FAO WATER

Safe wastewater use in agriculture

Selected FAO materials

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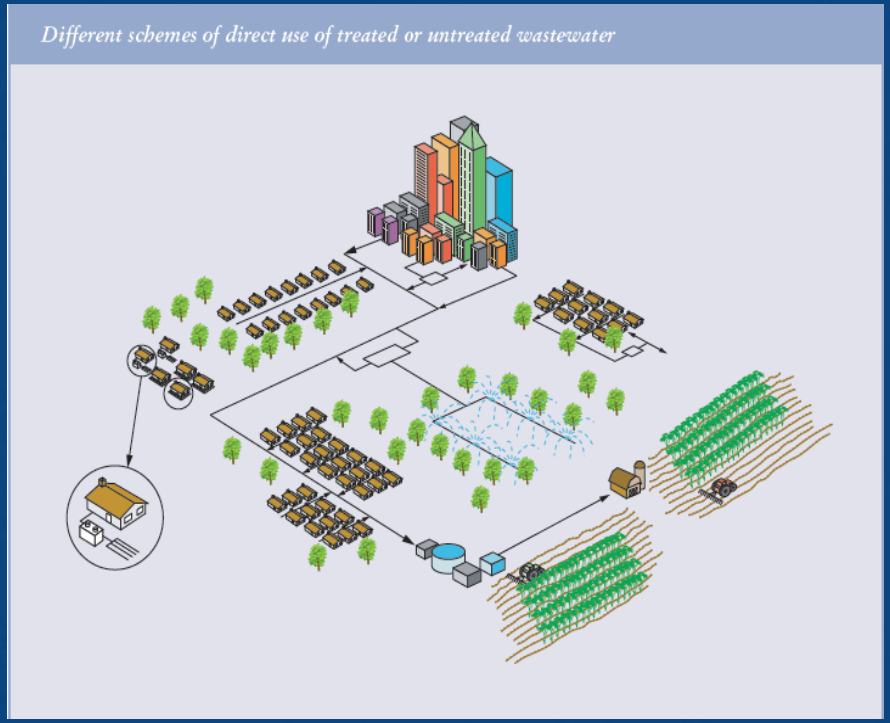
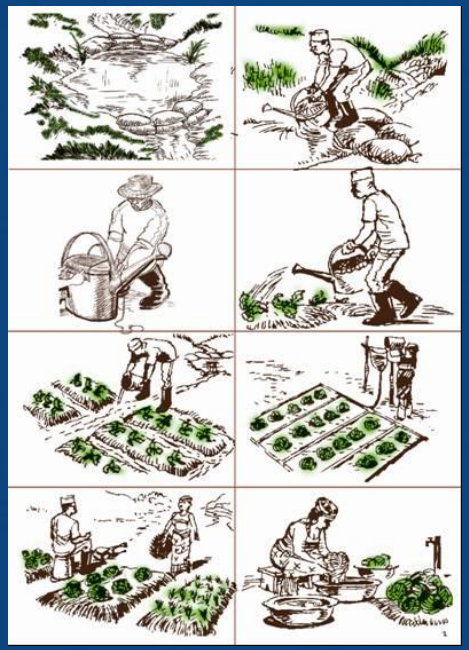
FAO Land and Water Division



Selected knowledge products

aquastat



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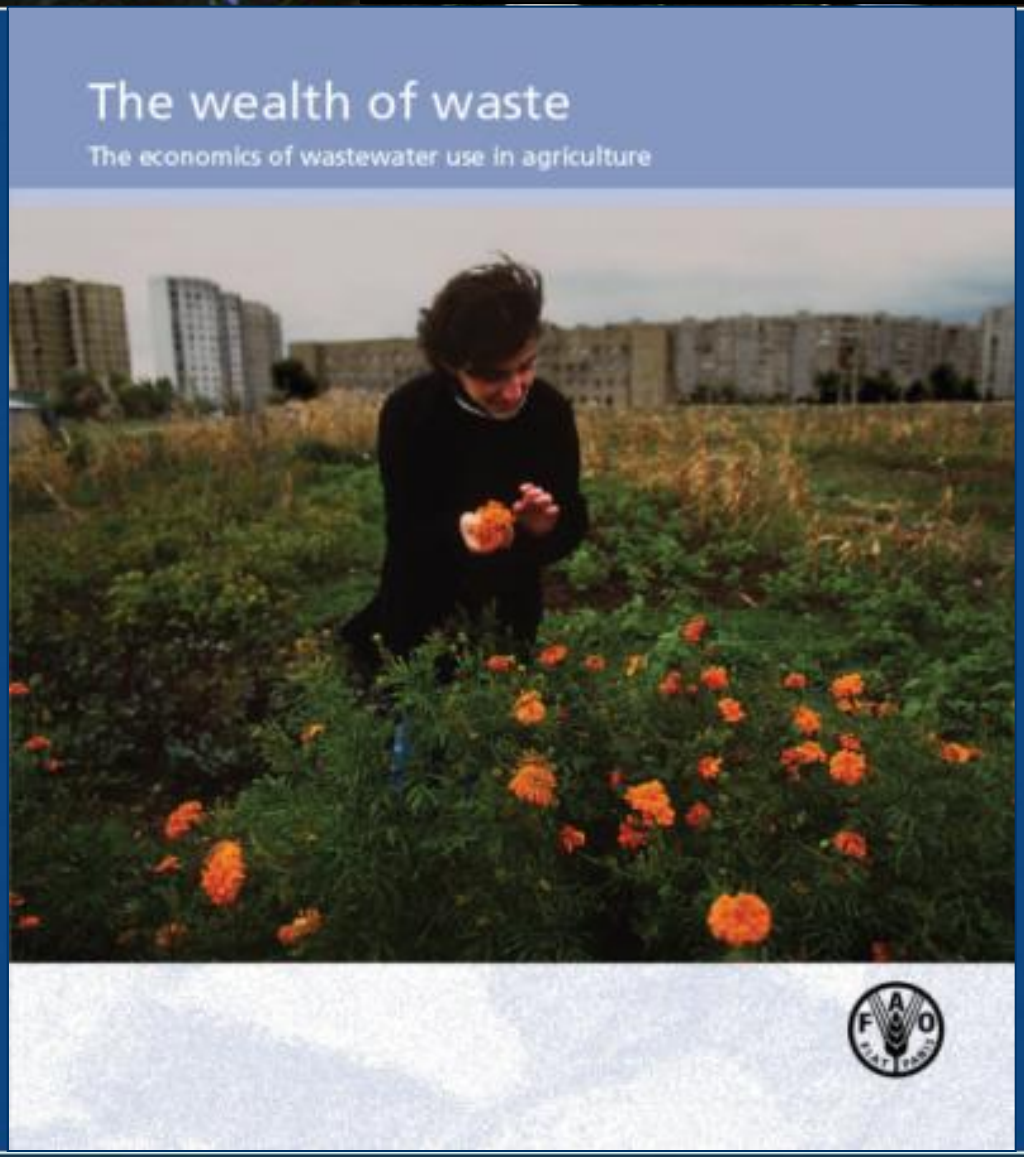
FAO Water Report 35



FAO Water Report 35

- methodology for the economic appraisal of WW reuse projects

- applies this methodology in real cases

in Mexico and Spain.

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Failure Stories

FAO Water Report 35

Why?

Not economic appraisal!

Steps in an economic appraisal

- Economic justification

Are Total Benefits higher than Total Costs?
Cost-benefit analysis

Is reuse the most cost-effective approach?
Are there better alternatives?
Cost-effectiveness analysis

- Financial feasibility

Who pays? And how?

Economic justification

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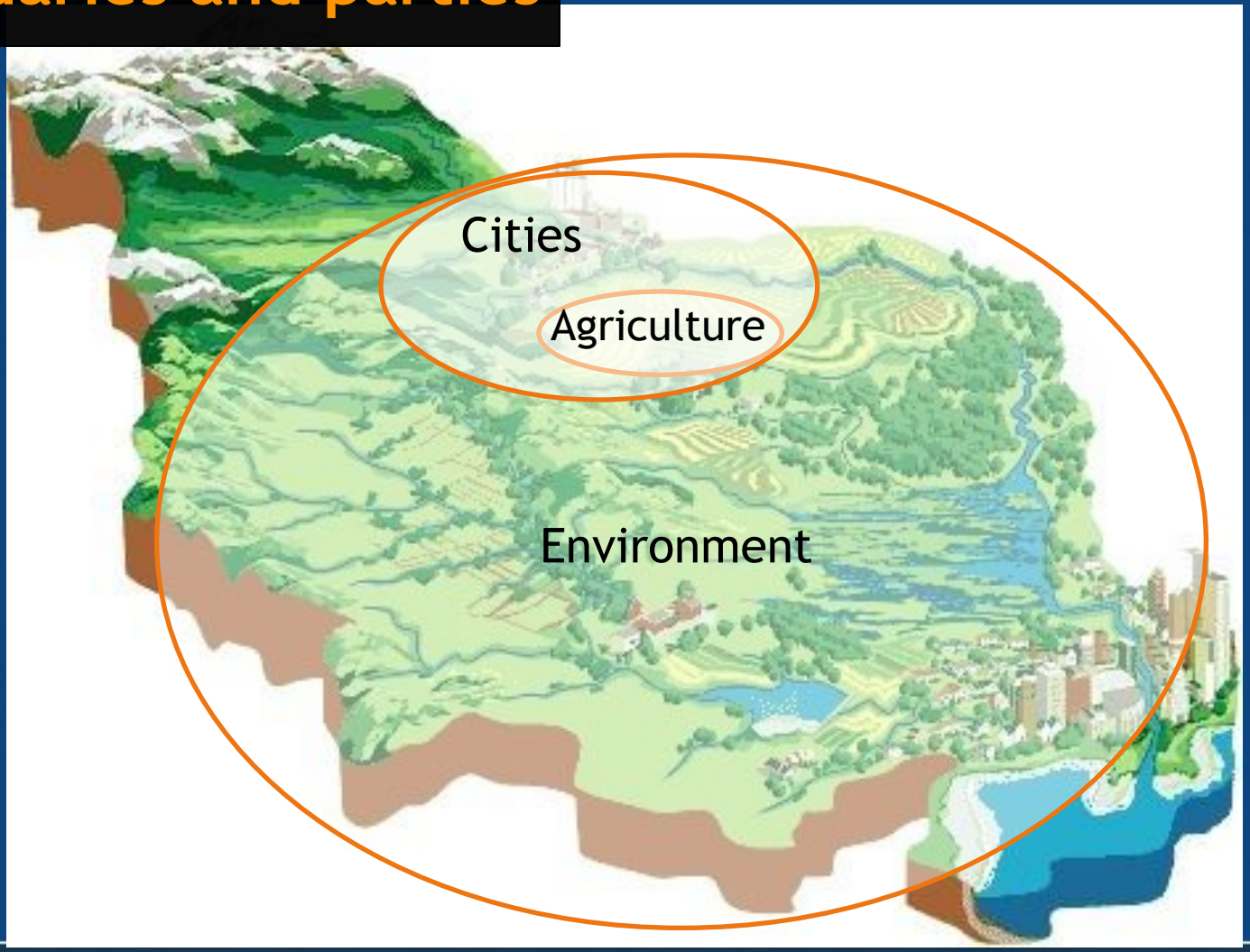
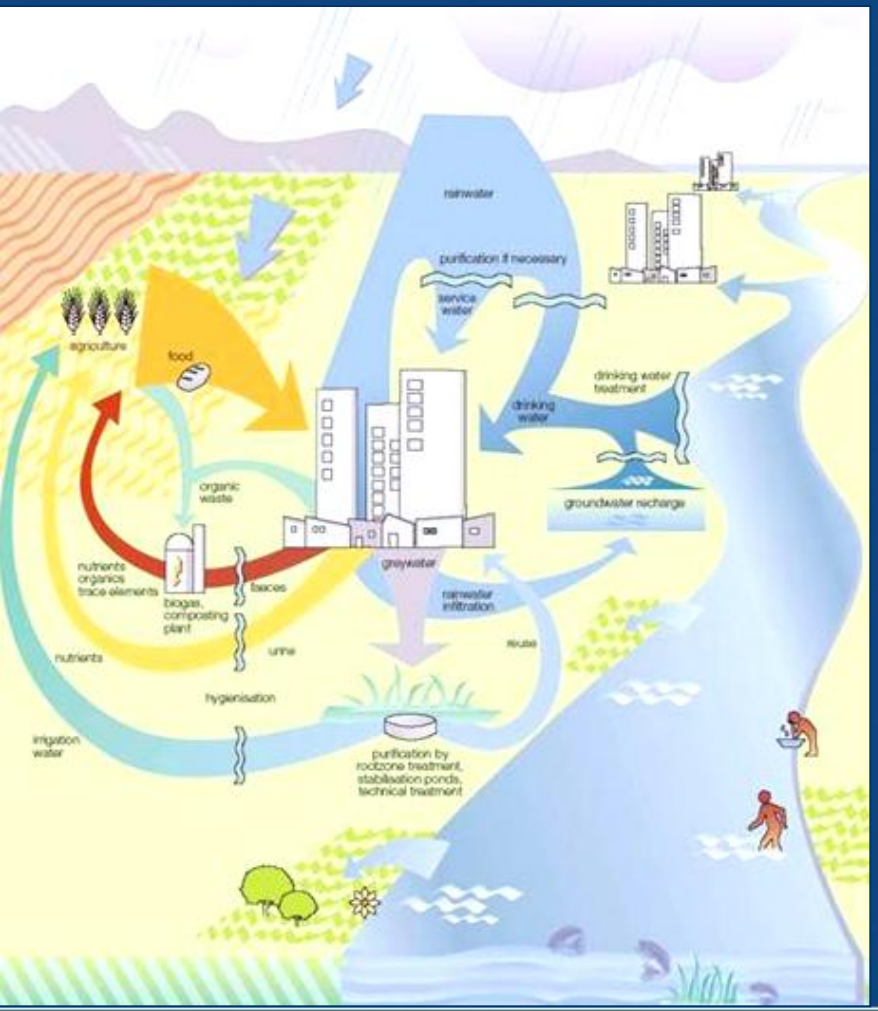
Boundaries and parties



Cost-Benefit analysis



Benefits

Farmers
- Water all year round
- Nutrients and organic matter
- Avoided costs of pumping

Cities
- Food Security
- Low-cost treatment

Environment
- Reduced pollution
- Reduced freshwater abstraction
- Lower C foot print

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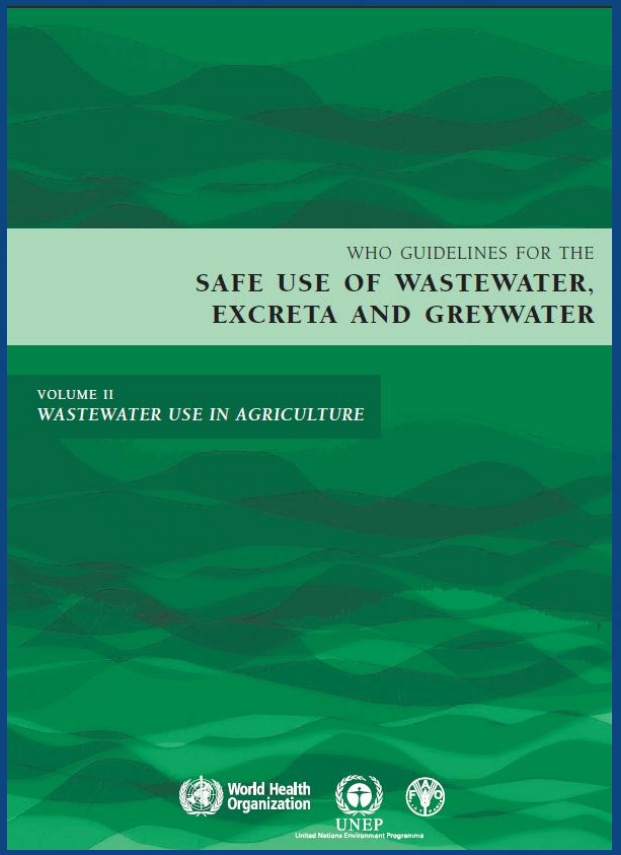
Cost-Benefit analysis

Risks

Minimizing risks = Cost

- Treatment options
- Non treatment options



Cost-Benefit analysis

Other costs

- New infrastructure

Water pumping and conveyance

- Environmental costs

Environmental impacts (e.g. Salinization)

- Health costs

Illness due to infectious and chemical agents

Cost-Effectiveness

If Total Benefits > Total Costs

Is the chosen reuse approach the most cost-effective approach?

Alternatives.

- Water Conservation
- Desalination
- Water transfer
- Others

Financial feasibility

Financial impact on stakeholders

Stakeholders:

- Farmers
- City authorities
- Regional or national government

Who benefits  and who loses  ?

Financial instruments

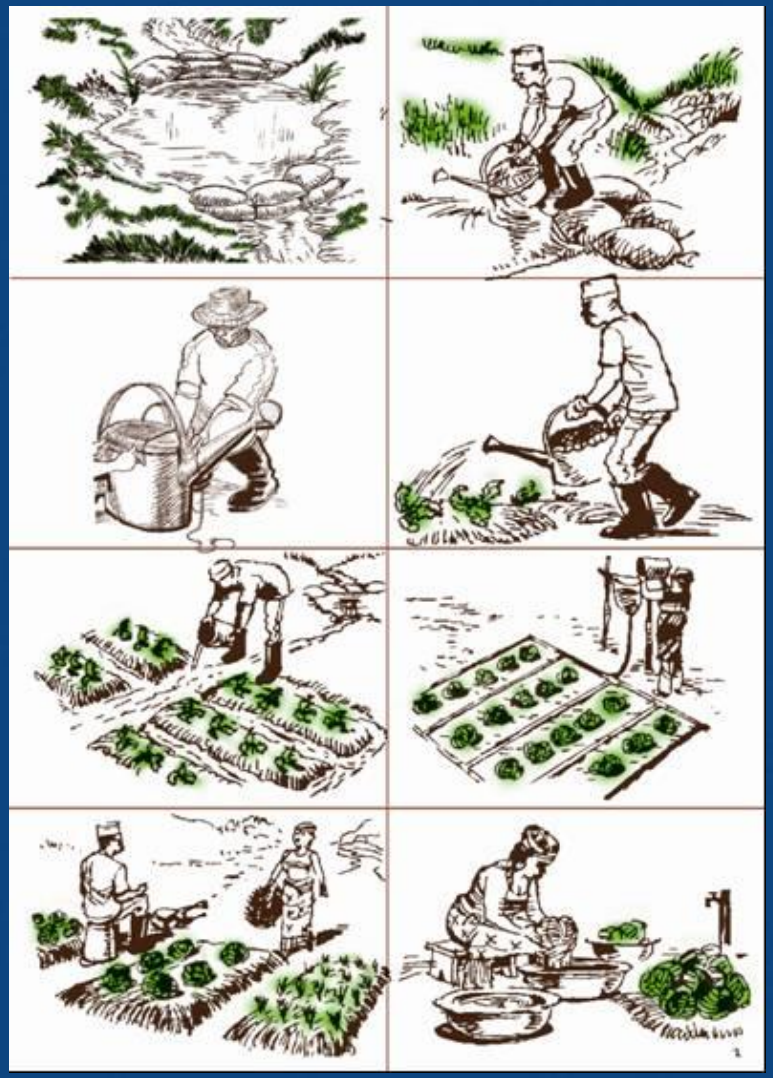
- Subsidies
- Others
  - Soft loans
  - Payment for environmental services
  - Water charges
  - Pollution taxes
  - …

Final remarks

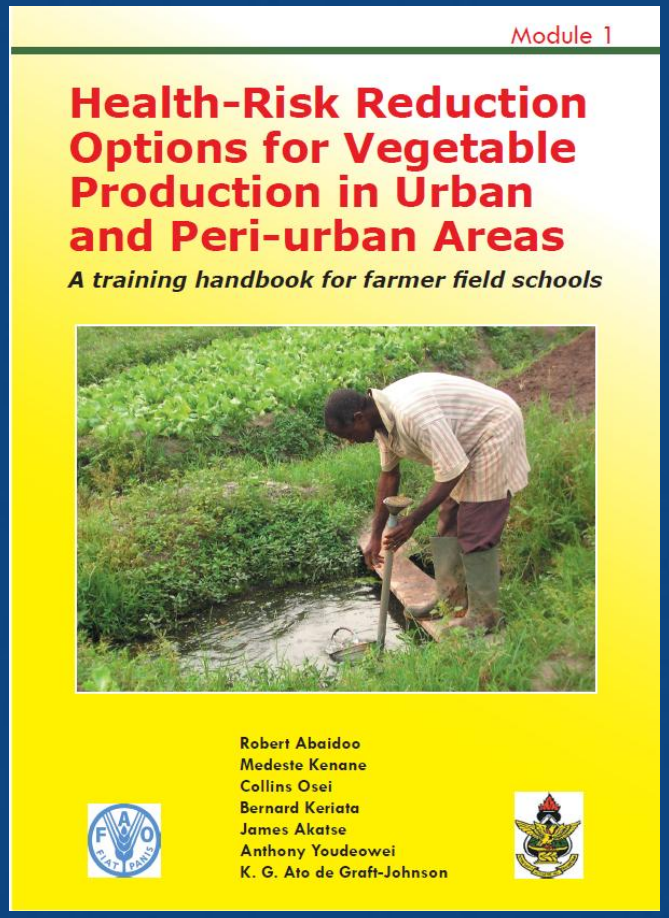
Economic appraisal of projects (including reuse projects) is an **essential tool for water planning** and allocation strategies within IWRM.

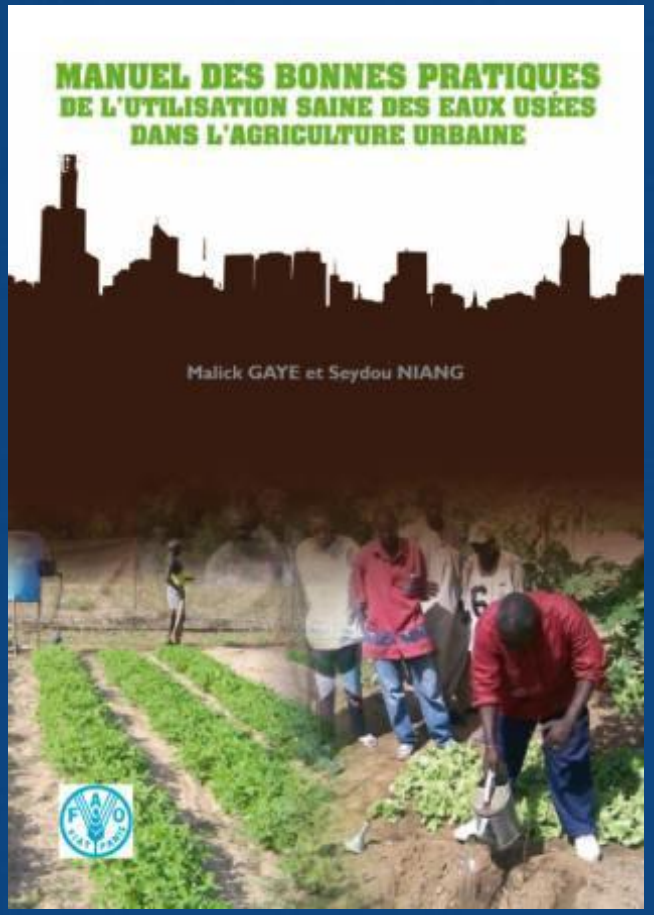
The FAO report provides a **sound methodology** for the economic appraisal of reuse projects.

Training Manuals for Farmers



Training Manuals for Farmers





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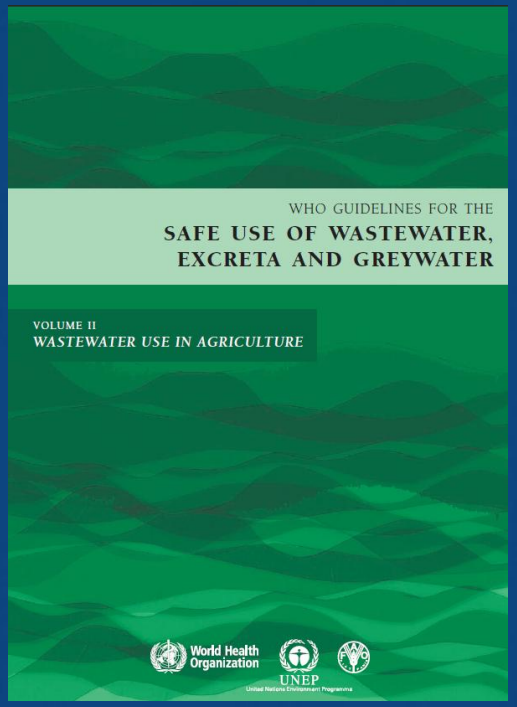
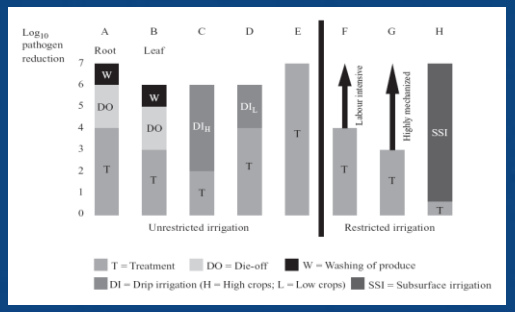
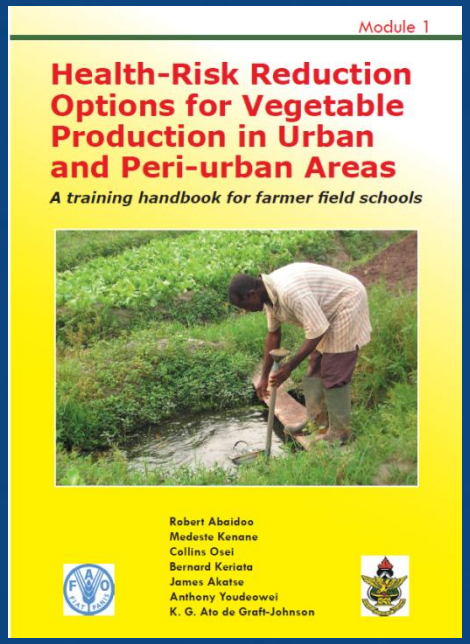
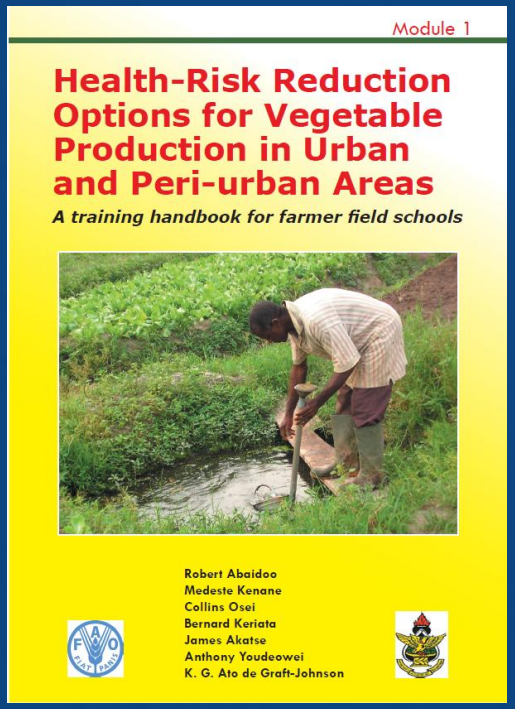
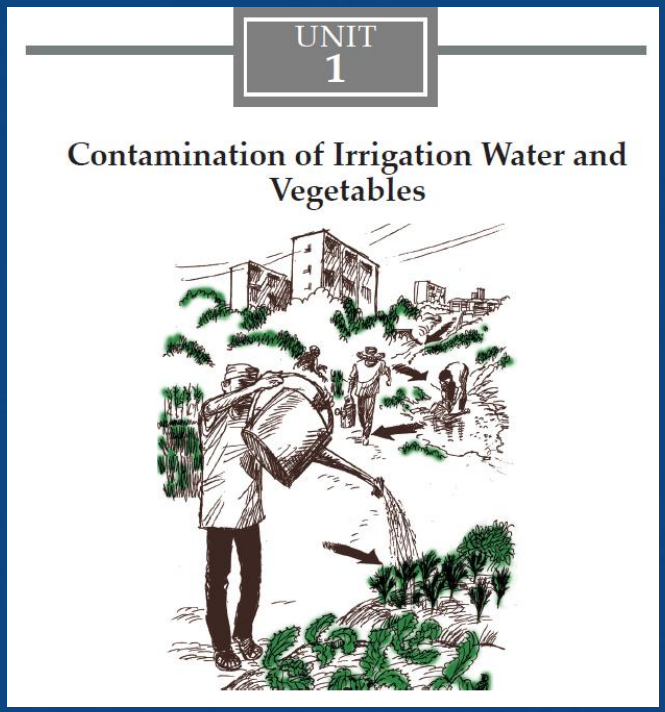


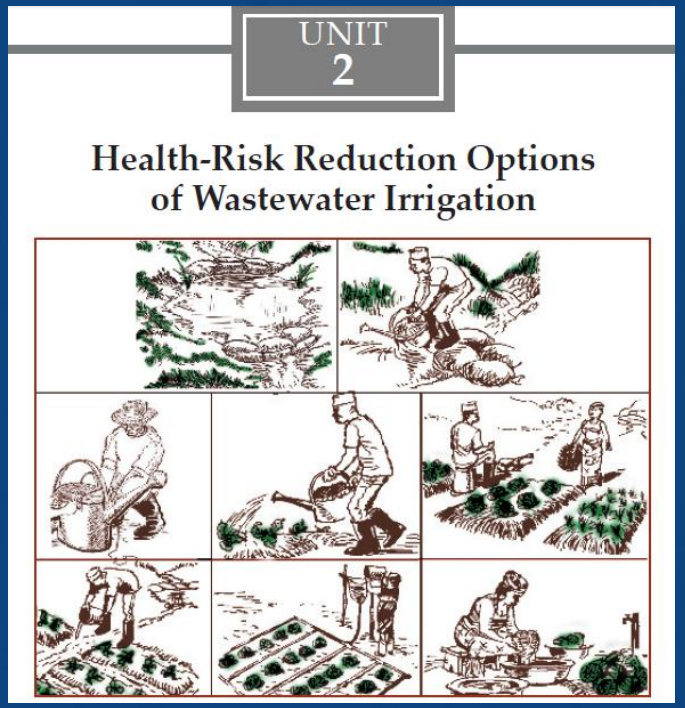




Training Manuals for Farmers







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Training Manuals for Farmers

UNIT 3

Monitoring and Evaluating the Performance

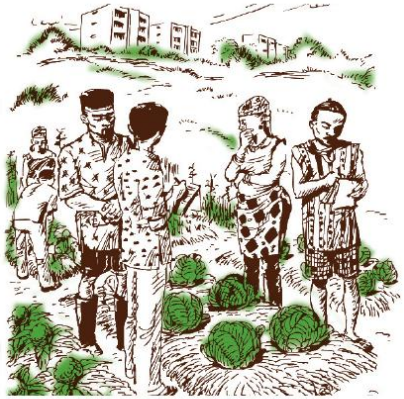


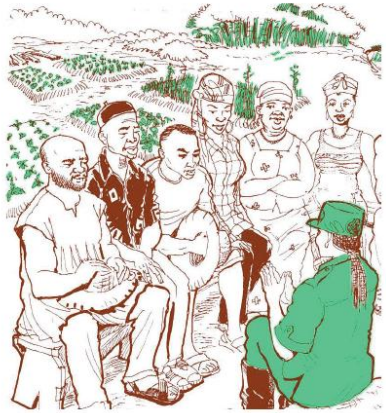
Figure 12: Farmers monitor and discuss field observations

UNIT 4

Farmer-to-Farmer Training

UNIT 5

Disseminate and Communicate Your Strategies for Safe Vegetable Production



AQUASTAT- wastewater

AQUASTAT- wastewater

Use of untreated or partially treated WW

5-20 million hectares

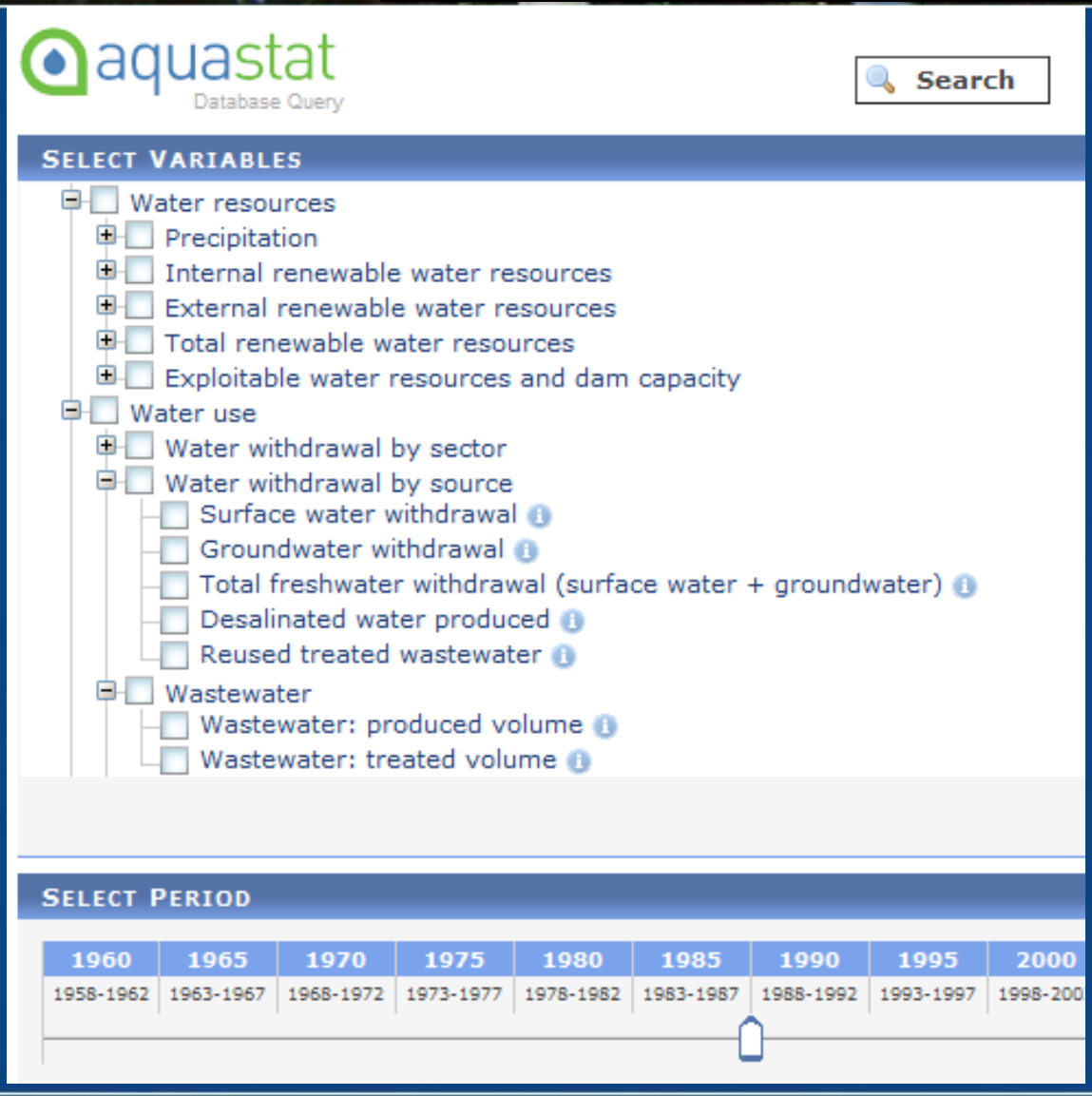
50 Countries

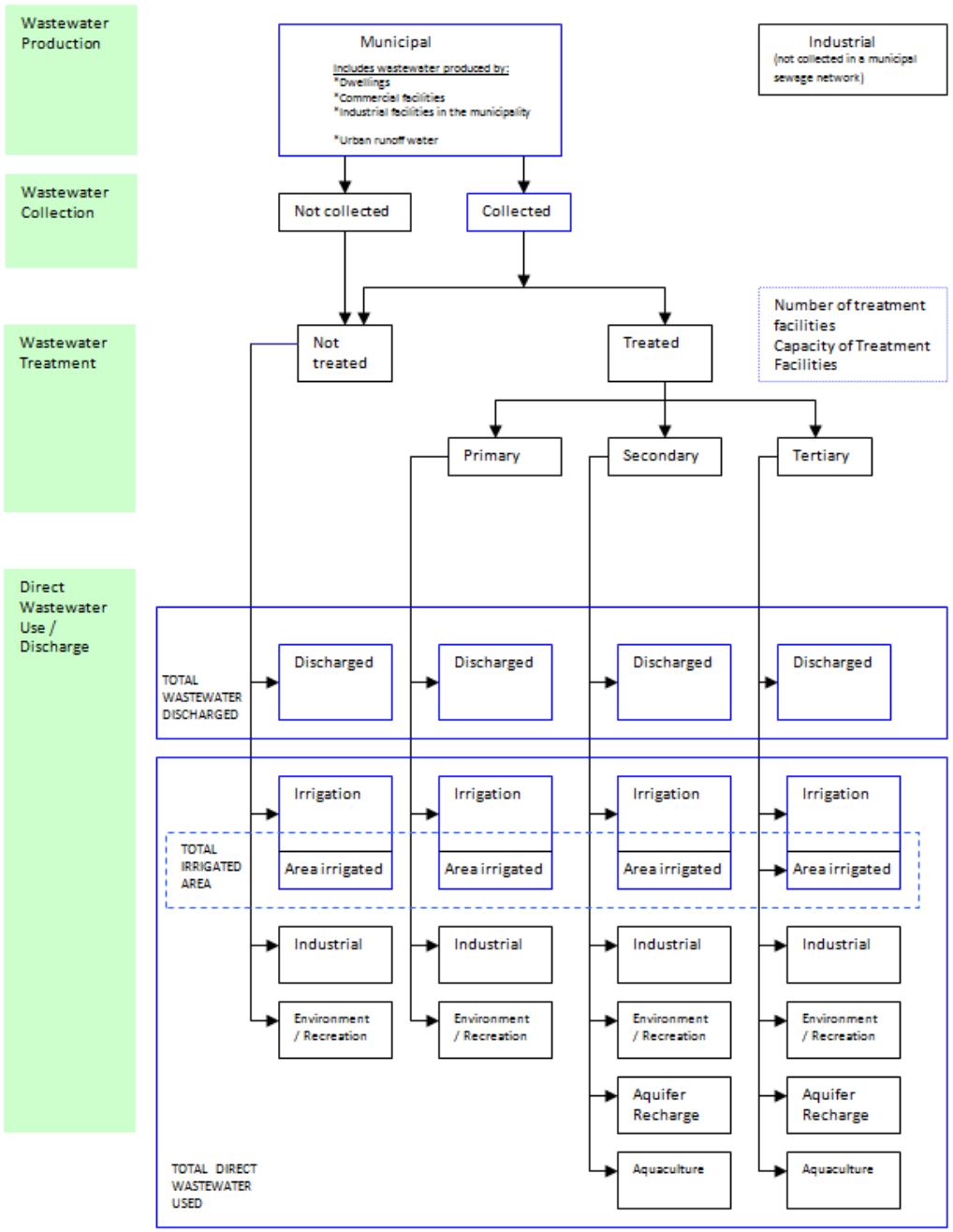
Difficult to monitor by public authorities.

May be underreported!

AQUASTAT- wastewater

AQUASTAT- wastewater




Wastewater Production
Municipal
Includes wastewater produced by:
*Dwellings
*Commercial facilities
*Industrial facilities in the municipality
*Urban runoff water
Industrial
(not collected in a municipal sewage network)
Wastewater Collection
Not collected
Collected
Wastewater Treatment
Not treated
Treated
Number of treatment facilities
Capacity of Treatment Facilities
Primary
Secondary
Tertiary
Direct Wastewater Use / Discharge
TOTAL WASTEWATER DISCHARGED
Discharged
Discharged
Discharged
Discharged
TOTAL IRRIGATED AREA
Irrigation
Area irrigated
Irrigation
Area irrigated
Irrigation
Area irrigated
Irrigation
Area irrigated
Industrial
Environment / Recreation
Industrial
Environment / Recreation
Industrial
Environment / Recreation
Aquifer Recharge
Aquaculture
Industrial
Environment / Recreation
Aquifer Recharge
Aquaculture
TOTAL DIRECT WASTEWATER USED

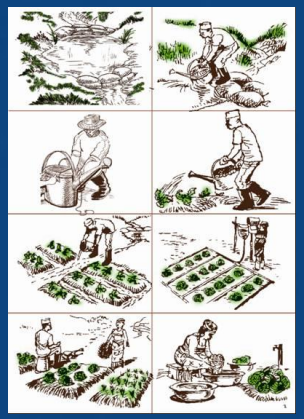
AQUASTAT- wastewater

Accounting wastewater production, treatment and use/discharge at **country** level can help with the **diagnosis**!!

Reporting at **global** level will help to identify **hot spots** and target the **international support**

Selected knowledge products

aquastat



International Water Management Institute

UNEP

sustainable sanitation alliance

World Health Organization

UNITED NATIONS UNIVERSITY
UNU-INWEH

UNITED NATIONS UNIVERSITY
UNW-DPC
WATER FOR LIFE 2005-2015
UN WATER

Selected knowledge products

Do these materials cover your knowledge needs?

How can them be improved and completed?


THANK YOU!