



# OPTIONS FOR DECOUPLING ECONOMIC GROWTH FROM WATER USE AND WATER POLLUTION

Global trends point to a relative decoupling of water – that is, the rate of water resource use is increasing at a rate slower than that of economic growth. The *Options for Decoupling Economic Growth from Water Use and Water Pollution* report provides an independent assessment of technological and policy-relevant tools and approaches that can be used to achieve the decoupling of water resources from economic development while considering environmental and welfare impacts over the full life cycle. To head off a looming water resource crisis, meet global water demand, and sustain economic growth and human wellbeing, global action for decoupling water from economic growth is essential. The report puts forward a package of policy and practical responses based on decoupling strategies to help the forward looking policy-maker in achieving global aspirations for water sustainability.

## Decoupling is imperative to sustain economic growth and human wellbeing

Human societies depend on water in complex and interlinked ways. Water is a pre-requisite for human health, an essential component for the preservation of the environment and ecosystem services, and a key input for economic development. Yet up to one-third of the global population is already subject to water stress, and if current trends continue, this could increase to roughly half the global population by 2025.

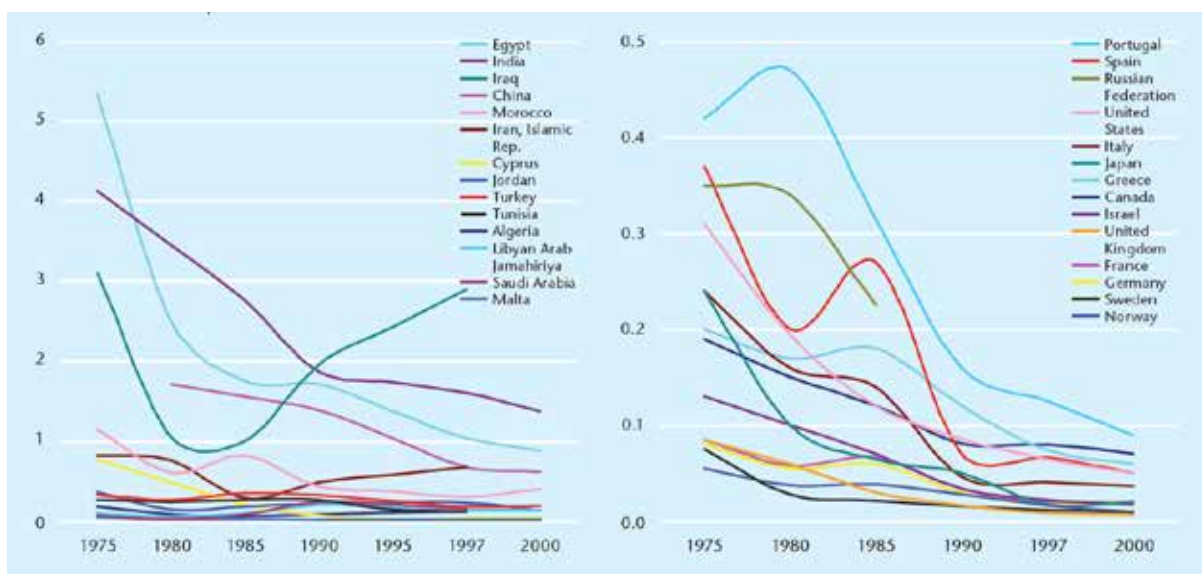
Water withdrawals and pollution are a direct result of human activities – especially across agriculture, industry and energy, and municipal sectors. The sheer magnitude of potential

impacts of diminishing non-renewable water resources to water ecosystems, human welfare, and economic systems highlight the imperative of decoupling of water from economic activities.

## Decoupling is already happening

Decoupling refers to the ability of an economy to grow without a corresponding increase in environmental pressure. Between 1900 and 2000, the global economy expanded thirty-fold, while global water consumption grew by only six times. Figure 1 presents trends of a relative decoupling of water from economic development across a number of countries.

Figure 1: Ratio of domestic water use to GDP in different countries in the period 1975 - 2000  
Source: UN-Water, 2009





## Global action for decoupling must be strengthened to avoid a water crisis

Increases in human populations, urbanization and economic activities are exacerbating water scarcity and water pollution; and inefficiencies in the water supply and consumption systems are overshadowing gains in water decoupling.

In addition, decoupling estimates have not included 'virtual water' – water embedded in products and used in their production, and increasingly being traded between countries.

Moreover, water pollution and over-withdrawals constrain the function of water body ecosystem services. Climate change, already impacting the hydrological cycle, may intensify changes.

Many countries have mixed track records in managing their water resources. Often, water management strategies under-invest in integrated water resource management systems, and prioritize increases in supply through more infrastructure over targeted governance reform for improved allocation and productivity.

## Achieving sustainable decoupling in the water sector requires a holistic and cross-sectoral approach.

Solutions are already available to decouple economic development from water resource use.

The report presents a number of technological advances across agriculture, industry and municipal use sectors that have been successfully employed to support decoupling.

Beyond sector-based approaches, Integrated Water Resources Management (IWRM) strategies have been shown to be the most cost effective means of achieving water decoupling. They incorporate all parts of the water cycle across spacial scales and time, and view the different water sectors and users as components of an integrated physical and institutional system.

Policy and regulatory intervention are also an important aspect of achieving water decoupling. Instruments such as taxes, subsidies and fees can be used to counteract the inherent constraints on the economic management of water – including its 'public good' and natural monopoly properties, typically externalised costs, and high transaction costs.

## Enabling strategies for decoupling the water sector

Six strategies to enable taking full advantage of the potential benefits of decoupling economic growth from water uses and water pollution are proposed.

- Invest more in research and development on technological tools for water-use efficiency gains.
- Consider and apply policy measures to curb water demand and re-allocate water to where it produces most benefit to society.
- Consider ways to internalize current cost-externalities.
- Strengthen research into the value of ecosystem services to better inform economic growth equations.
- Improve records of the efficiency and effectiveness of different measures.
- Do more to assess and communicate virtual water contents, water footprints and related impacts.

A summary and the full report can be downloaded at:  
[www.unep.org/resourcepanel/](http://www.unep.org/resourcepanel/)

For more information, please contact:  
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### About the International Resource Panel

The International Resource Panel (IRP) was established in 2007 to provide independent, coherent, authoritative and policy-relevant scientific assessment on the sustainable use of natural resources and the environmental impacts of resource use over the full life cycle. This report was prepared by the Water Working Group of the IRP.