

Economic and financial instruments for the implementation of the water-related Sustainable Development Goals

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1. Introduction

Despite important achievements there is still a gap to be bridged to reach the MDG and there are still differences between and within countries with respect to access to drinking water and sanitation. Of the many still uncovered with basic water services, many live marginally above the poverty line and are vulnerable to falling back into poverty when faced with adverse shocks. This vulnerability is often associated with gender, disability, ethnicity, indigeneity and geographic location. Additional development challenges include growing unemployment, particularly among youths, as well as challenges associated with growth of cities. The sustainable development goals to be adopted in 2015 will imply more ambitious targets in terms of basic water and sanitation access (targets 6.1 and 6.2), water quality and wastewater treatment (6.3), integrated water resource management (6.4 and 6.5) and disasters reduction and climate change adaptation (6.4).

More generally, the proposal for a dedicated water goal (n°6), would provide a strengthened framework to mobilise collective efforts, from governments and stakeholders, to coordinate their actions towards agreeing and implementing the best courses of action in order to improve water management and its contribution to sustainable development.

The new water development goals are more ambitious but, besides solving individual situations, aims at addressing water challenges in a more systematic way. This will require an enhanced coordination between areas to cope together with the multiple individual challenges implied in the water, energy food and climate change nexus, better connected decisions at local, regional national and global scales, addressing current risks without compromising the adaptation to future ones, etc.

The benefits of water development have been widely documented (WWAP, 2012, 2014), and have been demonstrated to compensate and exceed by a comfortable margin the financial effort required to have them implemented. Providing the poor with basic services, protecting critical ecosystems, recovering and protecting

the quality of water, managing water in an integrated manner and reducing risks while adapting for a more uncertain future, when the means are properly chosen and implemented, are effective alternatives to foster economic and human development and to restore and protect the critical water ecosystems on which the provision of water depends on and thus to put us on the road to sustainable development.

Investing in water provision, water infrastructures and water protection and conservation maybe a good economic alternative but this necessary condition is not sufficient for water development to happen.

- ✓ Though good for the society as a whole investments in water and sanitation for the poor remains far from being good business. The varied benefits of improving water quality and enhancing water ecosystems arise to many different persons and economic areas such that, without the cooperation of others, no one may have the incentive to put the effort required.
- ✓ In the same order of ideas, adapting to climate change and reducing current risks require collective decisions. Getting ready to commit to these decisions may be a challenging task, but the costs of inaction are also high. Actions are required to avoid the risks of current responses to droughts, floods and other water related disasters. These responses are mostly individual rather than collective, reactive rather than preventive and unplanned rather than anticipated. And may worsen future risks and reduce the range of options to adapt to climate change and future disasters.
- ✓ Water is indeed essential for life and particularly valuable for the poor who spend a substantial part of their energy and time to obtain only very basic services. But without external support basic services are not affordable for the very poor and, at least in the early stages of human development, water investments are not likely to be recovered on the basis only of water prices.

Environmental degradation and climate change have increased the vulnerability of people, as well as of infrastructures and ecosystems. It has also resulted in increasing water scarcity and higher risks of extreme weather conditions. All these risks pose additional challenges to the ability of all countries, and developing ones in particular, to achieve sustainable development pathways.

All this increases the effort required for investing in infrastructures, skills and human capital as well as in developing conducive institutions in order to provide water security, reduce the exposure of people, the economy and the environment and increase their resilience and adaptation capacity on the face of a more uncertain and water exposed future.

The global economic and financial crisis revealed risks in the international financial system, as well as the vulnerability of countries to external financial shocks and have adversely impacted their capacity to mobilize resources for sustainable development. Clearly, without a stable financial system the post-2015

the development agenda risks being derailed by a sudden regional or global financial crisis.

2. Financial and economic challenges to hinder the water related sustainable development goals implemented

Financial and economic issues are at the heart of sustainability. Reaching the post 2015 water related sustainable development goals depends critically on our ability to cope with two different but interconnected outstanding economic challenges:

- ✓ Water development needs resources. The first is a financial challenge. It consists in finding and mobilizing the financial resources for the investments in the infrastructures, the human capital and the institutional capacities required for the implementation of the water related sustainable development challenges.
- ✓ Sustainable water development requires sustainable decisions regarding water. The second is an economic challenge. It consists in finding the way to align all the decisions made by the people, the business and the institutions in any area and place so as to make them consistent with the collective goals of a sustainable development. It implies designing and implementing the set of economic incentives to align the individual decisions regarding water with the quantities available, the qualities permitted and the conditions required to guarantee both the economic development and the adequate protection of water resources.

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It is clear that some instruments may serve to one of these two important purposes without contributing to the other. This is the case for example of subsidies to finance water access and sanitation projects that serving as a funding mechanism does not necessarily provide an incentive to improve the way water is used by anyone. In the same sense, trading with water maybe a proper mean to improve the allocation of water and to incentivize water savings in some uses and places, but doesn't necessarily work as a funding mechanism for water investments.

On the other side, there is a wide scope to design and implement instruments that can serve to cope with both the financial and economic challenges of water sustainability. This is for example the case of properly designed and implemented water pricing schemes, that may serve both as a cost recovery for capital, operation, maintenance and even environmental and resources costs and, at the same time, might provide the incentive to save water and reduce pollution loads. Another example may come from the water insurance systems, against drought and floods, that provided income or revenue security may increase the willingness

to invest in long term infrastructures in the food and energy areas as well as to encourage the effort in risk reduction and adaptation to a more uncertain future.

3. Financial en Economic Challenges and the main themes of the water related sustainable development goals.

The Millenium Development Goals provided a lever to mobilise and increase the financial resources available to provide access to water and sanitation for the poor. All types of finance – public, private, domestic and international – have increased since 2002 (IMF, 2014). Domestic finance has grown rapidly in recent years, representing by far the greatest share of financing sources for most countries. (DOHA, ICESDF, 2014). But financing needs for poverty eradication and water development still are significant.

Financial needs differ across countries and regions. They are disproportionately large relative to the size of their economies in many poor countries, where the main focus is still of basic *access to water and sanitation*. Challenges facing the increasing water needs of a growing economy are also a priority for many middle-income countries and while differing in their details all countries face the challenge of making human prosperity compatible with preserving the critical ecosystems and the services they provide for people, the economy and the environment.

The financial resources required are as high as the challenges they are expected to help coping with. But the emerging patterns of resource flows highlight the increasing opportunities for mobilizing financing needed to support the achievement of sustainable development.

In many areas of the world, where ability to pay is not a critical concern, water is still under-priced or not priced at all. In the best of the cases water prices are lower than those required to maintain the financial cost of providing the services and do not cover the capital costs associated with building the water providing facilities or its maintenance and replacement in the long run. Water prices are then far from reflecting the real opportunity cost of provisioning water.

But despite the economic principles that call for higher financial levels of cost recovery, the basic development goal still consists in making *access to water* affordable for the poor. Any water pricing strategy must be consistent with a progressive advance from, in the first stage, making basic water services accesible for those that can't still afford it to, in a more advanced stage, making water

affordable and then opening the room for the financial sustainability of these water services in the long term.

But decisions on how and by how much to use water belong to many individuals household, farmers, business and stakeholders. Because of that success in attaining the water related sustainable goals depends critically on how the outcome of the plethora of all the individual decisions taking place in any economy are aligned with the collectively agreed water sustainable development goals. Then, besides providing enough funding for water, the economic and financial instruments must provide the incentives to use water efficiently and to take advantage of the existing opportunities to save water.

There is often a gap between private returns from decisions regarding water and the overall benefits that accrue to society. Sometimes this is the consequence of market failures, such as externalities, and some others of misguided policy interventions, like environmentally harmful subsidies. Green growth economic instruments aim to close that gap and raise returns to 'green' investment and innovation. They also aim to minimise the distributional consequences of change for the least advantaged groups of society and manage any negative economic impacts on firms while retaining incentives for improved economic performance.

Regarding the four thematic areas or water related sustainable development goals, the specific objectives that can be targeted by economic instruments in water policy are pervasive and cover a wide array of themes and sub themes. When properly designed and implemented, the economic incentives can support the delivery of:

- ✓ **A quantifiable reduction in the quantity of water services demanded** by a defined set of users in some economic activities at certain particular places. This way economic and financial instruments can help in producing more with less by, for example, putting in place incentives to reduce water demand for irrigation, household consumption or manufacturing. All economic and financial instruments aimed at managing, and reducing water demand, can be designed so as to enhance its contribution to the different water related sustainable development goals:
 - ✓ Reductions in water demand will contribute to guarantee continuous and more secure *access to water*.
 - ✓ Improvements in *water quality* both by reducing the amounts of *wastewater produced* and by improving the capacity of natural waters to treat water.
 - ✓ Lower pressures over water ecosystems result in better preserved water sources, higher water tables and improved river flows,

- ✓ All this will result in *better managed water resources* and substantive *reductions in the exposure to water related risks* from water scarcity and drought risk. In the same sense, better protected water ecosystems are means to preserve the options to respond to the different possible water futures and thus to *reduce risks and increase adaptability*
- ✓ **An increase in the efficiency with which these water services are produced.** This refers to economic and financial instruments designed to abate the pressures over water sources stemming from the need to satisfy a given demand of water. There is a wide array of incentives with the potential to promote more effective irrigation systems, encourage investments in improving water distribution networks or in replacing assets, water transport systems, and in making attractive the use of recycled water in manufacturing processes, etc.

Within the same category some other economic and financial instruments can be found with the potential to reduce the negative impact of providing the economy with waste disposal and treatment services. They include, for example, incentives for investing in more efficient effluent treatment plants, reducing pollution loads, etc.

Economic and financial instruments can be used to make the use of water more efficient in many applications in the economy. Economic and financial instruments can promote increasing the crop per drop in irrigated crops. They can also serve to increase the energy per drop, by promoting the reduction of the amount of water required to generate a kilowatt of electricity with more water efficient turbines and with better power plant cooling systems. In the same sense economic and financial incentives may help in advancing toward more water efficient systems by reducing leakages and improving the water transport and distribution networks and/or promoting the installation of more water efficient appliances.

But increasing water productivity, in agriculture, energy or the provision of drinking water is not the equivalent to making water more sustainably (World Bank, 2013, Nixon, 2013). Moreover water efficiency improvements can be converted into real opportunities to advance in the water related sustainable development goals.

Prices, water trading and other economic incentives may be used to transfer some of the water saving obtained from irrigation, hydropower or drinking water delivery into lower water abstractions and better preserved water systems (instead of into more crops produced, electricity generated or water delivered). When combined with properly chosen and implemented economic and financial instruments, strategies to enhance the efficiency with which water is used in many areas of the economy can be converted into effective means to provide continuous *access to water* in the future, improving *water*

quality and ecosystems, making efficiency gains work for integrated water management, reducing risk vulnerabilities and the adaptation potential.

- ✓ **A substitution of water supply sources** in order to reduce pressures on water bodies associated with the provision of a given set of water services both to production and consumption activities. This is, for example, the case of incentives which promote the substitution of alternative resources (such as recycled or desalinated water) for freshwater or shift water supply from some traditional sources to others with lower negative impacts.
While technically effective to reduce water scarcity, these non-conventional sources might become feasible water management alternatives if some particular conditions are in place. Alternative sources are affordable when the economy is able to raise enough revenues to pay for this and water users are willing to pay the cost when the water using activities, such as agriculture, are already highly productive and water efficient to make the use of expensive water options a viable option.
Different from freshwater, alternative resources are safe and so can be used as buffer stocks to reduce *exposure to drought risk* in water scarce areas and as a mean to adapt to rain variability and water uncertainty.
As in the case of water efficiency, when accompanied by properly chosen and designed financial and economic instruments, non-conventional water sources can contribute to reach the water related sustainable development targets.
When used as a substitute for already depleted freshwater sources they can contribute to increase drought risk resilience, reduce water scarcity, improve water quality and restore water related ecosystems.

- ✓ **A reduction in the impact on the structure and functional activity of water (providing) ecosystems.** This is the case of the payment for ecosystems services that can contribute to *integrated water resources management* by fostering the cooperation between different water users. Subsidies and other instruments can be designed to restore and protect critical water related ecosystems, as in the case of soil conservation practices in agriculture, or to promote green infrastructures in urban and rural areas improving the *quality of water and water related ecosystems*, as well as reducing *flood and drought risk* and contributing to *climate change adaptation*.

- ✓ **A reduction in risk exposure to extreme events such as droughts and floods** as in the case of incentives to deter land settlements in hazard zones or to promote water stress-resistant crops in drought-prone areas.

Table 1

Financial and Economic Instruments are means to manage water demand and supply, as well as to promote water efficiency, restore and protect water related ecosystems and manage water related risks. When properly designed and implemented they can make important contributions to the water-related sustainable development goals (columns in the table).

	Access to drinking water and sanitation	Water quality and waste water treatment	Integrated water resource management	Risk reduction and climate change adaptation
Managing water demand				
Enhancing water efficiency				
Managing water supply and non-conventional sources.				
Reducing the impact over water related ecosystems				
Reducing risk exposure				

4. Main Tools Developed

Economic Instruments are incentives designed and implemented with the aim of adapting individual decisions to collectively agreed goals.

Economic Policy Instruments for Water Management:

What are they? and what are they for?

	Instrument	Definition	What can the EPI deliver for water policy?
Pricing	Tariffs	Price to be paid for a given quantity of water or sanitation service, either by households, irrigators, retailers, industries, or other users.	Encouraging technological improvements or changes in behaviour leading to a reduction in water consumption or in the discharge of pollutants. In addition, they generate revenues for water services or infrastructures.
	Taxes	Compulsory payment to the fiscal authority for a behaviour that leads to the degradation of the water environment.	Encouraging alternative behaviour to the one targeted by the tax, for example the use of less-polluting techniques and products.
	Charges (or fees)	Compulsory payment to the competent body (environmental or water services regulator) for a service directly or indirectly associated with the degradation of the water environment.	Discouraging the use of a service. For example, using charges in a licensing scheme may discourage users to apply for a permit.
	Subsidies on products	Payments from government bodies to producers with the objective of influencing their levels of production, their prices or other factors.	Leading to a reduction in the price of more water-friendly products, resulting in a competitive advantage with comparable products.
	Subsidies on practices	Payments from government bodies to producers to encourage the adoption of specific production processes.	Leading to the adoption of production methods that limit negative impacts, or produce positive impacts, on the water environment.
Trading	Trading of permits for using water	The exchange of rights or entitlements to consume, abstract and discharge water.	Encouraging the adoption of more water efficient technologies. May improve the allocation of water amongst water users.
	Trading of permits for polluting water	The exchange of rights or entitlements to pollute the water environment through the discharge of pollutants or wastewater.	Encouraging the adoption of less water polluting technologies. Improve the allocation of abatement costs amongst water users
Cooperation		Negotiated voluntary arrangement between parties to adopt agreed practices often linked to subsidies or offset schemes.	Encouraging the adoption of more water-friendly practices.
Risk mgt. schemes	Insurance	Payment of a premium in order to be protected in the event of a loss.	Water users' aversion to risk and willingness to pay for income stabilisation. When properly designed, insurance premiums signal risk and discourage behaviours that increase risk or exposure
	Liability	Offsetting schemes where liability for environmental degradation leads to payments of compensation for environmental damage.	Liability as a means to incentivise long-term investments in water efficient devices.

Source: Delacámara, et. al. (2014) *EPI Water Guidance*.

Economic and financial instruments may significantly improve an existing policy framework by incentivising, rather than commanding, behavioural changes that may lead to environmental improvements. They can have a number of additional or ancillary benefits, such as creating a permanent incentive for technological innovation, stimulating the efficient allocation of water resources, raising revenues to maintain and upgrade the provision of water services, promoting water use efficiency, etc.

Four main categories of economic and policy instruments can be broadly distinguished:

- ✓ Pricing. These are means to put water decisions a financial opportunity cost many different forms such as, water use or water disposal and treatment tariffs, pollution charges or fees, different kinds of lump-sum or unitary taxes and subsidies in the form of price reductions, investment funding, side compensations for environmental friendly actions or payment for environmental services..
- ✓ Trading. These are allowances of bargaining and voluntary agreeing in transferring water related property rights (on quantity and quality). When properly implemented water trading allows taking advantage of mutually beneficial agreements so as to improve the situation of those involved in the bargain of water rights without increasing water scarcity or further degrading water ecosystems.
- ✓ Cooperation. These are coordination rather than competition based approaches consisting in self enforcing agreements to protect and restore particular water related assets (such as headwaters, streams, aquifers, transboundary river basins, etc.). Effective cooperation agreements usually involve explicit provisions to identify and share the benefits thus obtained.

Though sharing these benefits may be an economic incentive, these agreements are usually completed with financial incentives that serve to make the cooperation agreement self-enforceable.

- ✓ Risk management schemes. They are actions intended to reduce risk exposure by the mean of risk pooling, as for example by drought and flood insurance schemes provided by the financial system, by reducing risk, for example by payments for transient flood, or by coordinating actions to increase adaptability and risk resilience, like building flood protections or the maintenance of buffer stocks for water in order to reduce drought risk.

The following are just some examples of the varied alternatives to implement financial and economic instruments to sustainable water management:

Results based financing (RBF) in water investments: This is a set of financial mechanisms and strategies purportedly designed to link development financing and assistance to results and thus to incentivize the efficient application of resources provided by national and international agencies as well as the accountability of domestic constituencies. Results based financing (RBF) mechanisms are alternatives to traditional development assistance which is typically disbursed in advance of delivery. Well designed and properly implemented RBF schemes may result in better quality and timely delivery of water services, lower opportunities for corruption, a change towards a result oriented rather than a budget focus management, an improved monitoring system and more autonomy to the local agency to find the best way to deliver the intended services. Nevertheless these benefits come at the expense of some opportunity costs associated to negotiating and setting up a workable RBF scheme, the need to monitor and to the risk of wrongly designed incentives (World Bank, 2014).

Innovative fund raising: The Leading Group on Innovative Financing for Development (UNITAID) has developed a fund-raising mechanism to raise additional resources, including the international solidarity levy on air tickets. Only ten years ago, multilateral climate finance was provided by a small number of large funds, which were associated with the United Nations Framework Convention on Climate Change (UNFCCC). There are now over 50 international public funds. Over this period, governments designed and reformed institutions such as the Global Environment Facility (GEF), the Adaptation Fund (AF), the Climate Investment Funds (CIF), and most recently the Green Climate Fund (GCF), as well as new evolving financial instruments such as performance-based payments for reducing emissions from deforestation, degradation, and forest conservation (REDD+). Nonetheless, there remains a large gap between climate finance needs and resources. In particular, progress towards implementing the financial commitments under the United Nations Framework Convention on Climate Change (UNFCCC) has been slow.

Pro-poor tariffs and financing of water utilities: Local governments and service providers can consider increasing the design and implementation of successful

policy instruments such as Social Safety Nets (SSN). SSNs are part of a broader poverty reduction strategy and are used as social tools to help facilitate productivity, redistribute resources to the poorest and most vulnerable, and protect low-income households from the effects of economic shocks or inequities. SSNs tend to have a better targeting performance than consumption or coimection subsidies and they are offered through cash or non-cash instruments. This model has successfully been implemented in Medellin (UN-Water, 2011).

Cash instruments include programms that provide transfers in cash such as income support programs, non-contributory pensions, and disability benefits. Non-cash programmes on the other hand include food transfers, training opportunities for beneficiaries, and subsidies. Public-works and micro credit are other forms of SSN instruments. Public works typically provide low skills employment opportunities (for example. construction or rehabilitation of much needed public infrastructures) to the poor willing to work for a low wage payment in cash or in-kind (Milazzo and Grosh 2008).

Performance Contracts: they are means to clarify the relative roles and responsibilities between local governments and utilities. Performance based contracts, if developed properly, can help to lay the basis for the long-term sustainability of water utilities, increasing their efficiency and creating conditions where investment capital can be attracted. Generally, performance-based contracts are designed to help define the utility development goals and include time-bound performance targets against which the performance of the operator is measured. The *Performance Based Leakage Reduction Contracts* are an example. These contracts are an alternative approach that can help them sustainably reduce non revenue water, improve revenues and break the spiral of decline thatyears of poor management creates. Care is needed in developing appropriate contract designed with the correct performance incentives to achieve the objectives the utility desires. Instaed of covering the installation of saving or control devices, the payment of the contract is made conditional to the volume of effective water savings obtained. As the contractor is required to provide financial resopurces, he has the incentive to make things work properly during the time required to recover the investment from the savings achieved. These schems have been implemented in cities such as Sao Paulo (World Bank, 2013), the York Region in Canada and the National Water Utility of Uruguay (World Bank, 2014). Other interesting examples are found in Armenia, Kazhastan, and Ucraina (OECD, 2011).

Fair Water Pollution Fees: The Aragón Pollution Tax Guaranteeing the ecological quality of all the water bodies across a country or a region is one of the ambitious tasks of the current water policy in Europe. Although reaching this target is feasible in the range of the existing technical alternatives, the practical implementation requires coping with many financial and distributional issues. Many small and medium activities might not be in the position to pay for the water treatment required without compromising their business viability in the medium term, small rural hamlets cannot benefit from the scale economies and the relative

cheap costs of collecting and treating each cubic meter of wastewater in big towns, and the ability to pay of each single household depends on the distribution of income. Under these conditions, the traditional way of asking each individual user responsible for paying a different cost per cubic meter of wastewater, although theoretically efficient, might result in an increasing inequality and might also increase administrative costs and compromise the social acceptance and legitimacy of water policy. The Aragon water disposal charge is an innovative alternative to cope with the above mentioned challenges that, instead of setting individual prices for any user and any place, sets a common environmental tax that will serve to share the costs of reaching and protecting the environmental quality of all the water bodies across the whole territory. If the benefits of preserving the water sources are collective, this must be reached with a solidarity mechanism. This way water becomes more a social responsibility than a private one, the places where objectives are cheaper to reach can cross-subsidize reaching the quality objectives in the more expensive ones and the overall objective of improving water quality does not depend on the differences between the ability to pay off any particular user (UN, 2013).

5. Main implementation challenges

Financial and economic instruments and decisions cannot be analysed or applied in isolation. They are strongly affected by national institutions and by the international financial architecture. Their effectiveness depends on the existence of appropriate and effective financing institutions, and the effective implementation of any alternative chosen requires shaping the instrument chosen in order to facilitate and help overcome impediments to investment in sustainable development.

Financing Water: an integral part of water management and governance

Financial arrangements are means to an end. In a sustainable development context they are important to address the complex water management challenges and they need to be connected with the policy objectives in different areas of the economy. For this reason the design of financial strategies must be embedded in an integrated water management framework so as to ensure the rational use of water at local and regional levels. Effective financial instruments must be adapted to the institutional set up to which they are an integral part.

One of the few comprehensive analysis of the link between financial instruments, the institutional framework and the multiple objectives of water management at local, regional and national levels is the study for strengthening the financial system for water in Mexico (see: Campanaro, A. and Rodriguez, D.J. ,2014)

The selection and design of any financial instrument must be an integral part of a comprehensive sustainable water development strategy. In this order of ideas it is important to take into account the following basic recommendation:

- 1. Financing is a source to help people reach their own aspirations (not those of the donors, the banks or any other external agent).** Each country is responsible for its own development. The implementation of sustainable development strategies is realized on the national level. However, national efforts need to be complemented by international public support as necessary, and an enabling international environment.
- 2. Financing instruments can't be better than the development objectives they intend to serve to.** Financial instruments are means to an end, they are not good on their own but for the contribution they make.
Good financing and good development options are self-reinforcing.
Effective institutions and policies and good governance are central for the efficient use of resources and for unlocking additional resources for sustainable development.
- 3. There are not silver bullets.** Financing water development require a combination of all sources - public, private, domestic and international- and the combination of different instruments such as pricing, credit, bonds, etc. with their specific characteristics and strengths and weakness.
Wise financing strategies imply taking advantage of complementarities, and building on an optimal mix of all sources and instruments.
- 4. Financing water is just one part of financing sustainable development.**
Financing is required to support economic, social, and environmental development.
At a national scale this requires broader policies to mainstream sustainable development criteria into public budgets and private investment decisions.
- 5. Financing water development can enhance the contribution of water to the three dimensions of sustainability.** Financing should be designed to exploit synergies and support policy coherence for sustainable development, while taking account of potential trade-offs.
Thus, financing instruments can be used to address several policy objectives simultaneously.
This would be best coordinated within the context of national sustainable development strategies.
- 6. Financing must be made a part of a participatory and inclusive decision making process.** Consultations with all stakeholders, including civil society and the private sector, will enable governments and policymakers to better appreciate the diverse needs and concerns of people in the formulation and implementation of sustainable development policies at all levels. In this regard, gender equality and the inclusion of marginalized groups, such as indigenous peoples and persons with disabilities must be ensured.

7. Ensure good financial governance and public finance management:

Combating corruption plays an important part in complementing efforts to improve domestic revenue mobilization.

Corruption can have adverse effects on businesses, individuals and public financial management.

Countries should review the efficacy of all subsidies as a matter of sound fiscal management.

Similarly, countries should correct and prevent trade restrictions and distortions in world agricultural markets.

Financial auditing and control should be complemented by monitoring and evaluation of economic, social and environmental impacts, in line with country capacities and circumstances.

Further to the type of water policy challenge, the selection of economic and financial instruments can take into account the existence of key economic, social, and physical characteristics of the system to be managed. Such opportunities include:

1. Linking pricing to the solution of people's problems. Rather than a moral imperative paying for water must be linked to tangible benefits to the people and to the economy. In practice there is a positive willingness to pay for environmental services and reliable water supply and the evident benefits of water development must be converted into convincing social reasons to pay in order to guarantee these benefits for the future. Social and political acceptability are paramount to the success of EPIs.
2. Access to water, the preservation of water sources, etc. are all social challenges which success depends on the ability to act collectively.
 - a. Recognizing the gains from cooperation, instead of competing, is an important driver of sustainability.
3. Even in water in the more water stressed regions, there still is a significant scope for improving technical efficiency. For example when a substantial amount of water is used in low productive or low efficient ways.
 - a. Economic and financial instruments, such as incentive pricing, can encourage rapid adoption of new and more efficient technologies;
4. Existing environmental and technological assets provide important opportunities to allocate water to its more valuable uses and places.
 - a. Economic and policy instruments such as PES schemes could be effective where specific land use changes can result into real benefits to society (e.g. flood risk reduction).
 - b. Water trading schemes, involving the transfer of water rights may profit from infrastructures that can reallocate water amongst places and users at a low cost;

The discussion about whether markets or governments respond better to water challenges is based on a false dilemma. Private decisions and collective action are both required in order to put water development into a sustainable pathway.

Economic instruments are by no means substitutes for other modes of governmental action, but instruments that can complement and strengthen water governance as part of a broad mix of policy instruments. Broadly, one can discern between (i) combinations of instruments, as part of a strategy for “packaging incentives”, and (ii) mixing them with other types of policy instruments, including regulatory, awareness raising, information, etc.

Economic instruments can only be successful if accompanied by a provision of the institutional changes required and a strategy to overcome the many barriers that putting a price to water might face.

In other words, changing setting new financial rewards and compensations for individual water decisions is only part of the solution. Societies become dependent on institutions and technologies with which they are familiar. Social and economic inertia can be so strong that even quite large changes in pay-offs will not change behaviour.

In many countries, tax evasion and avoidance hinder domestic resource mobilization. In addition, illicit financial outflows, including tax evasion across borders, have undermined tax collection.

Domestic public resources are also impacted by subsidies. These subsidies might have been pushing up non sustainable water uses. For example, producer support subsidies among OECD members total US\$ 259 billion in 2012. Eliminating these subsidies would reduce water depletion and might allow public resources to be redirected to other priorities.

Financial systems in many developing countries are still inappropriate to support economic development. They rely primarily on the banking sector. Though domestic credit has grown substantially over the past decade, in many countries, banking sector credit is primarily short-term. Domestic bond markets have also grown substantially, driven primarily by sovereign debt issues. Corporate bond markets, though growing, remain small.

The presence of institutional investors in developing countries has, however, been growing, and could potentially increase resources available for long-term investment in sustainable development. There is also a growing emphasis on the environmental, social, and governance impacts of investments. An increasing number of companies are reporting on these factors (referred to as ESG reporting) and have signed on to initiatives such as the Principles for Responsible Investment and the UN Global Compact.

Green growth constraints	Policy options
Inadequate infrastructure	<ul style="list-style-type: none"> • Taxes • Tariffs • Transfers • Public-Private Partnerships
Low human and social capital and poor institutional quality	<ul style="list-style-type: none"> • Taxes • Subsidy reform/removal
Incomplete property rights, subsidies	<ul style="list-style-type: none"> • Review and reform or remove
Regulatory uncertainty	<ul style="list-style-type: none"> • Set targets • Create independent governance systems
Information externalities and split incentives	<ul style="list-style-type: none"> • Labeling • Voluntary approaches • Subsidies • Technology and performance standards
Environmental externalities	<ul style="list-style-type: none"> • Taxes • Tradable permits • Subsidies
Low returns on R&D	<ul style="list-style-type: none"> • R&D subsidies and tax incentives • Focus on general-purpose technologies
Network effects	<ul style="list-style-type: none"> • Strengthen competition in network industries • Subsidies or loan guarantees for new network projects
Barriers to competition	<ul style="list-style-type: none"> • Reform regulation • Reduce government monopoly

Source: OECD (2011) Tools for delivering green growth

6. Lessons Learnt

The challenge for any green growth strategy is making individual decisions coherent with the societal objectives of fostering growth, eradicating poverty and enhancing social justice while protecting water providing ecosystems.

This suggests the use of incentives to promote the desired kinds of behaviour through market based mechanisms and pricing instruments. Nevertheless all economic and financial instruments has advantages and disadvantages depending on the particular problem at hand, and the economic, social and institutional framework within which they are implemented.

Economic instruments are still part of a new approach to water policy. There still is room for improvement in the design and implementation and particularly in adapting particular kinds of instruments to local circumstances including local institutional set-ups.

There remains a great deal of uncertainty especially over the potential role of pricing, and water use right trading systems, for water demand management and allocation.

Decision-making on water management will definitely be improved with better information but cannot be dependent just on that. Information, after all, is not the only (scarce) element of decision-making.

Instead of assuming a foreseeable future, economic and financial instruments must assume that the water future is uncertain. Instruments must be assessed and

chosen giving priority to its capacity to enhance adaptability and resilience and to work well under different, and essentially unpredictable, future conditions.

Financial and economic instruments are argued to be able to fulfil one or more social objectives: financial sufficiency of water development, support and promote economic growth and territorial development, and environmental sustainability, amongst others (i.e. equity concerns).

Financial goals should be clearly distinguished from economic incentives, aimed at inducing chosen behavioural changes. Cost-recovery mechanisms do emphasise on revenue collection and is essential to make the provision of water services sustainable. But the way these questions are addressed does not necessarily have anything to do with efficient pricing, whose motivation should be to optimise water use and social welfare.

In water management, information has typically been expensive and can be considered as part of transaction costs.

The effective design and implementation of financial and economic policy instruments typically require more differentiation (and hence more information than command-and-control systems).

But, economic and financial instruments save information as well (i.e. setting a price and observing behaviour is not that demanding as deciding water allocations in a centralized manner, markets might be a way of revealing preferences, etc.).

A critical issue in the implementation of financial and economic instruments is a clear definition of water rights.

Economic and financial instruments are usually only one element of a broader institutional set up. They are often combined with other policy instruments into a water policy or management strategy.

Innovative financial and economic policy instruments are not necessarily new instruments but rather better designed and implemented instruments.

Pricing, payment for environmental services, cooperation, trading schemes and other financial and economic instruments are not always easy to implement (due to high transaction costs, equity concerns, social acceptability, institutional complex demands, etc.).

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