Addressing the health vs livelihoods dilemma of wastewater use in agriculture

Carried out under the CPWF

International Water Management Institute
Wastewater is an **asset**!  
(Not only in water scarce regions)

On the other hand...

The use of untreated, wastewater can pose **severe public health threats**

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E. Coli cells

Ascaris eggs
This often raises **health concerns** among various stakeholders.

**BUT...**

banning this practice would threaten urban supply of vegetables and the livelihoods of many poor families.
What can we do?

Action had to be taken to reduce the risks for the different groups, without affecting UPA’s role as a provider of livelihoods and food.
• One way of achieving this is to cumulatively reduce the risk by intervening at different points along the contamination pathway.

Two such entry points are
– the farmer field level
– food preparation level (household and restaurants)

• Stakeholder involvement (including Authorities)
Farm level research by KNUST and IWMI

Two cities were selected as trial sites for testing interventions:

- farm level (Kumasi)
- consumer level (Accra)

where trials involve working closely with people to achieve the desired objectives.
The project activities at farm level

- understanding the different sources of contamination (water, fertiliser, soils, handling of crops)

- testing methods
  - with selected farmers to improve quality of water, especially in the removal of helminth eggs
Ponds trials – Sedimentation

F. coli levels in disturbed and undisturbed ponds

Helm. eggs levels in disturbed and undisturbed ponds
Safe irrigation water source

Levels of health indicator organisms

- T.Coli water
- F.Coli water
- F.Coli crop

Log MPN/100 ml vs. No.of.eggs/litre

Irrigation water source:
- Wastewater
- Pipe
- Pond

Comparative analysis of different irrigation water sources for levels of health indicator organisms.
The consumer entry point

Crucial!

- There are about **4000 food preparation points** in Accra with each serving about **50 customers** a day!

- Possibly most effective intervention point if the right techniques are used.
Everybody washes vegetables before it gets to the table!!

BUT questions about common washing methods need to be answered.

• with **selected households/restaurants**, trials were carried out to test the efficacy of common methods used
Effect of common washing methods on worm egg populations on lettuce leaves

Important observations

Washing vegetables irrespective of the method used reduced FC levels in lettuce

Significantly higher reduction levels in FC counts were recorded on increased contact time in all washing methods used.

None of the methods reduced the contamination levels below the recommended
Policy dialogue workshop

Key vision statements made:

Coordinating activities of UPA by creating enabling environment for its operation

Recognition of UPA in sector ministries and agencies and to incorporate UPA in urban planning

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Types of stakeholders involved:

Three types of stakeholders are involved in this initiative.

- **Civil society organisations**
  
  - The Urban Farmer Associations in Accra and Kumasi
  
  - The Farwell Organic Vegetable Farmers Association, which is the largest association in Kumasi.
  
  - Market Associations, Market “Queen” Mothers, Hoteliers Association and Women’s Groups.
• **National and local governments**
  - Ministry of Food and Agriculture: The Accra Metropolitan Directorate of Urban Agriculture and the Extension services of MOFA in Accra and Kumasi

• **Professional associations and education centers**
  - University of Kumasi, Faculties of Environmental Sciences and Agriculture:
Awareness creation and decision support

• Best intervention techniques will be translated into messages for wider dissemination (scale out and up)
  – Farmer field schools
  – video clips etc

• Provision of decision support for local authorities

• Building capacities of local African partners throughout the process
Video show (3.5 min)

Thank You