



resources guide

Wastewater reuse and strategies for health protection

Books and articles

Reuse of Wastewater in Agriculture: A Guide for Planners

Khouri, Nadim, John M. Kalbermatten and Carl R. Bartone (1994) Water & Sanitation Program Discussion Paper – Report No: 13315 <http://www-wds.worldbank.org>

These UNDP–World Bank guidelines integrate the World Health Organization health guidelines for the reuse of wastewater with the Food and Agriculture Organization's water quality guidelines for irrigation.

Human Waste (Excreta and Wastewater) Reuse

Strauss, Martin (2001) SANDEC

This discusses the practice and resource potential of human waste reuse in urban agriculture and aquaculture.

Duckweed Aquaculture – Potentials, Possibilities and Limitations for Combined Wastewater Treatment and Animal Feed Production in Developing Countries

Iqbal, S. (1999) SANDEC

Wastewater reuse

Davis, Richard and Rafik Hirji (2003)

Working Paper – Report No: 26325 Water Resources and Environment Technical Note No. F 3. Water Conservation and Demand Management series www-wds.worldbank.org

The guidelines consider land as a disposal option even where no urgent need for additional sources of irrigation water exists.

Wastewater Use in Irrigated Agriculture – Confronting the Livelihood and Environmental Realities

Scott, Christopher, Naser Faruqui and Liqa Raschid-Sally (eds), CABI/IWMI/IDRC, CABI Publishing, www.cabi-publishing.org

This book critically reviews experience worldwide in the use of wastewater for agriculture, defining and elaborating on the issues at the centre of the debate, with particular emphasis on untreated wastewater use.

Water Quality – Guidelines, Standards and Health: assessment of risk and risk management for water-related infectious disease

Fewtrell, Lorna and Jamie Bartram (ed.) (2001) published for WHO by IWA Publishing, http://www.who.int/docstore/water_sanitation_health/Documents/IWA/iwabooktoc.htm

These present an authoritative assessment

of the health risks associated with exposure to water and of approaches to their control. The three principal guidelines can help countries establish effective national or regional strategies and standards and include guidelines for the safe use of wastewater and excreta in agriculture and aquaculture.

Guidelines for the safe use of wastewater and excreta in agriculture and aquaculture

Mara, Duncan, and Sandy Cairncross (1989) WHO, Geneva, Switzerland.

Guidelines for wastewater reuse in agriculture and aquaculture: recommended revisions based on new research evidence

Blumenthal, Ursula, Anne Peasey, Guillermo Ruiz-Palacio and Duncan Mara

Editor: Darren Saywell Report summary of WELL Task No. 68 (Part 1) www.lboro.ac.uk/well/resources/well-studies/summaries-htm/task0068i.htm

Since the influential WHO *Guidelines* (1989) and the USEPA/USAID *Guidelines* (1992), epidemiological studies have been carried out by London School of Hygiene and Tropical Medicine, with colleagues in Mexico and Indonesia, and microbiological studies of crops irrigated with treated wastewater carried out by Leeds University, with colleagues in Brazil and Portugal to assess the validity of these guidelines. The WHO Guidelines are reviewed in the light of these and other recent studies.

WASH Fact Sheet: Water Reuse in Developing Countries (including Guidelines for Wastewater Reuse)

http://www.dec.org/pdf_docs/pnack837.pdf These are primarily intended for utilities and regulatory agencies in the United States that are seeking to establish standards or regulations on the reclamation and reuse of wastewater. However, these guidelines are also applicable elsewhere.

'Review of policy and standards for wastewater reuse in agriculture: A Latin American perspective'

Peasey, Anne, Ursula Blumenthal, Duncan Mara and Guillermo Ruiz-Palacios (2000)

WELL Task No: 68 Part II www.lboro.ac.uk/well/resources/well-studies/full-reports-pdf/task0068ii.pdf

This document aims to address the health protection policy issues that surround wastewater reuse in agriculture with particular emphasis on Mexico, a country with a long history of wastewater reuse.

'Urban Wastewater as Groundwater Recharge'

Stephen Foster, Hector Garduño, Albert Tuinhof, Karin Kemper Marcella Nanni (2003)

Global Water Partnership Associate Program – Sustainable Groundwater Management: Concepts and Tools – GW MATE Briefing Note No.12

www.worldbank.org/gwmate

The focus is on evaluating the consequences of common practices of sewage handling and reuse in developing cities and on cost-effective incremental approaches to reducing the groundwater pollution risk.

Web sites

Resource Centre on Urban Agriculture and Forestry (RUAF)

www.ruaf.org

Cities Feeding People Wastewater Reuse http://web.idrc.ca/en/ev-6380-201-1-DO_TOPIC.html

Information on IDRC projects on this subject.

Institute of Aquaculture, University of Stirling

<http://www.dfid.stir.ac.uk/dfid/dfid.htm>

Gender issues in aquaculture

www.dfid.stir.ac.uk/dfid/gender/gender.htm

Department of Water and Sanitation in Developing Countries (SANDEC)

www.sandec.ch

Research activities at SANDEC focus on use of waste, wastewater and urban agriculture.

Aquaculture and Recycling Research Group – Aquaculture Group, Fundación CIPAV

www.cipav.org.co/cipav/resrch/water

This group works in the development of integrated systems to mitigate the water pollution caused by agriculture and human activities.

IWMI website and the Hyderabad Declaration on Wastewater Use in Agriculture

www.iwmi.cgiar.org/health/wastew/hyderabad_declaration.htm

Sanitation Connection: A joint website of the IWA, UNEP(GPA), WSP, WSSCC and WHO on Sanitation related issues.

www.sanicon.net/home.php3

A section on wastewater reuse has been prepared by WHO and Leeds University

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