



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement      Programa de las Naciones Unidas para el Medio Ambiente  
Программа Организации Объединенных Наций по окружающей среде      برنامج الأمم المتحدة للبيئة

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## Value Ecosystems—Not Just Crops—When Managing Water Use, says UN Report

**Marseille (France) /Nairobi, 12 March 2012** – Recognising the valuable services provided by ecosystems such as wetlands and forests – and not only focusing on water productivity in agriculture – can improve livelihoods and help meet the rising demands on the world’s water resources in a sustainable way, according to a new report from the United Nations Environment Programme (UNEP).

Increasing water productivity and efficiency is a key concern for policymakers in many parts of the world; especially as rising incomes and changing diets are set to increase the demand on water resources that are already under pressure.

The UNEP report, entitled *Releasing the Pressure: Water Resource Efficiencies and Gains for Ecosystem Services*, which was produced by researchers at the Stockholm Environment Institute (SEI), urges policymakers and resource managers to shift from the traditional focus on water productivity per unit of agricultural yield (“more per crop drop”), to a broader view of the concept, which would include ecosystem services.

Such an approach would take into account water regulation and purification, pollination, erosion control and other ecosystem services performed by wetlands and forests. These water-dependent services, and the communities that rely on them, can be adversely affected when water is siphoned off from rivers or streams, or drained from marshes, for agricultural use.

Balancing the goals of agricultural land (agro-ecosystems) with these kinds of ecosystem services – using some of the techniques outlined in the UNEP report - can serve to improve human well-being, increase crop yields in a sustainable way and support the transition to a low-carbon, resource-efficient and equitable Green Economy.

“Assessing water productivity narrowly – for example, by simply looking at crop, fodder and forest produce – will continue to under-value the role of water for wider society and the economy,” said UN Under-Secretary-General and UNEP Executive Director Achim Steiner.

“Recognising the wider benefits generated by water, for example nutrient flows, cooling, providing habitats, and other supporting and regulating ecosystem services, is the aim of

our work. Water may soon be a critically restricted resource for a growing number of people. In just over three months, world governments will meet for the UN Conference on Sustainable Development (Rio+20). This report addresses an important issue for future sustainable development: how to enhance the productive and equitable use of water for multiple needs,” added Mr Steiner.

### **Using Existing Techniques to Improve Water Productivity**

The report uses case studies from Africa and Asia to demonstrate how some of the pressure on limited water resources can be managed with existing techniques - in a way that benefits both agro-ecosystems and ‘downstream’ ecosystem services.

Improving the productivity of water used in rainfed agriculture in Africa, Eastern Europe and Central Asia – which provides 60 per cent of the world’s cereal crops – is an untapped opportunity to meet food, fodder and fibre demands, says the study.

Soil and water conservation, minimum tillage and rainwater harvesting are techniques that can close the gap between actual and potential yields of crops in a sustainable way. Closing current yield gaps to within 95 per cent of potential yields in rainfed agriculture could increase grain production by 58 percent, while maintaining current levels of water use. Importantly, this allows water flows in the surrounding landscape to continue to sustain ecosystem services.

A case study from the report of an ecosystems evaluation in the Barotse floodplain, Zambia, shows that more than three-quarters of household income there comes from subsistence activities supported by ecosystem services, such as fishing and livestock grazing.

The report also shows how agricultural water management interventions have made both positive and negative impacts on water outflows, sediment transport and soil loss in the Kothapally watershed, in southern India.

“A narrow definition of ‘water productivity’ considers only the value of agricultural produce, but doesn’t put a price on lost drinking water, reduced fish populations, parched pastures, or shrinking groundwater reservoirs,” said Jennie Barron, a research fellow at SEI’s centre at the University of York, U.K., who wrote the report with SEI-U.S. associate consultant Patrick Keys, based in Seattle, Washington.

“Improving water management to reflect multiple needs and multiple uses is crucial to sustaining water’s many benefits to human well-being, societies and economies,” said Keys.

“Many ecosystem services that underlie people’s livelihoods draw on the same water resources used for agriculture: wetlands that provide reeds, fish and rice; forests that supply timber, firewood and game. In addition, water is needed to support and regulate important functions such as nutrient transport, vapour flow and sediment flow,” he added.

The report aims to encourage water and land resource managers around the world to explore the ecosystem service gains and tradeoffs in their own local contexts, such as watersheds, landscapes, countries, or basins.

**Other key recommendations in the report include:**

- In livestock management, adopt techniques that can improve both ecosystem services and livelihoods from farming. Such strategies include: rotating livestock herds, using manure fertilizer, managing crop residues for livestock feed and choosing climate-appropriate breeds and size of herds
- Include regulating and supporting ecosystem services (eg. water purification, disease regulation) in local and regional water management agendas
- Use water management methods that mimic natural water storage, so agricultural water remains linked with the surrounding landscapes
- Integrate forestry into water management efforts to ensure the value of forest ecosystems are accounted for in landscape water use
- Expand Integrated Water Resource Management (IWRM) practices to manage water productivity for ecosystem services in various landscape uses, especially from fishing and livestock grazing

**Launch of UNEP Ecosystem Management Tools**

UNEP is also launching a set of three manuals to enable policymakers and water practitioners to incorporate ecosystems approaches in the management of water resources. The publications aim to address a lack of awareness and the limited data available on this issue, and to enable decision-makers to use a policy approach to effectively stop and reverse the degradation of ecosystems.

**1) Ecosystem Management: Concept for local-scale implementation**

Based on collaboration with more than 20 experts from 14 institutions worldwide, this manual aims to improve the understanding of ecosystems structure, function and services among water catchment managers and other practitioners. The 18 modules consist of short presentations and practical exercises that allow participants to apply the concepts to their everyday work in managing water resources.

**2) Integrated Water Resources Management for Small Island Developing States (SIDS)**

Integrated Water Resources Management (IWRM) is a process of sustainable developing, allocating and monitoring the use of water towards social, economic and environmental objectives. This resource book, which contains a wide range of case studies and best practices, examines how IWRM can be applied to small island developing economies and

puts forward a Planning Cycle and Methodology to assist organizations or individuals dealing with watersheds, catchments or coastal zone management.

### **3) Comprehensive Option Assessment**

This training manual targets government officials and others working on large infrastructure projects. It supports ongoing efforts to consider environmental and social factors on an equal footing with more traditional technical and financial concerns when undertaking such projects. The manual highlights key issues and principles that support the sustainable development of infrastructure – especially in Africa and other developing regions.

#### **Notes to Editors**

The UNEP report, *Releasing the Pressure: Water Resource Efficiencies and Gains for Ecosystem Services*, can be downloaded at: <http://www.sei-international.org/publications?pid=2050> or [www.unep.org](http://www.unep.org)

High-resolution graphics and photographs are available upon request from Patrick Keys at [patrick@keysconsulting.com](mailto:patrick@keysconsulting.com).

A policy brief summarising the report's findings is available at <http://www.sei-international.org/publications?pid=2051>

Both report authors are available for interviews.

The UNEP *Ecosystem Management Tools* can be downloaded at: [www.unep.org](http://www.unep.org)

UNEP's Regional Office for Latin America and the Caribbean has produced a series of radio spots (in Spanish) covering 14 issues to do with sustainable water management – from a rainwater collection project that aims to improve food security in Guatemala to the impact of uncontrolled logging on flood patterns in the region. The radio spots are free to use and can be downloaded at: <http://www.pnuma.org/agua-miaac/Prensa.php#2>

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#### **About UNEP:**

UNEP, established in 1972, is the voice for the environment within the United Nations system. UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment. To achieve this, UNEP

works with a wide range of partners, including United Nations entities, international organizations, national governments, non-governmental organizations, the private sector and civil society. Learn more at [www.unep.org](http://www.unep.org)

**About SEI:**

The Stockholm Environment Institute is an independent, multi-disciplinary research institute whose mission is to bridge science and policy to support sustainable development. Headquartered in Sweden, it also has centres in the U.K., the U.S., Estonia, Thailand and Tanzania, and does research, policy analysis and outreach worldwide. Learn more at <http://www.sei-international.org>.