

Annex A

Cost-recovery strategies in selected OECD countries and BRICS

This appendix synthesises information collected on financing water resources management in selected OECD countries, Brazil and India. Each fiche gives an overview and complements illustrations used in the body of the report. These are not necessarily best practices.

Cost-recovery strategies in Australia

In order to achieve cost recovery, the National Water Initiative requires metropolitan water providers to move towards upper bound pricing for water services (full cost recovery, including externalities) and it commits states and territories to achieve lower bound pricing (fully recovering operating costs) for rural areas. Due to the high cost of provision, in small communities water services are financed via direct government transfers from consolidated revenue.

State and territory governments have been responsible for financing water resources planning and management through tax revenue and planning and management charges. The instruments used and the levels of cost recovery vary greatly across jurisdictions. Federal departments and agencies (including the Murray-Darling Basin Authority) do not impose charges to recover the costs of water planning and management activities. Most of the states, with the exception of Western Australia, recover at least some of the costs of water governance, from less than 5% in Queensland to nearly 70% in New South Wales. States use either charges (licence charges, abstraction charges) or levies. The National Water Initiative commits states and territories to bring into effect consistent approaches to pricing and attributing the costs of water planning and management. In the Murray-Darling Basin, the Australian Competition and Consumer Commission considers that information on costs and charges for water planning and management activities is not sufficient or is not always provided in a way that promotes transparency. The federal government is considering an approach focused on improving the transparency

of water planning and management activities, costs and charges, including the development of a voluntary reporting framework to be adopted by Australian governments.

In New South Wales (NSW), government expenditures for water planning and management activities are funded through annual charges on licence holders (water license charges). The Independent Pricing and Regulatory Tribunal (IPART) uses a price determination framework to set maximum charges for bulk water services and resource management activities by NSW Office of Water. The charges include a fixed component (determined by entitlement volume) and a variable component (usage charge), and they vary by types of systems, valleys and the reliability class of the entitlement. In 2006, IPART projected total water planning and management costs for 2006/7 to be AUD 46.9 million, with AUD 30.5 million allocated to users.

In Queensland, activities are funded primarily through consolidated revenue (public budgets), with a small proportion of costs being recovered through charges. They include a license fee of AUD 58.75/ML and a water harvesting charge of AUD 3.52/ML. The total amount collected is AUD 2.4 million per year, which represents less than 5% of water planning and management costs.

The Australian Capital Territory applies a water abstraction charge to both the urban and rural sectors to cover the costs incurred by the government in supplying water, including the cost of catchment maintenance, the environmental impact of water use and a scarcity pricing component. The charge is currently levied at AUD 0.51/KL for urban users and AUD 0.25/KL for rural users. The total revenue derived in 2007/8 was AUD 29.5 million.

Victoria has set a levy on water supply authorities to fund programmes that promote the sustainable management of water or address adverse water-related environmental impacts. The rate is 5% of the revenue for urban water supply authorities and 2% of the revenue for rural ones. The authorities pass this cost onto customers through water charges. The revenue from the levy, which totalled AUD 61 million in 2008, is paid into the general public budget.

In South Australia, cost recovery of water planning and management activities predominantly occurs through a state-based levy and regional levies. For example, the Save the Murray levy is paid by SA Water customers, collected by the government and paid into the Save the Murray Fund. The levy rates are AUD 35.20 per year for residential customers and AUD 158 per year for farming and commercial properties greater than 10 hectares (with some exemptions), and the amount raised totalled AUD 21.1 million in 2006/7.

In sum, the Australian experience highlights the need for substantial public financial resources to support the rapid uptake of strong legislative and

institutional reforms. Australia is progressively implementing consumption-based pricing and full cost recovery service pricing (including recovery of capital costs for water storage and delivery infrastructure in metropolitan areas). The arrangements for funding water planning and management vary greatly across jurisdictions. The balance of tariffs, taxes and transfers will shift overtime as the water financing framework matures.

Cost-recovery strategies in Brazil

In Brazil, general tax revenue currently pays for 96.5% of the investments in water resources management (WRM) at federal level. The government programmes are co-ordinated by the different ministries and the investments selected according to each government's priorities, which do not necessarily match the priorities defined by the river basin committees in their respective water resources plans. The priorities and amounts invested vary between governments as well as between years within the same government.

In 1997 the Brazilian Water Law introduced the possibility of water use charges and specified the financing of WRM as one of the three objectives of water pricing. Water charges are paid by bulk water users based on their rights. The mechanisms and values (rates) are defined by the Water Resources Councils (at National or State level) based on the proposals from the river basin committees, which are built on a broad discussion process involving civil society, water users and the public sector. So far, the implementation of water pricing has been progressive – out of 160 river basin committees created, 14 river basins (representing 17% of the country's population) have implemented water pricing. The charged amount results from multiplying unit rates by the calculation base (for quantitative uses it is usually the volume granted in the water rights, and for qualitative uses it is the organic load disposal measured in terms of biological organic demand) and applying reduction coefficients (to account for water quality, water use efficiency and ability to pay). The unit prices (rates) are low – typical values are EUR 0.0039/m³ for abstraction, EUR 0.0079/m³ for consumption and EUR 0.03/Kg biochemical oxygen demand (BOD). The unit prices are not automatically adjusted for inflation – which amounted to 40% in 2003-2009. All river basin committees have established reduction coefficients for the agricultural sector than run from 0.5 to 0.025. Bill collection rates are high: 99% in the PCJ river basin and 95% in the Paraíba do Sul river basin (together representing 85% of collected charges). The total amount collected by water pricing in Brazil was EUR 20.5 million. Overall, the amounts collected support only a minor part of the total WRM costs in the respective river basins (4-11%). The incentive effect to encourage the rational use of water is also limited.

There is a levy on hydroelectricity paid as financial compensation for the use of water resources. The mechanisms and values (rates) were established by the Federal Constitution in 1988 and a Federal Laws of 1990 and 2001. The revenues generated by the 6.75% levy on hydroelectricity generation and distribution are substantial – EUR 527 million was paid by 150 hydroelectricity plants in 2009. The amount corresponding to a 0.75% charge is allocated to the National Water Agency (ANA) and the amount corresponding to a 6% charge is distributed among the Union (10%), the States (45%) and Municipalities (45%) affected by the hydroelectricity plants. The amounts to be transferred to ANA in 2009 were EUR 59 million (representing 68% of ANA's budget), but only EUR 33 million were effectively transferred due to a change in government priorities. Of the EUR 47 million to be transferred to federal ministries, only EUR 34 million were effectively applied to the water resources management system. States and municipalities received EUR 422 million, but the application of those financial resources (representing over 85% of the total financial compensation) is not committed to the water sector. Overall, only a small part of the revenues is invested in the implementation of the WRM system, as most of the revenues are invested according to the respective governments' general priorities.

Except for the revenues raised by water pricing, the water legislation does not define specific rules for public spending in water resources management. The revenue generated by the water use charges must be invested in the river basin where it was collected, according to the respective water resources plan. The investments are selected by the river basin committee, based on the water resources plan. Administration costs (salaries, rent, general services such as accounting) are limited by law to 7.5% of the total revenue. There is no national fund for water resources in Brazil. Almost all States have created state water funds, but only a few States (such as Sao Paulo, Rio de Janeiro and Minas Gerais) transfer financial resources regularly to their water funds.

Cost-recovery strategies in the Czech Republic

The Czech model of combining state budgets and water levies has been in place for over 20 years. Options to finance the projected increase in WRM expenditure include the increases in abstraction and effluent charges and the introduction of new levies on hydropower and navigation.

The Czech Republic levies a fee for the abstraction of both surface and groundwater. Surface water levies represent the main basis for funding the management of water resources. The payments reflect the expenses of the administration of watercourses and watersheds and their related infrastructure. Reductions in abstractions have been compensated by increases in levy rates. Levy rates for surface water vary between water administrators – they are

CZK 2.68-4.65/m³ for abstraction from major watercourses and CZK 1.34-1.60/m³ from minor watercourses. Three river boards have implemented abstractions for through flow cooling, charged at CZK 0.53-1.03/m³. Groundwater users pay CZK 2/m³ for drinking water supply and CZK 3/m³ for other uses. Groundwater charges generated CZK 380 million for the regional authority (earmarked for water infrastructure) and an equivalent amount for the State Environmental Fund.

Effluent charges are based on the level of concentration within the emission limits, taking into account the overall level of pollutants. Effluent charges for surface water generate CZK 300 million per year for the State Environmental Fund, while effluent charges for groundwater generate CZK 2 million for the municipalities.

Operating costs for drinking water supply and sanitation infrastructure are covered by the water bills paid by service users. The rate of cost recovery is 100% when only operating costs are included, but drops to 10-20% when renewal and new investment costs are included. This is partly driven by the failure to account for the full depreciation of the infrastructure assets. Costs for WRM amount to 3-7% of the water bill.

Cost-recovery strategies in France

In France, water users and beneficiaries contribute financially to water management through a variety of mechanisms. The water bill paid by urban water users amounted to EUR 11.8 billion (EUR 7 billion for drinking water supply and EUR 4.8 billion for sanitation), of which EUR 1.4 billion was paid to the water agencies. The water agencies raised a total of EUR 1.9 billion in 2008 via water levies. This amount is expected to increase to EUR 2.1 billion in 2012. In addition, beneficiaries of water management also pay around EUR 160 million for waterways management and contribute over EUR 140 million to flood management via an insurance premium.

Since 2008, the water levy system of the water agencies includes the following levies:

- The tax on water pollution (including both domestic and non-domestic water pollution) applies to all water users connected or connectable to the sewerage system. For domestic water pollution the tax base is water consumption and the maximum tax rate is EUR 0.5 /m³. For water pollution from industry, the tax base is the actual pollution discharged, with different tax rates and exemption thresholds applying to different pollutants. Cattle breeders pay a tax based on the size of the cattle. The amounts raised in 2009 were EUR 1 124 million for domestic and EUR 116 million for non-domestic users.

- The tax for modernisation of wastewater drainage systems applies to all users connected to sewer systems. The tax base is drinking water consumption, with maximum rates of EUR 0.3/m³ for domestic users and EUR 0.15 for non-domestic users. The amount raised in 2009 was EUR 201 million.
- The tax on diffuse agricultural pollution applies to pesticide use and is paid by pesticide distributors. Water agencies can modulate the tax rate between EUR 0.5-3/kg. The amount raised in 2009 was EUR 24 million.
- The tax on the abstraction of water resources applies to any water user. The tax base is the annual volume withdrawn. The tax rates are modulated according to water users and water bodies. The amount raised in 2009 was EUR 354 million.
- The tax for storage in low water periods is paid by the owners of water reservoirs. The amount raised in 2009 was EUR 1 million.
- The tax on obstacles on rivers is paid by any person having an installation which is a continuous obstacle between the two banks of a river. The amount raised in 2009 was EUR 0.3 million.
- The tax for the protection of aquatic environments is paid by fishermen. The amount raised in 2009 was EUR 4.7 million.

Other instruments for raising revenues for water management are:

- The tax for the drainage, conveyance, storage and treatment of storm waters, which can be levied by municipalities. The tax base is the surface area of the buildings connected to a public storm water drainage network. The maximum tax rate is EUR 0.2/m² and year. Tax reductions are applied to the buildings that include systems to limit the discharge of rainwater into the network.
- The three levies raised by the French Inland Waterways: tolls on freight and yachting (EUR 12.4 million in 2008), hydraulic tax (paid by the owners of hydraulic works according to the area occupied as well as EUR 0.00325/m³ withdrawn or discharged – a total of EUR 124 million in 2008) and tax on state land (paid by telecom operators and other activities occupying lands on the waterway bank – a total of EUR 25.8 million in 2008).
- The premium for prevention and compensation of natural disasters paid by the holders of insurance policy (12% premium for dwellings and 6% for vehicles – amounting to EUR 1.3 billion and of which at least EUR 140 million will be dedicated to flood prevention in 2010).

Allocation of financial resources by the water agencies and local authorities is guided by a number of rules. Water agencies can subsidise between 30-45% of investments made by municipalities, industry or farmers to preserve water resources. Water agencies and local authorities can allocate up to 1% of their budgets for water-related development co-operation projects – as a result EUR 17 million were transferred to several hundred small projects in Asia, Africa and Latin America in 2008.

As regards use of commercial finance, the water agencies can borrow in the market to finance the programme of measures. This has been particularly the case of the Loire-Brittany and Rhine-Meuse water agencies. Since 2009 the water agencies have benefited from access to soft loans from the *Caisse de Depots et Consignations*.

Cost-recovery strategies in India

In India, a portion of revenue of the water supply agencies comes from the provision of services such as irrigation and drinking water. In the case of surface irrigation, the governments and agencies levy water user charges that are fixed on a per hectare basis and vary according to the nature of crop cultivated. They are designed to cover operation and maintenance costs, but seldom serve for the intended purpose – cost recovery rates of operation and maintenance (O&M) for large and medium projects is about 9% and for small projects about 3%. This is partly due to rates not being revised annually (sometimes for decades) to take account for inflation, as well as to low collection rates (themselves the result of low willingness to pay due to low quality of service, and low willingness to charge). These ratios have decreased overtime – in the 1970s they were over 90% for large projects and over 10% for small ones. In the case of groundwater, no water extraction charges are levied, while farmers are supplied electricity for free or at heavily subsidised rates.

Rates of recovery of O&M costs in the urban water sector are higher than in the irrigation sector – consistently around 17% since the mid-1980s. Municipalities make use of water and wastewater levies, though the nature of the levies (taxes or charges) and the collection methods vary. Cost recovery of O&M costs in the rural water supply sector are very low and comparable to those of small irrigation projects.

Rates of recovery for O&M cost vary significantly among States, but there is no uniform pattern of good and bad performers. Large irrigation projects reach 30% in Karnataka and Orissa and less than 3% in Rajasthan. Minor irrigation projects reach 16% in Rajasthan and less than 1% in Punjab. Rural water supply schemes reach over 15% in Punjab and less than 1% in Karnataka and Orissa. Urban water supply schemes reach over 27% in Orissa and 0% in Punjab and Karnataka.

Accordingly, as a rough estimate public financial resources could account for around 70% of water sector revenue (divided between 65% allocation to water agencies for surface water projects and 5% for watershed management and environmental protection). Private financial resources could account for 30% of revenues, with 25% through direct expenses in groundwater extraction and 5% via water user charges for surface irrigation. The revenue from public budgets can vary significantly from year to year and from planned to actual. Around 95% of the planned budget and 90% of the executed budget of the Ministry of Water Resources comes from the Five Year Plan.

India's water sector has traditionally received significant support from development co-operation. Aid flows do not always show up in the public budgets, as they are often channelled directly to water sector organisations. With annual lending exceeding on average USD 300 million since 1993, the World Bank represents over 70% of external aid to the sector and between 5-10% of water sector expenditures. As loans need to be repaid, only the grant component should be seen as revenues for the sector. The pattern of donor assistance suggests little co-ordination.

In order to mobilise commercial finance, some States have created irrigation development corporations. The corporations tap capital markets by issuing government-guaranteed high return water bonds, which sometimes are tax-free. To service the borrowed funds, the corporations have been granted administrative and financial autonomy. The corporations have been able to raise significant capital, but they have largely failed to make use of the financial autonomy to enforce discipline in water pricing and cost recovery, raising concerns about their financial sustainability.

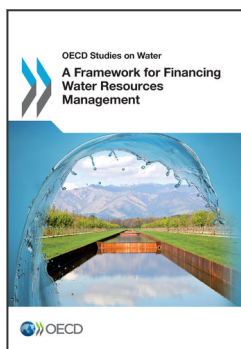
Cost-recovery strategies in Sweden

In Sweden, water charges are based on water meters for drinking water consumption and a connection charge for sewage treatment based on statistical coefficients for sewage discharge per person – the average cost was EUR 390 for a detached house (EUR 3/m³) and EUR 290 for an apartment (EUR 2.1/m³). Industrial treatment facilities must be funded by each company. Traditionally requirements for improved wastewater treatment at unconnected rural households have not been enforced by the municipalities, but increases in enforcement resources are changing the situation.

Permits for water activities are issued by environmental courts, after the application has been reviewed by the county boards. The environmental court levies a licensing charge between EUR 150-40 000 to cover the associated costs, and the county boards also levy a charge. Minor water activities do not require a license, but they have to register with the county board, which charges EUR 120 for the corresponding review. In total the rate of recovery

of water management costs by these charges has been estimated at 24%. The country boards also charge for issuing permits for wastewater facilities serving more than 2 000 people – the average fee is EUR 5 400. Management costs for environmentally hazardous activities are recovered at 65%.

Explicit rules for public spending on WRM do not exist. A more integrated approach to spending public resources is needed, to overcome current misalignment between priorities and funding. The DWAs are supposed to elaborate the programmes of measures, but have no say over the allocation of public funding. The Swedish Environmental Protection Agency (SEPA) distributes funds to the country boards, which decide on the remedial actions to be subsidised with them. The ministry of agriculture decides on the budget for environmental subsidies within the EU agricultural support (these are growing and will exceed those going to SEPA and the water authorities) – distributing funds on the basis of large geographic scales that do not correspond with individual river basins. The Swedish Meteorological and Hydrological Institute allocates funds for modelling without taking account SEPA's priorities. Another problem is that the SEPA-managed LOVA programme provides 50% subsidies to measures aimed to decreasing nutrient loads, but it does not specify load reductions.



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