Executive Summary

There is a clear and pressing need for governments around the world to strengthen the financial dimension of water resources management. Back in 1978, the OECD Recommendation of the Council on Water Management Policies and Instruments specified the main objectives of water management: to protect water resources against pollution and excessive use; to preserve the water environment and ecology; to safeguard and improve the hydrological cycle in general; and to provide adequate water supply, in quality and quantity, for domestic, industrial and agricultural purposes, account being taken of long-term demands. Recent analysis of water governance arrangements in OECD countries flagged lack of finance as a major and recurrent gap in water policies.

The financial gap stems from several factors. First, markets fail to recognise many of the benefits of water resources management and so tend to under-provide essential water-related services. Second, the private and public benefits of water management can be blurred in some situations, making it difficult to clearly identify the beneficiaries from the provision of services. Third, beneficiaries of water-related services do not usually pay the full cost of the provision of such services or may free-ride; and vice versa: potential private financiers may not benefit from the services, and so have a reduced incentive to provide the service.

This report provides governments with a framework to assess and strengthen the financial dimension of water resources management. It proposes a set of four principles to frame financing strategies for water management, with a specific focus on the potential role of economic instruments. It highlights implementation issues, which have to be addressed in a pragmatic way. It outlines a staged approach that governments might wish to consider in order to assess the financial status of their water policies and to design robust financial strategies for water management. Case studies illustrate selected instruments and how they can be used to finance water resources management.

Four challenges for water management

The OECD *Environmental Outlook to 2050* identifies four main challenges that must be addressed through improved management of water resources:

1. Increased competition between water users (farmers, energy suppliers, industries, households, ecosystems) intensifies to access the resource.
2. Untreated wastewater from cities (primarily in non-OECD countries) and effluents from agriculture deteriorate water quality in several regions.
3. The number of city dwellers and the value of economic assets at risks of floods increase.
4. The number of city dwellers without access to water supply has increased over the last two decades. The situation is even direr as regards sanitation.

Policy responses to address these challenges will require finance to administer more complex water policies, to rehabilitate, operate and maintain existing assets, and to invest in new infrastructure. Innovation can lower some of these costs, by reducing water demand and by promoting low cost policies or technical options. But access to the public purse will continue to be challenging as government budgets are likely to remain very tight and an emphasis on fiscal consolidation prevails.

Case studies confirm that in a number of countries (both OECD and non-OECD), water resources management fails to access the funds required to achieve policy objectives. For instance, in Europe, lack of finance has delayed the implementation of the EU Water Framework Directive in a number of countries. In other parts of the world, the Millennium Development Goal on sanitation will not be achieved, in particular because the sector fails to attract the public and private funds that are essential to ensure increased access to sanitation services.

Four principles to finance water resources management

While recognising the diversity of local conditions and policy priorities, water resources management financing can rely on four principles. The first two have formed the cornerstone of environment policy in many countries. The last two are less well-established.

1. The ***Polluter Pays*** principle creates conditions to make pollution a costly activity and to either influence behaviour (and reduce pollution) or generate revenues to alleviate pollution and compensate for welfare

loss. This principle is efficient to the extent that it internalises the external costs of pollution.

2. The ***Beneficiary Pays*** principle allows sharing the financial burden of water resources management. It takes account of the high opportunity cost related to using public funds for the provision of private goods that users can afford. A requisite is that private benefits attached to water resources management are inventoried and valued, beneficiaries are identified, and mechanisms are set to harness them.

3. ***Equity*** is a feature of many policy frameworks for water management. It is often invoked to address affordability or competitiveness issues, when water bills, driven by the first two principles, may be disproportionate with users' capacity to pay.

4. ***Coherence*** between policies that affect water resources can usefully be considered a fourth principle. Agriculture, land use, or energy policies can severely increase the cost of water management. Factoring water in and reforming allocation of public moneys in these policies can be more cost effective than mobilising additional funding in the water sector.

These four principles provide a framework within which governments can address the financing issue for ensuring effective water resources management. In practice, as is demonstrated by the experiences discussed in this report, the principles tend to be unevenly applied by countries. In addition, the interaction of the principles can be problematic. For instance, when the equity principle is invoked to diminish the cost paid by polluters, second or third best solutions to pollution challenges that result can sometimes crowd out more effective policy options (such as the use of pollution charges).

The added value of economic instruments

Economic instruments such as abstraction and pollution charges, water pricing, and user charges have a critical role to play in financing water resources management, and their design and implementation can be guided by the four principles above. In addition to generating revenues that can augment public budgets and assist in financing water resources management, their use can have ancillary benefits. For example, economic instruments can promote water efficient practices in households, farms, and industry, help value the benefits of watershed services, and create incentives to explore low-cost options for water users and water managers (*e.g.* protecting catchment areas instead of treating polluted waters downstream). Abstraction and pollution charges, water pricing and user charges can generate revenues that can augment public budgets and be channelled to water management.

A number of economic instruments rely on the voluntary participation of users, thus influencing water governance. For instance, when carefully designed to comply with the first two principles mentioned above, payments for ecosystem services can generate financial flows, and engage stakeholders in water management. Trading mechanisms can in principle enhance the cost-effectiveness of water policies by allocating water where it creates most value, or by reducing pollution where it is cheapest. Accompanying measures are needed to ease the transition to new allocation modalities.

Empirical evidence suggests that close attention needs to be paid to the design of economic instruments, the way they interact with other instruments, and the institutional and governance structures within which they operate.

Implementation issues

Several issues have to be addressed to strengthen the financial dimension of water management. They need to be considered in a pragmatic way, on a case by case basis.

How can costs of water management be reduced? Opportunities to reduce water management costs abound, including by improving the operational efficiency of service providers, or exploring low cost options (*e.g.* several countries report a bias towards funding new hardware, instead of properly operating and maintaining existing ones, or relying on ecosystems; green infrastructures such as floodplains or wetlands can be more cost effective than built ones). Tapping such opportunities can reduce financial needs as well as increase the capacity of the sector to raise funds.

Should revenues from water-related taxes be earmarked for water expenditure? Earmarking can undermine overall economic efficiency, if earmarked resources could have been allocated to activities that create more value for the society. However, earmarking can secure funding, in particular in contexts when competition is fierce to access the public purse (a point already made in the 1978OECD Recommendation of the Council on water management policies and instruments).

What is the role of the private sector? Private investors can finance some of the upfront costs related to water infrastructures (storage, or distribution, for instance). The use of private operators can also enhance the efficiency of water service delivery. These options will only materialise when robust financial strategies and business models secure stable revenue flows. The OECD has developed tools to do just that, which governments may wish to consider (including the OECD Principles for Private Sector Participation in Infrastructure, the OECD Checklist for Public Action, and guidance on Strategic Financial Planning for water supply and sanitation).

How to value water services? Economic instruments work best when private benefits attached to water resources management are properly inventoried and valued, and the beneficiaries are identified. A variety of valuation methods is available. Lessons need to be learned on how to combine them and plug them in policy making.

Governance, an unresolved issue

Effective governance for water resources management is increasingly challenging and costly due to the increasing interaction of policy areas that have been previously addressed in policy "silos"(in particular, energy and agriculture). WRM also tends to cut across several territorial jurisdictions (from local to basin and transboundary level). Co-ordination costs in such a policy environment are inevitably increasing as the need to effectively involve stakeholders in the design and implementation of water management policies takes both time and resources.

Effective governance for water resources management also entails the effective management of public expenditures. This requires action to allocate public funds to the highest value use, to build capacity, and to enhance transparency, which has plagued water management financing.

Financing should be factored in very early in the water policy design/ reform process, to make sure *i)* every opportunity to lower the cost of water management is considered; *ii)* appropriate financial resources are available to finance investment, operation, and maintenance of water related infrastructures and services; and *iii)* water administrations are sufficiently funded to deliver.

Adequate data is a prerequisite. Little is known about the costs and benefits of water resources management, and about the contribution of different user groups to its financing. Information and data gaps hinder the deployment of cost effective policies and measures.

A staged approach for moving forward

The sequence below derives from the principles and policy considerations sketched above. It can help review and strengthen the financial dimension of water resources management. It can be organised at different geographical scales (local, basin, national, transboundary), and responses may vary according to the level under consideration.

- Ensure that sectoral policies and initiatives that have implications for water use are coherent and considered in conjunction with water management policies.

- Define and inventory the public good components of water management and seek to value them where possible.
- Inventory and value the private benefits of water management. A variety of valuation methods is available and can usefully be used in combination.
- Identify beneficiaries, and allocate the financial burden across beneficiaries. The four principles above provide a framework on which to build. Previous work has established that social objectives are better attained through well designed, targeted social measures.
- Consider a range of instruments to harness beneficiaries. Economic instruments can play a prominent role, in combination with other instruments, when carefully designed under appropriate institutional and governance structures.
- Seek to raise commercial finance. The capacity to attract commercial finance for particular aspects of water management (such as infrastructure development and the delivery of water services) will depend on the robustness of the institutional and regulatory framework, including business models in place (who pays for what).

The sequence above can support the development of a strategic financial plan for water resources management. The OECD has advocated Strategic Financial Planning for water supply and sanitation. Extended to water resources management, strategic financial planning, conceived as an iterative process, can help in several ways. First, it anticipates financing needs in the medium term. Typically, it considers operation and maintenance costs on top of investment costs, when new infrastructures are built. Second, it matches policy ambitions with financial resources. For example, when the costs of achieving policy objectives prove very high, one option is to reformulate these objectives (such as by adjusting quality objectives to different uses; stretching out implementation schedules; or downgrading water security for selected users, which will involve trade-offs). Another option is to consider alternative financial options, and allocate more financial resources.

Strategic financial planning can also strengthen ownership from users, when developed in the context of a policy dialogue on water management. This is particularly essential as several decisions (on the public good dimension of water management, on the value of benefits, on equity), while informed by economic analyses, remain essentially political. An informed policy dialogue on water resources management, based on hard facts and figures, is the way forward. It provides a platform to factor in the financial dimension, at the very early stages of water policy reforms.