



FOOD *for* THE CITIES

Production systems - UPA **Water use and reuse** **for urban agriculture**

Intensive pumping causes the depletion of high quality groundwater in Yemen

FAO/12170J. Van Acker



Pollution from ore processing into karstic base flows in Hunan Province, China

J. Burke, M. Moench

Challenges...

Water use has been growing at more than twice the rate of the population increase during the last century. In rapid growing urban centres, water has become a fragile and scarce resource in a competing environment. In marginal zones of mega-cities, often characterized

“informal” activity practiced by individuals and farmers’ associations.

Localized sources of water, which include groundwater, streams, urban drains, piped water and (un)treated wastewater, in urban centres of low to medium-income nations are likely to be severely contaminated due to the concentration of habitation with rudimentary sanitation arrangements and unregulated municipal and industrial effluents. Management of water resources has become an urgent issue as urban and peri-urban farmers often apply water from municipal sewage, mostly in its untreated form, to irrigate and for plant nutrients, thereby increasing the risk for illnesses to both the farmers and the consumers. Furthermore, the destruction of shallow riverine and coastal aquifers, through over-pumping and pollution, has greatly added to the water crisis in many cities.

by a high incidence of poverty, many people practice agriculture on a very small scale to satisfy their basic food needs. With placing demands on water allocation to support urban and peri-urban communities’ livelihoods, agriculture has respectively grown with urban and peri-urban irrigation mainly as an

Imbalances between availability and demand, degradation of groundwater and surface water quality, inter-sectoral competition, inter-regional and international conflicts, all bring water issues to the forefront.

FAO’s response...

FAO assists by providing a coherent and comprehensive set of information, policy advice and technical support to countries and stakeholders that allows them to better address integrated water issues at local, national and river basin levels.

The water-food-sanitation Millennium Development Goals (MDGs) targets will not be met without better governance and innovative approaches whereby urban governments, water and sanitation agencies, as well as other sectoral institutions need to coordinate and extend provision of water supply in an integrated manner. Taking an integrated, multiple or productive uses approach to water development and management is an opportunity to advance progress toward the MDGs. Local authorities contribute to the MDGs, and a multidisciplinary approach is needed to consider the social, economic, cultural, legal and institutional constraints oriented to local communities, urban centres, rural areas, user groups, and administrative, public and private organisations.

Promotion of best practices for sustainable water use in developing countries



FAO/8457/F. Mattoli



FAO/S. Koo-Oshima

Optimising space use. An eco-sanitation vegetable garden in Addis Ababa, Ethiopia

FAO's action...

FAO's water-related projects and programmes in support of urban and peri-urban agriculture (UPA) address a number of challenges in ensuring that water for irrigation is adequate vis-à-vis sanitation, nutrition, water and food quality and safety, equitable access to water, reconciling urban and rural priorities, and sustainable wastewater management for a clean and safe environment.

FAO's support of water in urban and peri-urban agriculture includes:

- water saving technologies, including pressurized irrigation systems, e.g. drip irrigation, sprinklers;
- water development and management for **appropriate cropping systems and urban landscaping**, including advances in in-field application and drainage, the use of **wastewater** for irrigation, **conjunctive use, aquifer-storage-recovery**;

FAO/22114/R. Messori



Treated sewage water used to irrigate new tree plantations in Egypt

- **water quality monitoring** systems;
- guidelines to assist safe reuse of **treated wastewater** and **greywater**, waste recycling such as **eco-sanitation**;



FAO/19432/R. Feidutti

Water-saving technologies contributing to reduce pressure on limited water resources in Eritrea

- **economic appraisal** of the opportunity costs of the water resource base where competition between agricultural production and water supply and sanitation exists — in both rural and rural/urban settings - and economic instruments in **water resource allocation** for agriculture;
- assessment of **source vulnerabilities** in rural/urban settings where resource degradation has become apparent;
- risk assessment to **public health** posed by agricultural production, environmental control of vectors, and the use of effluent water in horticultural production in UPA settings;
- **structured negotiation** facilitation between disparate user groups in urban and rural settings (the constituents of the relevant basin or aquifer);
- development of **participatory planning** procedures for coastal zones, aquifers, administrations and economic sectors and basin governance (the policy/legislation/institutional reform continuum);
- partnership building with NGOs and through the **UN-Water** mechanism in efforts to achieve water and sanitation goals and targets set at the 2002 World Summit on Sustainable Development and the **MDGs**.

Hydroponics, as a soil-less technology, is adaptable to urban farmers to increase yield year-round



FAO/J. Izquierdo



Food for the Cities - Multidisciplinary Area
FOOD AND AGRICULTURAL ORGANIZATION OF THE UNITED NATIONS
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