

Monitoring sustainability of safe and productive use for urban and periurban agriculture

Key lessons

A paradigm shift in (urban) sanitation and food security requires an integrated approach, seeking synergies between different sectors, multi-stakeholder involvement, and participative monitoring of innovations.

The FIETS framework on safe and productive use of wastes for urban and periurban agriculture, presented here, supports creating awareness and understanding sustainability, while at the same time assisting in participative assessment and joint learning of the innovation.

Sustainability monitoring is always subjective. The use of qualitative indicators can help to visualise progress and challenges, and also stimulates discussion.

Working towards sustainability of innovations necessitates various cycles, integrated assessment by various stakeholders, and joint learning.

Monitoring sustainability needs to be facilitated by a trained person who works with the same group of different stakeholders at various moments (recommendation: every 6 months).

Introduction

The focus of the WASH Alliance is to create results that are able to sustain themselves after the programme has ended. The FIETS sustainability approach has been developed by the Dutch WASH Alliance to assess, decide upon and monitor actions to ensure that water and sanitation services are reliable and lasting. This framework, used by the Dutch Government, also identifies five key areas of sustainability that need to be addressed in order to achieve structural impact: financial, institutional, environmental, technological and social sustainability.

Monitoring is a management tool to assist in measuring progress, and to obtain indications of how to improve strategies, to increase accountability to each other, and to provide policy makers and donors information on the relevancy, effectiveness and efficiency of the project. As important, however, is its role in stimulating the participatory and learning process, and enhancing capacity of the key stakeholders.

RUAF and its partners have developed a simple and qualitative tool to monitor their work under the WASH alliance, using the FIETS framework. For each Sustainability Letter a set of questions have been developed that reflect the sustainability of the innovation. It is designed in such a way that it facilitates awareness and understanding of sustainability, and stimulates discussion.

Although it is still a work in progress, the resulting tool can assist to further innovation development along the sanitation and reuse value chain, as part of urban development and integrating WASH, food security, and adaptation to climate change. The FIETS tool can also be used for other sector areas. It can be used to appraise a project design and, with key actors, for discussion and agreement on which factors are important for sustainability, yet it can also assist in participative monitoring. RUAF is also using this framework in other programmes.

The five sustainability principles of FIETS as developed by the Dutch WASH alliance are:

inancial sustainability means that continuity in the delivery of products and services is assured because the



activities are locally financed (e.g. taxes, local fees, local financing) and do not depend on external (foreign) subsidies.

nstitutional sustainability means that

systems, institutior policies and procedures at the local level are functional and



meet the demand of users. All actors at the local and the national level are clear on their own roles, tasks and responsibilities, are capable of fulfilling these roles effectively, are transparent to each other, and work together in the chain through a multi-stakeholder approach.

nvironmental sustainability implies placing interventions in the wider context of the natural



environment and implementing an approach of integrated and sustainable management of water and waste/wastewater flows and resources. Interventions connect to and affect the natural environment and therefore also people's livelihood.

echnological sustainability of services is reached when the technology or hardware needed for the services continues to



function; is maintained, repaired and replaced by local people; and does not deplete the (natural) resources on which it depends for its functioning.

Social sustainability refers to ensuring that the appropriate social conditions and prerequisites



are realized and sustained such that society - currently and in future - is able to create healthy and liveable communities. Socially sustainable interventions are demand driven, inclusive (equitable), gender equal, culturally sensitive and needsbased.

Safe and productive use of wastes for urban and periurban agriculture

More and more, people are concentrated in and around cities. This urbanisation goes hand in hand with the urbanisation of poverty and with living in slum areas where people lack proper service delivery. Sustainability in the context of climate change and food security requires enhancing the quality of life while simultaneously minimizing resource extraction, energy consumption and waste generation, and also safeguarding ecosystem services. This depends on proper planning of energy, waste, transportation, food, water, and sanitation systems. It also provides opportunities for creating synergies, closing water and nutrient loops, taking a business approach in developing service and value chains, and building partnerships.

RUAF collaborated with local partners in Ghana, Nepal, Kenya, Bangladesh and Ethiopia, analysing the unique potential for resource recovery in each selected city or town, and undertaking participatory analysis, innovation development and policy influencing.

RUAF and WASH partners discussed these experiences in a workshop in Tamale, Ghana in 2013. During this linking and learning workshop, possible indicators were discussed as part of the FIETS sustainability criteria, and a monitoring framework for safe and productive use of wastes in WASH was drafted and further developed by RUAF, also for use under WASH (see UA Magazine no. 26).

How does it work

This participatory monitoring framework consists of a number of questions (open, but usually 3-5) per FIETS sustainability criteria. These questions are generic, but in language adapted to the local situation: appropriate and easy to use. The process is coordinated by a trained facilitator who, together with selected stakeholders, rates the situation from 1 to 5. This allows the work progress to be monitored and visualised.

Take, for instance F1 – The innovation is marketed as a result of the project: 0 - no; 1 - talks have started; 3 - in process; 5 - yes (etc.). This maybe any number between 0 and 5. The average of the three questions of each letter will give the number shown in a spider diagram.

Per innovation and per location, a general description is given of:

- the business model
- how the system relates to changing awareness and mindset
- the main waste source
- the main output
- the main health & environmental risks and any mitigation strategies
- whether the model is location specific or replicable
- what links are available to other pertinent urban issues

The following elements are monitored:

F1	There is a business plan for the Innovation (the WASH service)	FINANCIAL	s for
F2	There is revenue or there is sufficient (mixes of) funding for the innovation		of Waste
F3	PPP's are initiated		
11	Multiple stakeholders are involved, and partnerships are established	TUTIONAL	tive Use
12	Key stakeholders receive adequate capacity building		
13	The innovation is used by institutions (such as a school)	INSTI	
E1	The Innovation and its re-use contribute to environmental conservation	ONMENTAL	ife and Pro
E2	Soil quality is improved by the use of organic fertiliser		
E3	Awareness is raised among farmers, users, and authorities	ENVIR	for S
T1	The end product (water, compost, urine) is safe	CAL	, r r
T2	The innovation can be maintained locally (local expertise and adequate capacity building)	DINHO	Mew
Т3	The innovation can be made or replicated locally	ТЕС	Era
S1	Local Community (households and farmers) are involved at all levels of the innovation	SOCIAL	onitoring
S2	Direct stakeholders mention to have perceived improvement		
S 3	The innovation is acceptable by the community, context specific and demand oriented		ž

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The innovations

RUAF and their local partners stimulated a number of innovations in the safe and productive use of waste for urban and periurban agriculture. These innovations are not only technologically, but also financially sustainable as they also link business opportunities to the innovations.

Co-composting in Tamala, Ghana

The production of high-quality and relatively cheap organic fertiliser has great potential in Ghana. Co-composting is controlled aerobic degradation of organic materials using different types of organic

waste. In the case of Tamale, this may include rice straw, municipal waste, chicken droppings, shea butter slurry, and faecal sludge. Adding faecal sludge as one of the organic components offers cost recovery and business opportunities along the sanitation chain. University of Development Studies undertook research, and conducted field experiments, together with different farmer groups and URBANET, on the benefits and improvements of co-compost. They chose a local, decentralised approach; this also favoured joint learning. This work was done in close collaboration with TUWSP (the Tamale Diamond) and with the Multi-Stakeholder Platform on UPA, which resulted in the inclusion of co-composting in the City Agenda on UPA. Monitoring was undertaken for the co-composting of several small farmer groups. The results showed increased perceived institutional and financial sustainability.

Initial situation (Left diagram): F=2.5 I=2.1 E=3.5 T=2.2 S=2 End of Project (Right diagram): F=4 I=3.5 E=3 T=3.5 S=4

Faecal Sludge Treatment and (co-)composting in Satkhira, Bangladesh

Bangladesh is experiencing one of the fastest urbanisation processes in Asia, with an urban population of over 50 million by 2015 and over 13,000 ton of wastes generated daily. The government's national 3R (reduce, reuse, and recycle) strategy strongly encourages waste recycling to produce and promote the use of biofertiliser. With Practical Action (PAB) and WASTE, RUAF worked in Satkhira municipality (and linked to the DFID safer city project) on faecal sludge treatment, co-composting and use of organic compost in urban and periurban agriculture. In addition to the business planning for faecal sludge collection, and for treatment and composting, RUAF and PAB worked with householders in selected slum areas and with periurban farmers on testing of the compost product of the sludge treatment plant in Satkhira. Also included were awareness-raising, multi-stakeholder facilitation and policy influencing. Monitoring was undertaken of the faecal sludge treatment and compost production.

Initial situation (Left): F=0.5 I=1 E=1 T=1 S=0 End of Project (Right): F=3 I=3.5 E=2.5 T=5 S=3

Urine Reuse in Surkhet, Nepal

In Nepal, many new municipalities have recently been created by adding VDCs (Village Development Committees) to urban centres. These municipalities are responsible for solid and liquid waste management, but the majority of them lack a proper solid and liquid waste-management system. In Surkhet/ Birendranagar, there is neither a proper landfill site for waste disposal nor a central sewerage system. RUAF collaborates with ENPHO (and with Dutch WASH Alliance members WASTE and RAIN) and others on capacity development, school WASH integrated systems, and business development of innovations in sanitation, like eco-san and public (and mobile) toilets, and the use of urine and compost by periurban, and selected urban, households with a rooftop or small garden. ENPHO collaborates with Birendranagar Municipality, selected households and Janajyotee

Higher Secondary school in neighbouring Baddichaur to improve WASH facilities and innovations for reuse. The importance of improved sanitation, and the role of using wastes for agriculture, is discussed and promoted at the Birendranagar Municipality and the MWASH coordinating meetings. The monitoring was integrated in this work.













Institutional sustainability

As part of the WASH alliance, RUAF and partners gave special attention to Financial and Institutional Sustainability.

Multi-stakeholder processes are important in policy design, action planning and implementation. By involving multiple stakeholders in decision-making, it is much more likely that policies and programmes will be developed that are more inclusive and successful in their implementation.

RUAF's participatory and multi-stakeholder approach, MPAP (Multistakeholder Policy formulation and Action Planning), seeks to develop action plans and policies in a process of collaboration with, and interaction between, a local (and national) government and other relevant stakeholders. These include citizen groups, community-based organisations (CBOs), non-governmental organisations (NGOs), municipal departments, regional or national government organisations, credit institutions and private enterprises, in an open and transparent process. MPAP has been adapted to WASH programmes by RUAF and its local partners.

In each of the five cities, Tamale (Ghana), Satkhira (Bangladesh), Birendranagar/Surkhet (Nepal), Dire Dawa (Ethiopia) and Nakuru (Kenya), RUAF and its local WASH partners identified and agreed with multiple stakeholders on innovations that fit into the momentum of the city or town, by developing and discussing assessments and scenarios for linking WASH and local food production.

RUAF and local partners developed the following activities:

- 1. Policy influencing and lobbying
- 2. Developing urban and other sanitation systems that include safe and productive use of solid wastes and wastewater, like public sanitation or school sanitation coupled with urine separation and co-composting, and use of these products either in the locality or by urban and periurban farmers
- Research with urban and periurban farmers on use of compost and urine for urban or other agriculture, and monitoring of progress.
 In each location, the innovations have been specified in business opportunities and/or interesting demos or research (with various sources of financing), while the organisations involved became part of the multistakeholder platform.

On a regular basis that varied per country, RUAF and its partners reported on progress and discussed further activities. In addition, linkages were sought with other multi-stakeholder initiatives within WASH or other projects. Applying a multi-stakeholder approach, RUAF and its partners have been successful in strengthening partner staff and organisation capacity in multi-stakeholder dialogue, action planning and policy formulation – using a variety of tools. FIETS monitoring on safe and productive use of wastes for urban agriculture was an important tool, especially in participative assessment and joint learning.

As a result, thinking and joint learning on the nexus of WASH and Food Security has been included on the policy and institutional agendas of various stakeholders, and WASH has contributed to improved livelihoods, food and income security of urban producers and other vulnerable groups (youth and women). The RUAF MPAP approach has been adapted by local partners to WASH programmes in Ghana, Nepal, Kenya and Ethiopia, and linked to ongoing efforts or practices.



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consortium of over 100 partners worldwide, working together with local NGOs, governments and businesses to make sure everyone on this planet has sustainable access to water and sanitation. This document has been prepared with, and based on collaboration with, the following partners:

In the Netherlands: <u>WASTE</u> In Nepal: <u>ENPHO</u> In Ghana: <u>University of Development Studies (UDS)</u> In Ghana: <u>URBANET</u> In Kenya: <u>Practical Action</u> In Bangladesh: <u>Practical Action</u> In Ethiopia: <u>RiPPLE</u>



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This innovation brief is part of a series of briefs on UPA, and is available on the <u>RUAF</u>, <u>WASH</u> and partner websites.

The RUAF Foundation is a global network with member organisations in Africa, Asia, the Middle East, Latin America and Europe, together constituting a leading centre of expertise in the field of Urban Agriculture and City Region Food Strategies. RUAF seeks to contribute to the development of sustainable cities and feeding an urbanising world by facilitating awareness-raising, knowledge generation and dissemination, capacity development, policy influencing and design, and action planning regarding urban agriculture and resilient and equitable city-region food systems. RUAF facilitates the integration of agriculture and food systems in the policies and action programmes of city actors, with active involvement of all food chain actors.

