Introduction

In 1987, the OECD completed a study on the Pricing of Water Services in Member countries (OECD, 1987). A second overview on this theme — a type of “10-year progress report” — has recently been carried out. Relative to the 1987 study, this new overview provides more detailed information concerning the key water-using sectors of households, agriculture, and industry. It also provides pricing information for a larger number of countries, and for several “special topics”, such as subsidies and institutional changes.

This paper provides an overview of some of the main results of the recent study. Its focus is on changes in water pricing practices since 1987, especially in the areas of institutional setting, tariff structures, and tariff levels. The main focus is on household water supplies, and sewage disposal, but industrial sector issues are also briefly considered.

Changes in the institutional setting

International

At the level of principle, both the Polluter Pays Principle (PPP) and the User Pays Principle (UPP) are being interpreted more broadly than in the past, in addition to being applied to a wider number of situations. For example, the PPP was originally intended as a way of encouraging countries not to subsidise the investments necessary for firms to comply with pollution control regulations. However, OECD countries accepted (in a 1991 Recommendation) that not only pollution prevention and control costs, but also pollution damage costs, should be borne by the polluter (OECD, 1991). The 1992 Maastricht Treaty also contains a specific reference to the PPP in its text, as does Principle 16 of the Rio Declaration (United Nations, 1992).

The UPP has also become more widely accepted during the past decade, and the “water” applications of this Principle have expanded considerably (see Smets, forthcoming 1999).
formally adopted the UPP in its 1989 Recommendation on Water Resource Management Policies, stating that: "... resource pricing should at least cover the opportunity costs of these [water] services: the capital, operation, maintenance, and environmental costs" (OECD, 1989).

Other important statements of principle have also been made recently with direct reference to the water sector. For example, the Dublin Statement on Water and Sustainable Development (1992) explicitly recognised at the international level that "... water has an economic value in all its competing uses and should be recognised as an economic good". (http://www.gwp.sida.se/gwp/gwp/dublin1.html). A 1997 UN resolution focused on the need for "... pricing policies that are geared towards cost recovery and the equitable and efficient allocation of water, including the promotion of water conservation." (United Nations, 1997).

A 1998 UN-sponsored Conference on Water and Sustainable Development made the same point, emphasising the need to "... mobilise adequate financial resources from public and private sectors in order to achieve effective water management, and to provide for "... progressive recovery of direct service costs and overheads, while safeguarding low income users" (http://www.iisd.ca/sd/water/sdvol13no4e.html).

The recent (draft) EU Framework Water Directive represents an ambitious plan to integrate several disperse pieces of European legislation related to water issues. One of the most interesting components of the draft Directive is the role that it would assign to water prices for achieving conservation objectives. The underlying philosophy is that making water users responsible for all costs associated with that use would contribute to a better allocation of the resource. Thus, it envisages a regime of “full cost recovery pricing” — including capital costs, environmental damages, and scarcity rents — which would be a significant step toward more sustainable exploitation of water resources.

**National**

There is some tendency for OECD water supply systems to evolve toward the formation of groupings of municipalities, in order to organise supply at a larger scale. This reflects a recognition that the provision of water services can be inefficient when there are too many independent water providers involved in the process. (Italy has 13,500 water networks and 6,600 municipalities that manage their own water supplies nation-wide.) Thus, some consolidation has been occurring in several OECD countries. In the Netherlands, for example, the number of water boards has been reduced from 129 in 1990, to only 66 in 1998.

There is also a tendency for the degree of management autonomy enjoyed by local water utilities to increase. Broadly, the role of the national or regional government in water management seems to be shifting from that of “primary service provider” to being the “creator and regulator” of the water supply system. In a small, but increasing, number of countries, independent economic regulators have been set up to regulate water prices on an autonomous basis. These economic regulators are usually in charge of setting prices, but may also have other responsibilities, such as establishing service performance standards.

Water supply regimes remain, on the whole, publicly-owned, mainly because of the “natural monopoly” characteristics of these systems, which limit both the political and technical possibilities for introducing private markets into the management of water supplies. These limitations notwithstanding, an increasing number of countries are now experimenting with various forms of private management of these regimes. Some countries have gone considerable distance toward full privatisation of the supply system, most notably in the UK. The privatisation of the UK water industry took place in 1989, and it remains the most significant privatisation experiment in the OECD Region. However, some parts of the US have also moved in this direction, and full privatisation is currently being considered by the Czech Republic.

Even where the water supply system remains publicly-owned, service management is increasingly being delegated to private operators. This approach seems particularly well-suited to decentralised systems, in which municipalities see delegation as a useful way of overcoming their own lack of technical expertise and/or financial resources. In several countries, service providers are permitted to decide whether they want to manage the service themselves (direct management), or to
delegate management responsibility to a private operator. “Concessions” (i.e. the delegation of authority to private concerns) already involve 75% of public water supplies in France (although only one-third of waste-water services). The same approach has also been adopted in the Czech Republic, and is spreading rapidly in Spain and Portugal. Hungary and Poland are also considering moves in this direction.

A wide range of recent government Acts, Decrees, Orders and decisions in OECD countries are also changing the institutional context in which water pricing is being carried out. Much of the radical reforms currently being implemented in Australia is being driven by the 1994 Council of Australian Governments (COAG) agreement to implement a Strategic Water Reform Framework.

In the US, the Safe Drinking Water Act (including the 1996 Amendments), the enforcement of which is largely delegated to individual States, is often cited as a force driving toward higher prices for water services. Significant legislative reforms have also occurred recently in France, Belgium, Denmark, South Korea, Italy and Portugal, among others. For example, in France, the 1992 Water Law prohibits the use of “flat fee” tariffs, thereby ruling out both entirely non-volumetric schemes and two-part tariffs. Although some exceptions are allowed, the result has been a decisive move towards one- or two-part tariff systems, without minimum consumption charges.

In Denmark, a recent law imposes an obligation on water utilities to ensure that all properties newly connected to the public water supply have a water meter installed. Furthermore, at least some portion of water deliveries must now be charged using a volumetric rate. South Korea issued (1996) the Comprehensive Water Management Countermeasures, aimed at both full cost recovery and demand management objectives. The result has been a significantly reduced emphasis on fixed rates.

Portugal has developed (1993-94) a new legal framework for water services, in which private companies will play a larger role. A 1994 law also completely restructured the Italian water industry, based on “optimal management areas” (something akin to river basin authorities). Again, the private sector is expected to play a major role in the new structure.

**Evolution of tariff structures -- households**

Given the widely differing demands on water supply systems, and the different institutional and cultural frameworks within which pricing policies have to operate, it is not surprising that there continues to be considerable variation in pricing structures across OECD countries. In particular, the rates at which countries are moving toward marginal cost pricing, full cost recovery, and better targeting of support for low income users, vary widely across the OECD Region.

Nevertheless, there does seem to be a general movement away from the pricing of water services solely to generate revenues, and towards the use of tariffs to achieve a wider range of economic, environmental, and social objectives. Awareness also seems to be growing about which particular elements of water price structures (connection charges, volumetric and fixed charges, etc.) can best achieve which particular policy objectives.

**Metering**

For example, the metering of water consumption is a prerequisite for the application of marginal cost pricing principles. About two-thirds of OECD Member countries already meter more than 90% of single-family houses, and other countries are actively involved in expanding their metering systems in some way. On the other hand, the trend towards metering is not universal; it is still a very controversial policy issue in some countries, largely because of its potential implications for low-income households.

There has therefore been some interest expressed in some countries in the idea of “selective metering” of houses. For example, this can involve compulsory selective metering where new water resources are scarce, where households are consuming significant amounts of “discretionary” water (e.g. for luxury use), and where the initial installation costs of meters are likely to be relatively low (e.g. new homes).
The situation in apartment blocks, where most of the population live, is more varied. Although the water supply entering apartment buildings is metered in nearly every OECD country, it is only in a few countries that separate metering is available for individual apartment residents. In most cases, the owner, manager, or another responsible person receives a volumetrically-based water bill, but then recovers this charge — together with the charge applying to waste water services — from residents, using some flat rate criterion (such as m² of floor space).

For both equity and efficiency reasons, some countries are moving toward metering water use in individual apartments. In Germany, significant moves of this type since the 1980s in Hamburg, Berlin, and Frankfurt (Kraemer and Nowell-Smith, 1997). In France too, the number of meters in apartments appears to have grown significantly in recent years. However, the trend toward apartment metering is much less marked in most other European countries.

Public water supply

Broadly, there is a trend away from fixed charges, and toward volumetric charging. Even where fixed charges persist, there is evidence of a shift toward the reduction (or even abolition) of large minimum free allowances. Australia and South Korea have each made significant strides in this direction, and Japan has recently been debating the continued use of its “basic rate”. In South Korea, for example, the Comprehensive Water Management Countermeasures led to the abandonment of minimum fixed charges by 59 of 167 local governments.

Some eastern European countries (Hungary, Poland, Czech Republic) already use pricing systems based solely on volumetric pricing, with no fixed charge element at all. Discussion of a more volumetrically-based approach is also under active consideration in the Netherlands (Waterspoor). A new law was proposed in Italy in 1994, which would intensify the volumetric component of the existing price structure. In Spain and in Lisbon in Portugal, increasing-block structures are now predominant.

Within the volumetric charge, there is a shift underway in some OECD water pricing structures away from decreasing-block tariffs, and toward increasing-block ones. Sample data for the US, for example, about a 16% shift of this type between 1987 and 1997. Canada also exhibits a similar pattern. Spain, Italy, Greece, and some regions in Belgium and the US all make extensive use of increasing-block schedules.

There are also some experiments occurring with “peak pricing” arrangements, especially with seasonal pricing. A 1991 survey of US utilities found 7 utilities out of 121 using some form of seasonal pricing; by 1997, 10 of these utilities were doing so. (Lippiatt and Weber, 1982; Markus, 1993; Raftelis Environmental Consulting Group, 1998). On the other hand, not much interest is being expressed in other forms of temporal variation in price structures (e.g. time-of-day).

Public sewage disposal

The pricing schemes in use for sewage-related services are not always clear, mainly because responsibility for sewerage, sewage treatment, and drainage are typically held by different parts of the public service, each with its own principles and practices. However, the evidence that is available suggests that (at least for 21 of the 29 OECD countries) revenues for household sewage services are based mainly on volumetric charges.

Available data also suggest that sewage charges are directly related to volumes of water delivered from the public water supply system. Thus, the structure of waste water charging systems tends to closely follow that of domestic water supply systems in most OECD countries.

The trend toward more incentive-based charging for the public water supply has therefore generally led to more wastewater revenues being recovered through volumetric charging, which then reinforces incentives to use water supplies more carefully. This pressure is being increased in some countries by other factors, such as the 1996 decision in Italy to levy sewerage and sewage treatment charges on 100 per cent of invoiced water, rather than on only 80 per cent. Similarly, in Belgium