Water and Ethics

FINANCIAL PERSPECTIVES

Pierre F. Tenière-Buchot

UNESCO International
Hydrological Programme

World Commission on the Ethics of
Scientific Knowledge and Technology

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Preface

This essay is one of a series on Water and Ethics published under the International Hydrological Programme of UNESCO. A Working Group on the Use of Fresh Water Resources was established under that programme in 1998. Preliminary drafts on fourteen aspects of this topic were prepared under the guidance of this Working Group.

An extended executive summary was prepared by J. Delli Priscoli and M.R. Llamas and was presented to the first session of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) held in Oslo in April 1999. At the latter meeting, COMEST established a sub-commission on the Ethics of Fresh Water under the Chairmanship of Lord Selborne. The first meeting of this sub-commission was held at Aswan in October 1999. A 50-page survey by Lord Selborne on the Ethics of Fresh Water, based on the above meetings and documents, was published by UNESCO in November 2000.

Since then, the original draft working papers have been revised under the editorship of James Dooge and published on CD ROM as an input to the Third World Water Forum held in Kyoto in March 1993. These are now being published in printed form as the first fourteen titles in a series of Water and Ethics

These essays are written from the point of view of experts on different aspects of the occurrence and use of fresh water who are interested in the ethical aspects of this important subject. They do not purport to be authorative discussions of the basic ethical principles involved. Rather, they aim at providing a context for a wide-ranging dialogue on these issues between experts in diverse disciplines from the natural sciences and the social sciences.

James Dooge
John Selborne

This particular essay deals with the ethics of the financing of water resources development and management against the background of sustainable development. It decreases practical ways of introducing ethics into water financing in order to promote poverty alleviation in a context of globalisation.

Pierre Teniére-Bouchet is a member of the World Water Council.

Contents

1. Introduction

1.1 A new oximoron?

Ethics and finance are most of the time considered as opposite words. Together they shape a rhetoric figure called oximoron, like a 'cold sun' or a 'bright darkness'. Finance has a bad name in particular in water resources and environment management because of corruption, a too often companion of finance. But above all, finance seems to be limited to wealthy people (one lends only in favor of the trustable rich). Finance is inaccessible to the poor. Ethics can be appreciated as a very respectful set of moral values and wise behaviour rules but also disregarded as hypocritical speech (a politically correct blabla) to lower the awareness of those who are not fully concerned with it. Ironically, one often observes that the ethical statements commit people who listen to them and never those who are saying them. To be really applicable, an ethical attitude must be trusted. In a similar way, finance needs confidence which consists of trusting other people with the purpose of developing their entrepreneurial capacity, their ability to undertake. Finally, ethics and finance are sensitive matters which react alike when people do not trust each other easily. In such a case they simply vanish and stay hidden as long as circumstances have not changed. What are the various prerequisites to be respected in view of settling a favorable basis for ethics and finance to a better and efficient water management, is the main objective of the present essay.

1.2 Plan of the essay

1. The following sections 2 to 8 of this essay deal with the following aspects of the main topic.
2. The main objective of this essay is to study the compatibility between the water financing activity and some use of ethics. Such a wish takes place in a general context of sustainable development. It is therefore not limited by the single concern of environment and water resources protection. It is widened to the economic constraints as well as for governmental policies as for the economic needs of private interests and of civil society.
3. Sustainability for water financing implies that appropriate 'trade offs' are agreed among various water stakeholders. These compromises depend closely on every political, social and economical regional or local situation. Philosophically it is completely opposed to an optimal view of what an ideal water

financing should be. It is a flexible, practicable approach of a still unachieved necessity.

4. Most of the actual debates are characterized by classical statements and questions, such as 'water is not priced for agricultural use' or 'water standards are universal prescriptions'. Strong controversial arguments are suggested to reply and after possible future debates to distinguish between ethical and none-ethical opinions.
5. A good practitioner cures illnesses and does not limit her/his art to some patients. In a similar way, corruption is evoked as a privileged field of action for ethical water financing of work.
6. To follow-up a similar tendency, poverty alleviation thanks to an adapted water policy with appropriate financial measures is at stake. Some practical suggestions are given to transfer money from rich to poor water users within a possible social and political consent.
7. A good and fair communication is supposed to support the former directions and not to hide their absence thanks to some empty jabber.
8. Final conclusions and recommendations close the essay with the attached bibliography.

2. A 'sustainable development' background for water financing

2.1 Reminder

Water prospects are often risky and not profitable in the short term. Risky means a mix of technological worries, the unaffordable consumers who cannot pay a sufficient price for water – or their reluctance to pay any price – the difficulty to find and trust partners for the investment and the operation phases, and most of the time in numerous countries the risk of monetary changes and the uncertainty of possible political changes. Short term never qualifies a water project. From the first studies up to the first water bills, several years, sometimes a decade, pass with no revenues.

A normal healthy-minded financier avoids water projects. He prefers to invest in less risky projects with lower social interest but higher profitability like small-sized and fast return on investment programs. A common example is the soft drink business. A lot of developing countries, villages and suburbs have no water supply system and an absence of sanitation devices too, but there is no difficulty to purchase a large

variety of bottled soft drinks. Every litre of them is several hundred times more expensive than a supplied litre of clear water from the tap. However, money is always available for soft drinks.... Of course, water might be considered as a pure public business, which must levy only public funds from municipal or national budgets. Experience from the forty last years at least, has shown these budgets are not available for water. Future forecasts strengthen this steady ascertainment.

So public-private partnership (PPP) has strongly been recommended with the purpose to deliver the necessary private funds to finance public water projects, with some public guarantees and control to be clarified. Private financiers are prudent and do not express an excessive enthusiasm for a PPP they have not invented themselves. Public bodies are reluctant to surrender or transfer responsibilities of their own to private external organizations which will reduce their sovereignty. Citizens have meanwhile no water, no sanitation, no healthy standard of life and finally are the victims of this double hesitation. The main purpose of this essay on ethics and water financing is to provoke some positive improvement to the present early twenty-first century situation. First ethical recommendation for a better water financing: deliver more financial means for water. New ideas are welcome, granted new ideas are preferred.

2.2 The sustainable development triangle as a basis for water financing and ethics

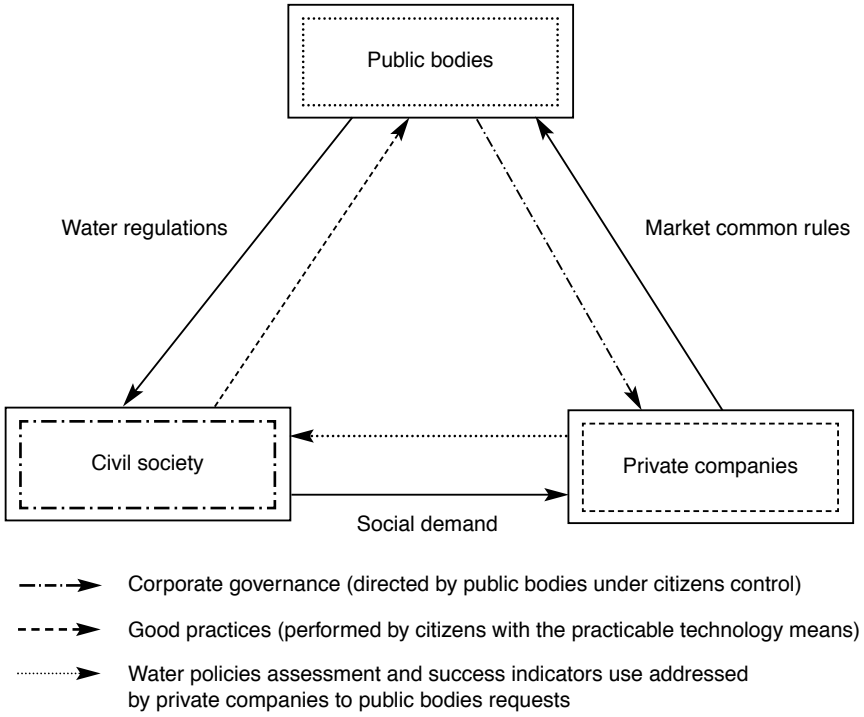
Since the seventies (Stockholm Conference, 1972), the thinking about real implementation of the sustainable development for the water resources and the environment has progressed. Rio de Janeiro, 1992 (*Agenda 21,* chapter 18) and the preparation of the World Summit for Sustainable Development (Johannesburg, 2002) have issued two main statements:

- sustainable development organizes the solidarity between generations. Present mankind does not only works for its current needs but facilitates the future needs of its successors.
- sustainable development strives to improve generosity and better relationships between the present groups of actors which share the political, social and economic responsibilities of the water and environment policy. Three main groups are distinguished: (1) the public bodies (including the central state, the provincal governments, the municipalities, the public specialized agencies); (2) the private companies (private producers, suppliers, mixed companies under the influence of private stakeholders, and more widely any profit-oriented activity; and (3) last but not least the civil society (including citizens at large, consumers, NGO's). A lot of water supply company and services through the world are public-owned from a

strict legal point of view. Their turnover depends closely on municipal or governmental budgets. This kind of industrial operators are included in the 'private' group because they are globally dependant of their incomes and similarly managed as private firms. When it is not the case (which is frequently observed in many countries), they are rapidly unable to play any role to supply water, clean-up used waters and protect the environment. They have ceased to be productive.

Roughly these three groups of actors are requested to develop together six types of relationships, as shown in Figure 1.

Figure 1. Water sustainable development



2.3 The external loop

An external loop of links is composed by:

- the influence from the public bodies to the civil society, through water laws and regulations for withdrawals, water uses, polluted discharges, etc.... Civil society is supposed to respect regulations which are enforced by the public bodies.

- the influence from the civil society to the private companies which is called the social demand for water. This demand should be very basic (to get water, whatever its quality would be) or very sophisticated (to reach the highest quality standards at minimum costs).
- the influence from the water companies to the public bodies with the purpose of implementing the profit-making market rules, including lobbying initiatives for additional water contracts and enhancement of public supports under the form of subsidies, guarantees and soft loans.

2.4 The internal loop

An internal loop must balance the former one. It is composed of:

- the influence from the public bodies to the private companies. Public bodies want to limit possible excess of the water operators. They must take care of the social consequences of a too high water pricing . They pay attention to the call for bids when water investments are required and to the technical objectives during the operation period. A suggested measure with a view to avoiding any illegal arrangement between public bodies and private companies (or public companies which have a too selfish behaviour) is to introduce a citizen partnership as a set of observers. This corporate governance, under the legal control of the State, provides a good opportunity to inform the consumers and the NGO's with a possible involvement to the decision-making process (programs elaboration, pricing, management).
- a second inter-relationship from the private companies to the civil society is supposed to balance the social demand for water. This demand is frequently not adapted to the financial and operational capabilities of the water operators. It is too low in less developed countries (people are not aware that there is no possible development without clean water and sanitation). It is too ambitious for very rich countries (some NGO's demand the highest possible water security with an almost zero defect production but are very reluctant to pay the consequent price of it). Therefore, a checks and balances procedure is needed. A set of water programs assessment, efficiency indicators, successful experiences learnt from the past should be set up. It is recommended that public bodies (most of the time, the central government) initiate and control such evaluation measures so that an enhancement of the water service will result.
- Agenda 21 recommends the development of good practices in order to protect the natural water resources and the environment from pollution by waste water. A strong observance of existing regulations is of course a necessary means but it could be successfully improved by voluntary actions from the citizens, users and

the consumers. The third inside link from the civil society to the public bodies is provided by the good practices that the water users are supposed to follow in view of respecting regulations and to aim quality and environmental objectives.

Most of the time, laws and regulations are too numerous and too complex. They require excessive efforts on the part of the public that does not positively respond to them. As few of them are enforced, they are quickly disregarded and replaced by new more severe regulations. To avoid such a hopeless process, which progressively turns a real administrative inability into a virtual repetitive production of legal papers, it is recommended to take into consideration the present available technology which is used as a tool by the private and public water providers. Then, water regulations will be balanced by the good practices which could be developed, according to the level of the practicable technologies of the local companies. Again, the three groups of actors of the sustainable development triangle are brought together: public bodies, which state the law, citizens, who change their behaviour, private water companies which offer the adapted technology.

2.5 Three recommendations arising from the triangle

Three types of recommendations can be derived from the former statements:

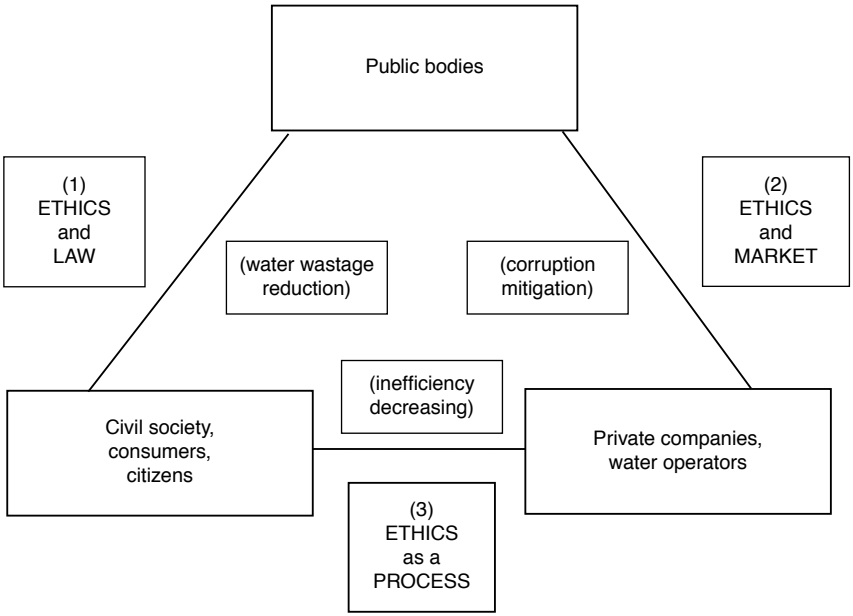
- economic market rules must be balanced by an institution, under the control of public bodies, which is supposed to develop a corporate governance with participation of the water users at large, and the water supply companies and services.

  This good governance mitigates the social consequences of the market common rules in implementing ethical principles. It is the very way to use them and turn them into practice. Ethics for water need a specific institutional framework to be effective. Representatives of the public bodies, the water operators and private interests and the civil society are belong to a kind of inter-institutional system.
- the social demand for water which is presented by the civil society needs to be encouraged or balanced by the technical operators. Permanent evaluation of the water policies, programs and achievements must be developed under the State control, with participation of the private sector and the users and consumers. Ethical indicators must be included in the assessment process.
- quality development procedures must be elaborated in order to adapt the regulations to the local habits of water users and reciprocally. The gap between practices and regulations has to be reduced, under the water companies' control according to their technological abilities. Ethical concerns from the State (through the elaboration of new regulations) must be complemented by ethical practices from the water users.

3. Ethics and the general equilibrium for a sustainable water development

When the various former objectives are reached, three main results are obtained for ethics (see Figure 2)

Figure 2. Ethics and water, a dynamic perspective



3.1 Ethics and the water laws

Good practices promote a balance between extreme and insufficient regulations and force them to adapt to the socio-economic situation, in particular to a poverty background. This issue is close to the capacity-building objectives with a main difference: it is not limited to training activities (practices are supposed to be put into real practice). It moreover commits strongly the private sector as a moderator between public bodies and the civil society, with the purpose that future real achievements (new investments, changes in the operation procedures) will follow. Such a

task is not easy and will be described below (see statement 11, section 4.4). A good indicator to measure the degree of implementation of water regulations is the successful reduction of water leaks and wastage, an improvement to control irrigation areas (another source of water wastage) and a reduction of the discharges of polluted water.

3.2 Ethics and the water market

This side of the sustainable development triangle is the most controversial because it addresses possible market imperialism and the sensitive overall problem of bribery. Experience has shown that corruptive arrangements and domination processes are easier when only two partners meet together (civil servants and other representatives of public bodies on one hand, private business responsible on the other hand). A 'fair' corruption contract (corruption has developed its own rules too...) happens when the two partners share equally an artificial increase of the costs: the public representative gets 50% of an unusual and illegal over-cost, the businessman will profit of the same abnormal profit. Each of them will protect the other one by a common silent attitude (conspiracy of silence). When adding a third partner with equal rights to enquire, evaluate and decide, arrangements are more difficult, most of the time impossible. The 'third partners' team is composed by representatives of the water users, consumers, environment protection associates, and other NGO's. They are mainly citizens *with no specific knowledge of the water sector.* They just seek to understand what is happening. Their sometimes candid questions protect the two other partners from the temptation of illegal arrangements which would be paid by the consumers and citizens.

Of course, this governance control is not 100% proof but it makes easier eventual prosecutions against misrepresentations and lies (witnesses are present and act permanently). It is however difficult to develop a civil society representation when public awareness for water is low and when public organizations are reluctant to widen official institutions to non-professionals. Moreover, this activity is time consuming and generally is not reimbursed. We shall further examine such practical difficulties (see below, section 5).

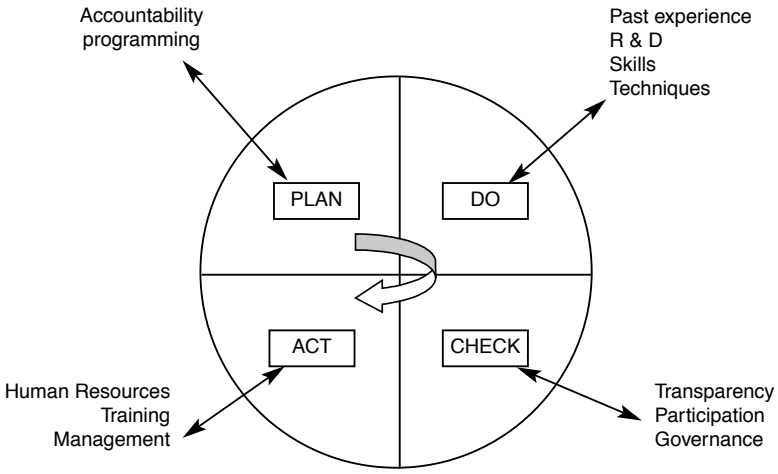
3.3 Ethics as a process

The obligation to balance the social demand by evaluation studies and efficiency indicators is rarely respected. When laws and regulations are written and edited, everything is supposed to follow. When transparent contracts are acting properly and the corruption is strangled, good water management is celebrated. In fact, it is

possible it should be rather inappropriate to the real acceptance and wishes of the population. At least the quality of the chosen water policies must be checked and permanently improved.

The Deming (or Shawhart) cycle procedure, well known and recommended within the norms certification ISO 9000 and ISO 14000 for the industry, gives the opportunity to make dynamic an ethic approach of water financing (Deming, 1982). It is described in Figure 3. A first step is to plan the future financial activities. It is related to the existence of a comprehensive accountability and an actualized programming process. A second step, the most important in a developing country or an administrative body is to carry out something real (second phase: do) for financial matters, it means that some turnover, with revenues and expenses is developed with a view to delivering a new enhanced water service. When this second phase is not achieved, or at least in progress, it is not possible to undertake the following steps. The ongoing activity is related to past experience, research and development, skills acquirements, and mastered techniques. The third step consists of comparing the results which have been issued with the initial planned objectives. This checking work has for its purpose to reduce the gap which normally exists between what has been wished and what has been carried out. The social acceptance of the mostly negative gap (wishes are always too ambitious) is the main difficulty to overcome. Negative or mediocre performances are often hidden by some emollient communication. A governance control, as it has been evoked above, more transparency and participation are strongly requested to be successful with the checking step. The fourth step of the

Figure 3. The Deming cycle



Deming wheel is to undertake the necessary improvements to be closer to the former objectives of the plan with regard to what it has been checked. Like the second step ('do'), this improvement process is very concrete and leads to decisions such as human resources changes, a better training program and new management rules for the organization. When these decisions are completed, a new planning activity is started as the first step of a renewable cycle.

Water financing is dynamic thanks to the use of the Deming cycle approach. The two thinking phases (steps one of planning and three of checking) have to be inserted with the two achievement phases (steps two of doing and four of acting), with respect to the budget year, the fiscal agenda and in harmony with the multi-years governmental programs, if any. Finance is a game with time and confidence. A revolving organization enhances both of them.

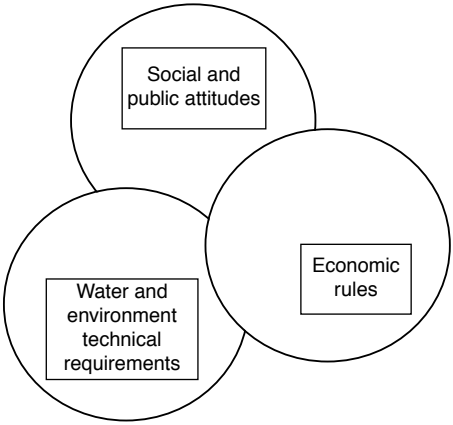
3.4 Towards a general equilibrium for water financing

When the three pairs of relationships, as shown in Figure 2, are dynamically balanced, i.e. the water market is under a governance control, the water regulations and good practices are reciprocally adapted, and a dynamic programming responds to the water demand, a harmonious equilibrium should appear. This aesthetic design balances the revenues of all origins (water pricing, fees and taxes, fines), the duties of payers (for domestic, industrial, agricultural, tourism and recreation uses), the rights of investors (central and local governmental bodies, municipalities, corporate companies, farmers, private enterprises). The investment choices for water and the operating costs of already achieved investments, (which are similar to rights for water users), are covered by sufficient budgets and funding, which have to be considered as duties for the various public and private institutions, involved in the water management.

In summary, the prerequisites for a sustainable ethical water financing are brought together as shown in Figure 4. Ethics cannot be developed in the absence of willingness from public bodies at various levels (centralized and local) and from the civil society of water users and associations. Ethics need to be adapted to the progressive technical requirements of water and the environment. They are the implemented morale for intelligent people, not for stupid ones. It is hopeless to believe that an ideal state for water and environment quality should be aimed without intermediary steps. There is a long way before complying with all the high-technical water quality and quantity requirements. In developing countries for which any basic need is a priority, a progressive water policy must be set up as an essential auxiliary of these priorities and not as a budget competitor.

Financing water makes the former statements possible. To ignore or neglect the

Figure 4. The prerequisites for an ethical water financing and management



necessary economic rules (pricing the water, budgeting the expenses, controlling the equity) is blindness. Economic rules are unique for public institutions as for private companies. Ethics cannot be developed when some differentiation exists. If tasks and responsibilities may be different, the rules of the same economic game must be observed by everyone committed to achieve the same water policy objectives. It is the basis of an understandable public-private partnership (PPP). PPP, water pricing, good practices, capacity building, confidence building, transparency, governance are the essential key elements to facilitate an ethical spirit for water financing and appropriate management. They are not to be ironically despised as words in the mood but put into the practice of water policies, as soon as possible, when the opportunity arises.

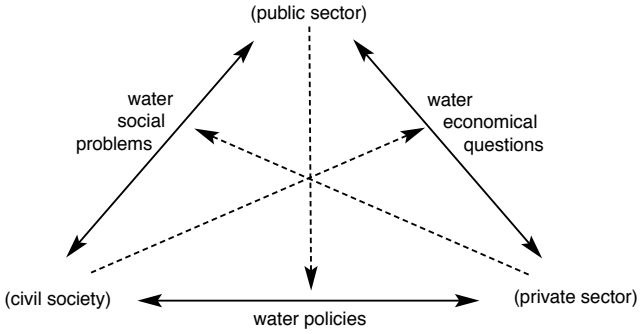
4. Practical ways to introduce ethics into financing water

4.1 General

When the former conditions are set out to elaborate a good water program, some problems of practical implementation remain. Rather than describing them in a lengthy presentation, answers to usual and controversial questions will be attempted.

To be consistent with the above previous statements, these questions and answers are put into three categories which match with social, economic and policy-making attitudes to deliver water services. As shown in Figure 5, each of these attitudes is opposite to a corner of the triangle, which has the main difficulties to put it into practice: profit-oriented private institutions thus get worries with social consequences, civil society suffers from the economic constraints, power wishes of the governmental and administrative bodies are confronted with turning them into real policies.

Figure 5. Water stakes and actors



4.2 Some common social-oriented statements and answers

Statement 1

'Money is never a problem in financing water projects. Only human resources, skills and capacity building programs are missing.'

Suggested reply

In numerous places of the world, water is scarce. Money for water is scarce everywhere because water projects are not attractive for politicians and private investors. One can not see the water infrastructure most of the time (underground pipes) and rather negative reactions come often from the neighbours of the water plants (bad smell, industrial look, damages caused to the environment when plants are badly operated).

A lot of risks can concurrently cause despair in financiers: a completion risk (a risk that a project may not be completed); a technological risk or risk that technology fails

to perform or become prematurely obsolete; an input risk (a risk relating to the supply of raw materials, spare parts or premature depletion); an economic risk or risk of insufficient revenues (very frequent for water supply and sanitation); a financial risk of rising interest (which can happen during the very long duration to complete a water project: eight years or more); a currency risk; a political risk (including the public opinion hostile campaigns); an environmental risk (always existing for the very large water projects); a risk of catastrophic event (e.g. soil moves, tsunamis, etc.) (Figueres et al., 2002; Perrot and Chatelus, 2000; Leclerc and Raes, 2001).

All these risks – real or imagined – are commonly used to reduce the financial availability. They partly explain the dramatic gap for the last twenty years at least, which exists between the needs to financing water and the real expenses agreed by private and public sources. To make a long story as short as possible, about US$100 billion are missing each year for water policies, which is more important than the global actual expense for water infrastructure which is contained between 70 and 80 billions every year. Money available for developing countries does not exceed one sixth of this expenditure and is rather decreasing during the last decade (from 1 to 2% every year).

Therefore it is particularly wrong and consequently not ethically oriented (in other words unfair) to pretend there is no restriction to money for water throughout the world. On the contrary, an ethical approach of this question should be to recommend the creation of new funds for water, specializing them for developing territories needs, so that the above ratio of one sixth should be improved.

Hiring human resources, training and capacity building programs are an excellent use of available finance. They are however merely expenditures. They do not provide direct capital and new revenues. They most of the time lead to disappointments when programs are over.... To point out the attention to be paid to fund raising is not only a financial concern but mostly a responsible social attitude.

Statement 2

'Water for agriculture must be a free good.'

Suggested thinking

70% of the fresh water available resources in the world are used for irrigation and agricultural needs. 40% of this amazing use is totally wasted because of wrong or poor management of the irrigation systems. Anyone knows these shocking statistics which have been worsened during the last two decades despite the numerous international meetings on food and water. While food production gives rise to water scarcity and pollution, a higher consumption of water allows a compelling food

production. Water is priced and charged for domestic and industrial uses. It is almost never the case for the agricultural ones. Investments for irrigation systems are paid or subsidized by governments, so that they are not borne by farmers and have the lowest possible repercussion on food prices.

Less available water and a degraded quality are the two main consequences of this typical uneconomical approach for a world common good, water, in competition with another basic need, food. Are farmers different citizens to be allowed to get free water for their production? Are the lowest possible prices for subsistence, the most appropriate ones? Why the international fear for famine stays higher than the fear for insufficient and insanitary water, when water victims are worldwide six times more numerous than victims of malnutrition? Why avoid thinking about a reduction of 10% of the agricultural needs which would make a 50% improvement possible for domestic water use?

All these candid questions require complex answers. Their content is however not limited to technical and economical arguments. To learn why the caste of farmers and the agricultural lobbies have a privilege on water is for sure a social and ethical question to keep in mind before recommending a reduction in water financing for irrigation and to generalize water pricing.

Statement 3

'Water management is adversely affected by cultural and religious habits.'

Suggested answer

Water, as a natural resource, is a free good for everybody around the world. But when water is withdrawn by pumps, transported through canals or pipes, supplied as potable water, then transported again through sewage systems and cleaned up before discharged in the environment, it is not anymore a natural resource but a technical good which must be paid by the billions of users, whatever their culture or religion is.

When using expressions like 'water pricing' or 'water financing', it would be dramatically hypocritical – in other words unethical – to simply consider they design actions to price or to finance water. The truth is easier. Only the water service is financed and priced. Not the water itself. When someone is giving a donation to a church or a temple, only the service of God is financed. Every culture and religion has its own habits for this purpose. It has to be similar for the service of water, which must adapt to any kind of situation, respectfully to the water users wishes. Only fake indifference is an impossible attitude because water is life for everyone and needs to be supported by financial means from the whole community.

4.3 Some common economic-oriented statements and suggested answers

Statement 4

'Water is a free good.'

Suggested reply

No way. It is not honest. Clean water and appropriate sanitation, respectful of the environment, are costly. To comply with the (highest) public health and environment standards, any municipality should budget during the next 25 years for water supply and sanitation some US$ 60 per person each year which is equivalent to charging the price of water of 0.9 US$/m³ (according to a supposed individual water consumption of 180 litre/day or 65 m³/year). For a non-equipped large town of 7 million inhabitants, it will hit a global expenditure of US$ 10 billion (US$ 400 million/year during 25 years) (Maksimovic and Tejad-Guibert, 2001; Lee et al., 2001). In a fully equipped town, operating costs are very costly too. They encompass drinkable water supply and required sanitation according the public health and environment quality standards.

Table 1 shows the importance of financial costs (to refund the loans which have been borrowed for the former investment and to budget a future renewed investment every 40 to 50 years). They balance the technical costs to operate the water system. Water has definitely not to be looked on as a free good but also as a technical skill, as a financial business. From this last point of view, it generates an average annual turnover of some US$ 110 per capita for high quality drinkable water (without danger, from the tap) and a treated discharge of used waters compatible with environment and sustainable development requirements.

Table 1. Water costs

Operating costs in a fully equipped town (US$/year/capita)	*Clean water supply*	*Sanitation*	*Water budget*
Financial costs (equity, renewal)	25	30	55
Technical operating costs (salaries, consumable, small parts)	30	20	50
Other costs (environment protection, communication)	2	3	5
Total	**57**	**53**	**110**

When water costs are charged solely on domestic consumption of water, it leads to a price of 1.7 US$/m³. Of course this price is evaluated with the highest quality standard. Suppress the sanitation, forget environment, public health, and sustainable development hopes, and then save 50% of the previous figures. But is it an ethical way for thinking and striving to tackle difficulties? After cutting off sanitation, one can also choose to reduce the water supply quality standards. Many poor countries have been obliged to deliver a so-called 'clear' water (transparent but insanitary) instead of drinkable pure water. Cost is then only US$ 30 per year and per capita (less than 0.5 US$/m³). It could be seen as a first step for a future developed water policy. A first step, not a simple one. Central or local government can take in charge a part of the water cost, whatever its level. Apparent water price should therefore be very low even nil. It is nevertheless be understood as a free good. Whether State subsidies would be cancelled and water price would stay at minimum or zero level, supplied quantity and quality of water will worsen, illnesses and damages will break out everywhere. In such a case, 'free' water would be a source of lots of unhappiness.

Statement 5

'A uniform pricing is an ethical and simple means of financing water.'

Suggested argument

Uniform price for water is too low for the rich and far too high for the poor. An ethical approach to water pricing (or revenues from water based on taxes) has as its purpose to make easier solidarity in financial transfers between rich and poor communities. Such an approach is not rigid and is opposed to an egalitarian view of the water demand. Water is not equally spread on the earth. Some countries have too much water and are frequently flooded, many others suffer from water scarcity. Water transportation is technically difficult and always very expensive. Water supply costs are split as follows: 15% for pumping and storage; 15% for production and conveyance; 70% for networks (internal investment costs). Big water feeders and interconnection pipes have to be added (external costs) as a supplement of 20% (in Frontiers in Urban Water Management, *op. cit.*). Water business is mainly a pipe business. A similar split of the costs does exist for used waters: sewers are everywhere much more expensive than even sophisticated treatment plants. On the contrary, money transfer is easy and cheap. Correction to water prices can be done thanks to economical tools and financial measures. It is easier to do this than to balance the unequal repartition of water trough a costly technical water transportation system.

When water is abundant, people are rich most of the time. When it is scarce, there

is no wealth. Several incentives can be used to balance such differences within a country or at the international level:

- zoning areas where water is abundant must have a more important proportion of priced water than areas with less water (it is already noticed for the pricing of land: a square meter of a desert land is mainly cheap);
- water quality protection: to preserve an excessive use of pure water resources (underground and surface water), it is adequate to rise prices or taxes;
- time sharing: a higher charging is operated on water during the dry season or in case of a rapid increase of water consumption (depending on holidays and tourism rush for example);
- distinctive charging systems: some water users (industries, sometimes intensive agriculture, tourists) pay more for their water uses than other users.

In every case, the price of a cubic meter (including the pollution control costs or not) depends mostly on the state of location, the period of time and the type of users. It is not suitable for a uniform pricing system which implicitly assumes that water is independent of these various parameters. It consequently demands a public acceptance and understanding. People must be informed of the use of the extra costs they have to pay. The financial transfer to poor communities, solidarity projects, difficult areas or period of time, must be transparent, can be checked and based on a democratic agreement process, in order to get the necessary legal status.

When these conditions are not fulfilled, only customary, (even rough), economic rules can be observed without ethical consequences. Water is supposed to be available everywhere, at any time, for everybody. Only those who are in this perfect situation are the happy winners of this approach. The others mostly starve and hate unethical economics...

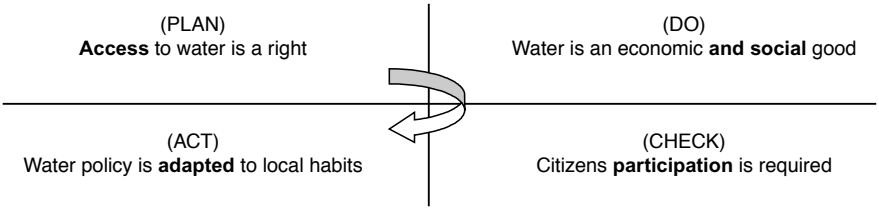
An interesting project, 'the social charter for water', has been published during the Second World Water Forum (The Hague, 2000). Four principles are set up (see Figure 6):

1. access to water must be an inalienable right;
2. water is an economic and social resource and therefore solidarity between rich and poor must exist in order to ensure support for the most deprived;
3. today an effective policy requires that the citizens participate in its development and assessment;
4. these recommendations and the means suggested must be adapted to the culture and economy of each country (more than hundred and twenty examples are given for some sixty countries).

Uniform pricing or taxation of water is not compatible with the former recommendations. Adequate water pricing is more efficient. Money is transferred from places where people can pay for it. It is supposed to deliver water in places where the water

demand is not furnished. It seems to be better than to reduce the price of water for an already satisfied demand and to suffer from insufficient financial means, which would have been necessary to improve the still unsatisfied water demand.

Figure 6. The social charter for water principles



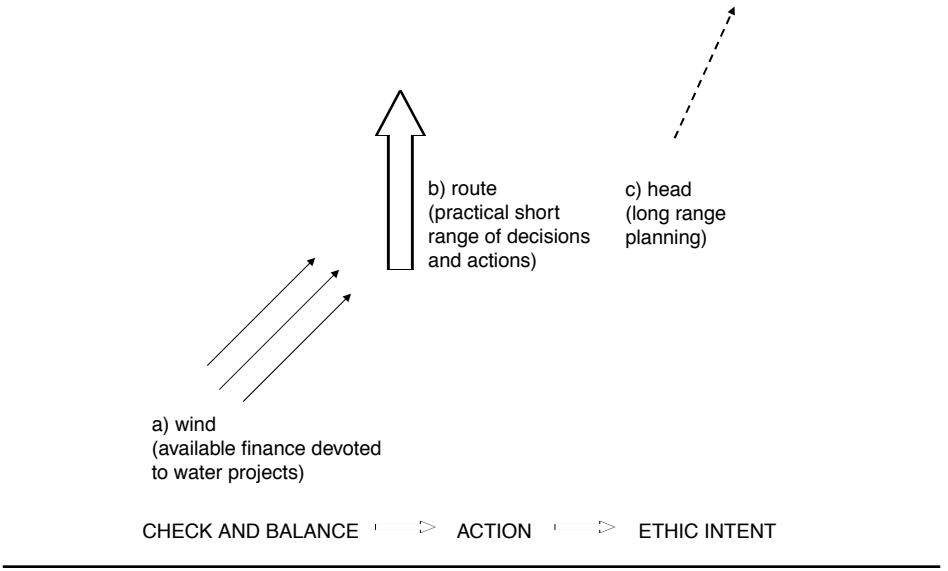
Statement 6

'Financing water and using economic tools require a peaceful situation.'

Suggested answer

It is true that a peaceful situation makes any financial project for water improvement easier. This is not a prerequisite, however: water conflicts can be solved through an economic policy which finds the means to reduce the conflict and builds progressively a new state of confidence. Confidence building is based on strategic management rules which are very close to a sailing experience (see Figure 7). When there is no wind, it is rather difficult to sail. When there is no available funds, it is impossible to solve water conflicts. Before analyzing a water conflict comprehensively, it is better to check how extensive are the financial facilities. To move away from the coast, it is necessary to proceed by successive moves which are not in the direction of the final heading. In order to solve a conflict, it is better to shorten the time schedule than to give a clear explanation of the situation. Adding more complexity to an obscure problem, stressing all the actors, seeking for a new deal between them and yourself is most of the time relevant to obtaining some positive change. When away from the coastal dangers, anyone may select a route and follow it with the minimum efforts. The usual long range of playing rules in a steady political and economic environment do work again. Confidence is available again. Ethical purposes may appear at last. Never select a direct route when sailing away from the coast. Conflict solving must avoid a too early choice of common vision. The single objective is to solve the conflict, not to invent new reasons to turn it into a new conflict. When away from the coast, never forget wind is needed. A solved conflict, with no money to let us forget it as quickly as possible, is a hopeless situation. Confidence building is an art, which

Figure 7. Water 'navigation'



has to be learnt by water financiers. It is much more important than capacity building because it deals with politics, finances and sometimes techniques. It generally by-passes the usual administration (which looks like the danger of the coast), which often takes advantage of steady conflicts.

In comparison, capacity building activities depend much more on administration and techniques and less on finance and politics. To follow-up the simple former metaphoric approach, capacity building is similar to rowing, which is much more limited than sailing but far better than doing nothing (just reading theoretical reports on water navigation, for example!).

4.4. Some common policy-oriented usual statements and suggested answers

Statement 7

'Water pays for water.'

Suggested comment

This motto is self-understandable. It underlines that revenues from water are exclusively used for water expenditures (new investments, renewal and operating costs). It

also implies that these sufficient revenues avoid any external support from outside financial sources (international or governmental aid, for example). Then a full cost recovery is operated for water which can benefit from a separate budget with transparent revenues (prices and allocated taxes) and uses (salaries, capital and financial costs).

It is ideal for an independent water management. It is most of the time criticized by central and municipal authorities because they do not appreciate this independence. Briefly, when water is at high priority awareness, water pays for water. When other priorities for political, social and economic reasons, get a higher preference – a most frequent case – water revenues are diverted from water uses, added salaries load the water budget, subsidies are promised and rarely paid. Water transparency vanishes as well as clear water.

'Water pays for water' is an ethical recommendation from the point of view of a fair water management. It can be regarded as an illegal option by a government which implements a budgetary consolidation or felt as a constraint which is solely profit oriented.

Statement 8

'Is it possible to balance water demand and supply?'

Suggested answer

In poor countries water demand is higher than the amount on offer. In rich countries a reverse situation can happen because of an inefficient duplication of investments. The right balance can be set up, when using the Deming cycle (see above section 3.3: plan, do, check, act).

To market the demand (to analyze it comprehensively, including the affordability to pay and the social and political aspects) and to control the offer (in marking the priorities from the easiest and less expensive one to the more sophisticated others) is always a better and more ethical approach than to control the demand (limiting it to the richest population) and market the offer (ranking the priorities from a profit economical analysis). Figure 8 summarizes good and bad ethical approaches.

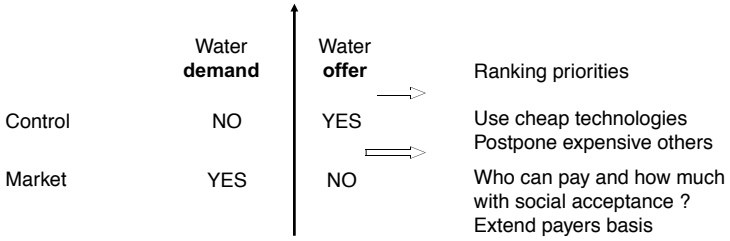
To elaborate on a good ethical approach to a water policy, the various steps to observe are the following:

- programming (for three to six years) the demand to be satisfied and the related offer to finance. Programming is a double exercise, not a single one;
- organizing public participation. The former choices and implications (in particular for the financial aspects) must be endorsed by multiple representatives of the State, financiers, private sector, civil society, and water technicians. Participation and

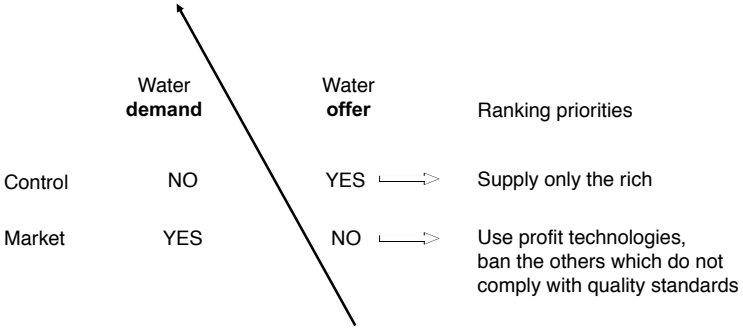
involvement in the decision making process (so called governance) is a continuous process, not an punctual ceremony. An ethical and democratic process needs rules (to take the floor, to propose amendments, etc.). Apparent participation is always a circus;

- fixing the decision and stabilizing it for the chosen period of time. A frequent danger is to change the decision during the implementation phase. It will bring an important financial waste. A permanent crisis of confidence will result;
- budgeting and implementing will come thereafter. The second phase (do) of the Deming cycle is then under control. Practical (and classical) accountability rules must be used, in particular to distinguish the financial liabilities and the real expenses;
- checking the results which are based on initial forecasts is possible with the aid of an independent auditing system from which improvements should be proposed. Comparative studies are useful during this phase. They use success and failures as a guide to future improvements;

Figure 8 . The offer/demand ethic approach



GOOD: the ethical balance for a water policy



BAD: an example of unethical approach

- the last phase (act to enhancing the global program) must be used to strengthen the water institutions and procedures and widen them to include new members, in particular when they come from the demand side. This new scope of representatives will empower a new programmed balance between water offer and demand.

Statement 9

'Is increasing water prices a good policy?'

Suggested reply

Good and bad reasons exist to justify an increase of the water price. The bad ones, first, to be debated: bad management with an overstaffed administration, insufficient technical knowledge and inability to let pay the consumed water. Other bad reasons are every purpose that diverts money for another use, different of a water-oriented one: profit, tax system, bribery.

There are good reasons too. High prices mitigate water wastes, in particular for industry and agriculture uses. They also produce revenues, which allow the development of a really independent water program including welfare measures in favor of the poor. Such an ethical water policy must pay attention to the future consequences of the financial planning. Table 2 shows the equity, which is generated by the choice of financing. A sustainable development policy is not only limited to the physical items of the environment, it is mainly concerned with the financial debts which are transferred by the present water users to their successors. Low pricing of water today

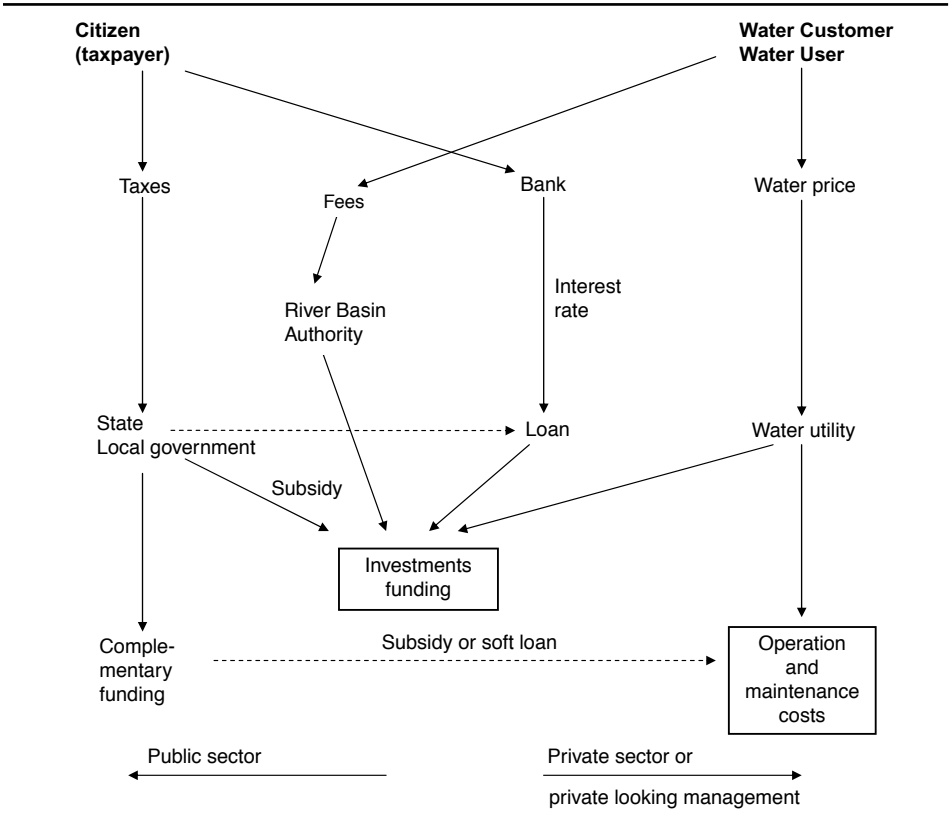
Table 2. Effects of the method of financing on past, present and future end users

Means of financing	*Effect on the past or present cost*	*Effect on the future cost*	*Remarks*
Borrowing or capital contribution	0	Frequent ↑ Rare ↓	Cost passed onto future end users
Self financing	↑	↓	
Surcharge	↑		Cost borne by past or present end users
Fees	↑	↓	
Subsidy or interest	0	↓	Cost borne by present users

means an immediate popular policy but a heavy burden to pay tomorrow (marked by an increasing arrow ↑ in Table 2). On the contrary, to increase the water price today is in favor of a water sustainable development (marked by a decreasing arrow ↓ as an effect on future costs).

Water price increases are addressed to users through various ways, described in Figure 9. To get a full recovery of the operation costs and the necessary investment funding (bottom of the figure, framed), either the customer (or user) pays a price and sometimes fees for water, or the citizen (or taxpayer) is charged by the State or the local government (top of the figure). According to the choice between a rather public solution (left part of the Figure 9) or a private direction (right part of the figure) to manage water, the cost of a new water program to be covered is borne by an increase of taxes and fees or by an increase of prices (and sometimes by an increase of the rate of the bank interest).

Figure 9. Water financing channels



Is there an economical limit to the water value increase? A practical answer is the average affordability to pay the taxes or the price of it. The consequence can be seen in many countries of extreme poverty: a general degradation of the water resources follows up a general failure to pay for water. A more voluntary answer is given by the actual cost of the most sophisticated technology to produce fresh water, the desalinization technique. Its cost (only for production, before transportation) has continuously decreased during the past decade. An average price of US$ 0.7 today would be lowered to US$ 0.5 in 2005.

To give an idea of what an increase of the present price of water should mean, maximum average costs per cubic meter are given in the following table (Table 3).

Other factors such as the type of contracts to manage the water service can eventually change the price of water. Experience shows that a regular transfer of the water management from the public sector to the private sector is followed by an increase of 20% for the price of water (mainly because of renewal program which has not existed before and partly explains the transfer to the private sector). On contrary (for the same need of a renewal budget) the transfer from the private sector to the public sector, most of the time does not result in a reduction of the water price.

Where are the ethical roots in these economic, financial and institutional considerations? Two clear considerations can be settled:

People must pay for water at its real price whatever the service of water is: public or private. The full cost recovery of water includes the transportation and the treatment of used water. It doubles the price of the water supply services. Environment protection and public health are as expensive as fresh water.

What is not ethical can be seen in very poor countries where neither water supply systems nor means of sanitation are available. Water bearers charge for frequently insanitary water up to US$12/m³, more than ten times the average maximum value of a collective water supply network. This scandalous situation does not only concern the miserable water bearers, who ought not to be judged, but overall the purchasers who accept to pay water at this level.... Never forget only wealthy people claim for service improvement and simultaneous cost reduction. Poor people just try to survive which is quite different from reacting.

Statement 10

'Water supply is a higher priority than sanitation works.'

Suggested thinking:

It is easier to deliver clean water which makes people happy (they get a real good, which they sometimes accept to pay for) than to achieve a sewerage network and

Table 3. The clean water value in the beginning of the twenty-first century (from: *Frontiers in Urban Water Management,* op. cit.)

	US$/m³	*Annual expense per capita (based on a 65 m³/year individual consumption or 180 l/day/capita)*
Water supply		
Financial costs	0.2 (0 to 0.4)	
Renewal costs	0.25 (0 to 0.45)	
Operating costs (of which labor is 30%)	0.5 (0.15 to 0.6)	
Taxes and miscellaneous	0.1 (0.03 to 0.15)	
	1.05	68
Sanitation (combined sewers system for wastewater and storm water)		
Financial costs	0.2 (0.15 to 0.25)	
Renewal costs	0.2 (0.13 to 0.25)	
Operating costs	0.35 (0.3 to 0.4)	
Other costs	0.05	
	0.8	52
Total	**US$ 1.85 /m³**	**US$ 120 /year/capita**
		of which:
		55 for finance and renewal
		55 for direct operating costs
		10 for taxes and other costs

a waste water treatment plant that nobody cares for except some critical environmentalists and rare satisfied water engineers. However, illnesses and deaths resulting from bad quality of water are mainly the result of insufficient sanitation programs. Environmental degradation results from water pollution, not from clean water treatment.

Water supply is supported by a strong social demand because everyone is concerned with an easy access to water on her/his own tap or well. Water sanitation does not get a similar support because only the downstream neighbours will benefit from the better environment resulting from the reduction of pollution due to treatment of waste water. To charge for clean water is consequently easier (water is regarded as an economic good by the purchaser) than to charge for water pollution control (which has mainly consequences for collective good but no apparent individual benefit).

Some wise (ethical) recommendations can be suggested to public and private water policy-makers:

- water supply can easily absorb 100% of the annual water budget. Never spend more than 50% of it and save the other half for the public health and the environmental protection.
- reciprocally, water sanitation can easily swallow the whole available budget. Never forget that to be able to pollute the water, you first need to use water. Poor people have mostly no water. So, when the sanitation budget has a single financial source, it is necessary for a long range vision purpose to reduce it by 25% to 40% to develop a balanced clean water/used water overall policy.
- environment and water resources protection are never very costly policies in comparison to water supply and sanitation budgets. Most of the time they are very popular and benefit from a strong media support. It is easy to save at least 5% of the water supply and sanitation budget for such purposes, unless they already benefit from a special individual budget (it is rarely observed beyond studies and other virtual achievements). Do not increase excessively the environment sub-budget because it would progressively substitute for more important social priorities. Water financing is a continuous process of checks and balances, not a political short-term involvement. In a financial long-range vision, real works to be achieved for water supply and sewerage depend closely on people's basic demand and on their ability to pay. It is less obvious for the environmental protection, which is mainly paid for (beyond the communication about its awareness) when public wealth is high enough.

It is therefore ethical to reserve a special budget for the environment protection (financing real works to achieve it) but dangerous to base a financial program for water on purely environmental considerations. Water financing always remains a grass-roots activity.

- When water is managed by a specialized water authority, it is necessary to control closely the administrative and operating costs of such a body. During the first years of operation, money is rather scarce and criticisms arise quickly to denounce the inefficiency of the new water body. It is difficult to promote a fair and ethical management when its operating cost is above 15% of the annual turnover. After

some years of operation, an objective of 7% sounds better (including computer expenses, communication, scientific studies, everything which has not a direct influence on water supply or sanitation systems). After a decade, objectives of less than 7% are welcome. They show as usual that an efficient water body needs to be slim to run fast. They remind that a water authority is supposed to be efficient in order to develop the best possible water policy and not to deal with an unemployment reduction policy. Ethics about water must not be confused with a global national planning which would include all the governmental policies and priorities. The same remark applies to the water department of a large corporate company. Water activity is supposed to balance revenues and costs with a reasonable profit and not to feed non-hydraulic activities with excessive profits, which would be paid by water users.

External ethics must start with an interior system of ethical management.

- In a similar manner, scientific studies and communications are justified and useful expenditures when they are applied to a water development policy. There is obviously an upper limit to be respected (20% of the operating cost means less than 1.5% of the general turnover or budget, for example). A higher expense should be regarded as a move towards unreliable artifices. A water development policy includes a knowledge of development but should not be confused with it.

Finally, it is not obvious to decide whether a water supply oriented policy has a higher priority than a sanitation oriented policy, or the contrary. A chosen balance between the two alternatives seems the right answer, with regard to the local situation. On the contrary, each of these alternatives has a much higher priority than any other.

Statement 11

'Are worldwide standards for water quantity and water quality worthwhile?'

Suggested answer

Theoretically a water standard is applicable worldwide. In practice such a statement is however too dogmatic and unaffordable by three quarters of the world. Standards shape a general framework of objectives for everyone, everywhere. But standards are of tremendous importance in financing water schemes. For example, when saying that an individual's daily water consumption is 180 litres, when deciding that water leakages must be limited by a ratio less than 10% of the transported water, or when demanding the presence of dissolved oxygen at 7 mg/litre in the rivers, all these requests have immediate financial consequences. Most of the time they are incompatible with the available financial means.

To propose a temporary relaxation of ambitious worldwide standards is not contradictory advice when it takes the form of a progressive approach, which adds a specific delay (for example four years) to be completed with practicable lower standards. Four years later, a new commitment with more ambitious objectives will be undertaken thanks to a higher water budget based on an increased pricing of water. This step-by-step policy needs a sustainable willingness of public authorities, private companies and water users. Numerous steps make up the stairs of progress. It is always better than a slippery and uncertain slope.

Legal measures must accompany the completion of a four-years program. These temporary local regulations design what kind of progress must be achieved during the period of time and what proportion of the final objective will be carried out.

Statement 12

'Achieve upstream projects before alternative downstream ones'

Suggested reply

Surface freshwater, groundwater aquifers, coastal areas are the three main territories that a water body can manage and finance. An integrated water resources management (IWRM) is recommended everywhere so that the best practicable decisions will fit with the natural or man-disturbed hydraulic phenomena (such as the river flow grows up progressively from the source to the mouth of the river, an upstream pollution provokes downstream damages, the catchment of a deep aquifer is totally different from river basins areas, salty water intrusions considerably change the freshwater management on coastal areas, etc.). Examples of this WRM approach are the World Water Vision (Cosgrove and Rijsberman, 2000) and the Framework Directive of the European Union (2000).

Theoretically, water projects would have to be progressively financed from upstream to downstream within a river basin. Protecting the rare and pure upstream water resources, stressing the downstream benefits of regulated river flows, mitigating the downstream consequences of upstream pollutions are some good examples of this programmed approach. A more practical view is to pay attention to the location of the social water demand (mostly downstream or on coastal areas because of a higher water availability). It is easier to elaborate on a sustainable water program with the largest possible people involvement, who will accept to pay for local works they can directly look at, than to finance water projects in desert locations, because they are only based on scientific considerations.

As it has been underlined above (in particular, see section 2), a practicable financial program is issued from a good governance approach which addresses

various groups and interests of the whole society, with no limitations to the scientific and technical experts. Ethics are based on people, not on science. A financial decision-maker must take care of this real observation. When money is not available, it is necessary to incline towards the social demand, which is mostly located downstream. This decision will be criticized by scientists but the project will be completed. When funding is easier, it is technically more efficient to follow the scientific advice. Scientists will be satisfied, public of users, indifferent.

In summary, financing water is neither upstream nor downstream oriented. As shown above (section 4.3, Figure 7), it mainly depends on the wind direction, it means the capacity to raise funds. When the social acceptance is missing, no scientific explanation will convince it to change. It is better to discuss with various representatives on marketing the demand (see above Figure 8) with a view to modifying the proposed water project.

Statement 13

'What is the worst situation for financing of a water project?'

Suggested answer

When a project is isolated, the risks are infinite. It is like wearing a single shoe. On the contrary, a large set of multipurpose projects over a long period of years in the form of an integrated water programme, gives the best situation for financing. With numerous and complex projects, priorities, location choices, ranking in the time, sites of the chosen projects can be changed so that there is always something to undertake in the present.

The worst project is a project which is delayed because of technical disputes, lack of money, insufficient preparation. A good project does not attract any particular attention because it is among a lot of other projects, some very simple and cheap, some others sophisticated and expensive, well spread over the territory with several levels of technical understanding. A project which is too risky, for any reason as indicated above (see section 4.2, statement 1) is frequently rejected, even when its technical utility is positively assessed. Within a large programme composed of a number of financially acceptable projects, it is much easier to approve it.

It is always a benefit for projects to widen their scope and diversity. In some countries and international institutions, water projects are combined for this very reason with energy, transportation and public works, urban development, sometimes telecommunications. Such an approach has to be taken into consideration because it provides some chance to finance mediocre water projects. When an engine has difficulty in working properly because of too low a speed and the absence of an

inertia wheel, it is adapted to let run it faster or to couple it with some other stronger engines. Water financing is similar. To study an isolated project in a further detailed technical way is most of the time hopeless, in particular in developing countries. To include this project in a wider sustainable development program is more efficient because it multiplies partners and sources of financing. When land use planning and agriculture development, energy and industry purposes, urban policies, tourism programs and environment protection are included in the same global plan of action, water and finance can flow easily. They are necessary common inputs to all previous purposes. An ethical behaviour must accompany such a development thanks to good practices and governance, transparent and frequent assessment as noted above in section 2.3, Figure 1.

Statement 14

'Among the various water contracts, does there exist a more ethical one?'

Suggested reply

Water contracts are very numerous from the fully public ownership with a public (mainly municipal) operating service to the full privatization of water. Between these two extremes lays a large variety of contracts which belong to the public private partnership (PPP): concession, leasing (like BOT: build, operate and transfer), public ownership with private management, simple contracts for management and services.

What is the most ethical way for water users? Is a similar question to 'what is the best game to play ball?' Football, tennis, basketball, golf or some other sport? There is of course no specific answer, except a common one: when the rules of the game are accepted and well-known, players, referees and officials, supporters as well as the public at large must strictly implement them in the same sporting spirit.

Table 4 gives some examples of water contracts (columns) with indications of some aspects (lines) which qualify these contracts (Maksimovic and Tejada-Guibert, 2001). Ethical consequences are common to all contracts: transparency for the water users or taxpayers, who are the final source of income for water projects; reasonable duration of the contract (more than two years, less than ten for example), so that changes can be allowed for; external audit system for the accountability; technical and administrative reporting and assessment studies to improve operation and management; democratic governance with a local public participation; appropriate court procedures for resolving future conflicts.

All these measures are costly and must not be regarded as a too heavy burden for the water policy program under progress. Ethical tools for water are like referees for sporting contests. They very often act on a voluntary and free basis but it is necessary

Table 4. Water contracts and private operators liabilities

Type of contract	*Concession*	*Leasing*	*Public ownership with private management*	*Management*	*Services*
Who finances new works	Franchise holder	Local public body	Local public body	Local public body	Local public body
Who finances trading capital	Franchise holder (participation)	Lease holder	Local public body	Local public body	Local public body
Who sets the rates paid by the users	Public authorities via contracts	Public authorities via contracts	Local public body	Local public body	Local public body
Body to which the users are contractually linked	Franchise holder	Lease holder	Lease manager	Local public body	Local public body
With remuneration of the private operator	Included in the rate	Included in the rate	0% of costs plus a productivity bonus for the parameters	Fixed rate, as a function of physical parameters	According to the contract
Cover for the costs of local public body	Surcharge	Surcharge	Income	Income	Income
Responsibilities of the private operator	Very high	High	Average	Average	Low
Financial commitment of the private operator	Very high	High	Average	Average	Low

they can keep a total independence, which needs guarantees and periodic centralized control. Ethical water financing demands such an organization within a general agreement, which is the main objective of governance.

5. Water financing: ethics against corruption

5.1 General

Free water or under-priced water is economically not sustainable (see above, section 4.3, statement 4). But overpricing of water is theft and water bribery a crime. Overpricing often results from bad management, wrong investment choices, fallacious analysis or an absence of preliminary studies. It also happens when there is no water policy (see the evocation of water bearers, section 4.3, statement 9). Affordability to pay limits this kind of excess. Overpricing is frequently denounced when water is valued at any price but rarely observed. It is a danger, not an important one.

Bribery is a real political, social and economical illness, which is present everywhere in rich countries as well as in poor countries (DAEI, 2001). Paid authorization given by administrative bodies to private companies, fake call for bids, artificial operating charges and salaries, invented works, excessive bills, are some examples among multiple criminal activities. It is not the purpose of this essay to make a comprehensive study of all the corruption cases which exist in the field of water, but to indicate some ethical tools, which have been developed to fight against them.

5.2 How to limit corruptive actions?

Clean water financing can exist every time when there is some willingness to enforce it. Using very simple and classical concepts, the four cardinal (principal) virtues, provide the necessary basic tools to practically implement such a willingness. Justice, Prudence, Fortitude and Temperance must be put to work.

- Justice is the capacity to guarantee equal rights to various water stockholders: governmental and public bodies, private operators, individual users and citizens associations. The Justice concept, when accepted, has a democratic consequence for the stakeholders: there is no hierarchy between them, including the public sector, which is not at higher level than those who are supposed to be represented by it. In very simple words, it means that water users, consumers, representatives of the civil society, may have a free access to the accountability and to any other official information related to the water service. Justice implies a full transparency of the information, loyalty to the consumers, faithfulness from the users with

regard to the water service (OECD, UNEP, Transparency International). It also enhances a particular virtue for everyone, courage, which is the ability to demand Justice when some misunderstanding occurs. This last point strengthens the interest of a clever governance approach of the water management so as to avoid a paralysis of the system (see above section 3.4). In brief, Justice is oriented towards free information, democratic participation and a strong legal basis which determines precisely how it is operated for the public bodies, the private sector and the civil society. Alone, a common use of Justice is not able to suppress every case of bribery but can substantially reduce it because Justice is truth.

- Prudence is a classical quality of a financier. Prudence consists in thinking before acting, imagining the consequences of any action with the hope to mastering them. Prudence is oriented towards preliminary studies, watchfulness and intelligence (how to get that minimum of information which maximizes the understanding) but also discretion and constancy. These two last criteria are important to maintain what is working well and to let everyone concerned know what is scandalous and must not be repeated. It is prudent to keep some reserve with regard to the professional rules so that they are not immediately adapted to corruptive practices and to deliver the maximum available information about bribery cases with a view to cleaning up the profession as soon as possible, every time it seems to be necessary.
- Policies of water financing, need to be effective and to achieve results which are adapted to the very important and various water demands. No Justice action is a shameful and a complete wastage for the Society, but a paranoiac search for a complete Justice is an uncomfortable way which leads to global distrust and paralysis. Similarly, too much Prudence is not to be recommended because it hinders any action. To be prudent but not shy.

These various remarks encourage the introduction of the third cardinal virtue: Fortitude. Fortitude means acting at the highest possible level and not to be content with a lower one. Some words associated with strength have to be kept in mind such as zeal and fervour (enthusiasm and innovative skill must accompany water financing to deliver a better service: to trust the future is a prerequisite). Fortitude is also very relevant to the well-known notion of union. To bring together people is a first step towards a financial program and the necessary sharing of the risk. As the bank joke tells it: it is far better to put numerous financiers on a rather mediocre project than to get one alone with a supposed good project.... Fortitude is also obtained with perseverance (it is a long-range action) and with educating, training and practicing activities which depend on it. One must propagate its use, not in a crude way, but with a purpose of progress and development.

- Temperance is a kind of regulator of the three former virtues: Justice, Prudence and

Fortitude. Temperance has as its main objective the mitigation of excesses with a view to adapting the system attitude to the local and the present context. It is synonymous with moderation and requires modesty, humility, sometimes resignation, which does not mean surrender. In the field of water financing, it implies the use of the available money in accordance with the decision criteria, in a wise and friendly way. In a similar manner, debts, bills and taxes must be recovered smoothly, taking care of difficult situations and solving them with no or few financial losses (see below, section 6). Temperance needs a tolerant spirit towards the various water stockholders and their individual interests. Thinking about the other's point of view is a good training to a better understanding and to a sustainable state of water development.

5.3 Fighting corruption is not limited to the private sector

Corruption is like water leakages. It is very difficult to suppress them when pipes are delivering water. There is however no bribery anymore when there are no pipes and no water, whereas poverty is extending and public health diseases are depending largely on the lack of water. What is the best ethical choice? Is a 'corrupted' development with some water better than a continuing extreme poverty with no corruption? It is not only a sophism. It is a usual question, which is solved by practical answers at grass-roots level and some common sense. It is unfair to blame only the private sector as a source of corruption. A similar approach would lead to blaming public and governmental bodies as the only source of inequity and violence; the civil society as a source of ignorance and the media as a source of lies.... There are no winners in such a game. Bribery has the bad smell of someone's sweat when striving at doing something. Frequent showers are useful to clean up but they are not a shameful behaviour, only a human use of water!

6. Poverty alleviation, globalization and water financing

6.1 Poverty

According to the 1991 UN General Assembly in Geneva (July 2001), 1.5 billion human beings have an income of less than US$ 1 a day. They have most of the time no access to clean water (there is a strong correlation: no water facility is almost a

poverty indicator). Half of them are illiterate. When adding similar statistics for public health and sanitation, the world situation has worsened since 2.5 billion people are not aware of these concepts. To combat poverty is not an easy task.

Two opposite approaches, probably complementary to one another, have been tested during the past decade. The first one is bottom-up oriented with the micro-financing tools (Yunnus, 1997). The other one is a more classical top-down financing, which consists of extending the water service from the richest layer of the population to the less rich parts of the society who can afford a partial payment of water bills.

Micro-credit is a community-oriented financial method. It set up at local scale a shared confidence for common projects and enterprises. Beneficiaries of micro-loans develop a private business within their community. In the case of water services, few examples are noticed because water and sanitation need more capital investments than labour. Despite this fact, the micro-credit methodology has not to be forgotten in some cases: sludge and solid wastes collecting, or bottled clean water delivery, for example. It does not seem, however, to fit precisely into the general water supply and sanitation technical and financial requirements.

The alternative top-down approach is of interest to the very large cities, wherein about half of human kind will live from 2020 onwards. How to organize and finance the extension of networks for clean water and sewerage systems from the richest districts to the poorest ones is presently at stake.

In both cases (micro-credit and urban water financing), the globalization of the world enhances the two methodologies. Isolated communities on the one hand, suburbs and poverty clusters on the other hand look alike everywhere from now on. Each case at ground level has its own particular features, but all the problems to be solved are alike from a financial point of view.

6.2 The social charter for water

Formerly (see section 4.3, statement 5, and Figure 6), principles of the social charter for water have been introduced (*Social Charter for Water*). Table 5 indicates the seven recommendations to be observed for implementation of this charter. The first six recommendations concern the governance obligation of any study. Water problems have to be studied not only from a technical point of view but in close cooperation with the public of users or future users, the local authorities, the local water professionals, all the people who will be involved in a water policy change.

The last and seventh recommendation sets out the desire for a financial transfer mechanism from donor countries to poverty regions, mostly located in the southern

Table 5. Social Charter for Water recommendations

Recommendations from the Social Charter of Water

Politicians, management and financial water experts are urged to do the following before, after and during the implementation of every realization, in respect to water, and within that perimeter:

1. Identify the different local interlocutors to solicit, and involve them from the beginning of the realization.
2. Begin by evaluating the people's needs.
3. Oversee the implementation of the joint action procedures and the negotiations between the people and their representatives.
4. Define and establish, with the collaboration of the people and their representatives, the extent and the means for their participation.
5. Ensure that every realization has an adapted education and information policy.
6. Perform regular assessments of the balance between offer and demand amongst the people and their representatives and organize meetings where those in charge of various actions around the world can share experiences.
7. Lay the foundations of a financial fund between North and South and a set of rules needed to make the greater part of these actions possible, and finally, of the much needed solidarity between developed and underdeveloped countries, with the support of international organizations.

hemisphere. Whatever should be such a transfer from the rich to the poor (creation of a World Water Fund, increase of actual water aid sources, innovative financial sources thanks to a public private partnership development, in particular with funding from voluntary agreements), new and more important solidarity mechanisms are the keystone of the social charter for water. Recommendation 7 must balance the six others, which guarantee an appropriate ethical use of the available money.

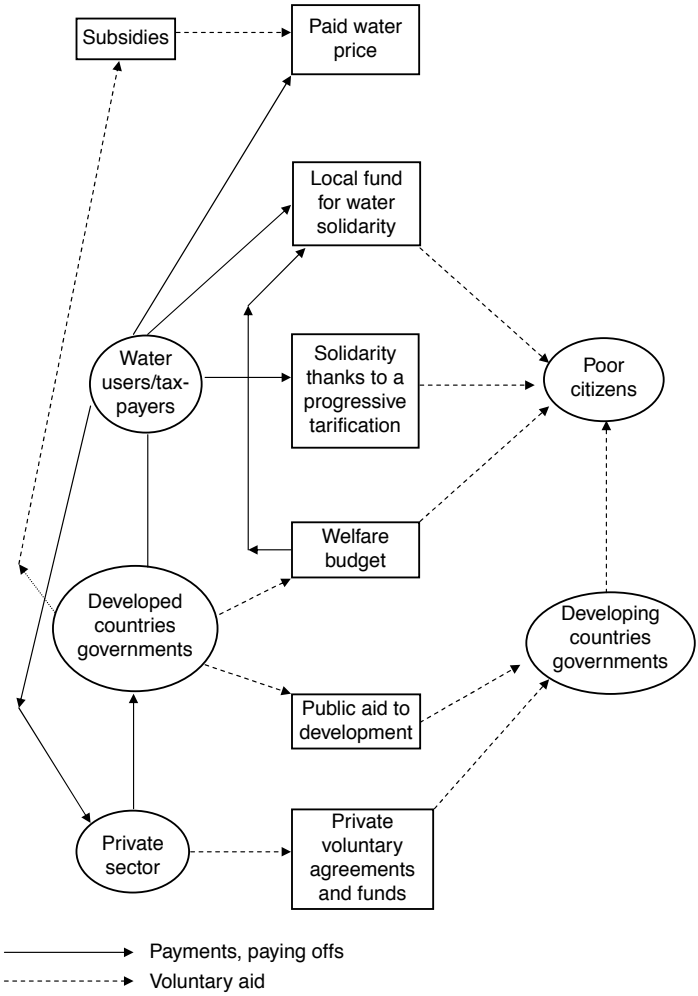
6.3 Various ways to alleviate water poverty: the water tariffs

After the Vision report (Cosgrove and Rijbersman 2000) which was published for the Second World Water Forum (The Hague, 2000), the French Academy for Water has developed ways of thinking, beyond the social charter for water (academie@oieau.fr).

The main objective was to tackle the various ways to alleviate poverty thanks to a better share of the water resources.

Figure 10 gives a synthetic view of the possible financial transfers. Money is coming from the water users and taxpayers in the form of payments for the water (water price) and of other goods (to the private sector) on the one hand, and of taxes paying off to the governments of developed countries on the other hand. Water price

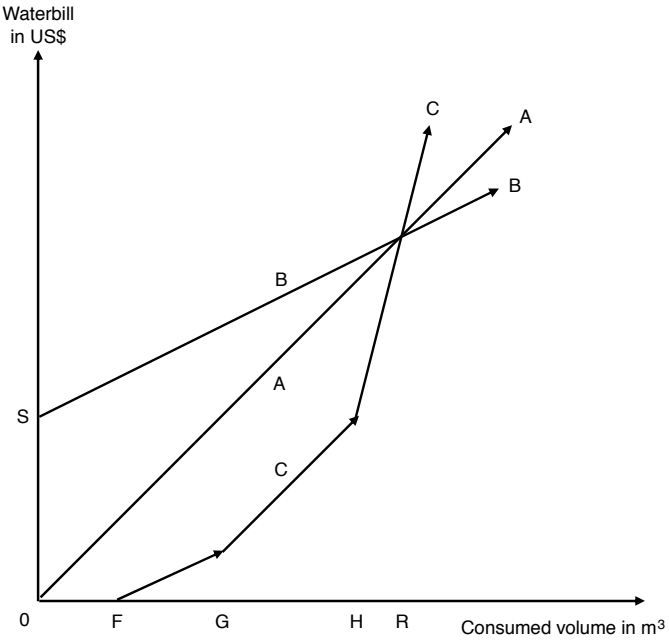
Figure 10 . Different ways of water aid for the poor



can be lowered thanks to subsidies given by governments to the water bodies which are in charge of delivering a water service. Developing countries get public aid from developed countries and sometimes funds coming from the international private sector. Poor communities and citizens can pay for water at a lower or symbolic price. They can be helped by a local fund for water solidarity or directly benefit from a welfare budget. Instead of subsidizing the water price, it is also possible to settle the solidarity on a progressive tariff as shown in Figure 11.

The classical proportional tariff A (every consumed cubic meter of water has a constant price) can be substituted by a regressive tariff B (in favor of important

Figure 11. Progressive tariff of water



consumers: they have to pay less beyond a consumption R). It also can be substituted by a progressive tariff C in favor of the poor: the first consumed cubic meters are free (OF). The next cubic meters are sold at a low price (FGH). Beyond G, progressive increases of the tariff allow more revenues to the operators so that a general balance can be carried out. Beyond consumption H, important consumers pay more than a proportional tariff.

In practical and simple words, people who water their garden (important con-

sumption) pay for those who have scarcely living room in a shanty town. Progressive tariffs are not in favor of important consumers: industries, farmers (when they have to pay water…) and rich domestic users. Such tariffs are disliked by water companies (private as well as public) because progressive tariffs suppress the subscription fee OS which is paid when a regressive solution B has been adopted.

In a progressive tariff there is no subscription which is financially harder to the water operator. Social consensus must cope with these difficulties. A debate on tariff is very relevant to the general willingness to alleviate poverty. When unsuccessful, more comfortable solutions are proposed, such as subsidies, because they mostly postpone the sensitive question of the funding origin of the subsidies. Such a debate on the possible financial transfer for social reasons is fruitful. On the contrary, experience has shown that automatic subsidies, with no explanation, often produce mediocre results.

Tariff C is ethical. Tariffs A and B are not.

6.4 Other means to combat poverty thanks to an ethical water management

Classical welfare can easily be applied to water policies. For example water tickets can be given to poor families, an increase of the housing allocation should include the water subscription. Some reduction or suppress of debts with regard to unpaid bills for water may be granted. All these solutions are often criticized because they are not sustainable and they merely encourage a kind of humiliating paternalism (which is not the case with the above proposed progressive tariff, section 6.3).

A much more innovative proposal would be to pay higher attention to the payment periodicity of water bills, especially for the smallest ones. A daily payment is easier and more flexible for small income families than a trimester or semester bill which will reach a too high level of debt. Specific social measures might be added in poor districts such as free connections to the water supply and sanitation networks (a very costly measure), free leakage repairs (less costly), continuous water supply even if water bills are not paid (a low cost measure). These very well known means can be partly used (for example, a connection is billed at 25% of its cost, etc.). They mainly depend on political will, social acceptance, economical wealth, national and international atmosphere. Like the violet, solidarity and generosity are very modest and attractive flowers….

An ethical way to approach these problems is to be careful with an indiscriminate use of social partners who will be part of any water policy program oriented towards poverty alleviation. One more time, water needs more capital expenditures than labour. When such a social water program is established, enough social workers are

absolutely necessary for a successful action plan. The more numerous they are (supposing good training and motivation), the better the program achievement.

On the contrary, broken promises, which are reported by many social workers on the ground, will provoke dramatic aggressive reactions when the water program is finally short of money.

In the water field, capital grants can create an important labor activity but not the reverse whatever the relevancy of the technological choices, the organization, or the action plans should be. Financial capacity is an absolute prerequisite for water as wind is for sailing (see above, section 4.3, statement 6 and Figure 7).

7. Communication, ethics and water financing

7.1 General

There are several types of communication: information, institutional communication like awareness campaigns, controversial debates, advertising and direct marketing with participation of the users, etc.

Communication about water financing is not easy. People have a great interest in the environment, wildlife, nature protection, but are not interested in water techniques, and engineering processes. They have definitely no interest in water financing because it is a difficult topic and there is no appeal about it. Rare opportunities to have fun occur however every time there is some financial scandal or supposed scandal. This kind of communication is unfortunately rather negative. In each country there is often some confusion between the local currency and the financial data which are indicated mostly in dollars, thousands of dollars, millions or even billions of dollars. When costs or prices depend on volumes, nobody knows exactly if the physical reference is expressed in litres, cubic meters, cubic hecto- or kilometers.... It is very confusing.

Beyond a threshold, which is approximately ten times higher than the annual individual standard earnings, a psychological blockage appears within the society of users for any indicated amount of money. It is always regarded as a huge expense and nobody will react whether it would have been a better decision with only half of the sum or, on the contrary, ten times its present value.

Ethical communication for water financing requires developing a teaching activity involving closely the consumers, users, politicians, citizens, and journalists. If neglected, confusion will quickly become extreme. Confidence will vanish. Mistrust for any decision on water will spread everywhere.

7.2 Towards an ethical communication devoted to financing water

A popular saying reminds us that a good action is never noisy. It adds that a noisy action is rarely a good one…In the field of water financing, information campaigns, awareness enhancement communication programs, TV shows, etc. are good means to denounce the bad results of past and present water policies. It creates a political pressure against the existing water organization. It generally does not go further. Nothing positive happens except some activity for the institutional communication and media markets, which is not so bad. In a similar way, the very numerous colloquia, scientific conferences, experts working groups, offer real advantages to bring people together. Progress for knowledge and understanding is obvious. Impacts on decision-making changes and new financial resources are less certain. When looking back over the past two decades and comparing the increase of specialized meetings on water and the reduction of available finance for the world water aid, it even looks like an apparent negative influence.

An ethical approach to communication on water financing would therefore be useful. Some recommendations are suggested:

(i) to debate with and teach the various stakeholders of the water policy, to learn from them is far better than to address one's own thinking to colleagues who belong to the same social or scientific category. A governance-oriented communication, for which public bodies, the private sector and the civil society would be committed, must be created and carried out. It does not exist yet because the communication is exclusively linked to the public and private organizations which can pay for it;

(ii) communication on real projects can result in real decisions and funding. Communication on supposed projects and principles never surpasses written reports. Local debates are the fundamental basis of any financial action plan. A general debate might be interesting but rarely turns an expenditure into an income. It sometimes shows the right direction but is unable to move.

(iii) ethics for water financing consist in a trade off between wishes, action and expectations about its consequences. In order to be successful it is necessary to control the wishes, to mitigate the action and to anticipate the supposed reactions. An adapted communication must take into account these three concerns and make them compatible globally;

(iv) any communication plan about water financing which fails to tackle the poverty question must be deleted;

(v) communication is an excellent opportunity to commit new people (who are not especially water experts) to the water financing problem. It implies that the com-

munication organization should be very close to the institutional arrangements and bodies, so that the interested people can interact without delay;

(vi) an ethical way to communicate consists in striving to come as near as possible to an expected truth, even unpleasant or unfavourable for oneself. In such a case, communication is not exclusively oriented to a successful image and self-satisfaction as it is systematically observed today.

Ethical financing needs an ethical communication. This requires a lot of courage.

8. Conclusions and recommendations

(§ 1) Ethics and finance have similarities. Ethics must be trusted because good practices turn moral principles into generous actions. Finance is based on confidence because a fair behaviour is supposed to be developed between partners of a joint operation.

(§ 2) In the field of water management, far more financial resources are needed urgently on a worldwide scale. This request can be accepted if better relationships are promoted between various stakeholders in the sustainable development of water systems: public bodies, private sector and the civil society. Some main objectives must be reached:

- the economic market rules are balanced by an institutional governance;
- the social demand is evaluated and challenged by efficiency indicators;
- water regulations and good practices balance one another.

(§ 3) In order to obtain a good ethical judgment on the quality of local water systems:

- water wastage reduction is an approximate measurement of the ethical degree of water regulations;
- corruption control increases the capacity for reducing some undesirable consequences of an unregulated water market;
- efforts to improve the efficiency of water management allow for adynamic application involving ethics in this sector;

It is recommended to be successful in the three above directions, to ban the bilateral agreements between partners of the water system and to require the presence of the third partner (respectively the private sector, the civil society, and the State).

It is always a real progress and facilitates an ethical development to use the Deming cycle methodology: plan, do, check, act.

Harmony is acquired when some equilibrium is established between the social and public attitudes, economic rules for water (such as water pricing), environmental and technical requirements for the water management.

(§4) From a set of fourteen disputed statements, the following ethical recommendations are suggested:

1. since money is always a problem, pay attention to it because it closely depends on risks;
2. agriculture must reduce the water wastage and pay for water as a real cost;
3. do not hide urgent water problems behind cultural and religious habits.
4. water and sanitation are costly and awareness is a first step to improvement;
5. adapt water prices to the people's affordability and include social considerations as much as possible in water pricing;
6. do not neglect water conflicts and do not wait until their final time to act and meanwhile do not confuse what you say, what you do, what you expect;
7. when possible, water has to pay for water;
8. market the water demand, control the water offer, use cheap technologies first;
9. a general rule is to increase the water prices in order to come as near as possible to the best world water standards; use various financing channels such as taxes, fees, bank loans and water prices; do not forget the sanitation costs: they double the clean water costs;
10. balance water supply and sanitation expenditures because of a long range vision, public health and water resources protection;
11. standards for water quantity and quality have to be regarded rather as objectives than as inflexible constraints;
12. be flexible with upstream/downstream considerations and priorities; base your management on demands of people rather than on theoretical views;
13. prefer to invest in global water programs than in an isolated project;
14. be transparent with the water contracts: they will turn into ethical operations.

(§ 5) Use the fundamentals of ethics to base a strategy against corruption:
- Justice (transparency, access to the information);
- Prudence (studies and assessments);
- Fortitude (courage and will);
- Temperance (tolerance, flexibility).

Fighting corruption is not limited to the private sector but concerns all actors of the water system.

(§ 6) Poverty alleviation is at stake. For large water projects, social considerations must be an important part of the final decision. Try to transfer money from the rich to the poor water users. Pay special attention to the progressive tariff possibilities.

Increase the financial means before staffing a water program. Do not act in reverse.

(§ 7) Water financing is not a fashionable topic for communication operations.

Try to commit all the water stakeholders at an early stage (governance approach) on real problems. Be flexible with communication necessities but stay rigid on the water demand for the poor.

Financing water can be turned into an ethical project when willingness, a legal basis and some knowledge from past experiences are brought together.

When combining the three notions of sharing (the solidarity aspect), challenging (the development aspect) and association (the governance concept), one can harmonise and humanise the water management business.

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