



Tool 1: Economic instruments and policies in water management

Case and region	Issue	Type of tool	Description	Economic and financial benefits	Environmental benefits	Social/poverty alleviation benefits	Governance changes	Scaling up and relevance for developing/ transition countries	Concerns
<p>(1) Subsidies for water infrastructure as an engine of growth in South Africa</p> <p>Africa</p>	Industry	Economic instruments and policies in water management	<p>The country has limited water resources, extremely unevenly distributed and much far from the location of economic activities and populations</p> <p>Infrastructure development has enabled the storage and transportation of this water to support social and economic development</p> <p>The use of subsidies for infrastructure as a tool must be assessed to ensure benefits are greater than costs</p>	Water infrastructure has supported the gold and diamond mining industries which have been the main driving force of South Africa's economic growth					Of particular concern are environmental costs and impacts on indigenous communities dependent on present river flows and hydrographic conditions
<p>(2) Trading and step by step legal reform on water use rights in the Murray-Darling Basin</p> <p>Australia</p> <p>Source: http://www2.mdbc.gov.au/nrm/water_issues/water_trade.html</p>	Watershed/ agriculture/ cities	Economic instruments and policies in water management	<p>Water trading has increased with increasing water scarcity problems</p> <p>Two elements of success: decoupling water rights from land rights and making water rights proportional shares of available resources rather than fixed volumes</p>	<p>Water trade has enabled irrigators to respond flexibly to drought and other external factors, reducing the economic impact of low water allocations on business</p> <p>Enables water to be traded from low to high value uses</p>	Through the "Restoring the Balance" program, the Federal Government has allocated \$3.1b for purchasing water entitlements and \$5.8b for recovering water through infrastructure investments, to restore water to the environment	Water trade has enabled governments and utilities to purchase water to ensure water security for urban citizens, including during critical drought periods	A new Water Act in 2007 established an independent Murray-Darling Basin Authority with the functions and powers to manage the entire basin's water resources	Relevance for managing water in a context of climate change and variability, managing water scarcity	<p>High administrative requirements</p> <p>There is no single register with timely trade data</p> <p>Trade can affect the spatial characteristics of water use, storage and delivery, which may result in channel capacity, water and land quality issues</p> <p>Current limit on the level of permanent trade permitted out of area</p>
<p>(3) Water pricing and command and control for water demand management in cities and agriculture in Israel</p>	Cities / Agriculture	Economic instruments and policies in water management	<p>Metering everywhere and everyone pays</p> <p>Mixed model of pricing/penalties and command and control</p>						Decisions on pricing are sometimes subject to other social and political goals



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MENA									
(4) Dutch agriculture and environmental sustainability Europe	Agriculture	Economic instruments and policies in water management	<p>Combination of public policies and market incentives to encourage environmentally sound agriculture</p> <p>Long history of addressing environmental impacts of agricultural intensification (e.g. pollution, ammonia emissions, pesticide use, biodiversity issues) through policies and system-wide changes</p> <p>Preventative rather than 'end of pipe' approach to sustainable production</p> <p>Market initiatives respond to consumer preferences to environmentally friendly products, e.g. the Horticulture Environmental Programme requires producers record their use of crop protection products, fertilizers and energy; retailers demand use of environmentally-friendly methods in primary production</p>	The Ministry of Agriculture focuses the sector on increasing profits by marketing new products and solving problems (e.g. environment, animal welfare) better and earlier than competitors	Successful implementation of policies to restrict pesticide use and encourage more environmentally sustainable chemicals, e.g. the Multi Year Crop Protection Plan (1991-2000) significantly pesticide use		A leading Government and advanced environmental regulations (often ahead of EU policies)	Favorable soil conditions and geographical proximity to several EU countries has given the Netherlands considerable comparative advantages in the EU system of free internal trade	
(5) Netherlands tax on nutrients Europe <i>Source: AstanaECE</i> http://www.economicinstruments.com/index.php/land/article/140 http://edepot.wur.nl/121333 http://www.eco	Agriculture	Economic instruments and policies in water management	<p>The centrepiece of the current Dutch nutrient pollution policy is a farm-level nutrient accounting system enforced by a tax on annual net balance of nutrients in excess of a levy-free minimum.</p> <p>This is accompanied by a cap on manure application per hectare coupled with a system of manure trading started in 2002.</p> <p>The principle behind the Dutch Mineral Accounting System (MINAS) is that farmers record the amount of nitrogen and</p>		Decrease in nitrogen and phosphorus	The taxes are viewed as substantial enough to motivate behavioural changes.	<p>Nutrient management policy partly driven by external forces, including standards set by the EU. MINAS was introduced to ensure compliance with the EU Nitrate Directive.</p> <p>In 2003 the Court ruled that the Dutch government had "failed to fulfill its obligations under the Directive". It was concluded that the loss standards under Minas were a means of</p>		<p>Disadvantage of the obligatory minerals accounting system is that it is rather complicated and that it causes a heavy administrative burden - manure that is disposed of must be sampled and weighed.</p> <p>Furthermore when the minerals accounting system was introduced it emerged that checks on accounting had not been properly structured.</p>



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<p>http://www.economicinstruments.com/index.php/land/article/140-40</p> <p>http://www.economicinstruments.com/index.php/land/article/140-40</p> <p>http://files.foes.de/de/downloads/tagungvilm2005/netherlandsstudy.pdf</p> <p>http://www.journals.dtu.dk/vol_7_no_2/No_5_Stuart_Wright.pdf</p>			<p>phosphorus that comes onto the farm, e.g. through feed, livestock, fodder, manure and chemical fertilizer, and the amount that leaves it in such forms as livestock, forage, manure, grain, milk and eggs.</p> <p>The MINAS programme sets a loss standard that represents uncontrollable nutrient loss.</p> <p>The farmer is charged a levy on nitrogen and phosphorus surplus in excess of this loss standard. The farmer must account for the nitrogen and phosphorus content of the inputs and outputs. The MINAS phosphorus tax currently is set at €9 per kilogram of excess phosphate. Excess nitrogen is taxed at a rate of €2.3 per kilogram.</p>				<p>control which was applied too late in the N cycle.</p> <p>The Nitrate Directive aimed to limit and prevent the pollution of water by N and was therefore focused on prevention i.e. combating pollution at source. The Court decided that this obligation could only be satisfied by using an application standard system. The Netherlands was fined €250 million and ordered to replace Minas in 2006 with a system based on application standards for manure and total N fertilisation on farms in line with the Nitrate Directive.</p>		