



WORLD
in Stockholm,
August 17-23, 2008
WATER
WEEK

Presentation

Presentation from the 2008 World Water Week in Stockholm

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The SuSanA working group on *Food Security & Productive Sanitation Systems*

sustainable
sanitation
alliance

current status



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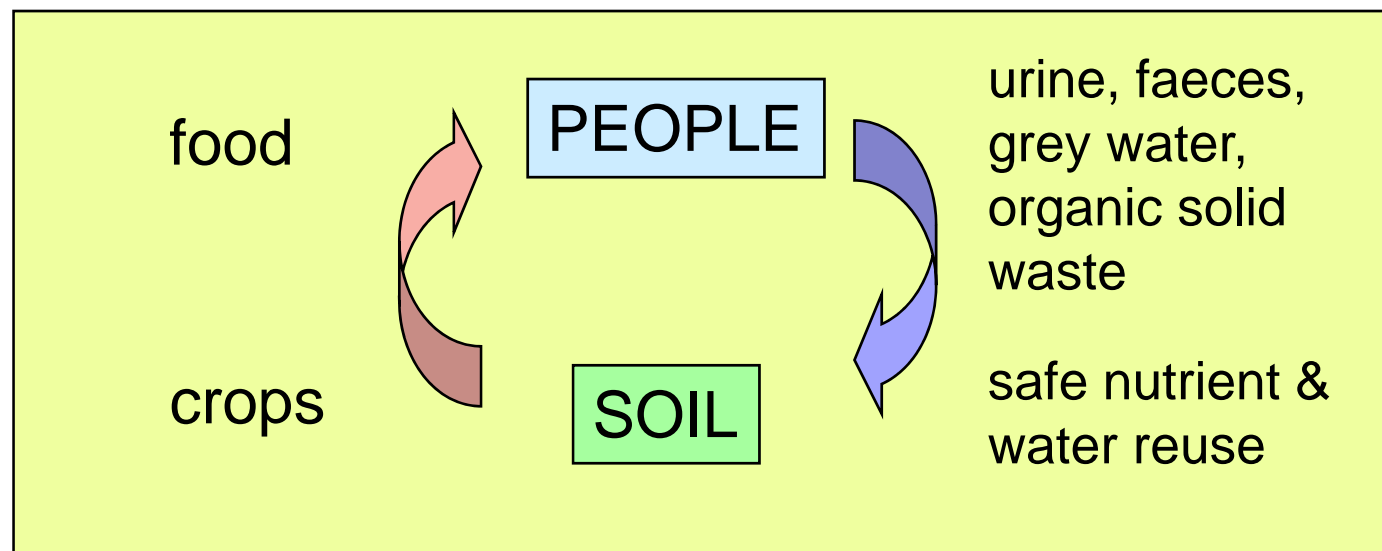
August 17th 2008
Stockholm

- **collaborative partnership (more info: special session tomorrow 17:15 - 19:00 in room K21)**
- **over 80 participating organizations - *open to all***
- **more than 10 working groups**
- **this presentation is only on the working group “**Food Security & Productive Sanitation Systems**”**

the working group tries to



- catalyze synergies between (institutions engaged in) sanitation and agriculture
- raise awareness for re-use oriented sanitation and its valuable contribution to food security



working group participants (selected institutions in alphabetical order)

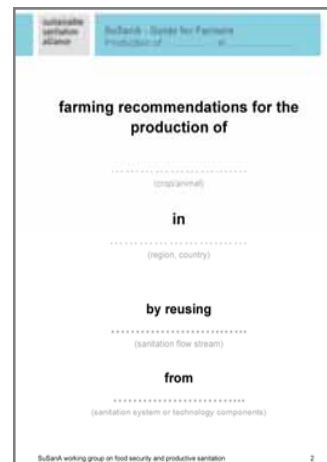


- **Aquamor** (Zimbabwe)
- **Ecosanlac** (Ecological Sanitation for Latin America & the Caribbean)
- **FAO** (Food and Agriculture Organisation)
- **gtz** (German Development Cooperation Agency)
- **IDRC** (International Development Research Centre - Canada)
- **IEES** (International Ecological Engineering Society)
- **IFAD** (International Fund for Agricultural Development)
- **IWMI** (International Water Management Institute; CGIAR)
- **PUVeP** (Periurban Vegetable Project - Philippines)
- **RUAF** (Resource Centres for Urban Agriculture and Food Security)
- **SEI** (Stockholm Environment Institute / EcoSanRes)
- **TTZ** (Technology Transfer Centre, Bremerhaven, Germany)
- **University of Essex** (United Kingdom)
- **Water for People**
- **WHO** (World Health Organisation)
- **Xavier University** (Cagayan D'Oro - Philippines)

- **and others**



- general factsheet on the topic
- collection of supporting case studies
- practical guide(s) for farmers and extension staff
- co-publications like special journal issues (e.g. UAM 20)
- special sessions & presentations at international fora





sustainable sanitation alliance

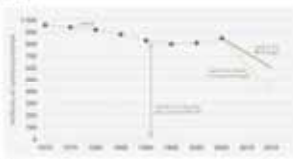
SuSanA - fact sheet
food security and productive sanitation systems
version 1.2 (February 2008) - draft

the millennium development goals
Fighting the most pressing global problems

When the United Nations Millennium Summit in New York in 2000 and the World Summit on Sustainable Development in Johannesburg in 2002, the global community agreed in establishing a set of measurable and timely limited goals to combat the most pressing global problems, which are among others, the noticeable reduction of poverty, hunger and environmental degradation. These so-called Millennium Development Goals set the standards the global development has to cope with. Most important goals with interrelation to both the food security and the sanitation issue are to reduce by half the number of people who are suffering from hunger until 2015, to increase their amount of food, and halve the proportion of people without access to basic sanitation.

scale of the problem
The food security situation and global population growth

The concept of food security has been on the international agenda since the Human Rights Declaration in 1948 and was seen by many as one of the fundamental rights of human beings. By FAO-definition food security exists when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO 2008).




Unfortunately the prevailing statistics listed the international state gravely. Currently some estimated 854 million people worldwide are chronically hungry due to extreme poverty (FAO 2006), which is equivalent to around 15 % of the world's population and about 2 billion people lack food security intermittently due to varying degrees of poverty (ibid.). With regards to health, the permanent nutrient deficiency often causes weakness and fatigue, inhibits mental and physical development, particularly in children, and makes people susceptible to other fatal diseases such as diarrhoea and tuberculosis. Despite the great efforts and promising attempts in increasing the number of people suffering from food insecurity, such as improving agricultural productivity, encouraging small-scale farming or securing property rights, the number of people suffering from food insecurity worldwide still remains tenaciously high.

population growth and urbanisation
Increasing pressure on global resources

With the continuously growing world population – according to UNFPA another 1.5 billion people will be expected by 2025 – and its substantial additional food demand, the problem of food insecurity will most likely intensify in the coming decades and increase the pressure on global resources.



A great deal of the population growth will take place in cities with a substantial increase in the volume of urban waste products, the over-exploitation of rural resources and a significant increase in urban food demand. By 2026 the global community is entering an important historical point of inflection (UNFPA 2006) and will be predominantly urban for the first time.



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page 1/1

- to provide stakeholders with a brief but comprehensive overview
- final version can be downloaded from SuSanA homepage: www.susana.org
- hard copies available in Stockholm

sustainable sanitation alliance

SuSanA - Guide for Farmers
Production of in

farming recommendations for the production of

.....
(crop/animal)

in

.....
(region, country)

by reusing

.....
(sanitation flow stream)

from

.....
(sanitation system or technology components)

SuSanA working group on food security and productive sanitation 2

- to provide information on options for the reuse of excreta, greywater and wastewater in agriculture and aquaculture
 - generic farmers' guide and/or
 - well structured template for locally adapted manuals and/or
 - collection of local guides
- to be discussed at next working group meeting this Friday at SEI in Stockholm



sustainable sanitation alliance

case studies of sustainable sanitation projects

project name
region / country / location
focal areas

project name • region • country

1 general data

type of project:
form of urban upgrading, individual or community-based sanitation, new constructed, area, type of reuse activities etc.)

project period:
date of planning: mm/yyyy, start of construction: mm/yyyy, start of operation: mm/yyyy

project scale:
number of inhabitants covered (indiv. and total investment, etc.)

address:
(if project location)

planning institution:
(name of institution only)

executing institution:
(name of institution only)

supporting agency:
(name of institution only)

2 objective & motivation of the project

Description of general and specific objectives of the sustainable sanitation project (or project components)

3 location & conditions

Description of the location and its general conditions, with emphasis on conditions relevant to the implementation of the sustainable sanitation project and its intended reuse options, such as:

- climate and geographical conditions
- population density
- type of settlement
- general water situation
- economic situation
- agricultural aspects, type of soil
- institutional and legal framework
- socio-cultural conditions

4 technologies applied

Description of applied technologies and implemented infrastructure (quantitative and qualitative) with special emphasis on collection and treatment facilities, application requirements, transportation distance, and justification of technologies (why the technologies have been chosen); Resilience and robustness of the system regarding climate change, water scarcity, energy etc.

5 type of utilisation or reuse

Description of the type of reuse applied in the project and organisational scheme for the collection-treatment-reuse chain:

- supply and demand of nutrients
- application of sanitary resources
- frequency of application
- scale of impact
- areas planted and plant requirements
- area under cultivation
- characterisation of the users possible nutritional & soil effects

6 costs & economic benefits

Quantitative and qualitative description of investment, operation and maintenance costs and subsidies involved. Description of the financing scheme for the collection-treatment-reuse chain.

7 operation & maintenance

Organisation of operation and maintenance, transport infrastructure etc.

8 further project components

Specific focal points within the project, e.g. research on social and economic issues, aspects of reuse, up-scaling, institutions or others.

9 project history

Starting point and milestones of the project, specific fostering and financing aspects.

10 design information & technical specifications

Design information that has been used in planning for the project (base, parameters, assumptions, applied design methods, plans and schemes). Typical specifications such as methods of construction, materials used etc.

applied sanitation components

	biogas	biofertiliser	other	greywater	urine
sanitation	✓	✓	✓	✓	✓
water	✓	✓	✓	✓	✓
energy	✓	✓	✓	✓	✓
nutrients	✓	✓	✓	✓	✓
revenue	✓	✓	✓	✓	✓
health	✓	✓	✓	✓	✓
environment	✓	✓	✓	✓	✓
social	✓	✓	✓	✓	✓
economic	✓	✓	✓	✓	✓
political	✓	✓	✓	✓	✓
institutional	✓	✓	✓	✓	✓
technical	✓	✓	✓	✓	✓

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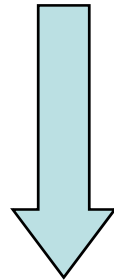
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- to demonstrate the wide range of experiences and re-use options
- number of collected case studies increasing - but more are needed
 - co-composting of faecal sludge and solid waste in urban agriculture - Kumasi (Ghana)
 - ecological sanitation and reuse of excreta in urban allotment garden project - Cagayan D'Oro (Philippines)
 - wastewater use in aquaculture - Kolkata wetlands (India)
 - Gebers housing project - Stockholm (Sweden)
 - reclaimed water project (Jordan)
 - compost and biogas plant for farmers (Kenya)
 - urine use in aquaculture - West Bengal (India)
 - ...

Linking sanitation and food production

Household/school level



Municipal level
(low-income countries)

Experiences from Ghana



1. Use of **faecal sludge**
 - a) directly from septic tanks/trucks
 - b) co-composted with organic solid waste
2. Use of municipal **solid waste** compost
3. Use of raw or diluted **wastewater**
4. Use of **urine** from public toilets

1a. Faecal sludge – direct use

- Yield booster
- Safe on cereals
- Wide adoption where dumped on farmers' fields



1b. Faecal sludge – co-composted

- Yields clearly enhanced
- Safe product
- Limited adoption even with fully subsidized production due to easier access to poultry manure



2. Municipal waste composting



- Limited yield increase (low in nitrogen)
- Safe product
- Limited adoption even if subsidized due to low quality and farmers' compost transportation costs



3. Wastewater use



- Yield increase + extra yield (water > nutrients)
- Not safe, but options for risk reduction known
- Widely used where water available close to farms



4. Urine as fertilizer



- Yield booster, but biased nutrient input (N)
- Safe product
- Even with subsidized collection and storage, only viable for farmers if delivered/stored on farmers' fields



Feasibility study on urine use from public urinals in Accra



Replenishing
nitrogen lost in



50 kg Urea



27 Euro

1000 kg poultry manure



10 Euro

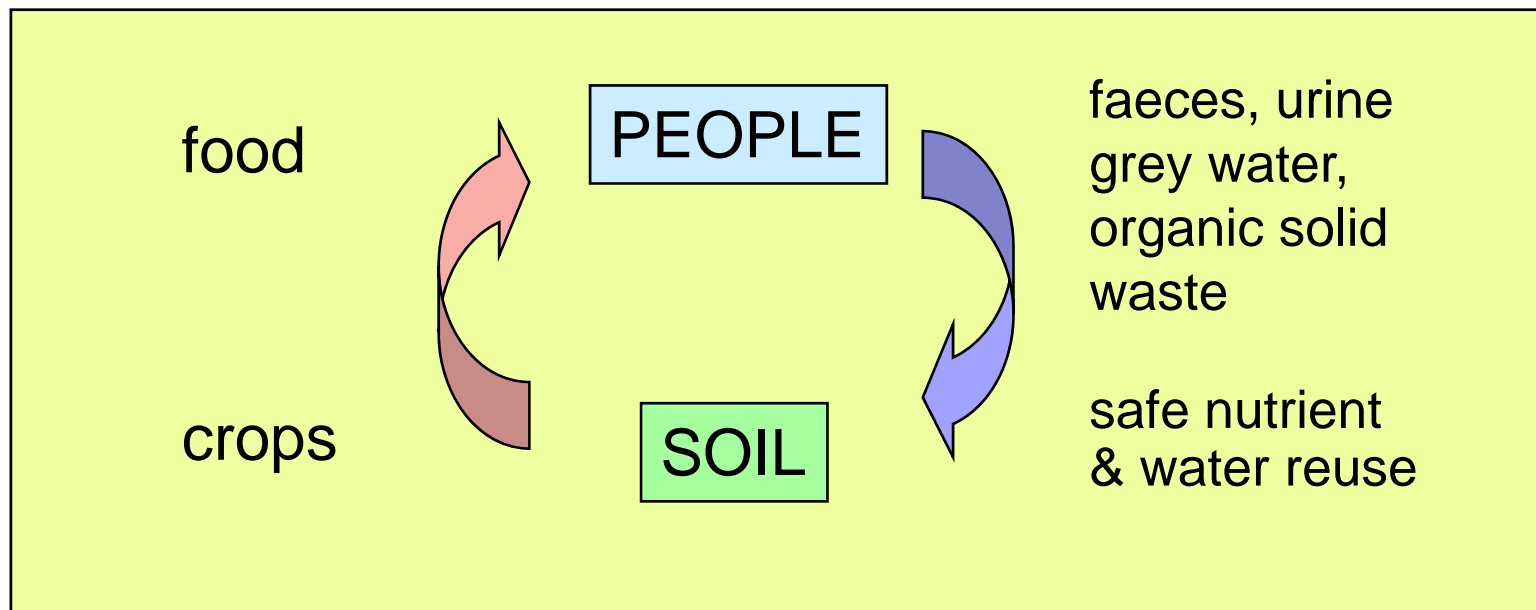
7 m³ urine

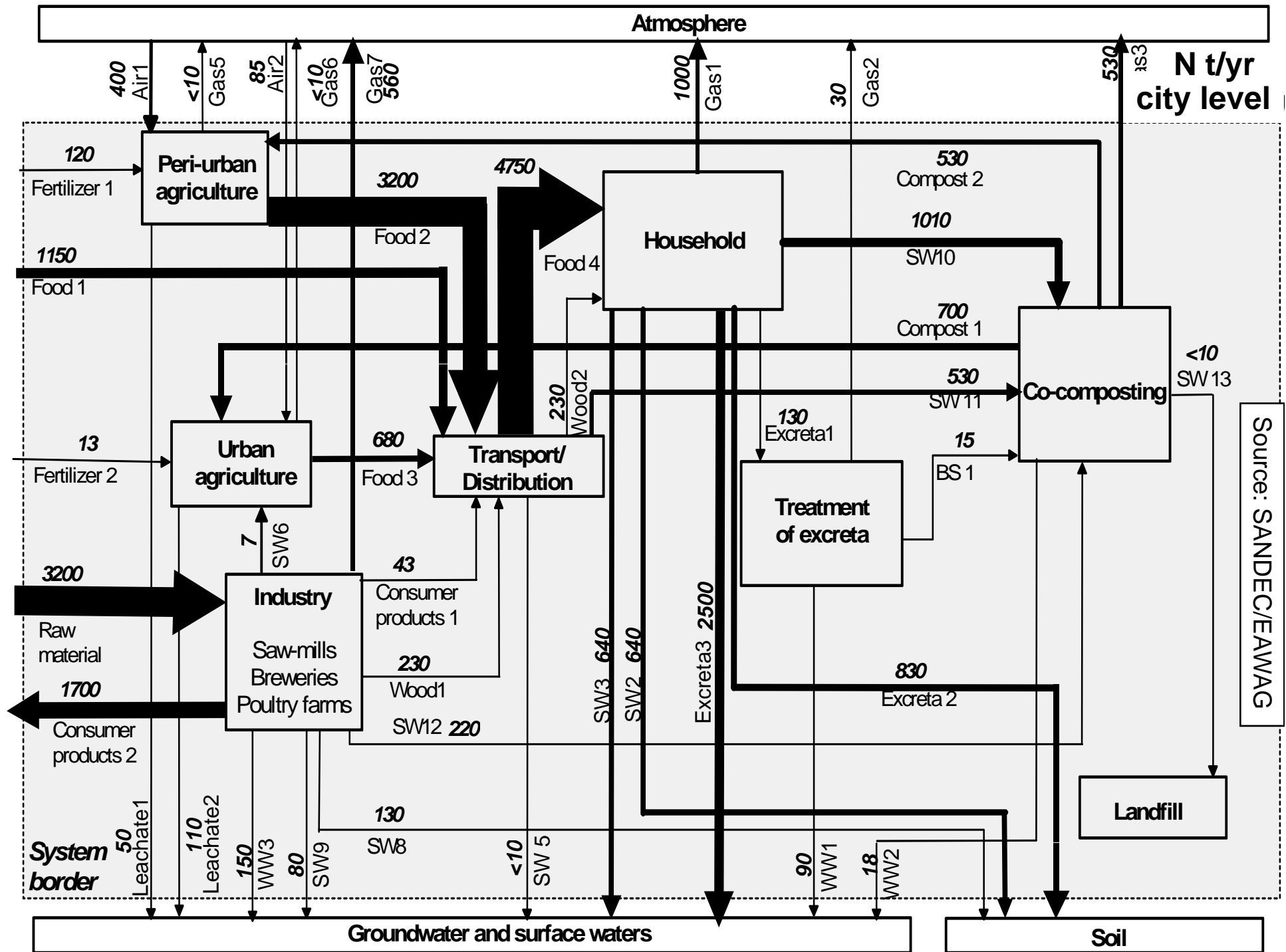


34 Euro (only transport)
+ storage investment

Source: F. Tettey-Lowor, 2008

- solid and liquid waste supply is no limiting factor
- high theoretical demand from agriculture
- productivity gains are in most cases clear
- health risks are manageable





next steps of the Working Group 2008-2009



- continue the compilation of case studies
- continue to work on the farmers' guide(s)
- continue to use events and conferences to promote productive sanitation and to allow the working group to meet
 - next meeting: this Friday at SEI

Thank you