WATER : SOMEWHERE BETWEEN TRADITION AND MODERNITY

By Larbi Bouguerra

Water is number one issue in the media. Management, price, international meetings, pollution, conflicts, floods, droughts, ... all those problems are discussed all over the papers and are at the center of the debate in any possible means of communication.
At the dawn of the new century, water is a major problem in man's experience. One can say without any exaggeration that water commands our destiny. However, man is more than ever responsible for this resource : recalling the cruel floods that stroke China during Summer 1998, Lester Brown points to global warming (see *International Tribune*, August, 17th, 1998). In this sense, we are all concerned.
Is it a signal - one more - Mother Nature is sending to us ?

On July, 30th, 1998, in spite of his unpleasant troubles with the law, Bill Clinton - with Mr. Albert Gore at his side - found time to go to North Carolina and launch the campaign 'Let's save rivers', thus raising the New River to the rank of 'National Legacy' in the State.
In the most powerful and richest country in the world, the Water question is insistently put : it concerns cities, it concerns industry, it concerns agriculture. Politicians are forced to admit it and show it comes highly urgent in their priorities.

Thalès de Milet - one of the Seven Sages of the Ancient Greece - already said in the VIth century B.C : *'Water is at the origin and base of any thing'*.

Water is an element pregnant with symbols and meaning in all religions and beliefs. It is used for baptisms among Christians and, to enter the mosque, a Muslim must wash from head to foot ; which does not excuse him from performing the ritual ablutions before each of the five daily prayers. Isn't it written in the Holy Koran that : '*We have created all human beings from water*' (personal translation). And in a sense, we are all part and parcel of 'the global cycle of water'. *" Water, you are the ones which bring the life force "* sang the Rig-vida, the most ancient of the Veda, the body of literature at the source of Hinduism. As in Judaism, the importance attached to water in Hinduism embraces practically all experience and, like the near and middle eastern waters, the Ganges is holy. *" In the beginning, the water and ocean alone existed "*, says the *Satapatha Brahma*. *" The ocean is the origin of all things ",* wrote Homer. Water is central to the meaning of virtually all religions, even if they eschew questions of cosmogony, like Buddhism, or have waged war against ancient water worship, like the Catholic Church says Christopher Sheil in a recent book " Water's Fall " published in Australia.
Water is Life, and in this respect, it is irreplaceable...unlike oil !
Water is a finite resource on our Earth. This is a physical fact. Evenly distributed on our planet, this quantity could meet the needs of a population ten times greater than today's population. But the problem is water is not evenly distributed on our planet. Far from it.

In 1997, the Water World Day's official slogan was : '**The World Water : Is there enough ?**'

The answer to this question requires some clarifications to avoid oversimplicity and simplistic vagueness :

- Enough water for what ?
- Enough water for whom ?
- Enough water for when ?
- Enough water from where ?
- Enough water at the expense of whom ?
- Enough water with which means ? With which technology ?
- Enough water with which integrated resources management ?

This approach has to its credit that it is well-worded, however, it might be superficial.

To have a more precise idea, let us quickly examine what happens to water in the world. This is a difficult exercise, I admit it ! But didn't the French poet Paul Claudel say : '*Water is the Earth's eye, its time seeing machine' ?*
If we skim over this question, some recurrent tendencies and themes appear. One can also think over the things that happen behind the stage - when water is submitted to the law of supply and demand. One can also think over its place in the ethics, in international institutions and their new, and sometimes conceited think tanks. The British newspaper *'The Guardian'* (May, 26th, 1998) reports that as soon as it was in place, the Indonesian government nullified a contract between Jakarta and two water industrialists - a British and a French - because the contract was not clear !

One could become pessimistic, faced with the crisis some people sense, and with its impact on our individual lives. Yet we should keep calm, for scarcity is a social relation to things, not a inherent feature of things. This is the kind of relations that can turn the 'world of things' into a 'hell of things' !
On the other hand, public opinion is getting more interested in the water problem. More equity and more ethic in water management and consumption are asked for. Public opinion demands new international coordination organizations. This tempers any pessimistic view.

Water in the world :

During the last five years, water consumption in the world increased fourfold. Actually, water demand increases at a rate twice as quick as that of demographic growth. In the same time, pollution reduces of one third the water supplies present on our planet. The Ogallala, (the fossilized aquifer present underneath the Southern Great Plains of the United States) for instance, was not only reduced by 50 per cent, but also, some of its areas have been irremediably polluted by agrochemical and industrial products. Just in the same way, during the Gulf War, the fossilized aquifer of center Arabia was polluted by solvents used on the occidental army's tanks and planes (see our article 'Une guerre à nulle autre pareille'*, in Le Monde Diplomatique, July 1992) . The case of the Aral Sea is famous : it was turned into a real toxic brew because of intensive cotton cultures (in order to meet the sacrosanct Plan) and reduced by irrigation to one third of its surface. The case of the Owen Lake is less known : yet, 85 years of rerouting for Los Angeles sake turned its 300 square kilometers into a desolate, dusty basin. For 18 years now, the town council has been shirking his responsibility, shunning to foot the bill of expensive measures and remedying the problem in favor of the riverside residents and environment, points the *Los Angeles Times* on April, 30th 1998.

First of all, there is a physical primacy : Fresh water, as I have already stressed it, is a finite resource. 98 % of the world water are salty and less than 1 % can be consumed by man. Rivers water needs 16 days to be entirely renewed, that of swamps needs five years, that of lakes needs 17 years, and that of aquifers needs 1, 400 years. Those figures must be pondered over in order to understand the seriousness of our actions and bear in mind the time scale. Without water, poverty increases. But water is not always a blessing : in April 1998, whereas Brazil was stricken by a dreadful drought which made millions of small farmers starve, in Chaco, Argentina 17 people were killed in the disastrous floods which forced the evacuation of 500,000 persons. Remember the floods that took place in the States bordering of the Mississippi and the great damage they caused, making, moreover, a chemical pollution from the industrial complexes and intensive agriculture spread all over huge areas. Following those floods, the authorities now think they would better ask the population not to have their houses built in certain areas, rather than shut in the river by dykes and all sorts of works ! The same drama was also seen in the south of France with a desperate regularity every ten years or so
Last but not least, let us notice that, in some countries, women (and often children too) spend 85 % of their daily calories getting supplies of water for their families.
Many people think the crisis is about to break out. In May 1996, a report issued by the Canadian International Development Research Center (IDRC) and dealing with

water management in North Africa and the Middle-East predicted : 'In 2025, the available amount of water per person in North Africa should decrease of 85 % during a lifetime and pass from 3,430 to 667 cubic meter per person.

* Translator's note : 'A peerless War'

Within 10 years, water supplies in Kenya and Nigeria will decrease of 50 and 40 % respectively. In fact, in 1997, 26 countries in the world already were in a state of 'hydric stress', that is, they had less than 1000 cubic meter of water available per year. While the 'global village' is expanding, the farming soils are turned into deserts as a result of salinization and hydromorphism, consequences of a questionable, mislead irrigation. 135 million people are estimated by the UN to be seriously affected by desertification and 850 million are estimated to be somehow or other concerned by the problem. Therefore, one can easily imagine the human sufferings and the tragedies endured by the people of the world. For instance, in April 1998, in Nigeria, 3 million people were starving, stricken both by drought and desertification. The cost of the latter - which essentially strikes Asia and Africa and Spain in Europe- amounts to 42 million dollars. Some blame the Global Environment Facility (GEF) related to the World Bank, for not attaching importance to the problem because, they claim, it has no impact on their western countries.

Yet, contrarily to what some people think, technique could not answer the problems on a long-term basis. The Australian NGO 'World Vision' established the truth of this fact many a time in Africa and Asia... unless the populations of those areas were consulted and implicated. At this stage, we need coordination to avoid the situation prevailing in Kenya, where donors installed 16 different pump models. Imagine the trouble when it comes to fixing them !

During the Alliance's World Water Program meeting that took place in Casablanca in March 1996, Professor Mohamed Naceri emphasized the need of making the most of local management and distribution knowledge. The same observation was made within the Center for Science and Environment (CSE) in New Delhi, which has just issued a wonderful collection of this knowledge in the Indian Subcontinent : *" Dying wisdom : Rise, fall and potential of India's traditional water harvesting systems* ". Anil Agarwal, director of the CSE and co-author of this collection with Sunita Narai, says : ' *In India, the nationalization of water management only made the situation worse. Let the local populations, for whom water is synonymous of all goodness and all wealth, take care of this'.*

According to many researchers, the widespread idea of Dubos, *'Think global, act local'*, is not very relevant as far as water is concerned, and inasmuch as it does not consider the regional dimension of the problem, intermediate stage where the management of the watershed and the sharing out of the resource take place. Malin Falkenmark and Jan Lundqvist express their wish for a global water policy, based on ethics, and that would be used as a guide for the sharing out of the resource.

Water and Health :

' Protecting water is protecting life', declared the annual general meeting of the WHO in 1993. Yet...
Here is a disastrous figure, which has been quoted so many times, that it has become trivial : 27,000 people die in the world everyday through lack of drinkable water and of sanitation. In Latin America only 2 % of the wastewater are treated. No wonder, then, that health and water

are serious problems and have a negative impact on the poor and on consumers in general, but also on activities such as fishing and tourism. In the waters of Penang, a heavenly island of Malaysia, swimming is forbidden and even lethal. Hostels own swimming pools that deprive the population from a precious water.

Add to this hydric illnesses, and you will get a figure of 25 million deaths per year, that is to say one third of all deaths occurring in the Third World. Through diarrhea, polluted or unsound water on its own kills 4 million children (of which 1.5 million in India alone). Moreover, other illnesses such as malaria , ascarid, and trichocephalous (ailments due to a worm in the small intestine), ankylostomiasis (due to hookworms in the duodenum), vesical schistosomiasis (ailment of the whole urinary apparatus prevailing mainly in the Nile valley), dengue fever (which is causing terrible loss in Indonesia at the moment and which is transmitted by a mosquito that develops in dirty water), and trachoma (which maims the eyes) affect billions of human beings. Notice that, if a healthy individual needs 2 liters of water per day to remain alive, he or she would need more water if he or she were suffering from malnutrition or living in a tropical climate. A european household consumes 150 liters of water per day (of which 3 liters are used for drinking and cooking), while an Indian household must make do with 25 liters per day. China, with its 22 % of the global population has only 8 % of the planet water. As for India, whose population comes second after China, it only has 4 % of the world water. According to Ted Vandeloo (see Proceedings of the World Water Program Seminar of Malaysia, January 1997), the Australian Research Center APEC claimed in 1996 : *'Water pollution is the most widespread environmental problem in Asia'*. Polluted rivers not only spread hydric illnesses, but they also increase the costs of drinkable water treatment.

In the future, the question of the quality of water will be an acute issue in the main urban centers of the world. The resurgence of cholera in Latin America - after its disappearance during one century - is an indication of the quality of water, of the demographic pressure and of the authorities incompetence to face the needs of the population. Notice by the way that both Algiers and Oran (Algeria) have been suffering from a serious lack of water for 25 years. Let us also quote the case of Moscow, where, in spite of a quite sophisticated technological environment, cases of viral hepatitis type A, dysentery, and even malaria have been recorded.

Water and Industry :

In nowadays world, the real problem is that of the competition for water between different activity sectors. In Chili, the Altacama desert is the most dry region in the world, but the nearby water is rerouted to the advantage of the mining industry. Agriculture consumes 60 % of the water used by man. As for the Green Revolution, according to historians, it was a real '*water orgy'*. Three or four times as much water per hectare was needed to have a yield 3 or 4 times greater. The Green Revolution made two serious errors :

1) It assumed the amount of underground water was infinite and it was supplied by inexhaustible resources
2) It underestimated the costs of drainings

Water is particularly important to energy production : nuclear power plants, fossil energy plants, hydroelectric systems. The problem is the fact that industry, households, cities, tourism, entertainment uses...ask for more and more. Industry is at the root of pollution, even though a few, more water-efficient processes come into being. Let us first have a look at the industrial use of water. Industry demands water vapor, which is also used for cleaning, air-conditioning, cooling, and transport. Petroleum refining, agri-food, metallurgy, chemical production, cellulose pulp industries...all of them consume huge amounts of water. Here are some figures :

- 13, 000 liters of water are required to make a silicon sheet (wafer) of six inches, which is used in any electronic device
- 150, 000 liters of water are needed to make one ton of steel
- 400, 000 liters of water are indispensable to make one car
- 750, 000 liters of water are consumed to produce one ton of newsprint paper
- 8 tons of water are required to produce one ton of final product during the treatment of sands and bituminous schist such as those of Morocco and Canada

It is obvious that most of the water used is definitively polluted by heavy metals, solvents, polychlorinated biphenyls (PCB), fats... far beyond any possible recovery. (Remember the disaster which stroke Andalusia in Spain in May 1998, when 5 million cubic meters of sewage with a high heavy metals content from mine tailings spread into the environment, where they even reached the bird refuge of Doñona, situated at the mouth of the Guadalquivir). Thus, when evoking pollution, let us bear in mind this stinking industrial contribution. The situation is all the more worrying that globalization - attracted by low salaries and environmental laxness - urges relocation towards poor countries, where water resources are already scraggy and highly polluted by organic materials on the one hand, and where, on the other hand, recycling and processing are not taken seriously.

In this way, Yves Lacoste's prediction is borne out. This French geographer noticed that, in the Southern countries, there is a *problems clash* : on top of the usual underdevelopment evils, there are those of electronic industry and fine chemistry pollution (in Morocco, Malaysia and Thailand, for instance).

The industrial pollution sets the problem of our way of life. TV sets, cars, computers, mobile phones, walkmen... have an environmental cost which means heavy metals, solvents...end up in the water. It is the same for intensive agriculture and off-soil animal breeding, which pour nitrates, pesticides, fertilizers, antibiotics residues, and organic materials into streams.

The demand for water per person will keep increasing with growing development, industrialization, and greater wealth. For prosperity generates a demand for animal proteins such as beef and chicken meats. Which production requires in turn greater amounts of seeds and cereals (corn, barley, soya...) to give the same amount of calories for human consumption. The increased population will thus require more irrigation and more dams, hence an increased pollution manure, pesticides, fertilizers, antibiotics to protect the chickens and the cattle, soils salinization...It is obvious such a way of life is unbearable.

In order to decrease the demand, some people advocate population control. It is obvious this is a sensitive matter. Moreover, one must consider the time scale, for this control cannot, of course, have an immediate impact. One must also consider the quality of the demand (luxury commodities, swimming pools, golf courses, industrial productions...). All this is as important as the gross amount of the population.

To curb consumption, the World Bank, for its part, urges to raise prices. This measure would only have an impact on the poor. A matter of prices would not dissuade the rich from consuming. This does not prevent the World Bank - who reluctantly recognizes the failure of market as far as water is concerned - from speaking highly of '*the ultimate effectiveness of market*' and claiming that '*the development of markets as well as that of prices based on market enable the peaceful transfer of goods between nations'*. Market - as far as water is concerned - is no remedy, as the water shortages, the accidents, the increases of prices and some scandals occurring in Great Britain after the complete privatization of the sector under the rule of Margaret Thatcher prove it. In the United States, private distributors were said to exert pressure on Congress to get it to make the standards on drinkable water laxer. The result was that, in 1993 and 1994, 53 million Americans drank water contaminated by lead, pesticides, volatile organic compounds ; 11 million drank water contaminated by fecal coliforms, and 43 million people were exposed to cryptosporidium, a micro-organism that claimed about a hundred casualties in Milwaukee in 1993.

Notice that, to the G7-Group countries, water represents the fifth industrial branch.

Water and conflicts :

Wally N'dow, director of the UN's Center for Human Establishments, said in Istanbul in March 1996 : '*I believe that, if by 2010, great improvements are not undertaken to provide and save water, we'll have to face a monumental crisis...Whereas the grounds for last century's wars were oil, I am firmly convinced that many political and social conflicts of the 21st century will focus on water'.*
In 1992, stricken by a dreadful drought, Mexico asked its powerful Northern neighbor for a loan in Dollars and a greater access to the Rio Grande border river's water. Congress voted for the loan without turning a hair but refused to give up the precious liquid !
Conflicts concerning water are evoked between states (Turkey-Syria, Jordan-Israel, Senegal-Mauritania...) as well as between federate states such as in India or the United States. While the Indian National Policy of Water decreed in the 80s sets that

the poor have priority in the development of watersheds, the states of the Union that are well-off jealously keep the resource and forbid access to those who are needy.

Within the Malaysian Federation, the state of Johor Baru would rather sell its plentiful water for a tremendous price to the wealthy Singapore, than give it up to its Malaysian fellow citizens and neighbors.
However, let us be beware of linear reasoning and generalizations : it is difficult to prove that water is at the root of a conflict for, more often than not, different reasons are mingled. Sometimes, as in the Middle-East, the first problem is a question of sovereignty, and those states are very touchy on this point. Jordan, it is true, is essentially dependant upon the Jordan river as far as its water is concerned. But the latter is under Israeli control. According to the Madrid Agreement, Israel insures Jordan '*the minimum vital needs for domestic use of survival'.* Water often catalyses economic, ethnic, religious, and historical rivalries... It is true that the potential for water conflicts is significant : there are no less than 240 watersheds shared among different states and which ignore political and artificial borders. Thus, the watersheds of the Congo and Nile are shared among 9 countries each, that of the Zambezi is shared between 8 countries, that of the Amazone is shared between 7 countries, that of the Mekong is shared between 6 countries, and that of the Tigris-Euphrates concerns 4 countries...Egypt, which is the last state on the course of the Nile, is a special case since the country does not contribute towards the river's water (contrarily to the other countries bordering on the river) and yet depends at 97 % on the river's water. In 1898 already, Great Britain threatened France with war because the latter was attempting to control the springs of the Nile. Botswana has recently bought new tanks, for peace between Angola and Namibia will cause an increased pressure on the Okavango.

In the recent past, within the context of the dismembering of the Ottoman Empire, the settlement of water conflicts essentially focused on waterways. This settlement passed from the privilege of the upstream states (1909 Harmon Doctrine between Canada and the U.S) to the theory of a fair division. However, it suffered from a definite lack of decisions application mechanism. The Red Cross claims that, despite the international conventions, some conflicts such as that of the Balkans, take as their target the water conveyances, thus quickly causing the collapse of the enemy. The Red Cross adds that '*Water and sanitation are the pillars of emergency assistance'.*

Dams :

The question of dams arouses passions and gives rise to many controversies. Some dams are of course erected in praise of the leaders : such a phenomena occurred in Tunisia, with President Bourguiba dams and their series of unveiling ceremonies at the sycophant-minister's behest. In other countries, the names of the dams speak by themselves : the Assad dam in Syria, the Talal dam in Jordan, the Attaturk dam on the Euphrates. The semimonthly review of Delhi entitled '*India Today'* and quoted by *'Courrier International'(*number 400, July, 2-8) says with indignation : '*Promise a dam and win an election'*, thus pointing to the 300 irrigation projects undertaken at a the initiative of a minister or representative who had promised water or just wanted his name on a cornerstone. The unfinished works should have irrigated 10 million hectares. But 65, 000 villages live without water supply and in a near future, cities

won't be able to provide more than two water buckets per day and per person. '*Those projects are deliberately disproportionate, for this increases the backhanders'*, concludes the paper. Critics, as you have noticed, are not always dispassionate. For instance, criticizing the Assouan dam in Egypt is a political behavior (sign of anti-nasserism). However, the dam, even if it is not perfect, helped preventing many crises and provided the country with water during unforgettable droughts. Not to mention the tons of fish it provides, thus helping to balance the Egyptian proteins diet. Let also alone electricity supply, which has reached the most remotes spots of the country. Nevertheless, some works - sometimes gigantic - did not keep their economic promises and caused serious ecological and social disruptions, uprooted people not being rehoused.

Asia has the doubtful privilege to be the homeland of very important dam projects (about fifty) on the Mekong, the Bakun (Malaysia), and the Three Gorges (China). The World Bank withdrew from the project of Narmada in India and conspicuously keeps its distance from the Three Gorges project. The Farraqa dam is a bone of contention between Bangladesh and India, who claims it maintains the activity of Calcutta's harbor. Actually, sedimentation is obstructing and stifling the latter to the point that a new harbor had to be built in Haldia, in the Gulf of Bengal. So why are the waters of the Ganges still rerouted ? Meanwhile, the development of Bangladesh is being ruined by the drought-flood cycle, and some channels are so dry that salt water sweeps into wells.

Water and the ethic of development :

In order to manage the water distribution at a local, national, and even at an international level, and to avoid water conflicts as well, a water ethic, far from any rhetoric and hollow words, must be encouraged.
It's always the same old chorus : 'Everything must be subjected to the primacy of the market'. Mr. Alain Minc even thrusts forward : *'Capitalism cannot collapse : it is the natural state of society. Democracy is not the natural state of society. Market is'.* (In *Le Monde Diplomatique*, June 1998, p 31). If President Jacques Chirac asserted at

the Paris Conference on ‘Water and lasting Development’ (March 1998) that : ‘*Water has a price’* and that one must stop ‘*the fruitless oppositions between market and State, between what is free and what is not, between sovereignty on the resources and an indispensable solidarity’*, Prime Minister Lionel Jospin, adressing those who had taken part to the conference, delivered another message : ‘*You have given up an old, widespread belief. The belief that water, as a godsend, could only be free. This new economic approach must not be mixed up with a commercial vision. Actually, water is not a product like another. It cannot be viewed from a pure market logic, only regulated by the laws of supply and demand’*.
One could not snap one’s finger at the social dimension, especially within the framework of the North-South relations. Subjecting water to the law of the market is neither realistic nor conceivable, at least if the approach does not go with compensations, especially some aids for the most needy. Of course, the market has a part to play to thwart bad habits and extravagant uses, as in Las Vegas, in de luxe

hotels, or in the golf courses of some tourist countries where water is actually lacking and where people suffer from this lack...But will those who can pay be dissuaded ?

The question of water is also crucial for the practice of ‘*active subsidiarity’*, for taking decisions at the grass roots level. Water is a vital human need. Besides, water is vital to the whole biosphere. For this reason, it could be raised to the rank of Right (see the South African Constitution project) or of Patrimony of Humanity, as the Lisbon Group is applying itself to doing it.
We need a ‘water ethics that would make things change, far from any useless concepts such as the ‘sharing out’ of resources.
We must transcend those enervating concepts in order to let the poor, the world drop outs, and those who are thirsty express themselves and be empowered. This is how we could enable the emergence of an ethic integrating global solidarity.

Water is the ideal issue to have an ‘reversed globalization’ campaign united downwards, which would oppose the one decided in secret within administrative machineries and boards. Besides, that globalization does not even take into account national governments.

Grounds for Hope ?

The answer is 'Yes'. And here are five reasons :

1) A slow emergence of the ethic of solidarity is taking the place of outdated concepts such as the law of the strongest...
2) Lasting practices are getting more famous and short-range decisions are less and less taken
3) The World Water Day dates back to March, 20th 1992, and with it comes the realization that water is not a godsend
4) Although the process is slow and sometimes difficult, the many international conferences start to bear fruit indeed
5) The Global Water Partnership (GWP) and the Manifesto for Water for all (Lisboa Group), for instance, could give a more united, homogeneous direction in a field which is fragmented between the WHO, the WMO, the FAO, the UNESCO and so many others...

Conclusion :

Concluding on such a subject might appear pretentious ! But didn't a specialized American review declare that researchers of the Georgia Institute of Technology have just discovered new water virtues in the process of some chemical reactions ?
Don't you sometimes think the science of man is laughable, compared with the everlasting mystery of water ?!

Considering man's experience, 36 billion dollars are estimated to be needed to provide drinkable water and sanitation to whole Mankind, which represents 4 % of the military armament expenditure in the world.

Supplying humanity with water depends on the priorities of men, for what we do with our water finally reflects our deepest values : the water cycle unites us within the global village, to - and including - the whole Biosphere and the Living. Anil Agarwal said : '*Water is the ultimate guardian of man's sins. Any waste we produce will end up in water. The more a society sins towards water and neglects it, the more its rivers and lakes are debased*'.

To provide for our needs for water, we can increase the amounts of water available and learn to use them more wisely. We must encourage a new society, a society that would be 'sparing of its water', as Nelso Doffo, an Argentinian friend of mine, said it at the Penang meeting of the Mobilizing Water Program in January 1997.
To reach this goal, we could suggest to :

- Improve our ways of life and avoid wasting water and polluting it, that is to say, to implement the principles of lasting development, for water is a finite resource. Moreover, it is vulnerable. Men must recognize its **multifunction nature**
- Lay down mechanisms for the peaceful resolutions of the conflicts focusing on the water shared between different communities and countries
- Strive for the advent of an ethic of water management and distribution that would enable all men to live and cooperate.