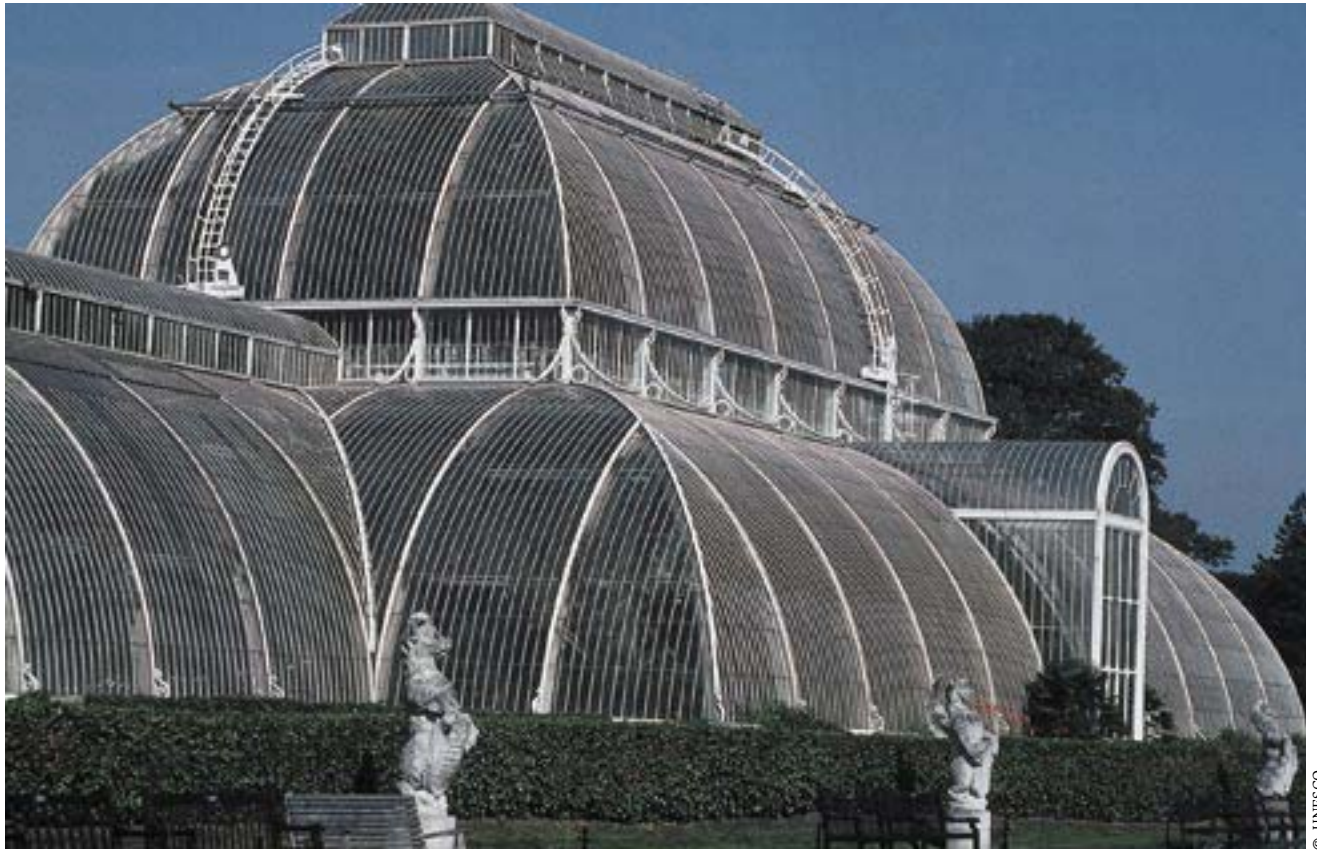
Because of its vulnerability, the site was simultaneously inscribed on the World Heritage List and on the World Heritage List in Danger. Abandoned for many years, it has been the target of military action, and antipersonnel mines have rendered parts of the valley inaccessible. The niches containing fragments of the decimated statues are at risk of collapsing. The explosions opened cracks in the cliff and destroyed mural decorations. The paintings adorning some of the 600 caves hewn in sandstone are also in poor condition. Finally, the battle against looting and illicit excavation is far from being won.

## ASHUR, CRADLE OF THE ASSYRIAN EMPIRE

The ancient city of Ashur (Qal’at at Sherqat) stands on the shores of the Tigris River, in the Iraqi part of northern Mesopotamia. Founded by the Sumerians in the 3<sup>rd</sup> millennium BC, the city was progressively occupied by the Assyrians, who appear to have left their nomadic lifestyle to settle there. In the 2<sup>nd</sup> millennium BC, it became the first capital of the Assyrian empire, eventually stretching over a territory of a size unprecedented in the Middle East.

**Above: the 350 million year-old sandstone mounds of the Bungle Bungle mountain range in the Purnululu National Park (Australia).**  
**Left: Cave D at Bamiyan (Afghanistan). Frescoes (5th and 6th century) restored during the 1970s**





© UNESCO

A city-state and trading crossroads, the city is also the religious capital of the empire, associated with the god Ashur. Over the centuries, all of Assyria identified with this universal god, creator of paradise and the underworld. The city, destroyed by the Babylonians in 612 BC, rose from its ashes in the Parthian period in the 1<sup>st</sup> and 2<sup>nd</sup> centuries AD.

Ashur has kept many traces of its glorious past, including the ziggurat – a colossal temple-tower; the great temple of the god Ashur; the double temple of Ashur and Adad, the storm god; the temple of Ishtar, Sumerian goddess of love and war; the old palace with its royal tombs and several residential districts.

When Ashur was proposed for inscription, before the war, the property was threatened by a project to build a large dam that would have partially flooded it. Although the project has been suspended by the current administration, there is always risk of a turnaround.

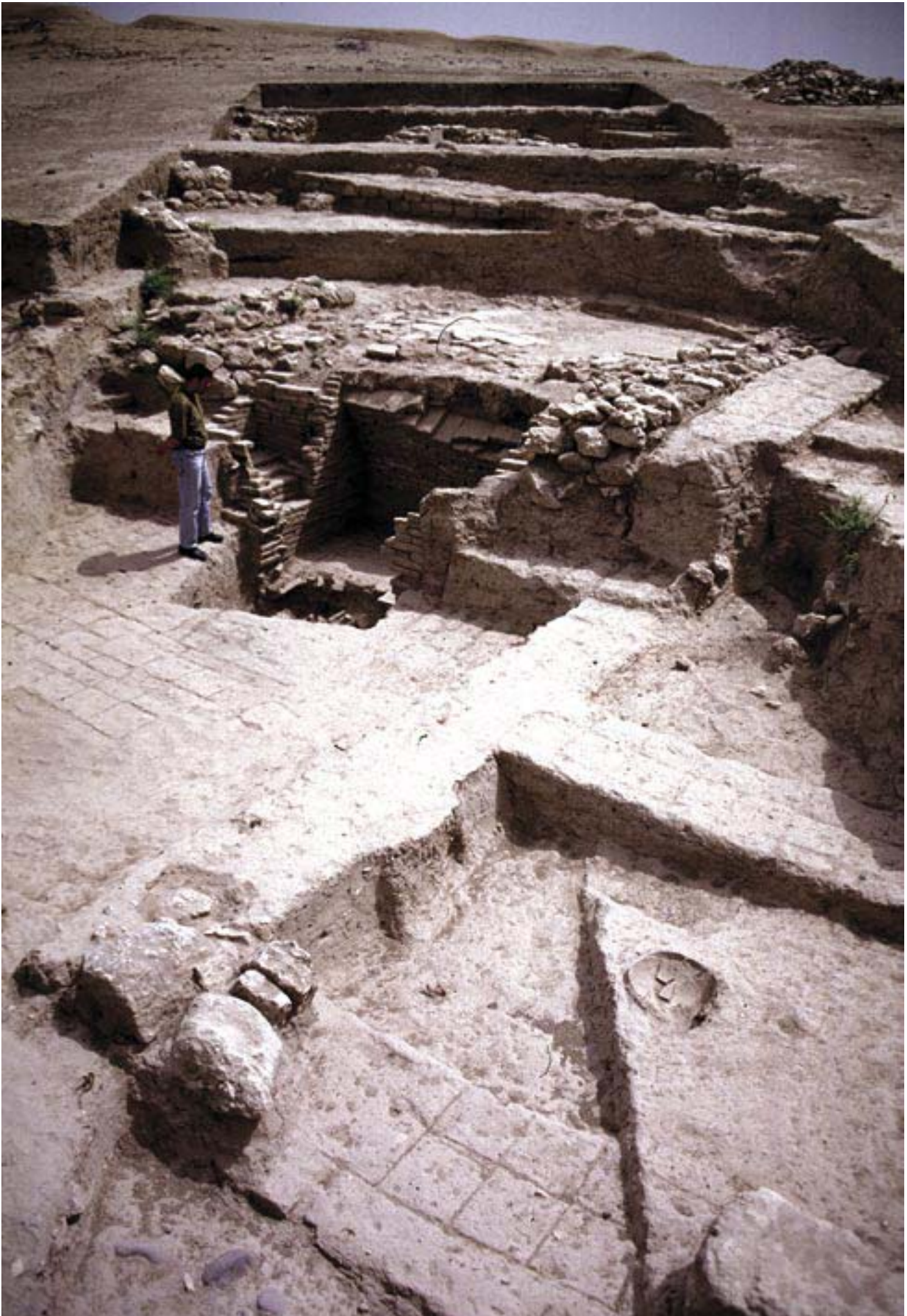
This threat, compounded by a crying lack of protection, lay behind the site's simultaneous inscription on the World Heritage List in Danger. According to observers who recently visited Ashur, the 20-odd guards in charge of supervising the roughly 65-hectare site no longer have arms and fear attacks by looters, who have proved very active on many other Iraqi sites.

## **KEW, PARADISE WITH A PURPOSE**

Of a weekend Londoners flock to the immaculate lawns and treelined walks of the Royal Botanic Gardens, Kew, outside London, to picnic, stroll and admire the exceptional vegetation – Chinese rhododendrons, tropical palm trees and an infinite variety of flowers. Their itinerary includes two further landmarks: the Chinese pagoda and a stunning Victorian glass house.

Herein undoubtedly lies the secret of Kew's reputation: since their creation in 1759, these gardens have allied charm and elegance with scientific excellence. Inscription on the World Heritage List was justified on both counts. The gardens harbour botanic collections (conserved plants, living plants and documents), which have been considerably enriched through the centuries. They have made a significant and uninterrupted contribution to the study of plant diversity and botanic economics. As the World Conservation Union states, Kew is no ordinary garden because "it has truly blazed a trail by creating a world movement in favour of flora conservation." Its scientific work has had "a formidable cultural effect" because the botanical knowledge and skills acquired at Kew have been spread throughout the world. More recently, Kew set up the largest seed bank in the world. Located

**Above: The Victorian glasshouse in the Royal Botanic Gardens at Kew (UK). Right: The ancient city of Ashur (Iraq) has also been inscribed on the List of World Heritage in Danger**



in West Sussex, the Millennium Seed Bank aims to collect and conserve about ten percent of the world's flora by 2010 – i.e. 24,000 species (<http://www.rbgekew.org.uk>)

## VALPARAISO, A LEGENDARY PORT

Visitors rarely fall in love with Valparaiso at first site. The legislative capital of Chile (300,000 inhabitants), also the country's largest port, does not immediately reveal the magic that turned the city into a myth once sung by sailors from near and far. By inscribing the Historic Quarter of the Seaport City of Valparaiso on the World Heritage List, the Committee sought to honour this legendary port.

The perimeter that was inscribed, located between the sea and the first line of hills, presents an interesting example of late 19<sup>th</sup> century architecture and town-planning in Latin America. The Valparaiso port was founded by the Spaniards in the 16<sup>th</sup> century on a narrow coastal plain then occupied by Chango Indians. Stretching along a natural bay on the Pacific coast that is shaped like an amphitheatre, the city expanded by climbing up the hillside.

The port flourished in the 19<sup>th</sup> century, becoming a vital halt for sailors travelling from Europe to the west coast of the United States. Before the construction of the Panama Canal in the early 20<sup>th</sup> century, ships were obliged to circle Cape Horn and travel up the Pacific coast. It was a perilous journey, which often ended in shipwreck and death. Only the most fortunate set foot in Valparaiso, the first port on their route. The city's legend has been woven with the dreams of sailors: of surviving and finding amusement in the alleys and taverns of the port city.

Today the historic quarter has kept an attractive formal unity, dominated by belfries. The city has also kept various structures from the beginning of the industrial era, notably the famed "cable-cars" that screech and scream their way up to the heights.

## REMEMBERING THE SLAVE TRADE

In the Republic of The Gambia, James Island and Related Sites recall the meeting between Africa and Europe along the river that gives its name to this small country surrounded by Senegal. From the 15<sup>th</sup> century, European traders fought tooth and nail to draw profit from this passageway to the wealth of West Africa. Built in 1655 on a 3,000 m<sup>2</sup> island in the middle of the river, the fort played



© UNESCO

a leading role in the slave trade until the end of the 18<sup>th</sup> century. It was one of the main stopovers for women and men captured inland before their voyage of no return to Europe and the New World. The fort's strategic position made it the subject of bitter disputes. It was destroyed and rebuilt several times before being abandoned in 1829.

When the slave trade was abolished, James Island was used to stop illicit slave traders. It is now one of The Gambia's main tourist destinations, drawing mainly Europeans and Afro-Americans.

Related sites testify to the long history of Afro-European relations: Fort Bullen on the north bank

**For European sailors, reaching Valparaiso (Chile) meant surviving the treacherous Cape Horn**







of the river, the French West Africa Company's building constructed in 1847, the remains of the old colonial village of San Domingo, the battery of six cannons in the capital Banjul, and the Portuguese chapel in the Mandingo village of Juffureh, where Alex Haley, the author of the novel "Roots," located the origins of his ancestor Kunta Kinteh.

## THE LOST WORLD OF BUNGLE BUNGLE

Located in the state of Western Australia, Purnululu National Park (239,723 hectares) harbours the rugged, beehive shaped Bungle Bungle mountain range, a prized destination for lovers of nature and wild spaces. The name probably stems from the Aborigine word "bundle bundle", which designates a common local grass. "Purnululu" means "piles of sand" in the same language. These sandstone mounds formed over 350 million years ago make the region of Kimberley – one of the most remote in the country – so distinctive.

Rivers and streams flowing from mountains in the south and east carried a mixture of sand and boulders that gradually consolidated to form sandstone. Uplift and erosion during the last 20

million years created the deep gorges, spectacular towers, steep beehive-shaped cones and a surface marked by regular horizontal bands of silica and lichen.

The park, inhabited by indigenous populations for over 20,000 years, is rich in Aboriginal art and harbours several burial sites. There are also numerous plant species of which some were discovered so recently they have not yet been given scientific names. Surprising fan palm trees grip precariously to walls and crevices in the rocks. The rest of the park is covered by a blanket of red and yellow sand where a wide array of trees and shrubs grow. Bird lovers can also observe over 130 species, including flocks of vividly coloured budgerigars.

*Sophie Boukhari*



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[www.calm.wa.gov.au/national\\_parks/previous\\_parks\\_month/purnululul.html](http://www.calm.wa.gov.au/national_parks/previous_parks_month/purnululul.html)

**Ruins of the fort on James Island (The Gambia), which was one of the main ports of call on the Slave Route**



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# Universities under surveillance



© Seda/Gamma, Paris



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*Academic freedom cannot be taken for granted. Students and teaching staff in several countries are still being gagged. In the name of state security or industrial secrecy*

**The** scene: Myanmar, early June 2003. As students turn up for lectures, they find the gates of their university locked. Following the arrest of Aung San Suu Kyi on May 30 the government had simply closed the University of Myanmar, in order to prevent any show of support for the Nobel Peace Prize winner.

A few days later, in Iran, students from Tehran University were woken up with a start and beaten up by government supporters. This surprise attack left 50 students injured, many of whom had taken part in anti-government demonstrations that shook the country for several weeks.

And students are not the only ones to pay the price for this form of government censorship.

**Iranians demonstrate  
outside Tehran  
campus last June**

Professors are also targeted. In March this year, an Egyptian court finally acquitted Dr. Saad Eddin Ibrahim, a human rights activist and professor of sociology at the American University in Cairo. In May 2001 he had been sentenced to seven years in prison on charges of illegal financing and divulging false information abroad.

All these cases, and many others like it, have been recorded by NEAR (Network for Education and Academic Rights) and can be found on their website ([www.nearinternational.org](http://www.nearinternational.org)). This monitoring network, set up in 2001 with assistance from UNESCO, brings together over 40 NGOs involved in the fight for academic freedom. Using information that appears in the press or which is collected on the ground by the member organizations, it sounds the alarm when necessary. The aim is to draw attention to countries that abuse academic freedoms affecting both teachers and students and ranging from interference with freedom of speech to imprisonment and disappearances.

## DEFENDING THE RIGHTS OF TEACHERS

While there are no specific texts on the rights of students, professors can refer to the UNESCO Recommendations of 1997 on the status of teachers in higher education (see box p. 28). This text stresses that teachers must be able to enjoy the freedom to teach and to discuss, to carry out research and to publish the results. And they must also be allowed to freely express their opinions about the institution for which they work.

“These are very important points because a teacher or a university must be able to question what is accepted and known about a certain era. The progress of knowledge answers to a higher calling than the interests of the State,” says Andris Barblan, special advisor to the European University of Geneva.

# WCHE + 5

**Academic freedom was high** on the agenda of the World Conference on Higher Education + 5, which took place at UNESCO headquarters last June 23-25. More than 400 participants from 120 countries attended the conference, which took stock of progress made towards the goals set at the World Conference on Higher Education held in Paris in 1998.

**All agreed that at no time** in human history has the welfare of nations depended so directly on the quality and outreach of their higher education systems and institutions, and that, to a large extent, the quality and outreach required could only be achieved if

academic freedom – of both staff and students - was respected.

**“The changes sweeping** through higher education may, in some circumstances, threaten the very practice of academic freedom, university autonomy, and the independence of research,” warned UNESCO Director-General Koïchiro Matsuura in his opening speech. “And please note that, while these principles and values are important in their own right, there may be other considerations to bear in mind too. For example, curtailments of academic freedom may induce brain drain or cause an exodus from certain fields of inquiry.”

However, many countries pay these freedoms lip service only. Since the start of the year, NEAR has recorded 37 cases of violations. The figures show a slight increase on previous years. “But that is probably because the network is better established and more cases are being reported,” says John Akker, NEAR’s Executive Director. “All these examples show that many regimes still consider universities as potential centres of unrest,” he adds.

This is especially the case in Africa, where pressure is often put on teachers and students. “Most countries do this,” says Adebayo Olukoshi, the Executive Secretary of the Council for the Development of Social Science Research in Africa (CODESRIA). “It is easier to gag the press than teachers and students. Universities therefore often seem to be the last bastion of freedom of expression, which is why they are so closely observed. In extreme cases, this can even go as far as teachers being detained or extremely strict controls over the content of the syllabus.”

There are also less direct methods of repressing lecturers whose opinions are considered too ‘independent’. Lectures can be cancelled arbitrarily, promotions can be systematically refused and staff excluded from decision-making

**In Myanmar, security officials sit outside the closed Yangon University**



© PIC/AFP, Paris



Academic freedom is . . .

► **“Higher-education teaching personnel** should not be forced to instruct against their own best knowledge and conscience,” states the UNESCO Recommendation Concerning the Status of Higher-Education Teaching Personnel, adopted in 1997\*. In its articles 25 to 32, the Recommendation gives a fairly broad definition of academic freedom. Higher-education personnel, it says, “should enjoy those internationally recognized civil, political, social and cultural rights applicable to all citizens.”

► **But it also recognizes rights specific** to the profession. These include the freedom to teach “without any interference,” to carry out research and to publish the results, freedom from institutional censorship and the “freedom to participate in professional or representative academic bodies.” The UNESCO Recommendation also recognizes the freedom “to express freely their opinion about the institution or system in which they work.” All higher-education teaching personnel, it says, “should have the right to fulfil their functions without discrimination of any kind and without fear of repression by the state or any other source.” In cases “of gross violation of their rights,” the text goes on, “higher-education teaching personnel should have the right to appeal to the relevant national, regional or international bodies such as the agencies of the United Nations, and organizations representing higher-education teaching personnel should extend full support in such cases.”

\* The full text may be found at:  
[www.unesco.org/education/docs/recom\\_e.html](http://www.unesco.org/education/docs/recom_e.html)



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bodies. On a continent where universities are financed mainly from public funds, money is another effective way of applying pressure. “Reducing a university’s funding by 25 percent is enough to prevent it from functioning normally,” explains Olukoshi. This is all the more true when the position of teachers, whose salaries – when they are paid at all – rarely exceed \$500 a month, is already precarious enough.

## MONEY TALKS

Universities in industrialized countries can face a completely different kind of pressure. Private companies increasingly play a role on campus, financing at least part of the applied research. In November 1998, for example, the University of California at Berkeley (USA), struck a \$25m deal with the Swiss company Novartis. Under the alliance, the university’s department of Plant and Microbial Biology receives grants of \$5m annually for five years. In exchange, the Swiss pharmaceuticals giant obtained the rights to patent discoveries made by the department’s researchers. Such agreements contribute to financing research and, according to the University, Novartis was selected as a partner “because of the company’s interest in safeguarding academic freedom”. But the aims of the companies are not always compatible with a university’s mission. “Some big companies understand that free research must be supported,” says Barblan. “But that is certainly not true in every case.” Students working within the university, but financed by private companies can face conflicts of loyalty. Former French education minister Claude Allègre<sup>1</sup> observed this during a visit to the Massachusetts Institute of Technology in Boston (USA): “In the same research laboratory a student financed by a company, a pharmaceuticals group for example, can be working alongside a student financed by a rival company,” he said. “And they are not allowed to discuss their work even if (and especially if) their research touches on the same subjects.” Says Andris Barblan, “In situations like this, academic freedom is undeniably affected.”

*Agnès Bardou*



© Marwan Naamani/STF/AFP, Paris

**Cairo, January 2001 - Egyptian -US human rights activist Saad Eddin Ibrahim (left) speaks to one of his lawyers at Cairo’s High Court**

1. *Autonomy and Responsibilities. The university’s obligations for the 21st century*, Bononia University Press, 2002.



You don't have to buy a personal computer to benefit from the information and communication technologies, as can be seen from this 800-PC internet café in New York

© David Lefranc/Gamma NY, Paris

# From information society to knowledge societies

*Technological measures alone will not be enough to bridge the digital divide. UNESCO believes that the social, political and cultural aspects of the information revolution must be tackled, if people in North and South are to reap its benefits fully*

*Over* the past decade, new information and communication technology (ICT) has triggered a quiet revolution, especially affecting higher education and access to information. And the revolution is only just beginning. There are great hopes that ICT will boost freedom of expression and cultural diversity, good governance and, not least, the fight against poverty. But there are caveats, as the World Summit on the Information Society (WSIS) in Geneva, Switzerland, is likely to highlight in December this year, when it looks into ways to



© Luc Gnago/Panapress/Camma, Paris



bridge the so-called digital divide that separates rich and poor countries, and communities within the same country.

UNESCO Director-General Koïchiro Matsuura observes that, “access to information and knowledge increasingly determines patterns of learning, cultural expression and social participation, as well as providing opportunities for development, more effective poverty reduction and the preservation of peace. Indeed, knowledge has become a principal force of social transformation.”

This is why UNESCO promotes the concept of “knowledge societies,” rather than the more technocratic concept of “information society” which stresses connectivity and says nothing about the content and utilization of the new communication networks. Building knowledge societies, Matsuura explains, requires respect for “four key principles: equal access to education; freedom of expression; universal access to information based on a guarantee of a strong public domain of information; and the preservation and promotion of cultural diversity, including multilingualism.”

A prime example of the ICT revolution is the use of distance learning in higher education. According to John Daniel, UNESCO Assistant Director-General for Education, “throughout

## ICT Facts and figures

**Number of Internet users:** 665 million (forecast for 2003), 580 million in 2002 and 10 million in 1993.

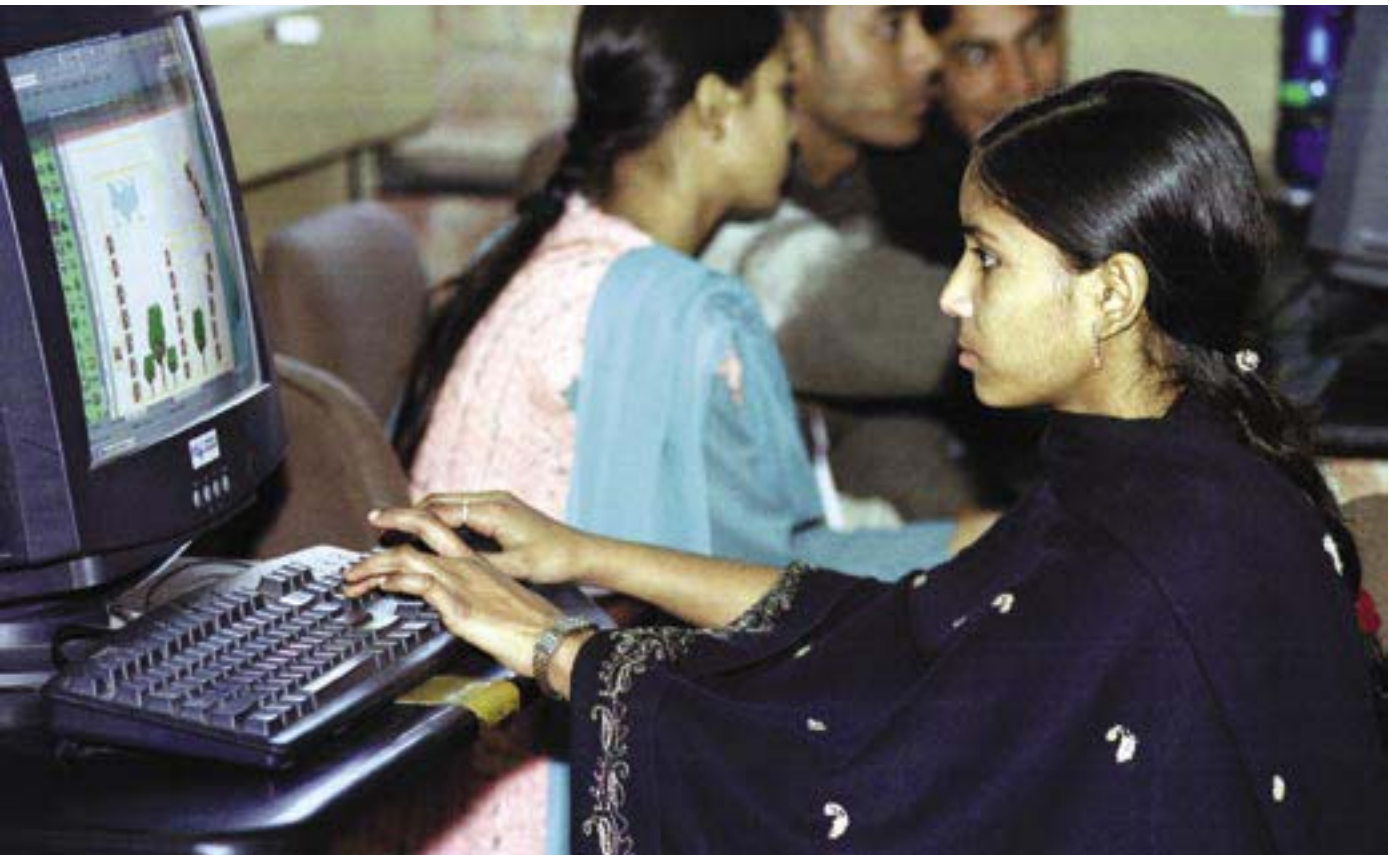
**Number of computers, (2003 forecast):** 650 million; 610 in 2002; 175 million in 1993. Number of computers in the Least Developed Countries (LDCs): 1,3 million in 2001 (for a population of 684 million).

**Number of Internet users in the LDCs:** 1,8 million in 2001.

### Computers connected to the Internet per 1,000 inhabitants in 2001:

High income OECD countries	400
OECD	332
Latin America and the Caribbean	49
Central and Eastern Europe & CIS	42.8
Developing countries	26.5
East Asia, Pacific	41.4
Sub-Saharan Africa	7.8
Arab States	15.6

Access is spreading in all regions of the world. But is everybody able to get the information they want, and need, in a language they can understand?



© UNESCO/Brendan o'Malley



history education has been constrained within an eternal triangle of quality, access and cost. With conventional methods quality tends to go down when you increase access or cut costs. Open universities demonstrate that you can have wider access, higher quality and lower costs – all at the same time.” Distance education is less expensive than traditional education, explains Daniel, as shown in a study commissioned by the government of the United Kingdom, which reveals that the total cost of a degree at the UK Open University was between 60 and 80 percent of the cost of a traditional degree.

### **ICT – WHAT FOR?**

But ICTs has still had little impact on primary and secondary education, especially in developing countries. It can be argued that the existence of 862 million illiterate people in the world and 211 million child labourers belies the very notion of an information society. They are not players in the knowledge-based post-industrial era.

The development of satellite connections and broadband (fast internet connections) in the South, and the creation of multimedia centres providing communities with access to connected computers, are two indispensable conditions to expand the reach of the new technologies and the knowledge they can disseminate. But this is not enough.

ICT, especially internet, is a two-way vehicle, optimally providing a platform for expression as well as access to information. And freedom of expression is essential if the internet is to serve individuals and communities. As people seek answers to their problems, they must be free to express their views and share their experiences without fearing reprisals for voicing opinions or making observations that are not in line with the official representation of facts concerning social, economic, political, sanitary or cultural issues.

Amidst concerns for security, notably the fight against terrorism, and respect for national legislation - paedophilia, drug trafficking and hate speech - professional journalist organizations such as the International Federation of Journalists and the World Association of Newspapers warn that freedom of expression, a human right enshrined in the Universal Declaration of Human Rights, must be respected. UNESCO supports this view, arguing that online information and communication must enjoy the same rights as traditional print and broadcast media.

UNESCO is concerned both about the traditional harassment of journalists practiced in some countries, and about more invisible restrictions on freedom of expression, including financial measures (i.e. high taxes on necessary equipment and high communication tariffs); technical measures (slow

**Mobile 'phone technology is already replacing expensive telephone landlines in places with little infrastructure and is an increasingly viable way to access the internet**

development of local telephone networks, filtering and blocking software on servers); administrative measures (obligation to obtain permission from authorities to register websites, refusal of installation of international servers); and legislative measures restricting sites deemed to contain information that is harmful to security or that is politically damaging, for example.

The internet does enable individuals and groups to establish independent e-media at a much lower cost than has ever been possible before. In that sense, it is a formidable tool for media pluralism and freedom of expression, but observers note that accessing such alternative e-media, finding out about their existence even, is difficult, and the traditional media continue to attract the vast majority of net-surfers looking for news.

### DIVERSITY IN THE AGE OF GLOBALIZATION

ICT has revolutionized access to information. But providing people with access to that information does not only depend on making computer terminals available in places that don't even have electricity, and allowing people to use them. The internet can only be relevant to an individual or a community in as far as it provides them with information that is pertinent to their needs in a language they can understand. Developing local information is furthermore crucial if the ICT is to foster more transparent governance and e-governance, providing improved interaction with public authorities.

It is also important to maintain free access to public domain information generated by publicly funded projects, or material for which copyright has lapsed. Copyright is essential as an incentive for creativity and for the private sector's willingness to fund research and development. But a balance must be struck between copyright and the public's right to access to information, including scientific and



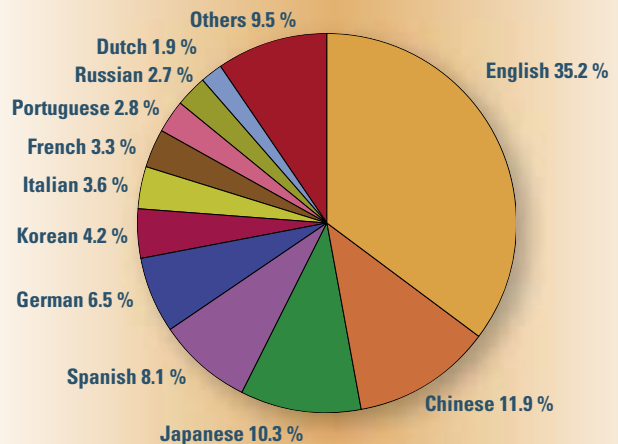
© Isett Stuart/Gamma, Paris



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### The 11 languages most present on the internet

**In 2003, 90 percent of internet users used just 11 languages.** English is the most utilized language, but Chinese is expected to take the lead in 2007.



Source: <http://www.global-reach.biz/fr/index.php3>



educational information. To this end, UNESCO is, for example, involved in the electronic dissemination of free educational course material and software such as Linux.

Meanwhile, some see the internet as an instrument of cultural homogenization, while others argue that, on the contrary, it favours diversity and supports minority cultural groups. Although both trends are apparent, Armand Mattelart, Professor of Information and Communication Sciences at the University of Paris VIII, believes that “at present few minority cultures have the resources necessary to use the internet to make their voices heard.” Dan Schiller, Professor of Library & Information Science, Communications, and Media Studies at the University of Illinois (U.S.A.) believes that, the dominant trend is “unquestionably against diversity in the full sense.”

## THE CASE FOR MULTILINGUALISM

There are signs of change, though. “It is very clear today,” says Schiller, “that the older systems of one-way cultural distribution – like TV, with people in Tonga or East Asia watching reruns of US Westerns – are in a state of metamorphosis.” Trans-national cultural production is shifting towards commercializing local cultural content on a global scale, which means that the foreign cultural influence on products sold to people in the U.S, for example, is greater than had been the case in previous decades. “So there is a new multiform quality to cultural production,” says Schiller. “But is this real cultural diversity, or is it the parasitism of cultural diversity?”

One way to promote cultural diversity, backed by UNESCO, is to increase the number of languages on the internet and support local content production in as many languages as possible. This includes dealing with the challenge posed by non-Latin scripts in cyberspace. The argument is that people’s relationship with the new media, and ability to tap their potential, will improve if they are able to find the material they need and want in their language and if they can use their language to express their needs and build networks.

Heritage preservation is equally important for the promotion of cultural diversity. The concept of preservation has taken on a new meaning since the advent of computers. Digitally produced works and data are linked to soft and hardware which become obsolete extremely fast and at present



## UNESCO Standard-setting actions for cyberspace

**UNESCO will bring to WSIS a Recommendation on the Promotion and Use of Multilingualism and Universal Access to Cyberspace\***. This legal instrument is to be submitted for approval to the next session of UNESCO’s General Conference in October 2003. It features recommendations on equitable access to information and the development of multi-cultural knowledge societies and on how to facilitate the preservation

of cultural and linguistic diversity.

**Another international standard-setting instrument** UNESCO will present for adoption to the General Conference is the draft *UNESCO Charter on the Preservation of the Digital Heritage*. It outlines principles and recommendations for the preservation of a heritage that is an increasingly important but vulnerable source of knowledge and ways to safeguard its accessibility.

\* [http://portal.unesco.org/ci/ev.php?URL\\_ID=8357&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&reload](http://portal.unesco.org/ci/ev.php?URL_ID=8357&URL_DO=DO_TOPIC&URL_SECTION=201&reload)

much of that production is lost either because it is deleted when no longer required or because the supports for which it has been produced cease to be available. UNESCO has been engaged in seeking solutions to this problem, looking to ensure permanent accessibility.

Both Mattelart and Schiller believe that maximizing the social benefits of ICT depends on a strong commitment of the public sector and that the World Summit on the Information Society and its preparation provide the arena for a struggle between those who favour publicly funded initiatives and those who oppose them.

Matsuura is convinced that the leaders attending the World Summit have an opportunity to utilize the knowledge revolution to improve the lives of people hitherto left behind, both in the countries of the South and among certain communities in the North.

Roni Amelan

The World Summit on the Information Society is organized by the International Telecommunications Union: <http://www.itu.int/wsis/documents/index.asp> and UNESCO: [http://portal.unesco.org/ci/ev.php?URL\\_ID=1543&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&reload](http://portal.unesco.org/ci/ev.php?URL_ID=1543&URL_DO=DO_TOPIC&URL_SECTION=201&reload)



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## Fellini from East to West

Sri Lankan film director Lester James Peries and America's Clint Eastwood were each awarded UNESCO's Fellini Gold Medal by the Organization's Director-General on May 24 at this year's Cannes Film Festival (France), in recognition of their exceptional careers in the film industry.

Peries, 80, is considered the "father" of Sri Lankan cinema. His first success came in 1963 with *Changes in the Village* and he went on to direct 20 full-length feature films. Eastwood, 73, has explored a wide range

of genres in the 24 films he has directed, including road movies, dramas, thrillers and westerns.

UNESCO's Fellini Silver Medal was awarded on June 16 to Afghanistan's Siddiq Barmak, whose first full-length feature, *Osama*, won several international prizes. Barmak, who was born in 1962, heads the Afghan cinema agency and is also in charge of ACEM, a UNESCO-backed association which promotes literacy, culture and the arts.

## Bosnia and Herzegovina at the Biennale

For the first time in its history, Bosnia and Herzegovina exhibited work at the Biennale in Venice, which was inaugurated in June. Four artists from this southeastern European nation – Edin Numankadic, Jusuf Hadzifejzovic, Maja Bajevic and

Nebojsa Seric-Soba – exhibited their work in the Cortile of the Palazzo Zorzi, which houses UNESCO's office in Venice. A fifth painter, Damir Niksic, showed his work within the exhibition entitled "Dreams and Conflicts, the Dictatorship of the Spectator". These two

initiatives stemmed from the collaboration between UNESCO, the Italian foreign affairs ministry, the City of Venice and the international cultural project Ars Aevi, which is backing the creation of a museum of modern art in Sarajevo.



© UNESCO

## First women's radio station in Afghanistan

*The Voice of Afghan Women*, an independent community radio station operated and managed by Afghan women, began daily broadcasts in Kabul on March 8 to coincide with International Women's Day.

The station, run by the national non-governmental organization of women media professionals, the Voice of Afghan Women in Global Media, was established with support from UNESCO.



© UNESCO/F. Charaffi

The station broadcasts educational, development-based and entertainment programmes in Dari with an emphasis on women's issues and activities.

At the time of going to press, another FM

station equipped by UNESCO in Afghanistan was to start broadcasting at the Kabul University Faculty of Journalism. These are the first community radio stations to operate since the fall of the Taliban.

## Panama acts to protect its underwater heritage

Panama, on April 4 2003, became the first state to ratify the Convention on the Protection of Underwater Cultural Heritage. This international legal instrument, adopted by UNESCO's General Conference on November 2 2001 prohibits the pillage of underwater wrecks

and archeological sites more than 100 years old, as well as the commercialization of objects taken from such sunken treasures. The Convention, which gives priority to *in situ* preservation, will enter into force once 19 other states follow Panama's lead.



© UNESCO/DRASSM/D. Metzger



## Israeli journalist awarded 2003 World Press Freedom Prize

Israeli journalist Amira Hass was awarded this year's UNESCO/Guillermo Cano World Press Freedom Prize in Kingston (Jamaica) during the celebrations for World Press Freedom Day for her reporting on the Palestinian Territories for the Israeli daily newspaper *Ha'aretz*.

Over the past decade, Hass has been the only Israeli journalist living in the Palestinian Territories and has won international recognition for her brave and independent reporting.

The US\$25,000 prize – named after

Colombian journalist Guillermo Cano who was murdered in 1987 – was created by UNESCO's Executive Board in 1997. It honours the work of an individual, organization or institution defending or promoting freedom of expression anywhere in the world, especially if this puts the person's life at risk.



© Brian McBurney/Liaison Agency/Gamma

## Unflinching faith in peace

Father Emil Shufani, the Israeli laureate of the 2003 UNESCO Prize for Peace Education, has devoted his life to dialogue between Arabs and Jews. He created the "Education for Peace, Democracy and Coexistence" project at St Joseph's College in Nazareth. The school of which he has been the Principal

since 1976 is twinned with Lyada, a Jewish school in Jerusalem. One of his most striking initiatives has been the organization, in May 2003, of a joint Jewish and Arab pilgrimage to the death camp of Auschwitz-Birkenau, about which he declared: "This commemorative gesture is a sign

of our complete rejection of such inhumanity." The Jury also awarded an Honourable Mention to Yolande Mukagasana, a Rwandan Belgian who created the *Nyarimambo Point d'Appui* foundation for remembrance of the Rwanda genocide and for reconstruction.



© UNESCO/Michel Semeniako/Patrimoine 2001

## Five million textbooks for Iraq

UNESCO will make five million science and mathematics textbooks available to Iraqi primary and secondary students for the forthcoming school year under a US\$10 million programme supported by, and undertaken in cooperation with, the US Agency for International Development (USAID).

Iraq's education system before 1990 was considered one of the best in the Arab region: education was free, enrolment and literacy rates were high. However, following the 1990-91 Gulf War and subsequent economic sanctions, the

education sector experienced rapid deterioration. According to a recent UNESCO survey of education in the Arab States, Iraq's literacy rate is now among the lowest in the region. The textbook programme involves making minimal changes to existing textbooks to ensure that their content is accurate and does not contribute to distrust, discrimination, intercultural misunderstandings or hate. UNESCO will supervise their revision and will organize printing and distribution.



© UNESCO/Dominique Roger

## Arab girls do well at school – if they are there

Some eight million primary school-age children in the Arab States do not receive schooling, and five million of them are girls, according to UNESCO's Institute for Statistics. However, evidence shows that when they can get to school, girls often outperform boys.

According to the Arab States regional report, published last May, nearly one child in five of primary age (and one girl in four) in the 19 countries surveyed had no access to school in the 1999/2000 academic year.

Participation at secondary level was even lower, with only 60 percent of the secondary school-age population (aged approximately 12 to 18 years), enrolled in the survey year, of whom 47 percent were girls.

However, at both primary and secondary level, those girls who attended school were less likely to have to repeat a year than boys and were more likely to stay in school and complete both cycles.



## UNESCO film wins award at African festival

“Eya’s dilemma”, a fiction film produced by UNESCO’s Programme for Creative Content won two awards at the 18<sup>th</sup> Pan African Movie and Television Festival (FESPACO) held in Ouagadougou, Burkina Faso, from February 22 to March 1. The 26-minute feature directed by Adjike Assouma, from Togo, received prizes from the West African Economic and Monetary Union and from the NGO PLAN International. The film tells the story of a young girl forced to submit to traditional voodoo practices

putting her education, her family and her own life in jeopardy.



© UNESCO

## Between a tiger and a crocodile

How to make one’s way between the crocodile that is stalking in the water and the tiger on the river bank? Cambodia’s traditional approaches to conflict resolution offer solutions that are applicable in marital problems, as well as real-estate litigation. This tradition was severely damaged by the Khmer Rouge who preferred denunciation. Times of reconstruction followed and foreign concepts, at once fertile and destabilizing, such as human rights and individual freedom were introduced. Today, mediators, official or not, have much work on their plate as they seek to strike a balance between ancestral traditions and new

aspirations. Published by UNESCO’s Office in Phnom Penh, *Between a Tiger and a Crocodile* is a fascinating study of the evolution of conflict resolution practices in Cambodia, conducted by French sociologist Fabienne Luco, drawing on numerous testimonies.

Contact: UNESCO Office, P.O. Box 29, Phnom Penh, Cambodia. [phnompenh@unesco.org](mailto:phnompenh@unesco.org)



## Religious teaching on the rise?

Religious education appears to be on the rise in public school systems around the world according to an analysis of school timetables in some 140 countries by UNESCO’s International Bureau of Education (IBE, Geneva, Switzerland). It appears as a compulsory subject in the timetables of 73 of those countries at least once during the first nine years of schooling. And in 54 of them, the time devoted to the subject during the first six years

amounted to approximately 8.1 percent of total teaching time.

Previous research published a decade ago showed a clear decline in religious teaching over most of the last century. In a comparison of the years spanning 1945-69 and 1970-86, for example, the average time dedicated to religious education fell from 5.2 percent to 4.2 percent.

The latest data was published in the June 2003 issue of *Prospects*, UNESCO’s quarterly

education review, which dealt with the theme of *Education and Religion*. Other articles analysed the evolution of religious teaching over the last century in France, Israel, Pakistan and the Russian Federation. [www.wkap.nl/journals/prospects](http://www.wkap.nl/journals/prospects) or <http://www.ibe.unesco.org>

## Researching the researchers

Although the less developed countries account for 79 percent of the world’s population, they represent only 27 percent of the total number of researchers, according to UNESCO’s Institute for Statistics.

According to the Institute, three out of every 1,000 inhabitants in developed countries are researchers; while only three out of every 10,000 inhabitants are researchers in the less developed nations. In terms of expenditure, the less developed countries devote less than one percent (0.9 percent) of their GDP to research and development,

whereas the more developed nations generally spend 2.4 percent of GDP. <http://www.uis.unesco.org/>



© UNESCO/Dominique Roger



# Emergency architecture

Emergency Architects intervene in cases of natural and technological disaster – such as the explosion at the AZF factory in Toulouse, France (September 2001), the earthquake in Nahrin, Afghanistan (April 2002), and the floods in Central Europe (August 2002) – and in conflict situations. Their mission is to improve security, provide advice, and encourage people to undertake reconstruction

themselves, mindful of their local heritage.

On June 13, they held their first international conference at UNESCO where they discussed, among other things, the creation of a Foundation. During the conference, the International Union of Architects, which represents 1.2 million professionals, announced its intention to bolster cooperation with Emergency Architects.



© Architectes de l'urgence, Amiens

# Dachang: a city under glass?

The hydrological dam on China's Yang Tse river, the largest of its kind anywhere, will lead to the displacement of between 1.3 and 1.9 million people and the flooding of 13 towns and 4,500 villages. Two Chinese architecture students have imagined a way to save the historic city of Dachang by encasing it under a glass dome and allowing a natural sedimentation process to preserve it for the ages. This project earned Lili and Jiazhi Li, from Tsinghua University in Beijing, the UNESCO/IFLA Landscape Architecture Prize for 2003. The US\$ 3,500 prize was awarded by the Congress of the International Federation of Landscape



© Nian Zeng/Gamma, Paris

Architects, held last May in Calgary, Canada. The theme of the 2003 contest, which generated 170 projects from 50 universities in 15 countries, was "Landscapes on the edge".

# Unesco Digital Arts Award 2003

UNESCO launched a Digital Arts Award 2003, a special category of the UNESCO Prize for the Promotion of the Arts, to encourage young digital artists around the world. This year, the prize is dedicated to "Digital Pluralism" which aims to foster intercultural dialogue.

The award is organized in collaboration with the Institute of Advanced Media Arts and Sciences (IAMAS), Japan. It consists of a first prize of US\$5,000 plus a six-month period as artist-in-residence at IAMAS in Gifu. The second

and third prizes consist of awards of US\$3,000 and US\$2,000 respectively. The prize money is provided by the Higashiyama Fund, set up and managed by the National Federation of UNESCO Associations in Japan (NFUAJ).



**PHONETICALLY EXPRESSIVE WORDS:**

 <b>boohoo</b> /,bu: 'hu:/	 <b>h'm, hmm</b> /m, hm/	 <b>hur.rah</b> /hu'ru:/	 <b>ooh</b> /u:/
 <b>ow</b> /aU/	 <b>pah</b> /pa:/	 <b>phew</b> /fju:/	 <b>psst</b> /ps/

© UNESCO/IAMAS

So, background of this project was to form a multi-lingual database by using phonetically expressive words that mean and sound similar in the most widely spoken languages, such as English, Spanish, Arabic, German, French, Russian, Portuguese, Japanese, Mandarin Chinese, Hindi... In that way user's linguistic knowledge and stylistic features like dialect, sociolect and chronolect are reduced to minimum.

# Water *A flood of a trickle*



© Jim Holmes/Panos Pictures, London

**2003, International  
Year of Freshwater**

- **Privatizing the tap** p.40  
Putting human rights first
- **Argentine model falters** p.46  
Crisis hits privatisation plan
- **Averting conflict over the Nile** p.48  
Nations turn to co-operation
- **Save that swamp!** p.52  
Wetlands play vital role

# promises, of progress

This report was planned and prepared by Barry James, a journalist in Paris who has specialized in covering environmental issues.

*The UN World Water Development Report says “hardly any” goals have been met in providing water and sanitation for billions in developing nations*



© Chris Stowers/Panos Pictures, London

- **A dry country** p.54  
Oil, but no water in Kazakhstan
- **Europe's desert** p.57  
Spain's plan to water the south
- **Pollutant time bomb** p.59  
A threat to aquifers
- **The mysteries of water** p.61  
Facts, figures and curiosities

**A**t intervals, political leaders get together and make promises they know they cannot possibly keep. The UN Millennium summit meeting in New York, in September 2000, aimed to halve the proportion of people without access to safe water by 2015. Last year's World Summit on Sustainable Development (WSSD) in Johannesburg (South Africa) added a similar target for sewers.

To meet those targets would mean connecting nearly 300,000 people every day to a supply of clean water and 500,000 to a sanitation system.

"This is simply not going to happen under anything remotely like current conditions," says Margaret Catley-Carlson, chairwoman of the Global Water Partnership, a body set up in 1996 by the World Bank, the UN Development Programme and the Swedish International Development Agency.

By 2015, nearly three billion people – 40 percent of the projected world population – are expected to live in countries that find it difficult or impossible to mobilize enough water to satisfy the food, industrial and domestic needs of their citizens.

And by then, tens of millions of people will have died from water-borne diseases, including an average of 6,000 children every day, according to the inter-agency working group set up by the UN to prepare for last year's summit in Johannesburg, at which water was defined as a priority field for action.

The leaders of the G8 industrialized nations who met in the French spa town of Evian-les-Bains in June put water at the top of their agenda. Unfortunately, at the current rate of investment, the sanitation target will not be met in Africa and it will take more than 100 years to reach the water target, according to the British charity, Water Aid. It estimates that the G8 countries dedicate only about five percent of their total overseas aid budgets to water projects, which is somewhat less than they spend on ice cream or pet food.

Worse, the depletion and contamination of underground resources because of inefficient irrigation and drainage will mean a loss of up to 10 percent of the world's cereal production by 2025, according to a joint

focus

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► report by the International Food Policy Research Institute and the International Water Management Institute. That is the equivalent of annually losing the entire cereal crop of India, or the combined annual harvest of sub-Saharan Africa, West Asia and North Africa.

It is not that governments do not know about these dangers. A string of international conferences over the past 25 years has focused on water issues and set targets but “hardly any” have been met, according to the recently published United Nations World Water Development Report – **Water for People, Water for Life**.

“Attitude and behaviour problems lie at the heart of the crisis,” says the report, published as a key contribution to the International Year of Freshwater, which is being led by UNESCO and the UN Department of Economic and Social Affairs.

Following the publication of the report, an initiative of the UN’s World Water Assessment Programme, no government leader should be able to claim ignorance of the crisis. Twenty-three UN agencies contributed to the report, which is packed with sobering statistics and is full of suggestions about how to deal with the crisis.

Lack of access to clean water and sanitation are widely seen as a violation of human rights and an affront to human dignity. The report emphasises the tragic impact the crisis has on “the everyday lives of poor people, who are blighted by the burden of water-related disease, living in degraded and often dangerous environments, struggling to get an education for their children and to earn a living, and get enough to eat.” It is also a question of equity. A child born in the developed world consumes 30 to 50 times the water resources consumed by a child in the poor countries.

“The crisis is experienced also by the natural environment,” it says, “which is groaning under the mountain of wastes dumped on it daily, and from overuse and misuse, with seemingly little care for the future consequences and future generations.”

This special feature examines some of the key issues related to the crisis.

- Who should control the tap – public authorities or private corporations? Plus, a look at Argentina’s showcase water privatization programme.
- Can conflict over water be avoided? Experience in the Nile river basin suggests it can.
- The realization, perhaps too late to save many of them, that wetlands are an important environmental asset.
- A case of misplaced priorities? The Republic of Kazakhstan enjoys an oil bonanza but has one of the worst freshwater crises in the world.
- Spain’s controversial project to divert resources from the Ebro river basin.
- How concerned should we be about the contamination of our ground water?



## Privatizing the tap

# Human rights and profit

*Access to water is at the same time a basic need, a fundamental right and a potentially lucrative market. Hence a debate about the need to regulate the industry*

“The test of our progress is not whether we add more to the abundance of those who have much; it is whether we provide enough for those who have little.”

Franklin Delano Roosevelt.

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According to one view, a few multinational corporations backed by the World Bank are aggressively taking over the world's water supplies.

Yet the reality today is that private companies are still involved in a relatively limited way in the water sector, despite the huge potential for expansion. International corporations contribute less than 15 percent to the global cost of financing water and sanitation projects, about the same as international aid donors.

Compared with other types of infrastructure "the water sector has been the least attractive to private investors," according to the recent report of the World Panel on Financing Water Infrastructure, chaired by Michel Camdessus, and the trend toward private investment has come to a virtual standstill, largely as a result of the crisis in Argentina.

"We are starting to move away from the pure privatization paradigm in urban areas," says Mark

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# margins

**Irrigation: How it's done in Madagascar (top), and in the drought-stricken fields on the California/Oregon border in the United States**

W. Rosegrant, senior researcher at the International Food Policy Research Institute (IFPRI). "A public system can be run equally as efficiently or better than a private system and it's done all the time in the United States and in much of Europe. The issue is where you get the funding from, and how big cities can tap into capital markets."

However, private participation in the water





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- ▶ business is likely to expand quickly if services are brought under world trade rules, and much of the noise about privatization comes not so much from the developing countries as from the United States, whose municipally run water systems would risk takeover by foreign corporations.

Few issues stir such passionate debate as the commercialization of water services – of making people pay sometimes far more than they can afford for one of the essentials of life. Many consider it wrong to allow private corporations, whose primary obligation is toward their shareholders rather than the common good, to profit from a basic human need.

Islamic societies consider water is a God-given good, which Joachim von Braun, director-general of IFPRI, says “makes it so difficult to introduce efficiency and cost recovery.”

“In some countries,” he says, “the words ‘water price’ are forbidden. In Egypt, until fairly recently, these were words not to be used in government reports.”

The UN now says explicitly that access to safe water is a fundamental human right, and most people doubtlessly see it that way. But does a right have to be free? Ismail Serageldin, chairman of the World Commission on Water for the 21st Century, has pointed out that food is also a human right, but few argue that food should be provided for nothing.

In fact the subsidizing of water may be one of the reasons it is becoming so scarce in parts of the world, because unless people value something properly, they tend to waste it. Some experts say a sharper distinction should be made between water for drinking and hygiene and water used in

agriculture and industry, over 90 percent of the total.

The member States of the United Nations have committed themselves to halving the proportion of people without access to safe water or basic sanitation within the next 12 years, a daunting if not fanciful target that will require hundreds of billions of dollars of new investments on top of the money needed to maintain and repair the crumbling infrastructure of existing water systems. But water aid has declined in recent years and in any case does not go to the countries that most need it. Neither does private investment. The 2002 Human Development Report of the UN Development Programme lists 60 countries in which more than one fifth of the population, sometimes substantially more than a fifth, has no access even to a public tap or safe well. Many of these are places in which no company in its right mind would consider investing.

## SECTOR CALLED DISASTROUS

According to the Organisation for Economic Co-operation and Development (OECD), the least-developed countries, in which a very large proportion of the population lacks access to safe water, receive only a small part, about 12 percent, of foreign aid in the water sector. About half of the aid goes to relatively advanced countries, including Egypt, Mexico, Malaysia, China and India.

“It is impossible,” says the Camdessus report, “to escape the conclusion that the global water sector in its many forms is in disastrous condition. Water is not being sufficiently developed and conserved. Physical infrastructure is lagging behind need. Sector management is deficient, services are deteriorating and deficits growing. Allied to this is a

Looking over  
the construction  
site of the  
Three Gorges  
Dam on the  
Yangtse River,  
near Yichang in  
China

**“Private  
participation  
can take  
many forms.”**

shortage of financial services going into the sector. Indeed, the financial situation has been getting worse in the last few years, and the sector shows no sign of generating the funds to meet future service standards.”

Given this situation, it is understandable that governments and international lending organizations see private companies, with their access both to expertise and to capital markets and their ability to transcend national boundaries, as part of the mix. The World Bank has made private sector involvement a condition for many of its loans. But this largely reflects frustration with the inability of public bodies to do the job and the realization by all lending institutions, including private banks, that the success of virtually all industrial and agricultural investments depend on the certainty of a safe supply of water.

However, the water sector is rife with corruption, and as the Camdessus report points out, many irrigation agencies and water departments are “grossly over-manned, in a misguided attempt to create employment.”

In its latest State of the World Report, the Worldwatch Institute says that following last year’s World Summit on Sustainable Development in Johannesburg, “it seems more likely that sustainable economic growth will emerge from the combined efforts of businesses, citizens’ groups and local governments.”

The industry, as represented by the World Business Council for Sustainable Development, says it is ready for talks with all the parties involved “to find areas of agreement and test the application of these ideas on the ground.” At the moment, it says



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### **Cleaning the drains of Port-au-Prince in Haiti**

– in an example of the management jargon and lack of transparency that makes many people so wary of the corporations – it is “scoping” the problems, but soon it will build “partnerships of the willing and the able” through “multi-stakeholder dialogues” and “create a roadmap on how to create appropriate local governance.”

Private participation can take many forms, including financial arrangements among corporations, governments and local authorities to achieve development where development aid has failed. In Britain, water utilities are fully owned by private corporations. In France, corporations run utilities under long-term concessions. Many municipalities prefer to retain full ownership and control, but bring in private companies to manage water supplies for a fee.

“Whether water services are provided by the public or private sector (or both), it is important that social and environmental objectives continue to be met,” according to a new OECD study, which

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- says that poor consumers “should not have to pay a disproportionately larger part of their disposable income for water services than better-off water consumers do.”

It is increasingly apparent that the success of any water project depends on the participation of citizens. “Local communities must be actively involved in decisions about the trade-offs between standards, cost and affordability,” says a report on funding the Johannesburg targets written by Cambridge Economic Policy Associates.

For Mr. Von Braun of IFPRI, “the answer to water pricing is efficient institutions of user associations that can negotiate with higher-level bodies.

“What is driving demand for drinking water is not so much price, but the capacity to politically articulate,” he adds. “In some parts of the world the poor have become more articulate through decentralisation, devolution and more democracy, and what is on the top of their agenda as citizens is clean water and, as farmers, access to irrigation.”

The world is full of places where large dam and infrastructure projects have displaced populations, where the concept of water markets has been

introduced against the will of the people and where sites of cultural or religious importance have been destroyed. All this points to the need to involve the civil population and non-governmental organizations in the planning process.

Lack of public participation is at the root of the dissatisfaction with many of the private deals and public-private partnerships in the water business. If the companies are often seen as remote and arrogant, they have often brought it upon themselves by signing opaque deals with corrupt or undemocratic governments, by spending huge sums on lobbying, lavishing grotesque salaries on their executives, cutting standards, promising more than they could deliver, hiking charges beyond the level that poor people could afford to pay and by laying off workers. The 1999 Gallup International Millennium Survey showed enormous suspicion of corporate conduct and scorn about the companies’ perceived lack of social responsibility.

“Corporate donations and lobbies often drown out the voices of workers, consumers, women, environmentalists and other interest and citizen groups,” the 2002 UNDP Human Development

Report says. Cases such as that of the privatization of the water supply in Cochabamba, Bolivia, which led to a general strike, riots and the imposition of martial law before the American-owned company was expelled, it adds, are examples of “how the concerns of local people, intellectuals, environmentalists and other groups are often ignored until they develop into protests and major confrontations.”

Enron was investing heavily in the international water business until hidden debts forced its collapse. Vivendi, the French-owned largest player in the sector, which recently renamed its water and waste business Veolia Environment, has often seemed more preoccupied with its far-flung media and entertainment empire than the less glamorous business of delivering clean water to slums.

## CONTROLLING THE CORPORATIONS

Some of the corporate failings are examined in detail in “The Water Barons,” a year-long investigation by the International Consortium of Investigative Journalists into the private water business. Sober reading though this is, the Camdessus report, without overlooking the problem of corruption, says that most private operations “have achieved real progress in efficiency and, when required by the authorities and as part of their contracts, affordably served poor suburbs.” These, of course, are the cases that do not make it into the headlines.

The mistake seems to be in expecting capitalist corporations to act in anything other than a capitalist way. No matter how responsibly the companies conduct their business, it is up to public authorities to ensure that public services are provided to everyone on an equitable basis rather than on their ability to pay, and to ensure that natural resources are respected.

That is why many of the organizations representing the interests of the developing world have called for the formal international regulation of trans-national corporations – an idea that was vigorously and successfully opposed by the business lobby at the Johannesburg summit meeting. It argued that self-regulation was sufficient.

Nevertheless, the Camdessus report stresses the necessity for regulation at the national level, to keep water agencies at arms’ length from governments and make them accountable to the public.

“Unfortunately,” it goes on, “there are very few examples of good, experienced regulators in the water sector in developing countries. Most are recent, weak and subject to government



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**Left: Collecting water from a village tap in Tamil Nadu, India**  
**Above: A carton of bottled water leaves the factory in Tanzania**

interference, struggling to cope with the impact of macro-economic events on major concessions. Where regulation is absent or weak, neither companies, governments nor the general public have confidence in the processes concerned, and investment suffers.”

Because regulators are so weak, conditions of injustice and inequality for which the private operators often get the blame, are allowed to perpetuate themselves. “In country after country,” notes the report by Cambridge Economic Policy Associates, “water services are provided to the better-off at deeply subsidized prices while the poor receive no service at all. Despite repeated urging by donors to raise tariffs on the better off – to generate additional resources that can be used to finance basic service access by the poor – this regressive situation remains in most developing countries.”

The reason is obvious. The poor have no clout and the politicians who make decisions about charging are reluctant to raise prices or taxes on their more influential supporters. In fact, it is often the wealthier and more powerful, rather than the poor, who have been most adamantly opposed to private sector involvement, if this resulted in a weakening of their patronage. Ismail Serageldin says it was “perverse” to defend price subsidies in the name of the poor when they had no access to public services and had to buy water of dubious quality from street vendors at ten or 20 times the price they would have to pay if they were connected to the water system.

Carrying water on trucks and on peoples’ backs is a very inefficient way of providing a water service, but in slum areas in the developing world that don’t have a hope of a connection to a piped water supply, it is the only way. Contrary to the common perception, the Asian Development Bank, in a study of small-scale private water providers in eight

► cities, found these to be often family businesses, well integrated in the community, providing good services to the poor at competitive prices.

Given the current slow expansion rate of water utilities, the study recommended legitimizing and improving the business environment for these providers to enable them to expand their capacity and offer lower tariffs.

Anti-globalization campaigners fear that opening the market for water services at a time when water is becoming an increasingly scarce commodity will touch off the modern equivalent of a gold rush. They say it will be hoarded and shipped around the world as oil is today.

If such an open bidding system for water comes to pass, the environment and the future will be the big losers, says Maude Barlow, a Canadian anti-globalization activist. In her book "Blue Gold," she observes:

"In all of this privatization, pricing debate, there is precious little said about the natural world and other species. That is because the environment is not factored in to the commercial equation. If we lose public control of our water systems, there will be no one left with the ability to claim this life-giving source for the earth."

Barry James

# Argentine model once an example

*Argentina's sale of public water companies to foreign firms was once applauded. Now the country has second thoughts.*

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**The** one thing you can say about water in Argentina at the moment is that there is too much of it.

The endless, flat pampas stretching away from Buenos Aires are covered by vast shallow lakes caused by heavy rainfall, compounded by the lack of drainage systems to carry the excess water to the rivers. Even where the floods have drained, the water table has risen to within a few centimetres of the surface.

Although international agencies advanced money to deal with the recurrent flooding, much of the

pampas have been under water for years. Only the money has dried up.

Then the north-central province of Santa Fe was hit earlier this year by some of the worst flooding in centuries, with heavy loss of life and material damage. Water scientists blamed lack of planning, lethargy and corruption at the provincial level for compounding the affliction of nature. Finally, there are the foul-smelling floods that invade the low-lying districts surrounding Buenos Aires, where rains inundate basements and septic tanks, and drinking water is often unfit for human consumption.

Julio Arrieta, a film-maker and writer, has written a sketch in which space aliens colonize the earth. The invasion goes well until the invaders reach Buenos Aires, where the inhabitants of the Barracas district offer them a refreshing drink of water. The invaders die, as do the reinforcements sent to find them. Earth is saved.

It is no wonder that the privatization of water services in Argentina has been controversial. When Carlos Menem, the former president, took office in

# in trouble, to the world



**Left: Flooded homes in Santa Fe, Argentina, last May**  
**Above: Volunteers unload fresh water for the flood victims. Thousands were evacuated from their homes**

1989, he received a country in economic shambles. Raging hyperinflation reached five thousand percent a year and the entire public services and utility network was near breakdown. In 1993, Menem privatized the Buenos Aires water utility under pressure from the World Bank, the International Monetary Fund and the United States.

The government granted a 30-year concession to Aguas Argentinas, a consortium led by Lyonnaise des Eaux (later Vivendi, and now Veolia Environment), to run 17 districts in the capital. The consortium received the concession for nothing, but promised to reduce water rates and expand services. The same group also runs the water services in Santa Fe.

Water was one of the last of the utilities to be sold off to private concession and, despite the allegations of corruption, the call for tenders for water is still regarded as reasonably managed. The World Bank promoted Argentine water privatization as a model for the rest of the world.

Aguas Argentinas set up a billing system that reached most users for the first time, and provided water to an additional two million people, although it was slower to install sewers. Now economic crisis has halted further expansion plans for the foreseeable future.

The consortium dropped water rates on taking over the concession, but has repeatedly raised them since. And the business has been highly profitable. Under the original concession, the *peso* was pegged one to one to the US dollar. But it now takes more than three *pesos* to buy a dollar, and the privatized services all want to increase their charges again. The new president, Nestor Kirchner, is resisting as many Argentines struggle to survive in the grim post-collapse economy.

The companies say they do not have enough income for anything more than paying wages and keeping up basic investment, while the public accuses Aguas Argentinas of falling down on water treatment and environmental conservation.

Meanwhile, María Julia Alsogaray, who had been appointed to lead an environmental cleanup in the rivers flowing into and around Buenos Aires, and who awarded Aguas Argentinas numerous rate increases, is currently on trial on charges of illicit enrichment while in public office.

But the problems in Buenos Aires pale in comparison with those in other parts of the country.

What is referred to as a “scandalous contract” involved the province of Buenos Aires and Azurix de Buenos Aires, an Enron subsidiary. Azurix offered over \$300 million for the concession, \$100 million more than any of its rivals, but failed so badly to provide an adequate service to major centres such as Bahía Blanca that the provincial government took over the operation.

As in Cochabamba, in neighbouring Bolivia, residents of Argentina’s smallest province, Tucumán, rebelled at the takeover of their water utility by a foreign company and the massive rate increases that followed. The French-owned Aguas del Aconquija pulled out of the deal after customers stopped paying their bills, leaving the utility facing an international dispute procedure and an uncertain future.

While these disputes have been going on, the government has been meeting with fellow members of the Mercosur economic alliance – Uruguay, Paraguay and Brazil – to conserve one of the world’s largest aquifers – an enormous reservoir that covers an area equal to the size of France, Spain and Portugal combined, and is said to contain enough water to supply the needs of the entire world for 200 years.

*Andrew Graham-Yooll in Buenos Aires*

# Averting conflict in the Nile basin

*After living with tensions and the threat of war for many years, the countries of the Nile Basin are talking around the table – with help from UNESCO*

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There is – apart from any differences caused by climate change – not a drop more water in the Nile River basin today than there was when Moses was found in the bulrushes. And there will not be a drop more in 25 years' time, when the population living along the banks of the world's longest river system is expected to have doubled to more than 300 million people.

But population and economic pressures are mounting faster than the Nile's capacity to sustain civilization, and as a result the choice is becoming more and more stark between conflict over an

increasingly scarce resource or co-operation to manage that resource more equitably.

Fortunately, it seems that at last the ten nations that share the Nile basin are turning to co-operation. This could be an encouraging example for dozens of countries that face conflict unless they can reach agreement on how to share rivers that flow across international boundaries.

“Water has been a major factor in the rise and fall of civilizations,” says Kofi Annan, Secretary General of the United Nations, in the foreword to the UN World Water Development Report. Nowhere is this more true than in the Nile Delta, where the water and silt washed down from the heart of Africa has formed the matrix of organized farming for 5,000 years. Yet, adds Annan, water “has been a source of tensions and fierce competition between nations that could become even worse if present trends continue.”

As the example of the Nile basin illustrates, the tendency among nations has been to seek means of co-operating rather than fighting over water. Sharp and often historically irreconcilable differences divide many of the countries sharing 261 river basins around the world. But “the number of cases where there has been co-operation related to water is much greater than the number of cases where there was conflict related to water,” says Léna Salamé of UNESCO's World Water Assessment Programme.

“I think human-kind has come to respect water as something culturally very important,” says Joaquim von Braun, director-general of the International Food Policy Research Institute in Washington. “The poisoned well is something that is perceived as disgusting in any society and there is a lot of tradition and culture against taking away someone



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**The Blue Nile  
waterfalls in  
Ethiopia**



else's source of water, especially in water-scarce regions."

In fact, Aaron Wolf and Sandra Postel, two American academics who have studied this issue in great detail, have found only one outright war over water in the past 4,500 years. That was between two city states, Lagash and Umma, in the region now called southern Iraq. There have been many skirmishes and conflicts in which water was a factor, but the authors have identified more than 3,600 water treaties signed in the past 12 centuries, many of which have survived wars over other issues.

In other words, water is a vexing and potentially dangerous problem in many areas, but not yet a murderous one. Will this continue to hold true in future as the pressure on finite water resources increases and nations come to fear that their vital interests or their survival are at stake?

In the past, Egypt has not hesitated to threaten the use of force to keep its overwhelming share of the Nile's waters. Some of its armed forces are trained in jungle warfare, clearly intended for action in countries far to the south, where the White Nile originates.

Pointing at a map of the Ethiopian highlands, from which 85 percent of the water flowing to Egypt comes via the Blue Nile, Jan Luijendijk, a Dutch water engineer and expert on knowledge systems at the UNESCO-IHE Institute for Water Education at Delft (Netherlands), says, "if Ethiopia decided to build a dam on one of these river branches, then that would mean war with Egypt immediately. There is no other choice for Egypt." He says an attempt by any of the nine countries in the Nile basin to use water in a way that would reduce the flow into Egypt could precipitate war.

To avert that possibility, the nations living along the river have established what is known as the Nile Basin Initiative (see box), which is designed to replace the threat of conflict with the spirit of co-operation. Professor Luijendijk has been helping to bring together engineers from all ten Nile basin countries, under the assumption that the experts are more capable of solving water problems than politicians.

At the same time, UNESCO, the lead UN agency on freshwater issues, has established a global programme called PC-CP – "From Potential Conflict to Co-operation Potential" – in collaboration with the non-profit environmental organization Green Cross International to examine "the potential for shared water resources to become a catalyst for regional peace and development through dialogue, ►



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## The Nile Basin Initiative

In 1999 six nations of the Great Lakes – Burundi, the Democratic Republic of the Congo, Kenya, Rwanda, Tanzania and Uganda – as well as Egypt, Sudan and Ethiopia, formed the Nile Basin Initiative. Eritrea joined later. The aim: to resolve peacefully some of the big questions over shared water

resources facing these countries. The most compelling issues: Would Egypt be willing to accept a lesser flow of the Nile in favour of economic projects upstream? And would Ethiopia be allowed to use part of the resources of the Blue Nile to develop its own agriculture?

Through this Initiative, the Nile nations have embarked on a process that may lead to a revision of the inequitable 1959 agreement that gives nearly all the waters of the Nile to Egypt and, to a lesser extent, to Sudan.

- co-operation and participative management of river basins.”

This is still largely uncharted territory, since there is no international law on the management of water systems, apart from three non-enforceable framework documents that provide guidance for states in drawing up water agreements. Nor is there any mechanism to monitor or enforce the numerous bilateral water treaties between states.

In the 1950s, Egypt took advantage of its status as the regional military and political power to reinforce a colonial era agreement that gave it almost complete control of the rivers snaking 6,700 kilometres south into the heart of Africa and into the highlands of Ethiopia and Eritrea.

In 1959, Egypt signed a complex agreement with the military rulers of newly independent Sudan for “the full utilisation of the Nile waters” -- and it meant full!

Of the average yearly annual flow of 84 billion cubic metres passing through Khartoum, Egypt has been receiving 55.5 billion and Sudan 18.5 million cubic metres since the 1959 agreement came into force, with the remaining 10 billion cubic metres draining away as seepage or evaporating from Lake Nasser. Given Ethiopia’s importance as the source of most of this water, it is curious that the agreement was only bilateral and excluded all the other riparian states.

However, the end of Communism and of the civil war in Ethiopia, a nation of more than 60 million people, has opened the way to economic development and rapid population growth. And a series of devastating droughts has underlined the need to achieve food security, which could be achieved by irrigating the Ethiopian highlands and preventing millions of tons of topsoil being carried off by heavy rains every year.

Ethiopia insists that it has every right to develop its natural resources. It has bitterly reproached Egypt for building the Aswan dam without even consulting it, as well as for appropriating the lion’s share of the river resources. An Ethiopian policy paper in 1997 stated, “the stark inequality prevailing in the Nile basin cannot remain.” The one thing holding back Ethiopia from developing irrigated agriculture on a large scale is the threat of military action, which Egypt would regard as an act of self-defence. When Ethiopia brought in Israeli water engineers in 1989 to survey its water resources, it received a stern warning from Cairo.

Ethiopia’s claim to use the water arising in its territory has historical and international precedents.



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During the dispute over water that sprang up between the United States and Mexico at the end of the 19th century, U.S. Attorney General Judson Harmon stated that his country had absolute sovereignty over that part of the Rio Grande river that flowed within its territory and had no obligation to share it.

More recently, Turkey has used a variation of the so-called Harmon Doctrine to justify damming the Euphrates River to the detriment of its downstream neighbours, Syria and Iraq. The former Turkish president, Suleyman Demirel, said those countries had no more right to claim Turkey’s water than Turkey had to claim their oil.

But if this law of finders-keepers were applied to the Nile basin, “you would have to ask, why did God create Egypt?” says Prof. Luijendijk. “It cannot have more water unless it takes it from somewhere else, and there is nowhere else.”

## NEW DESERT COLONIES

With the exception of a small amount of rainfall and ground water, Egypt gets all of its fresh water supplies for agriculture, industry and domestic use from the Nile. It uses its entire allocation of 55.5 billion cubic meters and frequently dips into Sudan’s share as well. By diverting part of its supplies and by recycling waste water more efficiently, it is building new desert colonies to house people for whom there is diminishing room along the Nile.

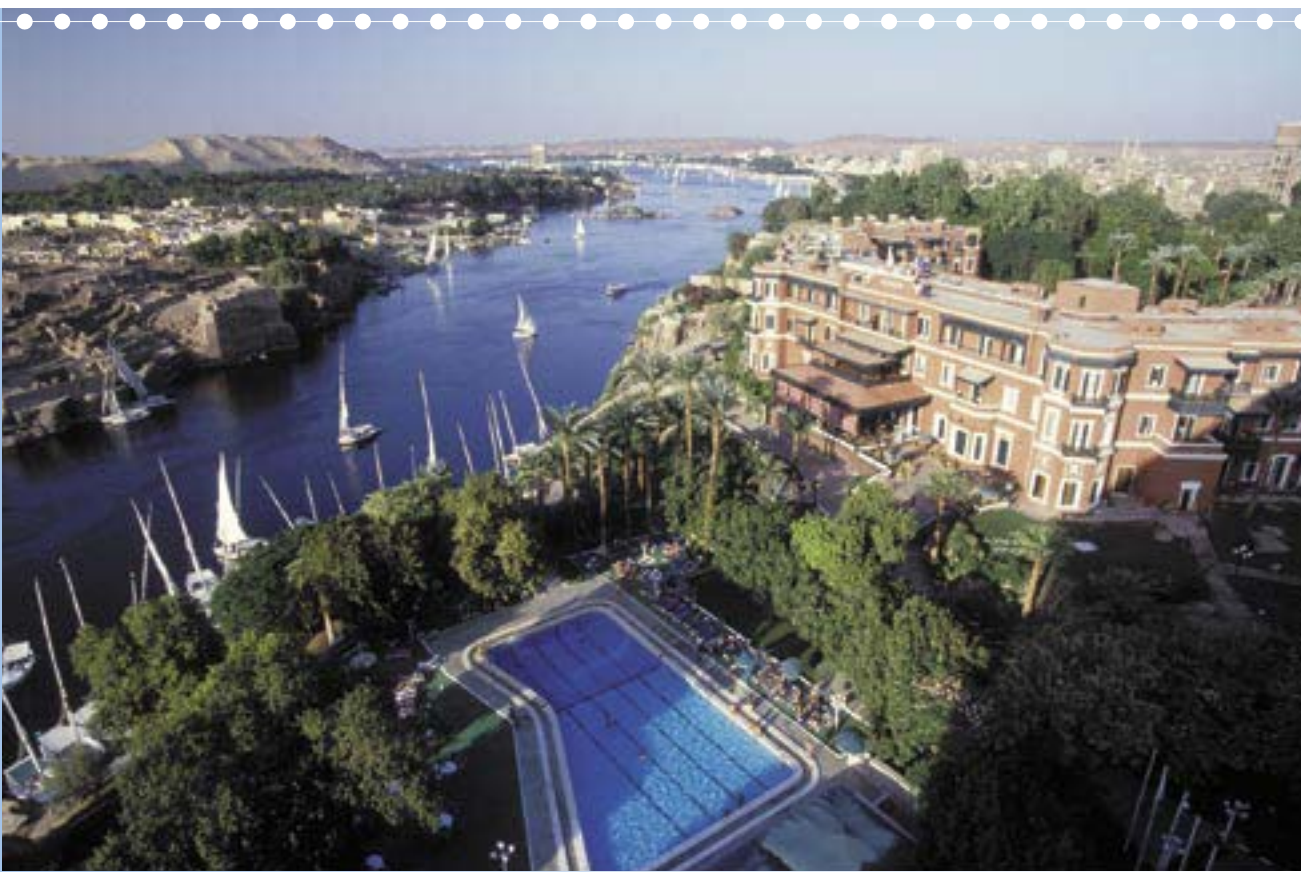
One Egyptian idea to capture more water was to help Sudan build the 360-kilometre Jonglei canal through the southern Sudd region, the largest area of wetlands in the world. The White Nile meanders for about a year through the Sudd, losing half its flow through evaporation. Egyptian engineers say that creating the Canal would recuperate much of the evaporated water and liberate nearly five billion cubic metres that would be shared equally between Sudan and Egypt.

That was before much was understood about the environmental value of wetlands (see following

**Construction of the Jonglei Canal in southern Sudan was stopped by war**  
**Right: The Nile River at Aswan in Egypt**

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page). The canal project, originally designed by the British colonial rulers, has been halted since 1983 as a result of the Sudanese civil war, itself partly caused by the population upheavals needed to build the canal. The secession of the south would create another state with claims on the Nile's resources, something that Egypt does not want to happen. Cairo has therefore strongly supported the Sudanese government's efforts to preserve national unity.

The Jonglei Canal project emerges from the same kind of hegemonic thinking that produced the Aswan High Dam, which has brought mixed blessings to Egypt since it began operating in 1970. On the one hand, it has increased the amount of cultivable land and improved navigation in the Nile. On the other, it traps the millions of tons of silt washed down from the Ethiopian highlands every year. This used to enrich the Nile delta, but is now increasingly clogging the dam. As a result, the delta is sinking and becoming more saline because of the intrusion of sea water. Egypt has to compensate the loss of silt with heavy use of fertilisers. The dam has made Egypt even more dependent on the countries upstream, since any major shortfall into Lake Nasser would mean an interruption of half its electric power generation.

Professor Luijendijk remembers a tense meeting in Addis Ababa a few years ago at which an Ethiopian delegate accused the Egyptians of stealing not only his country's water but also its soil. "An Egyptian professor stood up," he recalls, "and said, 'thank

you so much for the water. But keep the soil, please'. That is when I started to realize these people were talking nonsense. They were talking like politicians. If you put two Egyptian and two Ethiopian water engineers in a room for a week and told them to come up with a solution satisfactory to both sides, I am sure they could do it."

Even Egypt is starting to realize the instability of a situation in which five of the Nile river nations count among the poorest in the world, and in which a large nation subject to repeated droughts is expected to stand by, while the Egyptians and the Sudanese undertake massive irrigation.

Egypt is making a big effort to optimize the use of its limited resources by improving the efficiency of irrigation, changing crop patterns, lining irrigation canals and reusing drainage water. Despite all these measures, it still imports about seven million tons of wheat a year.

For Professor Luijendijk, it might also make more sense for Egypt to import some of its water "virtually" by letting Ethiopia grow some of its food. According to the Worldwatch Institute, importing one ton of grain is equivalent to importing 1,000 tons of water.

This would be an interesting reversal of history, since Egypt was once the granary of the Roman Empire.

The UNESCO-IHE Institute is contributing to the Nile Basin Initiative by supporting a regional course in river engineering in Egypt, and building up an

► internet-based network to enable water experts to share information and construct the intellectual framework to solve the problems. The countries are still essentially in a confidence-building phase -- helped by the fact that the availability of satellite pictures makes it difficult for them to have secrets from one another.

Some of the countries in the basin have very few trained engineers, but the network means that they can be part of a large circle of like-minded colleagues. At the same time, the ten nations are developing regional centres that specialize in various aspects of research.

Professor Luijendijk recalls that his own country, the Netherlands, is in a similar position to Egypt, at the end of a long river system, and took decades to overcome suspicion of its neighbours. This was achieved by exchanging data, working with other countries to resolve problems and building confidence little by little. He thinks the Nile countries can achieve the same degree of co-operation.

“The whole environment is changing, and I don’t believe any more in the scenario of war,” he says. “I think that the work that has been done by the Nile Basin Initiative in creating the right environment, and maybe by us in introducing knowledge, is enabling people to talk about the problems. Once you have reached that stage, nobody is talking about conflicts, but about how to achieve the best solutions.”

*Barry James*

# Save that swamp!

*To create more agricultural land, governments have drained marshes and swamps – thus losing a key element in water recycling and bio-diversity*

Wetlands have often been seen as wastelands, with governments seeking to drain them, whether to eliminate malaria and other water-borne diseases or to create more land for agriculture or development.

But now the world’s swamps, bogs and marshes are coming back into their own as scientists discover the vital role they play in regulating water quality and quantity, providing a critical habitat for plants and animals and influencing the local climate.

Wetlands capture and retain rainfall, and prevent valuable sediments from being washed into lakes and rivers. They add moisture to the atmosphere, which falls as rain and cools the environment. They can even be used as sewage-treatment plants that require little technology or maintenance.

About half of the world’s wetlands, ranging from the fast-disappearing mangrove swamps in East Asia to the environmentally challenged Jamaica Bay marshes, a few miles from downtown New York, have disappeared in the last 100 years. Many of those that remain have been fragmented with dams, sluices and canals.

Mostly the wetlands have receded under pressure from growing populations and urban sprawl. But sometimes they have been deliberately eradicated as in Iraq, where Saddam Hussein’s regime drained most of the vast marshlands that have stood between the Euphrates and Tigris rivers since the dawn of history, and turned much of its population into refugees.

Patrick Denny, a wetlands scientist at the IHE-Delft Institute for Water Education (Netherlands), has spent much of his career in Uganda, the second country in the world after Canada to grant official protection to its extensive wetlands by constitutional law.

For Professor Denny a good wetland acts both as a sponge and a filter.

“It holds water, and allows a river to be released more slowly,” he says. “It keeps the rivers flowing.

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**A father and son work in vegetable fields near the pyramids close to Cairo (Egypt)**



© Patrick Denny/IHE, Delft/Dr Kansime, Makerere University, Kampala

**Above: Fishponds on the edge of Lake Victoria in Uganda. Fish are trapped during floods to build up stocks during the dry season when the ponds are cut off from the lake**  
**Below: Marshes in Iraq. Many of these vital zones have been totally destroyed**

In the dry season it keeps the streams trickling. It gives time for the water to recharge the aquifer and keeps the water table up.”

Without this sponge function, rivers flow faster and carry off valuable nutrients, soil and organic matter from up-stream. Not only is this an economic waste, but the nutrients can damage lakes and kill fish by promoting an explosive growth of algae and reducing the oxygen at deeper levels – a process known as eutrophication.

The effects of neglecting wetlands can be seen in the world’s largest tropical lake, Lake Victoria, which is bordered by Uganda, Tanzania and Kenya, and is a source of livelihood, food and employment for more than 30 million people.

The once astonishing diversity of fish species in the lake has been depleted not only by the introduction of aggressive non-native species but also because of the runoff of pollution and silt from the catchment.

Protection of the lake’s environment was one of the reasons that prompted the Ugandan

government to adopt a national wetlands policy and enshrine it in the constitution. Despite a drastic reduction in the nation’s wetlands, swamps still occupy about 13 percent of Uganda’s territory.

“The classic word is that wetlands are wastelands,” says Professor Denny. “I can think of nothing further from the truth. If water and wetland systems are well managed, then health issues are not as serious as one might believe. Disease usually comes from poorly managed systems in which human beings themselves have changed the balance of nature. In a naturally functioning system with good biological diversity, you are not likely to have many mosquitoes because of the amount of fish, insects and birds that eat the larvae.”

Wetlands act as a natural purification. It is also possible to create small artificial wetlands to treat the sewage output of a village or clean the effluent from conventional sewage plants, which in Africa frequently fail to function because of electricity cuts and poor maintenance.

Seeded with fast-growing papyrus, which has many economic applications, the marshes not only filter out the impurities but recycle nutrients as well. This produces food for the invertebrates, which in turn provide nourishment for fish and birds.

“If you have more diversity, there is a greater chance that the people who live in those systems can have a sustainable way of life,” says Professor Denny. “Riparian people can ensure a supply of fish by helping nature by digging ponds where fish collect. The ponds remain flooded in the dry season: the fish are fed on domestic waste and can grow fat.”

Even industrialized nations, he says, are starting to undo some of the hard engineering of rivers and lakes and allow water to occupy natural flood plains with beneficial effects for the people, the environment, for biological diversity and for the aquifers.

Barry James



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# Water poverty in midst of oil wealth

© Steve Percy/Gamma, Paris

*In Kazakhstan, where the once immense Aral Sea is fast shrinking, citizens lack fresh water even as the country becomes relatively rich*

In Aktau, on Kazakhstan's Caspian shore, tap water is so heavy with chemicals that foreign-built washing machines last just a few months. Understandably, the residents of Aktau who can afford it prefer to buy mineral water from a shop rather than risk the yellow, smelly water in their sinks.

The problem is a national one; Kazakhstan has the worst provision of clean drinking water in the Confederation of Independent States. In rural areas, instances of hepatitis and other water-borne diseases are high. All around the country, almost half the pumps and public taps are turned off permanently because they are worn out or sub-standard.

Svetlana Voitova, who lives just shy of the Chinese border, in a large village called Narynkol, says: "We do not have water in our homes, so we

use the village pumps. But often even the supply to the pumps is turned off because people do not have enough money to pay the local authorities for it. Then we have to use the river." Even in the newly-constructed capital city, Astana, stories of water running brown are legion.

But the problems do not stop there: Kazakhstan is also home to one of the worst water-related natural disasters on the planet.

The Aral Sea used to be the fourth largest inland lake in the world. Since the fifties, botched Soviet-era planning has caused the water-surface area to shrink to a third of its original size and the shoreline has receded by 100 kilometres, leaving rusting hulks of fishing boats stranded on the land. Salt from the exposed water bed blows into the eyes and throats of those who continue to live there, and few crops



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will grow. The local fishing industry, which once produced 30,000 tons of fish a year, has almost entirely disappeared.

Severe environmental degradation, unabated pollution, undrinkable water and infectious diseases are usually the by-products of poverty. But Kazakhstan is rich. Thanks to its oil, the government earns billions of dollars in foreign exchange from its joint-venture operations with multi-national oil consortia, who pay huge, but undisclosed, signature bonuses for extraction rights.

The country runs an oil savings account, called the National Oil Fund. It is widely predicted that this will bulge with US\$100bn by 2020.

Ironically it is the areas richest in oil which have some of the worst water problems. While the pristine compound built to house the international oil executives of Atyrau - the city in western Kazakhstan known as the 'oil capital' - has its own filtration system, local people do not drink tap water even after boiling.

The oil money seems to be exacerbating this kind of inequality rather than healing it. There are no known immediate plans to spend any of the fund on social or environmental concerns. Atyrau has a water filtration system, but it is broken, and the political will to fix it does not seem to be there.

Adding to this, the change from central planning to independence was almost cataclysmic. After 1991, the country's economy all but collapsed, taking

services with it. By 1994, inflation was 1975 percent and there was no food in the shops. Little wonder, then, that the Communist system of free drinking water provision fell apart.

Now, although it is still a transition economy with all the difficulties that entails, there is some hope of improvement: the government is part-way into its Kazakhstan 2030 plan, which has stabilised the economy and intends to improve service provision.

## DISASTER OF THE ARAL SEA UNLIKELY TO BE REVERSED

The Aral situation is also rooted in the past. Under the Soviet regime, the environment was seen as a testing or dumping ground, a resource to exploit to meet production quotas, or an irrelevance. Swathes of the country were used to explode nuclear weapons, and are now contaminated with noxious waste. The same thinking advocated that the Aral Sea be slowly drained to irrigate cotton fields. This area had been designated as the USSR's centre for cotton production, and quotas had to be met at all cost.

Post-independence, the same chaos that nearly caused the economic meltdown left the state unprepared to cope with large-scale environmental problems.

Now, although international and non-governmental organizations are collaborating to stop the Aral Sea from shrinking further, the best-case scenario is that the recession be halted. It is highly

**Left: A former fishing port on the Aral Sea (Kazakhstan). The sea is now 64 km away**

**Above: Flooded oil fields at Atyrau (Kazakhstan) in September 1994**



© Chip Hires/Gamma, Paris

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► unlikely that the situation can be reversed.

Versions of Kazakhstan's water problems are replicated throughout the former Soviet states. The Aral Sea disaster is affecting neighbouring Uzbekistan, Turkmenistan, Tajikistan and Krygyzstan, which are all linked to it by the rivers Amu Darya and Syr Darya.

In Russia, recent studies have shown that around one in three drinking water samples fail statutory tests for pollution, while there are frequent outbreaks of hepatitis and tuberculosis (TB). In Uzbekistan the water has a high lead content and, as in Russia, TB is common.

In Siberia, it is the oil exploitation itself that is polluting the water. Although production levels are declining, the region is still the major source of Russia's oil output. An Alaska-sized region in western Siberia, called the Tyumen *oblast*, or district, produces nearly two-thirds of the country's oil.

Bad practice and the mis-management of infrastructure – it is difficult and expensive to maintain pipelines in Siberia's harsh climatic conditions – have led to severe contamination of surface and ground water supplies. Spills are frequent and the shiny gleam of oil can be seen on rivers and lakes. But, as production declines, it becomes less likely that there will be any tightening of environmental standards.

As with Kazakhstan, clean drinking water may come only after a long wait, and even then, the worst of the environmental damage inflicted on the sources of that water may be irredeemable.

*Elizabeth Stuart, in Kazakhstan*



© John McDermott/Panos Pictures, London

**Top: Plenty of oil, not enough water. An Uzbek family collects fresh water at Muniak on the**  
**Above: Aral Sea Workers fitting pipes on an oil rig at Kyzylorda (Kazakhstan)**





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# Europe's thirsty desert

*The Spanish government strongly defends its decision to shift water from the Ebro basin to the parched southern province of Almería – but environmentalists disagree*

**A sea of plastic greenhouses at la Mojónera near El Ejido (Spain)**

**From** the craggy sierra overlooking the blue Mediterranean across Spain's southeastern province of Almería, the view on a blazing summer's day is like that of Siberia in winter.

Every scrap of ground is covered with whitewashed plastic greenhouses that glisten like snow under the sun, producing much of northern Europe's fruit and vegetables. Almería is the world's most intensive greenhouse culture, with hundreds of trucks every day taking produce directly to supermarkets in Germany, Scandinavia or Britain.

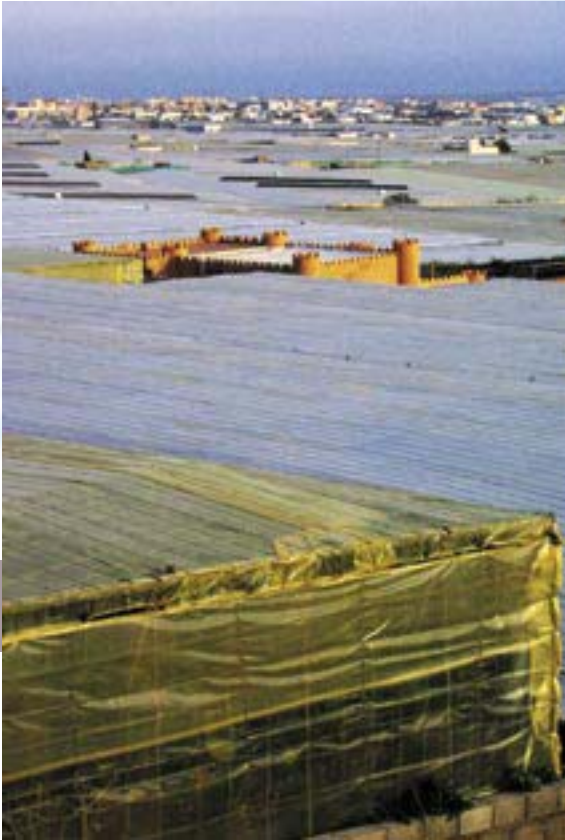
But the greenhouses – and the golf courses, hotels and housing developments along the coast – are using far more water than the underground sources can provide.

Sea-water intrusion is turning the aquifers saline, while the rivers have all completely dried up, greenhouses now covering their parched beds.

The government thinks it can solve the water problem by pumping supplies from the Ebro basin in northern Spain. The national water plan, envisaged to cost nearly 23 billion euros, will include a 1,000-kilometre pipeline and 70 dams.

Many citizens in the north and Spanish environmental groups oppose the project, which they say has been designed by and for the construction industry – a technical fix that will carry a heavy environmental as well as economic cost.

The plan also is being critically reviewed by the European Commission and Parliament, since roughly a third of the funding will come from EU taxpayers. ▶



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► The government insists that the project is needed as a symbol of national unity as well as for economic and practical reasons. But, rather than unite the country, the plan has created deep divisions, since many valleys in the north will have to be flooded to hold the water. At the same time, the project has angered the region of Aragón, which depends on the Ebro. You can now drive for hours past abandoned towns in its dried-up landscape.

Meanwhile, the prospect of a fresh supply of water is spurring growth in the hothouse industry. The sea of plastic is rapidly spreading eastward, where land is cheaper, to the fringes of the Cabo de Gata natural park, Europe's driest spot.

Trucks bring clean water down from the high sierra for restaurants, and most people drink bottled mineral water because what comes out of the taps is contaminated with salt and pesticides.

Yet Spain -- which is dotted with dams that hold back nothing but air, and silted reservoirs -- is prodigiously wasteful of its water resources. A report by the National Statistics Institute said the country wastes five times more water than the amount that the government intends to shift under the national water plan.

*Barry James*

**A growth industry.  
But at what cost ?  
Greenhouses near  
Puebla de Vilar near  
Almeria (Spain)**



© Peter Barker/Panos Pictures, London

**A microbiologist  
tests Ph levels in  
polluted water in  
Kathmandu (Nepal)**

# Polluting cocktail poses an evolutionary threat

*Chemical products and hormones in water supplies create environmental time bomb*

The world has a finite supply of drinking water, under pressure from population growth but also by the demands placed on it by so-called progress.

Far from dissolving into nothingness, many of the products of modern civilization that are being dumped into ground water supplies are proving surprisingly persistent.

Pesticides, herbicides, fertilizers and the hormones and antibiotics used in animal production sink into the water table. Household cleaning and personal care products, disinfectants and other commonly used chemicals end up in sewage.

In the industrialized world, the great majority of sewage plants are able to remove infectious agents, but this still leaves the problem of hormonally active products such as contraceptive pills that have the potential to affect the reproductive organs and alter the development of animals.

Developing countries don't have a chance. According to the International Association of

Hydrological Sciences, 90 percent of wastewater treatment plants are not operative in Mexico. In Latin America as a whole, only two percent of sewage is treated. This is having a serious impact on ecosystems and bio-diversity.

## HAZARDS ARE UNKNOWN

Every litre of wastewater contaminates on average eight litres of fresh water. The UN World Water Development Report estimates that the total of polluted water in the world is more than the amount contained in the world's largest river basins.

Yet the aquifers that store about 97 percent of the earth's liquid fresh water, take thousands of years to accumulate, and their depletion or contamination can to all intents and purposes be considered final.

Because this pollution is out of sight, some policy-makers believe they can ignore it. Others apply what is known as the precautionary principle.

Although the tools to detect and measure polluting chemicals are improving, researchers and regulators do not know how quickly chemicals degrade, what impact they have on the environment, how they accumulate through the food chain or the magnitude of the human health problems they may be storing up.

In addition, the chemicals being poured into the water supplies are likely to interact, exposing wildlife and humans to unpredictable additive and synergistic effects.

The compounds ending up in the water supply are playing an increasingly important role in the life cycle of all creatures, including the writers and readers of this article. Therefore, everyone in developed and developing countries alike has a vested interest in ensuring that water remains the source of life, and not the engine of its eventual destruction.

*Carlos Sonnenschein and Ana M. Soto*

*The authors are professors and conduct research at Tufts University School of Medicine*



© Giuseppe Bizzarri/Panos Pictures, London

**Water pollution  
near Phnom Penh  
(Cambodia)**

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# Managing scarce resources: a challenge for democracy

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In a tradition dating back to the Arab civilization of Spain, a tribunal gathers every Thursday outside the cathedral of Valencia to share out water for irrigation and settle disputes in the Turia river basin. It is the oldest example of what today would be known as integrated water resources management. Wearing workers' blouses and delivering their decisions orally in Valencian, the judges are ordinary workers democratically elected for two years to represent each of the eight irrigation networks in the basin. Their word is final. In a microcosm, Valencia's water tribunal exemplifies "good governance." It is effective, accessible, affordable, respected, fast, transparent and involves the whole community. And it takes the river basin as a whole as its starting point, a principle that is only now gathering ground at the national level or international.

The idea of treating river basins in a holistic fashion, rather than confining planning to geographical boundaries, has been stressed at numerous international meetings, most recently at the Stockholm Water Symposium in August.

One of the biggest challenges is to move the debate about water management out of jargon-filled circle

of workshops and into the public arena. This was done, for example, in the building of the Øresund bridge between Denmark and Sweden, says Slavco Velickov, a knowledge systems expert at the IHE-UNESCO in Delft. He and his colleagues are working on new ways to involve people with no scientific or technical training in complex decision-making. "We build complex scientific models with a simple role-playing interface," he says. "You can ask questions such as 'if we use so much water for a dam what will happen to the irrigation downstream?' We do the complicated math in the background, but we don't bother people with the science. They see only the results."

The main obstacle to building trust and achieving cooperative management of water resources is lack of political will. But the UN World Water development Report says the situation is improving. "Although progress in water governance and related management areas has been incredibly slow and uneven," it says, "There are encouraging signs that water governance reform is taking place in many countries."

BJ



## FURTHER READING

### 1 International Year of Freshwater.

The UN report, Water for People, Water for Life is available in full on the Internet along with an executive summary in seven languages. This is the Year of Freshwater, a time, the UN says, "to focus our attention on protecting and respecting our water resources, as individuals, communities, countries, and as a global family of concerned citizens."

<http://www.wateryear2003.org>

### 2 The Water Portal of the Americas

An experimental water information resource to "provide qualified, trusted, and verifiable information and contacts."

<http://waterportal-americas.org>

### 3 United Nations System-wide Earthwatch

Earthwatch coordinates environmental monitoring and assessment throughout the UN system.

<http://earthwatch.unep.ch/freshwater>

### 4 The Water Barons

A series of unflattering case studies about the private water industry by the International Consortium of Investigative Journalists.

<http://www.icij.org/water>

### 5 International Institute for Sustainable Development

A general environmental site that contains a link to a global mailing list on water issues.

<http://www.iisd.org>

### 6 Transboundary Freshwater Dispute Database

The Oregon State University Department of Geosciences has put together an extremely useful collection of maps and a database of water treaties..

<http://www.transboundarywaters.orst.edu>

### 7 Inventory of Conflict and Environment

Provides a common basis and method for looking at conflicts. Includes more than 100 case studies, many of which are old, but still largely relevant.

<http://www.american.edu/TED/ice/ice.htm>

### 8 From Potential-Conflict to Co-operation Potential

A series of real water conflicts examined through case studies.

[http://webworld.unesco.org/water/wwap/pccp/cd/case\\_studies.html](http://webworld.unesco.org/water/wwap/pccp/cd/case_studies.html)

### 9 Water Aid

An international non-governmental organization dedicated exclusively to the sustainable provision of safe domestic water, sanitation and hygiene education to the world's poorest people

<http://www.wateraid.org.uk>

# Some Things to Know About Water

**1** Most of the Earth's water is undrinkable. If a large bucket of water were to represent the sea water on the planet, an egg-cup full would represent the amount of water locked in ice caps and less than a teaspoonful would be all that was available as drinking water.

**2** Water is continuously recycled as a result of evaporation driven by solar energy. This cycle is estimated to consume more energy in a day than that used by human-kind over its entire history.

**3** About 6,000 children – the equivalent of 18 fully loaded jumbo jets – die every day from diseases associated with lack of access to safe drinking water, inadequate sanitation and poor hygiene. At any one time, half of the world's hospital beds are occupied by patients suffering from water-borne diseases. Many more people die from diarrhoeal diseases than from HIV/AIDS.

**4** About 70 percent of freshwater goes to irrigation, but in some places half or more of it never reaches the fields because of leaks and evaporation. Irrigated land in the developing world is expected to increase by 20 percent and water withdrawals for irrigation by 14 percent in the next 25 years, since irrigation increases the yield of most crops by 100 to 400 percent. It takes 1,000 times more water to grow food for an individual than to meet that person's need for drinking. It takes one cubic metre of water to produce a kilogramme of wheat. And it costs 90 US cents to desalinate a cubic metre of water, making sea water an unlikely source for food production.

**5** Most of the cities where large numbers of people live without taps and toilets have plentiful water supplies. And in cities with water shortages, there are rarely any restrictions on water use for the rich. Water for household use represents only about eight to ten percent of total water consumption.

**6** Half of Africans, or 300 million people, have no access to safe water; 66 percent, or 400 million, have no access to hygienic sanitation. Africa's available water resources are under-used. Only three percent of its renewable water is withdrawn annually for domestic, agricultural and industrial use, only six percent of the cultivated land is irrigated and less than five percent of its hydro-power potential is used. The volume of water lost in the Kenyan capital city of Nairobi because of leakages and illegal connections could meet the water needs of Mombasa, the country's second-largest city.

**7** About 90 percent of fish species depend on coastal wetlands, which are everywhere in steep decline. An estimated 95 percent of the wetlands in Italy have been lost.

**8** Regions that are pumping out ground water faster than aquifers can be recharged include the western United States, northern China, northern and western India, north Africa and west Asia.

**9** Some of the world's freshwater resources are simply disappearing. They include the Aral Sea, which covered 68,000 square kilometres in 1960 and has since lost 60 percent of its area and 80 percent of its volume; Lake Chad, which has shrunk to about one fifth of its former size in 40 years; and the Colorado River, which no longer reaches the sea in the dry season.

**10** Fears about the safety of tap water have led millions of Americans to switch to bottled water – about one quarter of which comes straight from the tap. One make of "spring water" was found to come from an industrial plant next to a hazardous waste site. Bottled water is actually less tightly regulated than tap water, but costs hundreds of times more, without taking into account the cost of transport and plastic.

**11** The "clean" computer industry is one of the world's thirstiest. The production of a six inch silicon wafer requires the use of 8,600 litres of water.

**12** More than 45,000 large dams have been built and half of the world's rivers have at least one dam. Dams produce 19 percent of the world's electrical power and account for up to 40 percent of irrigation supplies. In Europe and North America more than 70 percent of the hydropower potential has been developed compared with less than five percent in Africa, 20 percent in China, 30 percent in Asia and 40 percent in Latin America. But between 40 and 80 million people have been displaced by dams. Populations are rarely consulted about the benefits and drawbacks. Dams have led to the loss of forests, wildlife habitat and biodiversity to such an extent that some countries are dismantling them. And because of silting, they often fail to deliver the energy they were designed to provide.

#### Sources:

1. Water Policy International Ltd.
2. UN Food and Agriculture Organisation
3. UN WEHAB Working Group
4. World Resources Institute/International Food Policy Research Institute/ UN WEHAB Working Group/ J.F.Rischard, "High Noon."
5. Water Supply and Sanitation Collaborative Council
6. Water and Sanitation Program, Africa Region/ Report of the World Panel on Financing Water Infrastructure/ Anna Tibaijuka, executive director, UN-HABITAT
7. Lester R. Brown, Eco-Economy
8. UN Food and Agriculture Organization
9. J.F.Rischard, "High Noon"/Deutsches Zentrum für Luft und Raumfahrt
10. Natural Resources Defense Council
11. Silicon Valley Toxics Coalition
12. World Commission on Dams/Report of the World Panel on Financing Water Infrastructure

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# Water in UNESCO's history



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1967: Research on using salt water irrigation (right). Bedouin in the desert in Lebanon (centre)



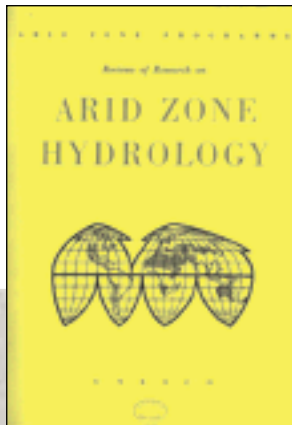
© UNESCO/Bonacas



UNESCO's water-related activities can be traced back to the early years of the Organization. The 3<sup>rd</sup> session of the General Conference in Beirut in 1948 instructed the Director-General to investigate proposals for an International Institute for the Arid Zones. This initiative resulted in the creation of the Advisory Committee on Arid Zone Research, which held its first meeting in Algiers in April 1951. During the period 1957 to 1966 the Arid Zones became one of the so-called Major

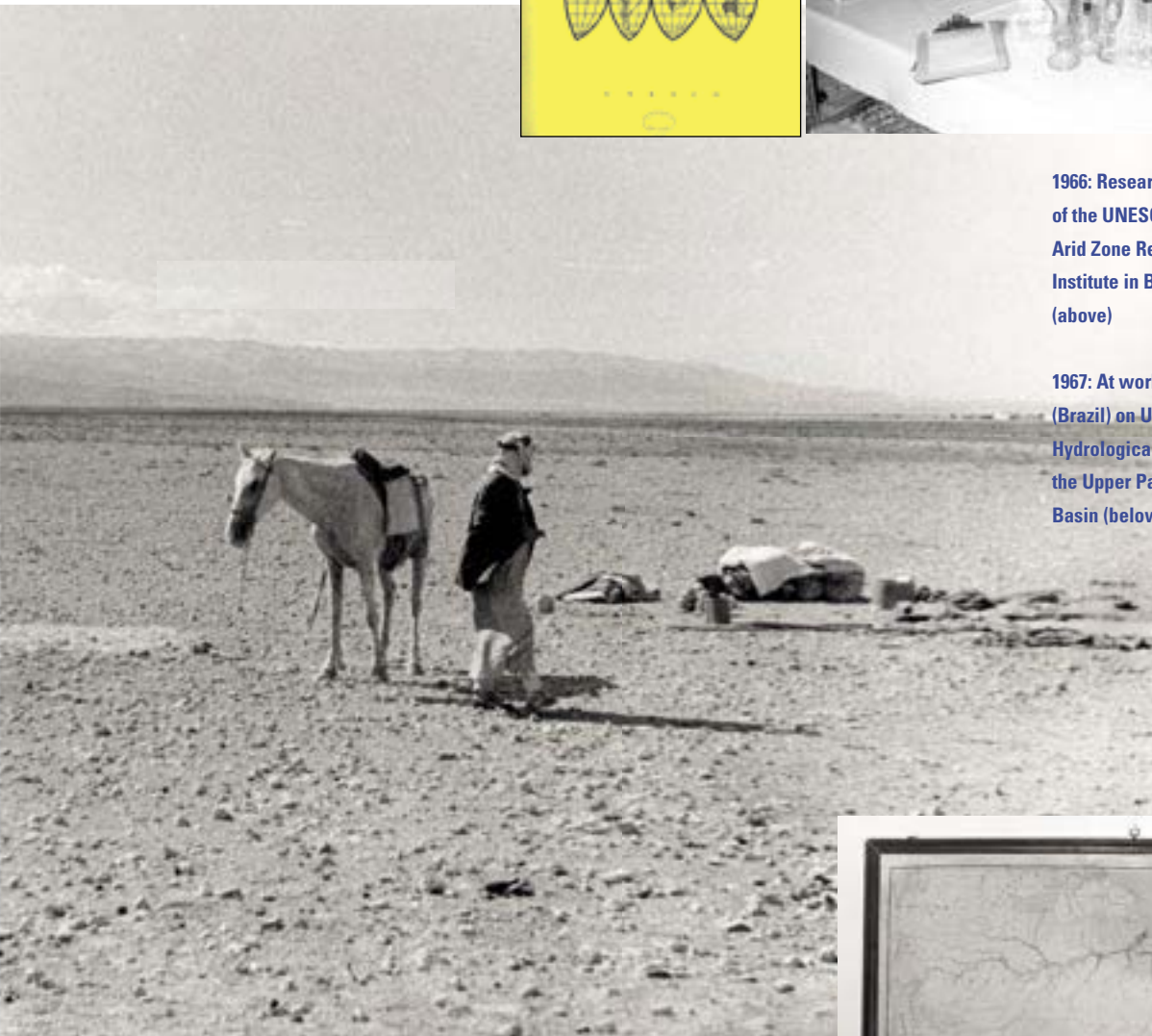
Projects of UNESCO, which as one significant result led to the publication of 30 books of scientific studies.

The Major Project was only the start of a long, far-reaching and continuing United Nations effort to use science in the service of the environment and development. Aridity poses the problem of water resources, which led UNESCO to launch a new research programme, in this case based on inter-governmental co-operation, into the cycles, amount



© UNESCO/Schröder

**1966: Research laboratory of the UNESCO-funded Arid Zone Research Institute in Baghdad (Iraq) (above)**



**1967: At work in Rio (Brazil) on UNESCO's Hydrological Studies of the Upper Paraguay River Basin (below).**



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© UNESCO

and quality of the world's fresh water. This was the International Hydrological Decade, in which more than 100 countries took part between 1965 and 1974. It was followed in its turn by the International Hydrological Programme, which continues today.

The overall objective was of "increasing the degree of rational management of water (...) in the interest of mankind". On these Archives pages you'll find illustrations of some of the activities of the Arid Zones project and of the Hydrological Decade



© UNESCO/D. Roger

## Sustainable development for companies too

Do businesses consider sustainable development to be nothing but a marketing strategy? Are NGOs prepared to work with the private sector? What are the points of convergence and divergence between the two? A new book, *Entreprises face aux enjeux du développement durable\** (Companies facing up to the challenges of sustainable development), analyzes different experiences, such as the use of micro-finance in India, the role of the insurance industry, opting for organic, fair-trade cotton to solve the problems of the textile industry, or the contribution of the French electricity company – EDF – to the electrification of rural areas in developing

countries. It also examines different types of social commitment, such as codes of conduct, moral guarantees, ethical funds and solidarity holidays.

The book has been published under the guidance of Annie Najim, who holds the UNESCO Chair for the training of Sustainable Development professionals at Bordeaux University 3. In September 2002, the Chair created a degree for middle level professionals working for NGOs, local and national authorities, international bodies and business. The Chair works with a wide network of universities and community businesses in seven countries (Algeria,

Belgium, France, Morocco, the Palestinian Territories, Spain and Tunisia). Fifteen UNESCO Chairs of Sustainable Development, in North and South America, Europe and Asia, are responding to the need for the professionalisation of development and to the challenge of opening up universities to knowledge and know-how developed in the field.

\*UNESCO/Karthala, Collection Economie et développement, Paris 2003, 485 p.

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# Tightening the net

UNESCO and the International Criminal Police Organization (INTERPOL), have reinforced their collaboration in the fight against the illicit trafficking of Iraqi cultural goods. On July 8 they amended a cooperation agreement that has linked the two bodies since 1999, laying the ground for the establishment of a data base on cultural properties stolen in Iraq. The resulting inventory will provide customs officials, police and other players in the international art market with regularly updated information on Iraq's stolen cultural heritage.

Based on information supplied by UNESCO – which will provide scientific expertise alongside other national and international organizations – this inventory will be distributed on a CD-Rom



© UNESCO/Bonsiven-Fontana

that INTERPOL has produced and updated every two months. Since 2001, this CD-Rom has been available in French, English and Spanish and will soon be accessible through the internet.

In March 2003, UNESCO asked INTERPOL to step up its efforts in the fight against the illicit traffic in Iraqi cultural properties. An INTERPOL representative also joined the second UNESCO mission of experts led by Mounir Bouchenaki, which went to Iraq from June 28 to July 5.

For several years, the two organizations have exchanged information on stolen objects which reappear on the international art market. INTERPOL also takes part in meetings of the Intergovernmental Committee for Promoting the Return of Cultural Property to its Countries of Origin or its Restitution in Case of Illicit Appropriation, which take place every two years. The two organizations also cooperate to train specialists in the fight against the illicit traffic in cultural goods in a large number of countries, among other activities.



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## Patricia Velasquez

### A model for peace

Last June, Venezuelan model and actress Patricia Velasquez became a UNESCO Artist for Peace in recognition of her work in favour of the indigenous people of the La Guajira region, one of the poorest in Venezuela, situated along the border with Colombia.

The top model was born in La Guajira in 1971. While pursuing her modelling career, she has acted in films such as *The Jaguar*, *The Mummy*, and *The Return of the Mummy*. She took advantage of her success to found the Wayuu Taya Foundation

in 2002, which supports development projects in La Guajira.

Artists for Peace are international celebrities whose influence, charisma and prestige lend a special resonance to UNESCO's message.



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Aïna, for media development in Afghanistan

# Afghan women as seen by Afghan women

They helped each other on to the stage, looking intimidated and excited to be the centre of attention. Each casually threw a long, black scarf over her hair and prepared to answer the questions of an overwhelmed and inquisitive audience after the screening of

*The View from Afghan Women.* Mihreya Aziz and Shakiba Mohd-Alam, both 20, came to UNESCO Headquarters on April 1, 2003, with their instructor, French journalist Brigitte Brault, to present their documentary. They are among 20 film-makers trained by Aïna, an

association for media development which was set up in Kabul in 2001 with UNESCO's support.

For their first film, the young women from Kabul decided to go out and meet women in other parts of Afghanistan and to film themselves as they



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worked. The contrast between the two groups of women is striking: the energy of the Kabul women, galvanized by freedom and the possibilities afforded to them by education; and the stagnating lives of the other women. The Hazara women, for example, have lost their homes and husbands. Forgotten by everyone, they have taken refuge in the caves of Bamiyan where they look after orphans. The film-makers recorded the preparation of the daily gruel, which is supposed to feed an army of children who fill the screen while one courageous woman, pleads: "Give us weaving looms, so we can earn a living!"

The oppression weighing down Afghanistan's women is ever-present, from the Kuchies in Nangarhar

Province, who take the risk of speaking out, to the women of Herat, who refuse to do so. One desperate young woman in Badakhshan explains that she cannot leave her house because a local commander has vowed to kidnap her as soon as he gets a chance. Some men even attack the young film-makers. But we also see a *mullah*, the father of one of the film-makers, talking about his daughter's ambition to become a journalist. "At first I was opposed to the idea," he says. "Then I thought about it. I trusted the association and, well, if we want Afghanistan to modernize..."

## Anti-Slavery International, British Council, NORAD

# Learn about the Transatlantic Slave Trade

The NGO Anti-Slavery International, the British Council and the Norwegian Government have joined forces with UNESCO to develop a new website for teachers and learners on the Transatlantic Slave Trade. The website guides teachers, educators and students to accessible and accurate resources on the slave trade and its legacies, including contemporary forms of slavery, and proposes teaching plans and exercises. Versions in other languages are planned (see p. 70).

<http://www.antislavery.org/breakingthesilence/>



## Sumi Jo

# The voice of living treasures

Korean soprano Sumi Jo was named UNESCO Artist for Peace on April 3 in recognition of her commitment to the promotion of Korean culture all over the world, and for her contribution to international cooperation in the service of peace and tolerance.

Born in 1962, the celebrated soprano has come to be regarded as one of the finest voices in contemporary opera. She has

been engaged alongside UNESCO in establishing a network of "living human treasures", persons who embody to the very highest degree the skills and techniques necessary for the production of selected aspects of the cultural life of a people and the continued existence of their material cultural heritage.



© UNESCO/Niamh Burke

## QATAR Foundation

# Rebuilding higher education in Iraq

The First Lady of Qatar and UNESCO Special Envoy for Basic and Higher Education, Her Highness Sheikah Mozah Bint Nasser Al Misnad, and UNESCO Director-General Koïchiro Matsuura, signed an agreement on June 23 establishing an International Fund for Iraqi Higher Education.

The Fund is managed jointly by UNESCO and the Qatar Foundation for Education, Science and Community Development, a non-profit organization chaired by Her Highness. First contributor to the fund was the state of Qatar with a donation of US\$15m to provide immediate and long-term assistance for the reconstruction of Higher Education in Iraq.



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## European Space Agency

# New Heritage Guardians

UNESCO and the European Space Agency (ESA) signed an agreement, on June 18, to encourage the use of Earth observation satellites to monitor world heritage sites. The satellites, which provide high resolution images, are a remarkable tool for the observation of sites and for the monitoring of changes in soil utilization and phenomena such as deforestation.

The agreement marks the launch of the Open Initiative

partnership between UNESCO and ESA, which aims to bring all international space agencies on board to assist developing countries in monitoring their world heritage sites.

As part of the Initiative, UNESCO is close to signing

a cooperation agreement with the US National Aeronautics and Space Administration (NASA), and has had requests to join from the Argentinean, Indian, Japanese, Canadian and Brazilian space agencies.



© ESA, Paris



*The lucky bike owner gives his neighbour a ride to school, by Sawaoogo Gomwindi alias François-Xavier from the Kaya Primary School in Burkina Faso. First prize ex-aequo "Learning to live together"*

*Kids having fun, by Martin Bobić, Osvicivila Kosmaca Piran School, Slovenia. First prize ex-aequo "Learning to live together"*

# ASPnet 50 years young

*To mark its 50<sup>th</sup> anniversary, UNESCO's Associated Schools Project Network launched a photo contest for teachers. It was based on four themes: learning to know, learning to be, learning to do and learning to live together. A selection of the entries, which come from 48 schools in the five regions, follows*





**P**eanut Plantation, by  
Andriantsimiangy Josoa Harisaona,  
Kiangara-Ankazobe College, Madagascar.  
Special mention "Learning to do"

## A unique network

**The network was launched in 1953**, when UNESCO was still in its infancy and communication between different communities much more difficult than today. At a meeting in Paris in November that year, 21 experts representing 33 secondary schools in 15 countries set themselves the aim of "education for living in a world community: coordinated experimental activities in schools of Member States."

**The language may have been** stiff and administrative, but the idea took flight.

Today, ASPnet includes more than 7,500 institutions – from kindergardens to teacher training institutes – in about 170 countries.

**Over the years**, the network has carried out numerous ground-breaking programmes working within countries, between countries in the same region, and internationally.

**The Baltic Sea project**, for example, begun in 1989, united 200 schools in the countries of the Baltic region to raise young people's awareness of the serious environmental problems of the Baltic Sea, and to look for possible solutions. This programme proved so successful that it has served as a model for a similar project on the Danube River. It also provided the inspiration for the Zambesi River Project, in which Associated Schools from Malawi, Mozambique, Zambia and Zimbabwe are

studying, together, such topics as water management of the Zambesi River Basin, human rights and democracy.

**Another flagship activity** has been the Transatlantic Slave Trade (TST) Education Project. Some 100 ASPnet schools in the 21 countries in Africa, the Americas/ Caribbean and Europe involved in this project have revitalised teaching on the slave trade. Students and teachers have been able to attend seminars, workshops and youth encounters built around the trade's Atlantic Triangle, learning about one of the darkest chapters in human history, learning about their own history and cultural background, and the extraordinary changes wrought on the world by the slave trade. Two volumes of a trilogy – "Slave Voices" (a compilation of texts by the enslaved) and "Slave Voyages" (an historical account of the TST) have been produced. The third, "Slave Visions" (recalling the hopes and expectations of the emancipation period up to the 21st century) is in the works. More recently, the project has developed an exhaustive internet site on the project and its products.

**However, ASPnet is also involved** in peace education, drugs and Aids prevention, protection and safeguarding of the world's cultural and natural heritage, the development of new teaching methods to stimulate learning, and teaching the world's children to stand up and be counted.



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**L**andscape painting (top), by Michail Tomilov, Art school under the Academy of Art, Kyrgyzstan. First prize "Learning to be"

**P**hoto by Ligia Brull (left), Colegio "Magno", Brazil. Honourable mention "Learning to do"

**P**hoto by Lyn Spooner (above), Gleneagles Campus "Eunemmerring College", Australia. Honourable mention "Learning to be"



Photo by Ahmed Outmani (left), Ben Zakour College, Temara, Morocco. Special mention "Learning to know"

Photo by Eteri Nebieridze (below), Secondary School n° 49, Georgia. Special mention "Learning to know"

Photos: © UNESCO/ASPhet



Photo by Karim Hunziker (above), Leevi Haknsembe Secondary School, Namibia. Special mention "Learning to know"







*T*raditional knowledge, by  
Maura Carvalho, Espaço  
Alberto Educacao Infantil School,  
Brazil.

First prize "Learning to know"

*P*hoto by Alexandra Galentro,  
Dialogue School, Kazakhstan.

Honourable mention "Learning to live  
together"





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Photo by Bassam  
 Jamaledidine, Zabric'h High  
 School, Lebanon.  
 Honourable mention "Learning to  
 live together"



Photo by Aliyera Irada, Modern  
 Educational Complex,  
 Azerbaijan.  
 Honourable mention "Learning to  
 live together"



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✳ Sponsored by Kodak (cameras) and DHL (courier).



To find out more on ASPnet:  
<http://www.unesco.org/education/asp>  
 Breaking the Silence Project:  
<http://www.antislavery.org/breakingthesilence>  
 Baltic Sea Project: <http://www.b-s-p.org/>  
 For the teaching kit World Heritage in Young Hands: <http://whc.unesco.org/education>  
 For a resource kit for primary school teachers to teach peace: [http://www.unesco.org/education/asp/peace\\_pack.shtml](http://www.unesco.org/education/asp/peace_pack.shtml)  
 Contact:  
 An online forum for ASPnet teachers, national coordinators and UNESCO staff:  
[aspnetforum@yahoo.com](mailto:aspnetforum@yahoo.com)

Photo by Eugenia Vargas Jiménez (top), Colegio Simon Bolivar, Mexico. Special mention "Learning to live together"

Photo by Lauri Dower (above), New Windsor School, New Zealand. Special mention "Learning to live together"



© UNESCO/Michel Claude



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# Moore: An Open-Air Sculpture

**“The human form is what interests me most, but I learned the principles of shape and rhythm from observing natural objects, such as stones, rocks, bones, trees and plants.”**

Fashioned from 39 tonnes of travertine marble and five metres in length, this female form – entitled *Reclining Figure* – made of cavities and twists, eroded like a wind-beaten cliff, was deliberately created by Henry Moore as an enigma. After careful consideration, the sculptor did not want the statue, which is situated at UNESCO Headquarters, to express a precise theme or literal intention. “People should ask themselves what its meaning is,” he said. They should project their interpretation on it and use it as a sounding board for their thinking. In any case, a serene protectiveness emanates from the sculpture, whose stone comes from the quarries of Carrara in Italy, which were used by Michelangelo.

Born in 1898 in Yorkshire, England, Moore was greatly

influenced by primitive art and quickly built an international reputation. His first reclining figures, in powerful shapes inspired by nature, date from the 1920s. “From the start, the reclining figure was my main theme. I created the first around 1924 and I think that after that more than half my sculptures were reclining figures. This obsession is particular to me.”

As twisted, hollowed-out, abstract and monumental as they are, Moore’s reclining figures are also deeply human, at once intense and intimate.

Moore was also a great draughtsman and produced a poignant series of remarkable drawings of people in the London Underground, sheltering from the bombs during the Blitz. “I had never seen so many sitting figures and even the tunnels reminded me of the holes in my sculptures,” Moore said.



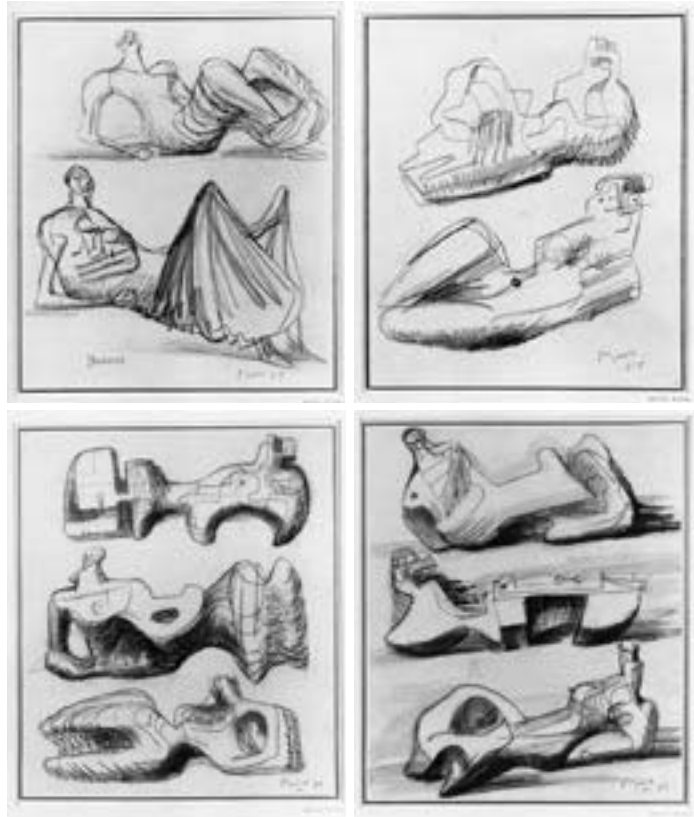
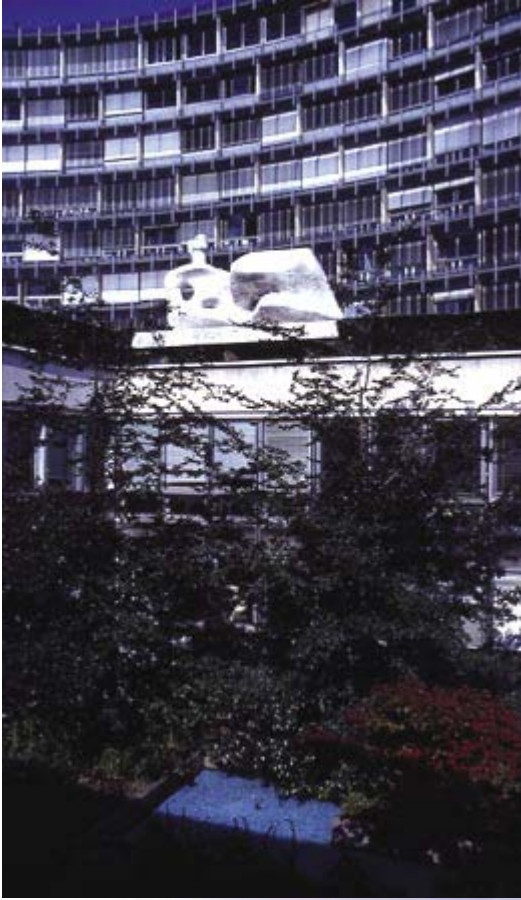
© UNESCO

**Moore was inspired by primitive models rather than the classical forms of the Renaissance**

Photographs reproduced by permission of the Henry Moore Foundation, Hertfordshire

The figure's head is alert and watchful, with the same far-sighted gaze of many of Moore's reclining women

© UNESCO/Michel Claude



*Reclining Figure* had to be made in four pieces for transportation purposes and reassembled in front of the

UNESCO building. It was the first of many international commissions and Moore's largest sculpture thus far.

Size became increasingly important to him. *Reclining figures*, 1957, preparatory drawings, pencil. London, British Museum

© Prudence Cuming Associates Ltd., London

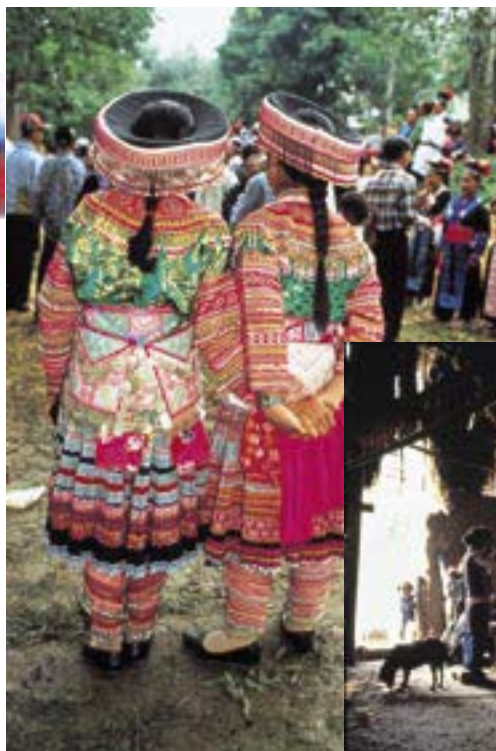


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# Memory of Peoples

*There is no ready-made formula for the preservation of minority cultures, and the case of Laos raises particularly interesting questions in this regard as the country is officially home to 47 ethnolinguistic groups, and almost half of its inhabitants belong to a minority*



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Much of the heritage of the minority cultures of Laos can be qualified as intangible (rare languages, oral literature, un-written music, myths, rituals, social behaviour patterns etc.). Some is ephemeral or vulnerable: garments and textiles, musical instruments, traditional habitat largely built of bamboo etc. This work bring to the public eye the contribution of 36 experts who took part in an international experts' meeting on the "Safeguarding and Promotion of the Intangible Cultural Heritage of the Ethnic Minority Groups of the Lao People's Democratic Republic", in Vientiane in October 1996.

While some chapters will be of particular interest to linguists, other will delight lay readers, enabling them to discover, for example, the important role of weaving. The authors examine

every aspect of the craft in detail: fibres, dyes, equipment, techniques, motifs, types of garment, and the beliefs associated with this activity. They stress the role of women who are alone to practice weaving and describe their special status as custodians of particular skills.

A similar wealth of information is to be found in the chapters devoted to music and architecture. Houses, whether on stilts or built directly on the ground, express ethnic belonging, impact life styles, reflect fundamental myths, symbolic representation of the world, and of the high points in a community's social organization. Thus, in the south of the country, the expression for getting married is "to climb into the house". The creative wealth of each minority unfolds through transversal studies.



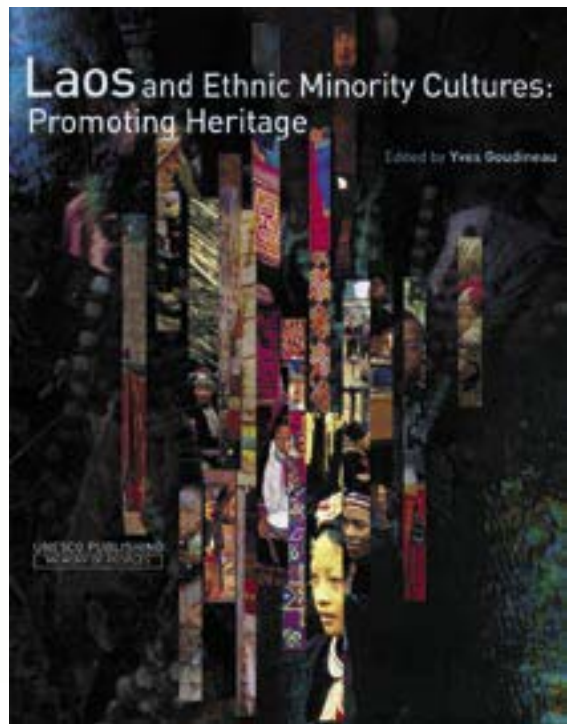
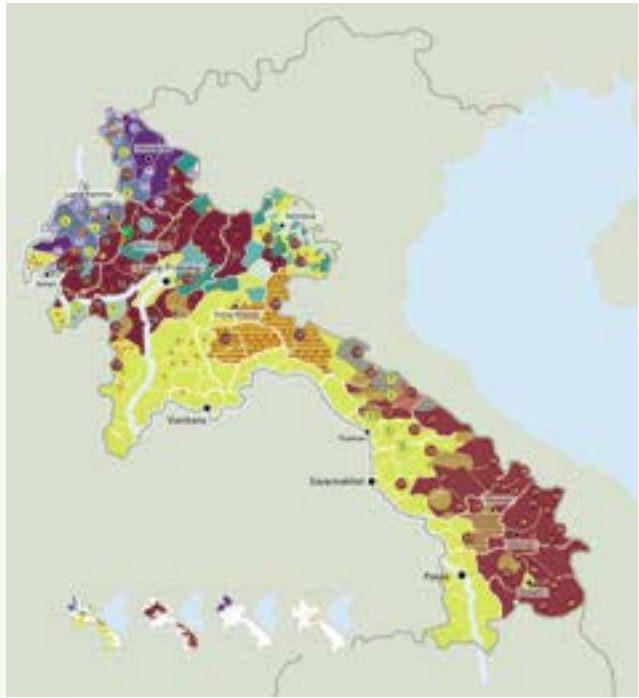
❁ Other contributions, of a more general nature, complete the picture, bringing together the main characteristics of a given group in an attempt to describe the particularities of its identity. We discover, for example, the cosmogony of the Katu, their beliefs, taboos, and their values, which are based on the quest for harmony. Another entry describes the lives of the Ko, their mores, social organization, and profound animist faith, which inspires them and makes them ascribe a soul to every rice paddy.

❁ Theoretical considerations regarding the status of minority cultures and the future of intangible heritage are also included in the work, raising questions such as, how to reconcile the preservation of traditions and cultural diversity with development and openness to the outside world. Solutions

to this problem are proposed, pointers are given on how to preserve this threatened and little known cultural wealth.

Part of the book considers the problem in the light of experiences undertaken in neighbouring Vietnam, China, Cambodia, and Thailand.

❁ Finally, the authors describe actions undertaken by the government of the Lao People's Democratic Republic, the Lao Front for National Construction and initiatives taken in cooperation with foreign institutions (the University of California in Los Angeles for music, France's National Centre for Scientific Research for the constitution of an ethnographic database, the Toyota Foundation etc.). Fine, well-chosen photographs are used throughout the book.



**Laos and Ethnic Minority Cultures:  
Promoting Heritage**

Edited by Yves Goudineau  
2003, 311 p.,  
21 x 27 cm  
48,50 €



© Lefebvre - Musée de l'Homme/Paris



© François Gréck



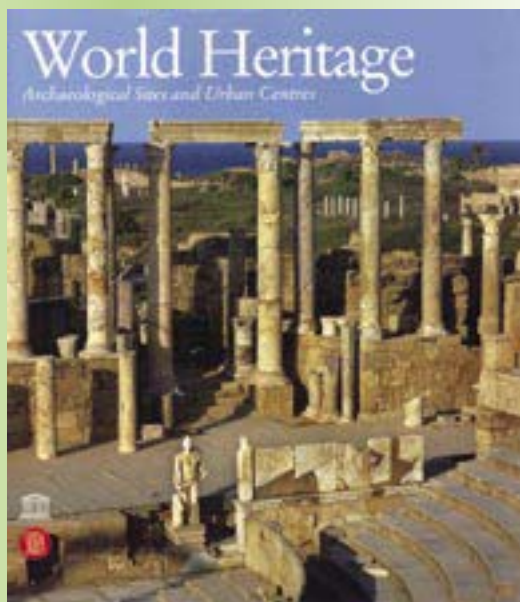
# World Heritage Archaeological Sites and Urban Centres

▶ Since the adoption of the Convention Concerning the Protection of the World Cultural and Natural Heritage in 1972, over 700 sites have been declared as the inalienable heritage of humanity. They range from natural sanctuaries and man-made landscapes to whole urban centres, archaeological areas and individual monuments.

This book, first of a series of three, is devoted specifically to archaeological areas and urban centres, and focuses on 46 emblematic instances of diverse geographic, cultural, and historic sites, providing them with a well-documented text, enriched with brief in-depth entry texts and a significant selection of pictures. With this instrument for learning and understanding, and through a particularly rich array of images, places of all sorts, distant in time and space, can be found together in a collection devoted to the heritage of every nation and every individual.

383 pp., 29 x 25 cm, colour photographs, hardcover  
50,00 €

UNESCO Publishing/Skira Editore S.p.A., 2002



## Planning Education In and After Emergencies

▶ Education is paramount in emergency, crisis or disaster circumstances.

How and why should education be adapted to this kind of situation? Should countries consider access to education a high priority issue, along with the health and well-being of populations or the reconstruction of a collapsed economy?

The author, using examples of recent events, highlights the needs of crisis-stricken communities. She emphasizes the important role that education can play in instilling social and ethical values in the minds of youth, and in teaching appropriate behaviour. Although education cannot solve current problems within a country, it can provide a basis on which to change peoples' attitudes, and thus prevent future conflicts. It also prepares young people for an eventual return to normality, and provides them with a qualification. The education system should facilitate their integration into the world of work and enable them to enjoy a better future.

By Margaret Sinclair  
Fundamentals of Educational  
Planning, 73  
143 pp., 21 x 13,5 cm  
12,20 €  
UNESCO Publishing-IIEP, 2003

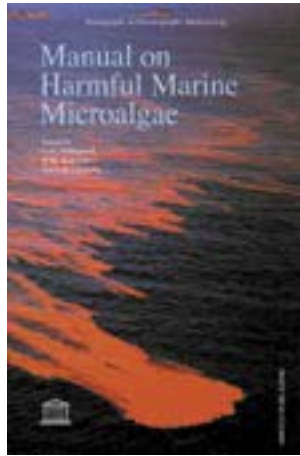




### Universities and Globalization Private Linkages, Public Trust

▶ The effects of globalization are increasingly making themselves felt throughout higher education as in all areas of human endeavour and they pose a number of challenges to universities in both rich and poor countries. The state is no longer the sole reference point for the development of universities. By opening up to a new global space, higher education witnesses the emergence of new players: regions, provinces, Länder, international organizations, NGOs, enterprises, enterprise-universities and virtual universities. As their orbits intersect and are subject to the gravitational pull of these new systems, universities are forced to change their own trajectories. This panorama, result of the contributions of seventeen higher education specialists, raises the question of both the place of universities on the international scene and their social relevance in a knowledge-based world where innovation has become the driving force.

**Edited by Gilles Breton and Michel Lambert**  
248 pp., 24 x 15,5 cm  
23,80 €  
UNESCO Publishing/Université Laval/ECONOMICA, 2003



### Manual on Harmful Marine Microalgae

▶ Proliferations of microalgae in marine, brackish or fresh waters can cause massive fish kills, contaminate seafood with toxins and alter ecosystems in ways that humans perceive as harmful. Some 300 species of microalgae are known to form mass occurrences, or so-called blooms, and nearly one-quarter of these species produce toxins. This book provides guidelines to modern methods of sampling, identification, culturing, toxin analysis, monitoring and management of harmful marine microalgae. Prepared by 46 leading scientists under the aegis of the Intergovernmental Oceanographic Commission (IOC) of UNESCO, it is a comprehensive source book of protocols for studying harmful marine microalgae and the main reference in its field. It serves as a useful tool not only for research laboratories and environmental or food safety monitoring authorities, but also for teaching and training purposes.

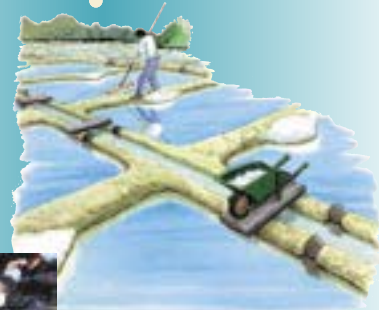
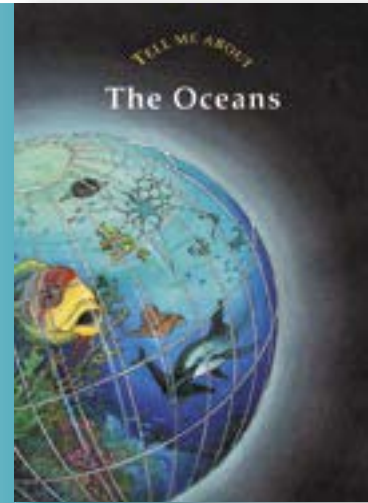
**Edited by Allan D. Cembella, Don M. Anderson and Gustaf M. Hallegraeff**  
832 pp., 24 x 15,5 cm, colour photographs, hardcover  
49,50 €  
UNESCO Publishing

## Tell Me about the Oceans

▶ Oceans are mysterious and dangerous but also nurturing. Humans tend to jeopardize this vast universe. Yet we need to take care of the oceans because they are essential to our survival and conceal significant and extensive resources.

**Water covers three-quarters of the surface of the globe. Let's not turn this life-giving resource into a dustbin. Informative and pedagogical, for the young (9-13 years old).**

**By Patricia Chairopoulos**  
48 pp., 21 x 15 cm, photos, drawings  
4,57 €  
UNESCO Publishing





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