Water and Food Security Reader

UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC)

Produced by the UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC), this reader is intended for all those interested in getting familiar with issues related to water and food security. The reader provides basic references for easy reading and some of the latest and most relevant United Nations publications on the issue. Links are provided when the publication is available online.

United Nations Office to Support
the International Decade for Action
'Water for Life' 2005-2015

www.un.org/waterforlifedecade

United Nations
Department of Economic
and Social Affairs
(UNDESA)

WATER FOR LIFE
2005-2015

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UN WATER
UN-Water Decade Programme
on Advocacy and Communication

An overview

- **United Nations World Water Development Report 4. Volume 1 'Managing Water under Uncertainty and Risk'**

  United Nations Educational, Scientific and Cultural Organization (UNESCO), UN-Water, World Water Assessment Programme (WWAP). March 2012

  http://bit.ly/zZZkit

  The UN World Water Development Report 4 (WWDR4) provides a comprehensive assessment of the world's water resources and, building on WWDR3, it elaborates on the interactions between water and the drivers of change. The issue of water and food security is addressed all along the report and chapter 2.1 specifically deals with 'Water and agriculture'.

- **(The) State of the World's Land and Water Resources for Food and Agriculture: Managing systems at risk. Summary report**

  Food and Agriculture Organization of the United Nations (FAO). 2011

  http://bit.ly/sMtyD8

  This report examines the kinds of production responses needed to meet demand. It also assesses the potential of the world's land and water resources to support these desired increases in output and productivity. Risks and tradeoffs are examined, and options reviewed for managing these without harm to the resource base. Chapter 1 analyses the current status of land and water resources together with trends. It assesses the biophysical and technical aspects of the resources and their use, and presents projections for the year 2050. Chapter 2 reviews current institutional arrangements, and assesses socio-economic and environmental impacts of current land and water management. Chapter 3 reviews current and future threats to land and water and their implications for a series of major systems at risk. Chapter 5 assesses the institutional responses at local, national and international levels, with an analysis of lessons for the future. Finally, Chapter 6 draws conclusions and advances policy recommendations.

Food loss and waste

- **Global food losses and food waste. Extent, causes and prevention**

  Food and Agriculture Organization of the United Nations (FAO), Swedish Institute for Food and Biotechnology (SIK). 2011

  http://bit.ly/zAE2mB

  This study highlights the losses occurring along the entire food chain, and makes assessments of their magnitude. Further on, it identifies causes of food losses and possible ways of preventing them.

Land and water degradation

- **The environmental food crisis: The environment's role in averting future food crises.** Chapter 4

  United Nations Environment Programme (UNEP). 2009

  http://bit.ly/ooF7nX

  This report provides a summary of how climate change, water stress, invasive pests and land degradation may impact world food security, food prices and life on the planet and how we may be able to feed the world in a more sustainable manner.Chapter 4 'Impacts of environmental degradation on yield and area' attempts to provide estimates of possible ranges of future impacts of water and land degradation on yield and available cropland.

Water management for food security

- **Water for food. Innovative water management technologies for food security and poverty alleviation**

  United Nations Conference on Trade and Development (UNCTAD). 2011

  http://bit.ly/mTFnbh

  This paper sets out the water and food security challenges in Least Development Countries (LDCs) and developing countries. The document explores the rainfed-irrigation nexus in different regions of the world, looks at the technology's role and suggests some action actions that can be undertaken to improve water and food security and alleviate poverty.

- **Sick water: the central role of wastewater management in sustainable development**

  United Nations Environment Programme (UNEP), United Nations Human Settlements Programme (UN-Habitat). 2010

  http://bit.ly/x0QRL6

  This report identifies the main threats to human and ecological health and the consequences of poor wastewater management and degrading sewage systems. The report also considers the implications for food security and how these may be influenced by issues such as population growth, urbanization and climate change. It also presents opportunities, where appropriate policy and management responses over the short and longer term can trigger employment, support livelihoods, boost public and ecosystem health and contribute to more intelligent water management. The chapter on 'Wastewater, food security and production' specifically tackles the complex relationship between water quality, agriculture and food security.

- **Rainwater harvesting: a lifeline for human well-being**

  Stockholm Environment Institute (SEI), United Nations Environment Programme (UNEP). 2009

  http://bit.ly/zgLJzn

  This publication highlights the link between rainwater harvesting, ecosystems and human well being and draws the attention of readers to both the negative and positive aspects of using this technology and how the negative benefits can be minimized and positive capitalized. Chapter 4 'Rainwater harvesting in the management of agro-eco systems' focuses on rainwater harvesting in the management of agro-ecosystems and the role of water harvesting in achieving the Millennium Development Goals.

Water scarcity

- **Coping with water scarcity. Challenge of the 21st Century**

  Food and Agriculture Organization of the United Nations (FAO). 2007

  http://bit.ly/x75ml9

  Produced on the occasion of World Water Day 2007, which focused on the issue of water scarcity, this publication addresses the challenges of water scarcity in relation to climate change, rural areas, water productivity, poverty and food. Current and future trends and different approaches to water resources management are presented in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

The right to water. The right to food

The Right to Food and Access to Natural Resources. Using Human Rights Arguments and Mechanisms to Improve Resource Access for the Rural Poor

Food and Agriculture Organization of the United Nations (FAO). 2009

http://bit.ly/zBvnO3

This publication explores the relationship between human rights — particularly the right to adequate food — and the access to natural resources. It does so through a conceptual analysis based on international treaties and instruments, and through two country studies – one from Mali and the other from the United Republic of Tanzania. Although this study considers access to natural resources, and although different resources and different resource rights are closely interrelated, the focus is on access to land. Access to related resources such as water, grazing and forests is also touched upon.

The greening of water law: Managing Freshwater Resources for People and the Environment

United Nations Environment Programme (UNEP)

http://bit.ly/ACMHoO

This document explores the notion and the benefits of greening water law by presenting and assessing a variety of legal, procedural and policy mechanisms, for both national and international arenas, that can help to elevate the status and importance of environmental concerns to harmonize the water needs of present and future generations. The publication indicates that greater environmental flows will improve conditions for food production as increased flows will allow for the expansion of agricultural activities, such as aquaculture. According to the publication, up to 25% of the world food production may become 'lost' during this century as a result of climate change, water scarcity, invasive pests and land degradation.

A focus on…

Climate change

Climate Change, Water and Food Security

Food and Agriculture Organization of the United Nations (FAO). 2008

http://bit.ly/k6gvol

This report summarizes current knowledge of the anticipated impacts of climate change on water availability for agriculture. The implications for local and national food security are examined; and the methods and approaches to assess climate change impacts on water and agriculture are discussed. Furthermore, this publication exposes the elements of information and guidance that are needed to assess and respond to the challenge that climate change is expected to impose on agricultural water management and food security.

Ecosystems

Ecosystems for Water and Food Security. Background document

International Water Management Institute (IWMI), United Nations Environment Programme (UNEP). 2011

http://bit.ly/pbc12m

The purpose of this document is to show how sustainable ecosystems, explicitly agroecosystems, are essential for water management and food production. This document provides background evidence illustrating the 3-way interdependence between ecosystems, water and food security, demonstrating how ecosystem management can be improved to ensure water availability and to avoid future food crises. It focuses primarily on how to achieve sustainable food production from a biophysical perspective and does not address per se the key social and institutional issues related with food security. Several of those are however highlighted throughout the text in order to remind the reader that these remain a

critical component to ensure food security for the poor and socially-disadvantaged groups. The document is structured to show the relationships between ecosystems, water, and food. It starts with chapters on food security (2), ecosystems (3) and water (4) that each provides more insight into the reasons why an integrated ecosystem approach is required and what this should entail. The synthesis chapter (5) then explains how agroecosystems provide water and other services for food security.

- **An Ecosystem Services Approach to Water and Food Security**

  International Water Management Institute (IWMI), United Nations Environment Programme (UNEP). 2011

  http://bit.ly/rpCauT

  This publication looks at how an ecosystem services approach to the management of water and other natural resources, and the policies that affect that management, can create more stable and sustainable food production and enhanced food security. It brings together the best thinking available from a number of fields to tease out the interconnections between ecosystems, water and food; suggests a way forward; and identifies specific ecosystem-based opportunities to increase food production in ways that make optimal use of water resources, protect the resource base, and improve the incomes and food security of poor people.

- **The environmental food crisis: The environment's role in averting future food crises.** Chapter 5

  United Nations Environment Programme (UNEP). 2009

  http://bit.ly/ooF7nX

  This report provides a summary of how climate change, water stress, invasive pests and land degradation may impact world food security, food prices and life on the planet and how we may be able to feed the world in a more sustainable manner. Chapter 5 'Impacts on biodiversity and ecosystems from conventional expansion of food production' discusses the role of biodiversity in food production and focuses on agriculture and marine capture fisheries.

Poverty

- **Water and Poverty: The Themes**

  Asian Development Bank (ADB). 2004

  http://bit.ly/yx0LWp

  This publication focuses on the link between water and poverty reduction. Ten cases from international experts tell stories of innovative approaches to water problems around the world. Irrigation is among the issues explored in these case studies.The chapter on 'Water for Food Security for the Poor' shows how access to irrigation has significant impacts on food security and poverty reduction.

Gender

- **Gender in Agriculture Sourcebook**

  Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), World Bank. 2009

  http://bit.ly/yAH0fi

  The purpose of the Sourcebook is to act as a guide for practitioners and technical staff in addressing gender issues and integrating gender-responsive actions in the design and implementation of agricultural projects and programs. Module 1 'Gender and Food Security' serves as a road map that indicates how addressing gender in agriculture development can be optimized to maximize the impact on food security. Module 6 highlights the need to incorporate gender mainstreaming in agricultural water management. It analyzes the main gender issues that tend to be addressed or solved in the agricultural water management sector. It then presents some good practices learned from specific experiences from Ghana and Gambia. At the end, it introduces some ideas to include gender mainstreaming within the agricultural water management project cycle.

Agriculture

- **Human Development Report 2006.** Chapter 5

  United Nations Development Programme (UNDP). 2006

  http://bit.ly/wE4atE

  Chapter 5 of the Human Development Report 2006 'Water competition in agriculture' focuses on water competition and governance and its effects on agriculture. It looks briefly at the links between water and rural livelihoods and at the emerging scenarios of water use that can influence these links. The main issues addressed are competition, rights and the scramble for water; better governance for irrigation systems; and greater water productivity for the poor.

- **United Nations World Water Development Report 2. 'Water, a shared responsibility'.** Chapter 7

  World Water Assessment Programme (WWAP), Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD). 2006

  http://bit.ly/zVy2Go

  Chapter 7 of WWDR2 'Water for Food, Agriculture and Rural Livelihoods' focuses on the role of water in agriculture and at the same time shows how agriculture can respond to the changing nature of demand for water. It examines the challenges of feeding a growing population and balancing its water needs with other uses, while contributing to sustainable development in rural areas.

Experiences around the world

Africa

- **African Water Development Report.** Chapter 8

  United Nations Economic Commission for Africa (UNECA), UN-Water. 2006

  http://bit.ly/wxep8C

  Chapter 8 of the African Water Development Report 'Water for Food Security' focuses on the importance of securing the food supply to enhance food security, particularly of the poor and vulnerable, through more efficient mobilisation and use of water and more equitable allocation of water for food production. It also presents data and statistics from Africa concerning under-nutrition and food production, and the lack of access to safe, sufficient and clean water.

- **National Water Development Report: Uganda. Prepared for the 2nd UN World Water Development Report.** Chapter 7

  Directorate of Water Development, World Water Assessment Program (WWAP). 2005

  http://bit.ly/zvGmsH

  Chapter 7 'Water and Food Security' focuses on the persistent food shortages and critical nutritional deficiencies often experienced in many parts of Uganda. Under-nourishment, especially in childhood years, is unacceptably high and periodic famine has become a common phenomenon in many parts of the country. This publication shows the national programmes aimed at addressing, among other, constraints to food production, processing, storage and marketing of agricultural products, and improvement of general national food security

Asia

- **Sustainable agriculture and food security in Asia and the Pacific**

  United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). 2009

  http://bit.ly/znTQNI

  This study examines the environmental, economic and social challenges that are the roots of the region's food insecurity and suggests a regional framework of action to be taken by governments and the international community in order to create greater food security.

Revitalizing Asia's Irrigation: To sustainably meet tomorrow's food needs

International Water Management Institute (IWMI), Food and Agriculture Organization of the United Nations (FAO). 2009

http://bit.ly/xdFJtf

This document shows the past and future trends of irrigation in Asia while proposing investment strategies which include examples of good practices and lessons learned. The main objective of this publication is to propose a comprehensive strategy to improve the performance of Asia's irrigated agriculture and thus satisfy the growing demand for water and food.

International Decade for Action 'Water for Life' 2005-2015

A Decade for Water, a Decade for Life

Towards the primary goal of the Water for Life Decade, Spain has agreed to provide resources to the United Nations to establish an Office to support the International Decade for Action. Located in Zaragoza, Spain, and led by the United Nations Department of Economic and Social Affairs (UNDESA), the Office implements the UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC) aiming at sustaining the global attention and political momentum in favour of the water and sanitation agenda at all levels during the Decade.

UN-Water Decade Programme on Advocacy and Communication (UNW-DPAC)

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