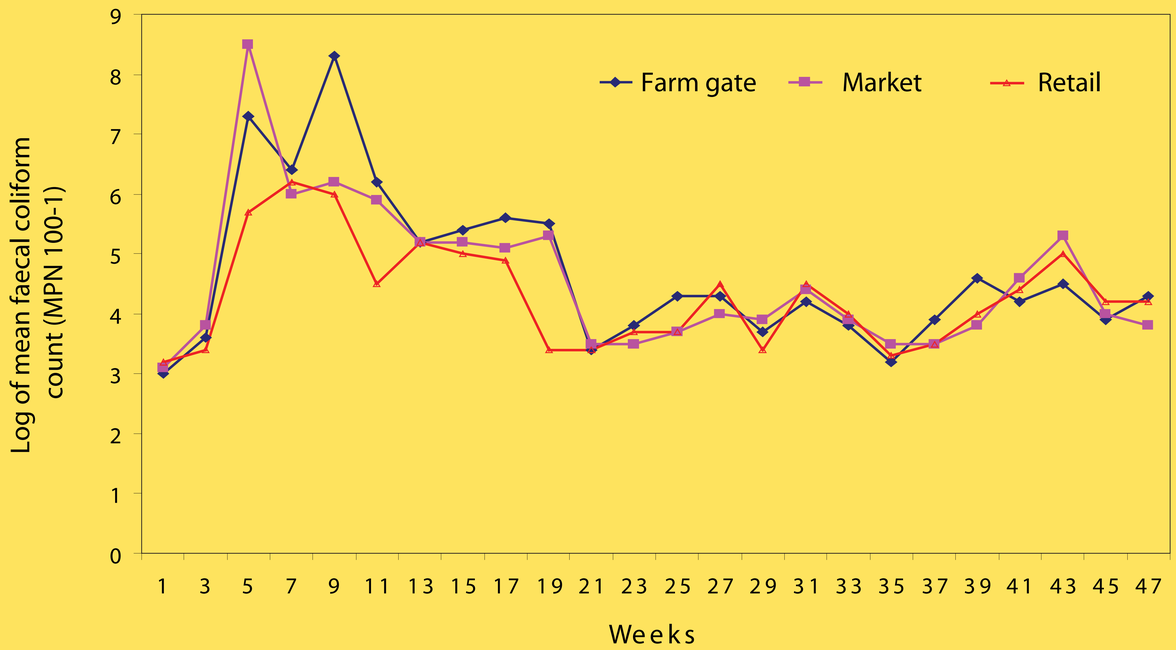
Safeguarding Public Health Concerns, Livelihoods and Productivity in Wastewater Irrigated Urban Vegetable Farming

Background

- Irrigated vegetable farming is a common phenomenon in many cities in developing countries and makes great contributions to urban food security and is livelihood to many poor urbanites.
- In most cases, irrigation water sources used are heavily polluted with untreated wastewater, due to poor urban sanitation.
- While wastewater is a reliable source of water and nutrients which allows for year-round production, it has high levels of pathogens and other contaminants when untreated, which pose health risks.
- The project goal was to develop integrated and user-oriented strategies to safeguard public health concerns without compromising productivity and livelihoods in wastewater-irrigated urban vegetable farming

Vegetable contamination along the farm-fork pathway



Analyzed risk perceptions and food handling practices

- Farmers are aware that irrigation water is contaminated with wastewater and willing to adopt safer practices
- Knowledge on health risks among farmers, vegetable sellers and food vendors is low
- Over 90% of kitchens wash vegetables but not effectively
- Attention is given to visible dirt, not invisible risks (pathogens)
- Increased awareness and incentives, especially for farmers, will enhance adoption of safe practices

Tested and verified risk reduction measures

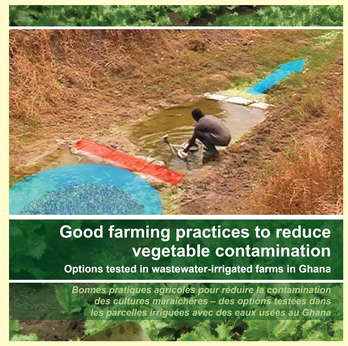
	Farm	Post-harvest
Measures tested in close collaboration with target group	Bucket-kit drip irrigation, cessation of irrigation before harvesting, simple filtration techniques, sedimentation ponds	Improved washing of vegetables using vinegar, running water, chlorine tablets etc.
Risk reduction *(from initial 6-7 log units of coli bacteria)*	2-4 log units down	2-3 log units down
Most effective measures	Sedimentation ponds and Drip irrigation kits	Washing with vinegar for >5 min.

Conclusions

- Health risks from the use of untreated domestic wastewater in irrigated agriculture can be reduced significantly, especially by combined implementation of on-farm and post-harvest risk reduction measures.
- These findings provide a first example on locally feasible options for reducing health risks from wastewater irrigation. This is recommended in the new WHO Guidelines on safe use wastewater in agriculture. This research resulted to a project to test the implementation the new WHO guidelines funded by WHO, FAO and IDRC.

Knowledge Dissemination

Done through documentary videos, guidelines on best practices, illustrated charts, farmer field school modules, radio programs etc.



Other outputs

More than 10 peer-reviewed articles, 2 PhDs, 6 MSc and many more BSc students and interns.

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