

LIBERALISATION OF DRINKING WATER, IN EUROPE AND DEVELOPING COUNTRIES, Inaugural Address Meine Pieter van Dijk 25-11-3

PPP #1 title

Ladies and Gentlemen, what does an economist know about water? This is what most people asked me when I told them I would be the first economist to become a professor at the UNESCO-IHE Institute for Water Education. I would like to answer that question this afternoon. The short answer is not much, but I hoped that the picture on the invitation would have convinced you that at least I have tasted the water. In the water sector economists are nowadays asked more often to give advice; in the first place, because water is increasingly considered an economic good; and secondly, because many technical solutions do not seem to work, if institutional, economic and social aspects are not taken into consideration. Finally, more efficiency in the water sector (better quality together with lower cost) is considered important in today's world and economists are expected to make a contribution to achieving this aim.

This Chair concerns Water Services Management, meaning 'all services necessary to bring water to customers and to get waste-water treated'. In this inaugural address I will only deal with drinking water. As one colleague at UNESCO-IHE described my task: "We produce a certain quality of drinking water and you should try to bring it to the customers in an efficient way and get them to pay for it." I will only deal with one key issue in drinking water, namely, the role of the public and the private sector. This is clearly an economic issue and very relevant for the water sector.

Liberalisation and privatisation are important trends. Liberalisation is the broader term: the efforts to expose parties to market forces by introducing competition. Instead of privatisation I rather use the term private sector involvement, which doesn't imply a majority share by the private sector. Liberalisation in the drinking water sector is an ongoing process and will lead to a larger role for the private sector. It can lead to more competition and may hence contribute to lower costs and consumer prices. OCfEB (1997) calculated that in the Netherlands the cost of drinking water could be reduced by a maximum of 15 percent if more competition would be introduced in the sector. Concern about the quality of our drinking water and its continuous supply raises the issue, I also wish to discuss, namely what the public sector in a more liberalised economy can do to assure quality and regular supply at a reasonable price.

Liberalisation in the drinking water sector is very much a matter of dispute and often a dispute in terms of yes or no. I will review arguments in favour of and against further liberalisation. Economic theory can help to decide on how to react to the further liberalisation of the drinking water sector, by debunking for example arguments relating to the natural monopoly character of water and by providing suggestions on how to regulate a more liberalised drinking water sector. In particular, institutional and regulatory economics seems to be relevant, analysing the importance of rules and regulations for the outcome of the market process. Liberalisation is decided in the political arena, but in my opinion the issue is not the choice between either public or private, but what kind of private involvement and under which conditions.

PPP #2 Structure of the lecture

Water is a sector in change, facing new challenges in the near future. It is my conviction that in seeking solutions for these challenges liberalisation and private sector involvement will turn up. So let us analyse what good or bad we can expect from them. After discussing some recent trends in the drinking water sector that shape the battlefield, I will review particularly the political and economic arguments in favour of and against further liberalisation.

Before indicating the implications of more liberalisation for developing countries I will discuss the current developments in the Netherlands. Developing countries face the same issues and have to make similar choices.

Liberalisation and providing water services for the poor may sound like a contradiction, but again thinking in extremes may not prove very fruitful. Here lies a challenge for the UNESCO-IHE Institute for Water Education. In the final part I will give an overview of our research activities.

PPP #3 I. Characteristics of Dutch water sector and International trends/events

The water sector receives a lot of attention. Drinking water supply and water management are increasingly becoming international issues, which are dealt with in international conferences (sheet). The drinking water sector in the Netherlands is characterised by public ownership, a trend towards bigger units (usually at the provincial level), providing good quality (although relatively expensive) water and by a high reliability. Water companies are regional monopolies regulated by government.

PPP #4 Need to invest

For several reasons, drinking water companies in the Netherlands will need to invest more. First of all as a result of a number of mergers water companies make considerable additional investments to modernise their centralised production facilities and to link their existing distribution networks. Secondly the deteriorating quality and more limited availability of groundwater are likely to drive up treatment costs. Another problem for drinking water companies is that they need to make additional investments to meet increasing stringent water quality standards and to satisfy environmental management requirements. Finally, in the long run under pressure from rising sea levels, an expected subsidence of the surface, climatological changes and increasing urbanisation, the future poses significant challenges for the water sector in the Netherlands. In the west of the country the ground level is expected to sink between 2 and 60 cm over the next 50 years. Ground water may become increasingly scarce, while treating polluted surface water will cost a lot more.

Apart from these challenges that result from local developments drinking water units everywhere in the world are confronted with three major world-wide forces changing the scene for them: innovation, environmental regulation and liberalisation.

PPP#5 Three world-wide forces changing the scene: 1. Technical Developments

Technical developments are a real challenge for the drinking water sector. In the current situation in the Netherlands of regional monopolies for water companies, not many incentives exist for experimenting with innovations. Answers to these challenges until now were mergers, a shift from ground water to surface water and expensive water treatment. In the long run this approach will only increase the price of drinking water. Innovations could radically change the current situation in the drinking water sector.

PPP #6 Innovations

What if filters at the tap would become available to transform salty water at the tap, or if filters would allow people to make good quality drinking water from lower quality water coming from the grid? It would then be economically viable to build a national grid, shared by a number of drinking water companies, who now complain that they cannot guarantee the quality of the water in such a grid. The water companies would then sell the filters and provide other services to customers for competitive prices. Comparable to the case of the electricity sector, companies would be paid for what they have put into the grid and what has been sold to their customers. Pumping and transportation costs could eventually decrease if the grid is used to minimise the distance between sources and customers, where at present the water companies have to serve a number of customers who may live closer to other water companies.

Besides the development of a common grid with low quality water brought up to standards through a filter on the tap two other potentially revolutionary innovations are introducing a sustainable water cycle at the household level and introducing separate household connections for drinking and other water. Unfortunately, experiments with a separate system in the Netherlands (among others in Leidse Rijn) were prematurely called to an end when the Ministry responsible for Health stopped all experiments after errors were discovered.

Contrary to the energy and telecommunication sector, the water sector has not yet benefited from spectacular technical developments. Drinking water companies in the Netherlands don't have the incentives or money for innovation and may even have less means in the future, given the falling demand for water since 1989 (Dijkstra, 1999). It would be interesting if the current trend to merge drinking water companies could be used to introduce some innovations, such as the ones already mentioned. Technologies, such as small scale filters, the development of grids, sustainable water cycle at the household level and separate household connections are promising developments and may bring about a new situation in the drinking water sector.

PPP #7 Ad 2. Environmental Regulation

Environmental challenges for the water sector come from the European Union. The EEC directive on drinking water (75/440/EEC) was the first European directive to impose restrictions on drinking water. It laid down standards for surface water intended for human consumption. It was set up in response to the growing pollution of surface water, and in order to provide healthy water, and harmonise environmental and sanitary rules within the EU. Then came the Urban Wastewater Treatment Directive, which is intended to protect the environment from adverse effects of sewerage discharges and to ensure that all significant discharges are treated before being released into receiving waters. The Directive sets standards and dates by which those standards are to be met. After an intense political process, the Framework directive for water and sanitation replaced all previous directives and provides a uniform approach to the issues. Dutch legislation is reasonable in tune with these directives, but its influence on the drinking water sector in other countries, even outside Europe, can be crucial, because Europe now tends to set the norms.

PPP#8 Ad 3. A Liberalisation Process Advocated by the WTO and World Bank

Liberalisation is a process by which competition is introduced in situations or sectors hitherto characterised by exclusive or special rights, or monopoly, granted to historical operators. In daily life a competitive market is a market with at least several suppliers, which may bring down the prices and allows consumers some choice. A perfect competitive market assumes identical products and that prices would equal marginal costs in a long-run equilibrium. What is important for competitive markets is the freedom to enter the market and the process of rivalry in the search for unrealised profit opportunities. The last two conditions have not yet materialised in the drinking water sector.

PPP #9 Introduce competition

How can we make a market work more like a perfectly competitive market? First, by breaking up monopolies; secondly, by internalising external effects (the term used by economists for the unexpected effects of production, such as pollution); and, finally, by quasi-competition for example through benchmarking. The Dutch government is trying to increase the efficiency of the drinking water sector. The government promotes benchmarking, economies of scale through mergers and outsourcing of certain tasks. There are other possibilities to create more competition in the water sector. Most attention has focused on how to regulate the water sector, while Robinson stresses the benefits of greater competition instead. He suggests market-improving and market-displacing measures. The latter are measures that by-pass the market, such as competition **for** the market (companies bidding to obtain a concession), which is common in France.

Robinson (1997) also suggests other interesting possibilities based on open access to the network (water like electricity and telecommunication is a so-called network industry) and the possibility to measure inputs and outputs in the system. In that situation the following means are available: inset appointments; cross-border supplies, connection agreements; and common carriage. In the UK **inset appointments** allow, under the original privatisation scheme, a new water or sewerage 'undertaker' to penetrate the area of an existing undertaker via this appointment (putting clean water in the network of another company). **Cross-border supplies** (water supply to another company in another area) and **connection agreements** (a link to the main of another company) are straightforward. The **common carriage** principle is also used for telephones and electricity and tested for water in England and Wales. It means sharing the use of pipes and implies mixing different qualities of water.

In the Netherlands further liberalisation is pushed by the EU and also through the Netherlands Ministry of Economic Affairs. It has proceeded further in other sectors, for example in the electricity sector. Liberalisation started there with the production side of electricity and, subsequently the distribution will be liberalised. Customers in the Netherlands will be allowed to choose their own electricity supplier as of July 2004. The telecommunication sector is a good example of a sector where prices have considerably decreased. These results are due to a combination of technological developments, unbundling (different producers providing activities that were previously offered as an integrated service) and tougher competition policies.

In some EU countries, namely the United Kingdom (UK) and France, the private sector already plays an important role in water supply. At the European level, as well

as in the Netherlands, a competition authority has been created whose task it is to promote competition because of the healthy results expected from it. Network industries can be either organised in centralised, vertically integrated monopolies (in France for example, meaning the company controls the whole production chain), while in other countries regional or local, sometimes private companies play a more important role. In the latter case, a process of horizontal integration (bigger companies for example through mergers and take-overs) has started in the last decade for example in the Netherlands.

Drinking water supply is internationally considered as rendering a service, rather than selling a good. This means the negotiations for further liberalisation take place in the framework of the General Agreement on Trade in Services (GATS). The topic has been put prominently on the agenda of the current Millennium Round of the WTO. In this context the EU strives for more liberalisation of network industries. The EU could shortly announce a common policy concerning the water sector. Such a policy would define the basis for more regulation (for example pushing the member countries that externalities of water production have to be taken into account) and define competition rules attacking the natural monopoly character of the water market. Finally, the EU could impose a specific status for operators in the water sector, suggesting putting them under private law and giving them for example more financial autonomy.

To summarise, more pollution invited more environmental regulation and points for the need for innovations. Public water companies have limited incentives to invest in technological development and hence liberalisation is necessary to bring about the desired changes. Let now look at the forces influencing the liberalisation process.

PPP #10 Forces II Arguments Against and in Favour of Liberalisation

Supporters of liberalisation consider enabling markets to work the solution of all drinking water sector problems. They point to the driving forces for liberalisation and don't see the resistance forces. EU (1999) summarises all these forces in one figure. I don't want to discuss all these factors, but just pay attention to the resistance forces. We can hear these arguments almost every day. A decreasing safety level may have been the case in the railways in the UK. Also in the private electricity sector there seem to be more power cuts than we were used to. This performance is certainly related to trying to achieve more efficiency and low consumer prices at the same time. The results also depend on what we are willing as a society to spend on utilities and who will provide the subsidies necessary to run the non-profitable parts of the system.

Fear of unemployment and reduced job security does not just apply to the public sector, this is a reality for many people in the private sector as well. Also public water companies like PWN in the Netherlands are reducing the number of employees, but mainly through not recruiting people for personnel willing to leave or retiring. In the Netherlands we face a continuing process of restructuring and have benefited from it.

PPP# 11 Political Arguments for Further Liberalisation

I will now deal with the political arguments in favour and against liberalisation in the drinking water sector. These arguments play a role in the political arena and I distinguish them from the economic arguments, which will be discussed below. In a

book on privatisation, which I edited with Schulte Nordholt, we formulated the contradiction that privatisation is often an economic solution for a political problem.

The political arguments, the weight of which depend on the local situation, can be described as follows:

1. Privatisation in the past has failed or did not proceed as expected in many cases. Take railroads in the UK and the Netherlands (Volkskrant, 22-11-2003) and the electricity sector in the Netherlands. In the latter case giving customers a chance to choose a supplier has been delayed by half a year. One only needs to read the newspaper to know the stories about failed attempts to privatise public utilities.

2. Another argument is that the water sector is just too different. For example, unbundling, the process of cutting up a production process, is important because it promotes competition. However, it may be more complicated in the drinking water sector than for telecommunication, where there are different satellites, wireless and landline services and the firms have access to each other's distribution network.

Drinking water supply requires a source, a main and a distribution network. This is currently in the hands of one company, but it doesn't have to be one company as illustrated by the number of water companies that already buy water from an independent source or sell surpluses to other providers (8% of the total consumption). Chances to unbundle in the Netherlands have been missed and competition is often feared rather than welcomed by operators in the Netherlands drinking water sector.

3. Subsidisation of low-income consumers is another reason for a public role. However, it can also happen through a privately run water company (USAID, 1991).

4. Another argument is that if things go really wrong with public utilities, for example because liberalisation is a complex process, the public expects the government to solve the problems. Then we may as well keep water supply in the government sector.

5. Finally, there is a risk that liberalisation leads to falling prices, which could make it difficult to earn back the investments made and could result in so-called stranded cost.

There are also political arguments in favour of liberalisation in the water sector:

6. It is too expensive to subsidise drinking water: no government can afford subsidies for a long time, all the more so if they are not targeted to certain groups in society.

7. Politicians certainly feel pressure from potential market entrants. Big private utility and water companies are pushing in Brussels for liberalisation and deregulation.

8. Often the government cannot do the necessary investments in the drinking water sector. Macroeconomic instability requires fiscal austerity. Governments are no longer able to finance the pipes and pumps and equipment necessary to assure that EU environmental or local health legislation is met. At the time Mrs. Thatcher found it difficult to finance the amounts necessary to bring the UK drinking water sector up to the level required by Brussels and hence opted for privatisation of water companies.

9. The UK is also the example of a well-functioning independent regulator and that experience could be repeated. Bakker (2003) claims that the regulator in the UK is so

strong that water companies are now unattractive for the private sector. Some operators are considering stepping out! Even if that would happen it is not necessarily a bad trend, as long as positive effects have been achieved.

10. The New Public Management theory, to which I will come back, suggests that more customers orientation (and more market orientation) will lead to better services and lower prices and that is what the public wants.

11. The public asks for lower prices and high quality water. This is an important argument for liberalisation and picked up by politicians and drinking water managers. Interestingly enough the public tends not to know how much they spend on water and may value regular supply of good quality water more than the price they pay.

The weights of these political factors depend very much on the local situation. In the end politicians will decide and they take these arguments into consideration.

PPP # 12 Economic arguments

Many economic arguments are brought forward in the debate on further liberalisation in the drinking water sector. One economic argument I will discuss in detail namely: is water a natural monopoly?

1. Water is a public good, it is nobody's property and hence governments should provide it. But drinking water consumption reduces what is available for other purposes and once a meter is in place everybody can be charged according to his/her consumption. Water has a price even if you only use it to flush the toilet.
2. Market failure, the failure of the private sector to supply water, is usually the reason for insisting on public sector intervention. Government action is needed to remedy market imperfections. Tax funding has to substitute for market discipline. This argument doesn't apply in the water sector, because there are private parties interested to take over and willing to comply with the regulations or with the regulator in charge.
3. Water is a natural monopoly and hence government intervention is required.
4. There are externalities (positive and negative) related to water production, and hence government intervention is required. Indeed externalities will often not be taken into consideration by a private operator and hence the price they charge does not necessarily reflecting the real cost, but they can be forced to do so.
5. The water chain approach stresses vertical integration (from the source to the customer). However, fewer enterprises means there is no more competition.
6. Water supply requires big investments in pipes and pumps and this cannot be left to the private sector. Sunk costs are also a strong barrier for new entry in the sector.

Theoretical arguments in favour of liberalisation in the drinking water sector are:

7. Government failure: people in the administration are neither omniscient nor altruistic and hence may also not deliver the right service, in the right quantity at the right price and place and hence leave it to the private sector.

8. Private water companies are allowed to go abroad and it will be easier to attract private capital. Indeed private companies find it easier to obtain the funds in the capital market. The Camdessus report gives interesting options for attracting finance from the private sector for the water sector. Going abroad is interesting for water companies because there is more demand for water in developing countries, although it is more difficult to connect poor people. There are of course examples of private water companies investing their resources in different sectors in other countries, with limited success (Vivendi 2003 f.ex.). To be able to play a role abroad the Dutch water companies should be bigger and financially autonomous. If as public companies they would be active abroad, they take risks with government money or risk to compensate their losses abroad through higher prices to be paid by their Dutch customers.

9. Increasing scale of production and multi-utilities (water and electricity or gas) results in economies of scale and scope bring down consumer prices. Economies of scale and scope are mentioned as the main factor behind the success of multi-utilities. They are achieved through joint installation of pipes, repair and maintenance, billing and customer relation management. In the drinking water sector mergers do not always mean lower cost per litre. We see sometimes an increase of average cost after reaching a certain size, because of diseconomies of scale. Increased average cost for production and transport of water in a number of the bigger water companies can be derived in the Netherlands from the benchmarking exercise of the association of water companies (VEWIN). This will turn out to be an argument against ‘water is a natural monopoly’. Why then water companies in the Netherlands want to merge with or take over other companies? I see 5 reasons:

- a. They want to become the largest company
- b. They think multi-utility compensates for shrinking local drinking water markets
- c. They want to be able to operate abroad
- d. They anticipate liberalisation and want to be prepared by becoming too big to fail
- e. They don’t like to do too many different things at the same time (multi-objectives)

The weights of these economic factors are estimated by economists, but again much depends on the local situation and in the end the politicians will decide and let us hope they take these weights into consideration.

PPP #13 Economic argument: drinking water supply a natural monopoly?

The economic argument used most often for government intervention in the water sector is the **natural monopoly** argument. An industry is a natural monopoly if over the relevant range of outputs, the cost function is subadditive. Costs are said to be subadditive if a single firm can produce a given output or a set of outputs at lower cost than two or more firms can. Subadditivity is a necessary condition for the existence of a natural monopoly.

We know from economic theory that a monopolist will maximise its profits by charging a higher price and limiting his production to marginal revenue equals marginal cost (Viscusi et al., 2000: 77) instead of setting the price consumers are willing to pay equal to his marginal cost (the marginal cost pricing rule for public services; Bahl and Linn, 1992: 241). Price regulation could correct the behaviour of the monopolist, but it requires that the regulatory board ‘estimates’ the right price.

The case of natural monopoly means that the least expensive and most efficient way to produce a good is to have one firm produce all units, but it doesn't have to be a public company. Even if drinking water requires public sector involvement, because part of the system is a natural monopoly, this does not exclude introducing more (quasi-) competition. For the single output cost function economies of scale are sufficient for subadditivity. The following points argue against water as a natural monopoly:

1. The empirical literature leaves doubt as to whether many utilities exhibit increasing returns to scale. In the drinking water sector larger companies have diseconomies of scale because of the trend to go for bigger production units and larger networks, in which you need to pump the water around.

2. The empirical literature also shows that scale economies in one range of output is not sufficient to demonstrate a firm is a natural monopoly. What is the relevant range? For a water company that would be the case of one source supplying all the water with appropriate pumping and cleaning capacity, with one corresponding main and distribution network. Usually there are several sources (competition) and it is possible to build several mains (competition), or use each other's main (competition). Only the distribution network is unique! It would not be worth for a second producer to build a complete parallel distribution network. Hence that is the real natural monopoly, although shared or common use of the distribution network for drinking water is in principle possible, as in the electricity and telecommunication sectors. It has been tried for drinking water in the UK already.

3. Single output firms are a special case. Sharkey (1982) proves that in the case of a multi-product firm, economies of scale and scope together are not sufficient for general subadditivity. He subsequently derives the sufficiency conditions for subadditivity in the multiple output production case. To be a natural monopoly the water company should be a single output firm.

Many public goods, including water are jointly supplied. In the case of a multi-utility this is very clear. However, also most water companies are producing several qualities of water and they may be involved in other activities, such as nature conservation, cleaning of water for others and selling water at different rates (for example for small and big consumers). This is a theoretical argument to separate different duties of a water company. For example nature conservation can be separated and contracted to the lowest bidding party. Private sector involvement can make water production in general more competitive and drinking water supply in particular more efficient.

PPP #14 III Current Developments in the Netherlands

The introduction of market principles in the water sector in the Netherlands is due to national policies, but also the EU and OECD continue to push further liberalisation in the water sector. Hence it is interesting to assess the potential benefits of moving towards a more competitive market. For that purpose some five scenario studies have been carried out by different organisations in the Netherlands since 1995.

Introducing competition was a conscious process in the Netherlands, which started with the preparation in 1996 of the new Drinking water act. Wubben and Hulsink (2002) discuss the scenario studies. They characterise the first study as "naïve concerning the dynamics of the sector, once concessions would be tendered". It

excludes technical developments from serious consideration and the acknowledged window of opportunities was rather small. A different wind started blowing in 1997 when an institute of Erasmus University (OCfEB) published a study on the possibilities to let the (water) market work. It showed that the cost per household could range from 200 guilders per year in Groningen to 500 in Zuid Holland, which was not justified by a few companies doing nature conservation in their sourcing areas. The ratio of 2.5 to 1 has been reduced somewhat by the year 2000 (from 147 to 241 euro per connection), but remains huge.

Wubben and Hulsink (2002) conclude that the research acknowledges the potential for pro-active strategic behaviour by corporations and coalitions of public and private stakeholders. That is exactly what has happened and resulted in the fact that in 1999 Minister Pronk has sent a law to parliament to keep ownership of water companies in the public sector (Pronk, 1999). The argument used is protection of the consumers and sustainability. However, the Ministry of Economic Affairs in the Netherlands argues in favour of further liberalisation, the arguments used are increased efficiency and more customer friendly policies. The Ministry for Economic Affairs would also like to see some Dutch water companies operate internationally. It has temporarily lost to the Ministry for the Environment (VROM), when the previous minister blocked selling shares of water companies to private parties.

There are forces against the current Dutch policy. The policy should be compatible with EU policies, which promote liberalisation and competition. Secondly, business interests lobby against this policy, using the argument that our policy is in conflict with the EU treaty, assuring free trade in goods, services and capital. Finally, it should be noted that the cabinet tends to be more liberal than parliament in the Netherlands.

PPP#15 Implications for developing countries: how do we approach it?

So far I have only talked mainly about Europe. I wanted to show you not only the complexity of the issue of liberalisation, but also the opportunities it offers. We now need to turn to developing countries. It is my conviction that the same principles of economic theory apply to these countries. Different boxes in the written version give an impression of problems in the drinking water sector in developing countries, in particular in India, Ghana, Nigeria and Chile. Tackling these issues requires multi-disciplinary research to better understand the issues.

What emerges is that developing countries are under even more pressure than European countries to liberalise their water sector. Often the IMF and the World Bank push them, and many bilateral donors only finance projects in the water sector involving the private sector. Because the international private sector tends to be strong, while the local private sector is often not very developed there is a clear need also in developing countries for a regulatory authority.

#16 Issues for a regulator

Regulation is a necessary complement to liberalisation and privatisation. My favourite definition of regulation is: “sustained and focused control, exercised by a public agency over activities valued by a community”. Regulatory economics has become a serious topic in American universities, but not in the Netherlands. It is about fine-tuning the economy. Robinson (1997) describes regulation as a means “of achieving

the result of perfect competition whilst avoiding the messy and apparently wasteful process of competition itself”.

A list of regulatory issues which are important in the water sector, in particular in the case of increasing private sector involvement, is given. After all there are only two sources of discipline for private companies: investor imposed discipline or government imposed discipline. The question who should be the regulator has been answered differently in different countries. The options are listed on the sheet. We know that regulation is only effective if there are sanctions and I have listed some as well. **#17 Options and sanctions**

V Research of the Water Services Management Core

How do we approach these issues in developing countries. I say how do we approach it, because I am part of a department and lead a Core group. The Department is called Management and Institutions and counts the Water Services Management Core and a second Core group, which focuses on water resources management. In our Core we have four staff members and distinguish three levels of analysis for water services, which correspond to the main focus of our research: the macro, the meso and the micro level. We deal with two topics mainly: drinking water and sanitation and river basin management issues and mainly deal with developing countries. This results in six research topics as summarised in the following sheet for water and sanitation.

PPP #18 water and sanitation research topic per level 1. The Macro Level

Research at the macro level concerns the impact of liberalisation, the role of policies and the regulatory framework and the effects of water sector reforms. For the EU we are studying: how liberalisation affects the water sector in Europe? The importance of water sector reform programs in developing countries is increasing, but very few evaluations are available. A framework for an evaluation of water sector reform programs has been developed. A water sector reform program is a co-ordinated effort to reverse negative trends in the water sector in a developing country. Such a program usually implies improved quality of the service delivered and a better financing structure. The World Bank has listed the tools of these reforms: institutional changes, tariff reform, improvement of sector governance and regulation and finally, professional management of the utility.

We will try to determine the results of Water Sector Reforms together with Royal Haskoning. It is important to analyse which factors have hindered or facilitated the formulation and implementation of the program and which factors explain the eventual success or failure.

At the three levels (macro, meso and micro) different theoretical frameworks can be used. At the macro level we are looking to theories about decentralisation (Van Dijk, 2000) and the effects of liberalisation and privatisation. At the meso level all kinds of management theories are relevant.

2. The Meso Level

At the meso level the issue is how to run a utility efficiently. The core is also interested in the role of private finance and PPPs. The meso, or the level of the water company also deals with the question: what is the best governance structure for a

water unit, what are the sources of capital, how is it managed and which technology is used?

The World Bank proposed UNESCO-IHE as follow-up to Blokland et al. (2000) to do research on public water utilities in developing countries. Until recently the Bank was only interested in bringing in the private sector in drinking water. Now they want to work again with the public sector. In 90 percent of the countries water supply is still a task of the public sector, but some public utilities are doing a better job than other water providers. We have selected ten examples of well run public water utilities and are using the case study method as propagated by Yin (1989), which allows analytical generalisation if the cases are selected using a number of precise criteria. This is a new approach for an economist brought up in a tradition of empirical generalisations based surveys of randomly sampled units. We are asked to look for critical factors making it possible for a public drinking water utility to do better.

What are the factors explaining why certain public operators are doing better than others? We see in many countries frequent broken pipes, unmotivated staff, insufficient financial resources, high UFW and no regular supply. Possible indicators of the success of water utilities are a low unaccounted for water (UFW) or a higher number of connections/personnel. The theoretical framework used stems from the New Public Management theory (Horn, 1995) and can be summarised in the proposition that water companies with autonomy, which are held accountable, and are working with contracts, having more market and customer orientation may do better than the others. Performance indicators and benchmarking (quasi-market competition) are important, just like factors such as autonomy and accountability of the unit, a cost recovery structure, community participation, customer orientation, and proper identification and allocation of risks.

3. The micro level

At the micro level, or the level of the water users, we deal with poor people who often have no access to piped water. Our work at UNESCO-IHE is motivated by a concern for the poor. However, after working almost for 30 years in development I believe that there is no future for the poor if we do not also develop the local private sector.

The Core group is working on a number of studies for the IMO Working Group of the Water Supply and Sanitation Collaborative Council (WSSCC) in Geneva. They concern the consequences of outsourcing and topics such as incentives for water companies to reach the poor (Franceys and Bos, 2002) and institutional options for waste water treatment (Blokland et al., 2002).

#19 Research concerning river basin management

At the river basin management level the institutional issues and regulation question depend on what is decided at the macro level. At the level of the watershed the management issues become acute and finally we look which methodology can help us to find out what the effects are at the water basin level of a certain institutional set-up, a given regulatory framework and the management of the basin (Yuan et al, 2002). I have recently become member of a Task force of the Chinese International Council for Environment and Development (CICED) on integrated river basin management.

#20 What are the Issues for Water Services Management?

Given the three levels of analysis distinguished I will now consider the most important issues at each level. The issues can be summarised in the following figure: what I call managing drinking water at macro, meso and micro level with seven Ps:

- P Pricing and (regulation) Policies
- PPP Public or Private or Partnership
- P Performance
- P Poor people

Together this becomes: H2O = WSM = M3P7

Or

Water services management= Managing seven Ps at macro, meso and micro level

Water pricing and regulation policies are the most important issues, usually determined at the macro level. They determine whether good quality water can be supplied to poor people on a regular basis. The second issue at this level is whether water supply is a Public or Private sector activity or whether a Partnership is possible, leading to a PPP? At the utility level the results are measured in terms of a certain Performance, the third issue. Is the unit doing well, or is it inefficient if measured by well-know performance indicators. At the micro level the issue is to connect the poor.

PPP#21 Conclusions

Water is in the first place an economic good (Savenije and Van der Zaag), it is certainly more than a physical good. At the recent UNESCO-IHE conference in Delft (July) my working group phrased it as: “water is a social and economic good and if this is not properly appreciated this can lead to shortages, pollution and conflict”.

There are good reasons for more private sector involvement in the drinking water sector, in particular since it may bring about the necessary technical developments and innovations and hence lead to price reductions! My strongest argument in favour of further liberalisation would be that there are substantial benefits to be expected from more competition, increased innovation and the operation of multi-utilities.

In that case the government can limit itself to creating the conditions for private sector development and controlling through regulation that the private sector will do a good job. The government will have to introduce a regulator for the drinking water sector, which sees to it that the private sector respects the rules. There is also the option to liberalise the drinking water sector while maintaining public ownership (Blokland et al., 2000). This is what we call the Dutch model and it is an attractive option to share with our students.

PPP #22 The balance with respect to economics

I conclude is that it is not possible to derive from economic theory that further liberalisation is or is not beneficial for the drinking water sector. However, subsequently the economist can help you to minimise the possible negative effects of further liberalisation through regulation. I hope by now I have convinced you that I may not know much about water but I have a lot of books about economics, particularly about institutional and regulatory economics.

In the case of private of drinking water supply and in the case of public ownership with substantially more private sector involvement, regulation becomes more

important. In this field economics can make a contribution. In the US, regulatory economics has become a regular topic in the curriculum for economists already.

All poor (rural and urban) have the right to sustainable and equitable water and sanitation services. This is an enormous challenge for most developing countries. The aim should be to reach the Millennium Development Goals for water supply and the Johannesburg goals concerning the sanitation sector. This would require a concerted effort, where the existence of low-income consumers implies that some regulation is needed, while the private sector may be able to provide more finance.

Although I am employed to work on water services management, it is important to look at developments in other network industries as well. The same issues tend to play a role and hence it is important to learn from each other. I get the possibility at this institute to look to other network industries and I think we can learn a lot from the electricity and telecommunication sectors.

PPP #23 Economics and the water sector

An economist in the drinking water sector will always ask four questions:

1. Who is responsible for the supply of drinking water and the waste-water collection and treatment? This is an institutional and regulatory issue.
2. How much does it cost and can it be done also in a cheaper way? This is the micro economic or efficiency question.
3. Who finally foots the bill and how is the payment organized? This is the financial question.
4. What are the social consequences of these decisions? This is the social issue, which can not be forgotten.

PPP #24 Credo

You can expect a good economist in this sector to address all these four questions. My expectations are that a well designed and scaled facility, using the right technology, working in a proper institutional and policy environment with private sector involvement and capital and based on cost recovery mechanism will probably be the most successful one.

I tried to show that an economist can help to better understand the main issues in the drinking water sector, by using the available theories and listening to the arguments from those who favour or oppose further liberalisation in this sector. The real issue is not private or public supply, but how to increase the performance of the drinking water sector to serve also the poor better. There is a whole range of options for bringing in the private sector and the experiences so far will have to be studied. For each country and case we need to find out what is the most appropriate way of increasing the efficiency of water units.

At the end of this inaugural address I like to thank those who have nominated me. Subsequently I like to thank those who have always encouraged me in my academic life: my parents and my family. I am looking forward to working with students and colleagues at UNESCO-IHE and continue to enjoy working one day a week at the Economic Faculty of Erasmus University. Finally, I like to thank my teachers for what they have meant for me.

Ik heb gezegd!