


At the End of the Pipe?



Insights, visions and ideas
on a shift in the sanitation paradigm

formulated during expert meetings
held in the Netherlands
January – March 2005



April 2005



The agricultural sector provides a 'market' for nutrient rich products recovered from human excreta

Insights, visions and ideas on a shift in the sanitation paradigm formulated during expert meetings held in the Netherlands January - March 2005 is part of a set of three publications on the outcomes of the project At the End of the Pipe.

The other two documents cover:

- pamphlet with a summary of the outcomes of the expert meetings
- proceedings of all expert meetings

Special acknowledgements go out to the hosts of the discussions which were *Ton Boon von Ochssee*, Dutch Ambassador for Sustainable Development - Ministry of Foreign Affairs, *Wouter J. Veening*, Director Institute for Environmental Security, *René van Veenhuizen*, ETC-UA (ETC Foundation, Urban Agriculture Programme), *Joep Bijlmer*, DGIS - Dutch Ministry of Foreign Affairs and to the moderators of the discussions: *André Frijters*, *Ron Spreekmeester* and *Jaap Warners*.

Text: Mirjam Geurts, Gert de Bruijne

Editing: Jane Olley

Graphic design: Birgit Schrama, www.birgitschrama.nl

©WASTE 2005

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system of any nature, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of WASTE.

Citation is encouraged. Short excerpts may be translated and/or reproduced without prior permission, on condition that the source is indicated. For translation and/or reproduction in whole, WASTE should be notified in advance. This publication does not constitute an endorsement from the financiers.

Introduction

In January - March 2005, in total four expert meetings were held to discuss the relation between sustainable sanitation and integrated urban planning. During these meetings, Dutch participants from various disciplines were encouraged to look beyond the boundaries of their discipline and the borders of the Netherlands. Their observations lead to a critical evaluation of the sustainability of current sanitation systems and to suggestions towards sustainable and efficient approaches now and in the future.

At the End of the Pipe aimed at accelerating the policy dialogue in the Netherlands towards an integrated urban sanitation planning in response to environmental challenges and presenting concrete options to the 13th CSD meeting in April 2005 in New York, and beyond.

At the End of the Pipe would not have been possible without the contribution of a team of nearly 100 participants and contributions of guest speakers, hosts and moderators.

Guest speakers: Harm Baten (Water Control Board district Rijnland, the Netherlands), Adriaan Mels (Lettinga Associates Foundation, the Netherlands), Aussie Austin (CSIR Building and Construction Technology, South Africa), Moses Ochola Otieno (WASTE-IHE, Nakuru) Harald Hiessl (Fraunhofer ISI, Germany) Anton Peter-Fröhlich (Berliner Wasserbetriebe, Germany), Viju James (Pragmatix Research & Advisory Services Pvt. Ltd., India), Dan Lapid (CAPS-Centre for Advanced Philippine Studies, the Philippines), Pascal Karlsson (Municipality of Göteborg, Sweden), Lin Jiang (Guangxi Committee JiuSan Society, China), Caroline Schönning (Swedish Institute for Infectious Disease Control, Sweden), Anna Tsvetkova (Mama 86, Ukraine), Ron Sawyer (Sara Transformación SC, Mexico), Arno Rosemarin (Stockholm Environment Institute, Sweden), Patrick Bracken (Deutsche Gesellschaft für Technische Zusammenarbeit GmbH, Germany).

Over the last 150 years, the provision of sanitation facilities has led to remarkable progress in the reduction of gastro-intestinal illnesses. Nevertheless, both existing and newly emerging problems in the sanitation sector pose a threat to sustainable development. Specifically:

- Two-fifths of the world's population (2.4 billion people) still don't have access to improved sanitation;
- Large amounts of treated (drinking) water used in the transport of human excreta;
- Destruction of nutrients and wastage of increasingly valuable water resources;
- High energy consumption for wastewater transportation and treatment;
- The direct discharge of sewage into water bodies and discharge from sewer overflows, badly maintained sewers and the discharge of poorly treated effluent from wastewater treatment plants mean that potentially lethal chemicals, hormones and traces of medicines are released into surface waters;
- Leaking sewers and latrines cause widespread ground water pollution;
- Sludge accumulation from cesspits and wastewater treatment plants;
- Increasing investment costs for the construction, replacement and maintenance of sewerage and wastewater treatment systems.

The question is whether current sanitation practices adequately deal with the problem of handling human excreta. Are the dominant end-of-the-pipeline or down the pit sanitation options still the best and only options available to us?

"We cannot solve our problems with the same thinking we used when we created them", based on Albert Einstein

Two-fifths of the world's population has no access to improved sanitation



During the expert meetings the need was discussed for a shift in the sanitation paradigm to meet the ambitious targets caused by:

- Rapid urbanisation that presents an increasing challenge for the sanitation sector. In order to ensure adequate sanitation provision for urban inhabitants, the sector will need to further develop the logistical and organisational aspects of sanitation provision.
- The water crisis in many urban areas which is actually not due to a lack of water, but due to a lack of clean water, caused by the absence of sanitation facilities and / or the poor sanitation conditions.
- The fact that water is required to ensure good hygiene, but not necessarily good sanitation. Policy makers must acknowledge this difference in order to select the most appropriate sanitation options. For example, sanitation practices that do not demand large water volumes are particularly valuable for water stressed regions and regions with vulnerable water resources.
- The idea that solving current sanitation problems is an opportunity to promote sustainable development. New sanitation approaches, that avoid the problems of existing sanitation systems and contribute to the objectives of the Millennium Development Goals, must be welcomed.
- Large-scale implementation of new sanitation approaches that will help generate a better understanding and demonstrate the advantages of natural resource recycling.



Water is not necessarily needed for good sanitation

The participants of the expert meetings expressed their visions in relation to a sanitation paradigm, which embraces the principles of sustainable development:

1 Politicians

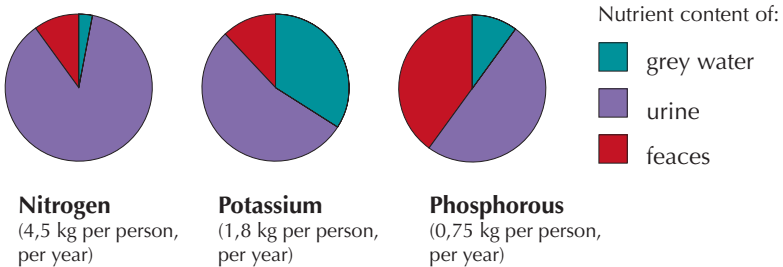
- 1.1 Sanitation deserves the same status on the national agenda as water. Ministries and departments need to give equal importance to waste and excreta management as water supply and treatment. Governments need to demonstrate leadership in this discussion.
- 1.2 The responsibility for ensuring *-safe sanitation for all-* has to remain a public one. A political / legal framework should be developed in which the private sector is encouraged to provide good quality sanitation services which reflect and address health and environmental issues and concerns.
- 1.3 Current political decisions are commonly limited to the question of acceptable risks. We have to widen the vision of risk management from one that is based on the absolute minimisation of environmental and health risks.
- 1.4 National and international sanitation regulations and guidelines should allow for resource recovery from human waste.
- 1.5 European Union legislation should allow for the use of human excreta fertilisers in ecological farming as a means to increasing the total supply of organic fertilisers.



Resource recovery of organic material

2 Private sector

- 2.1 Instead of regarding waste and sanitation management responsibilities as a social cost that has to be taken on by the government, waste- and sanitation management can be seen as a business opportunity (for informal and formal sector alike).
- 2.2 Incorporate the organic waste flow into a sanitation system to highlight the advantages of alternative sanitation systems for efficient resource management and energy generation.
- 2.3 Avoid waste mixing and sewage generation as far as possible. Strive to make material cycles as short as possible, based on an understanding of the water cycle, nutrient cycle and pathogen cycle.
- 2.4 Farmers are potential 'consumers' and the agricultural sector provides a 'market' for nutrient rich products recovered from human excreta.
- 2.5 The food industry is a major target group for awareness raising. Currently, this sector is the weakest link in resource recovery of nutrients from human excreta.



An entrepreneur is showing newly developed toilet stools

3 Civil society

- 3.1 Public awareness, communication and demand responsive approaches are three elements required to facilitate any discussion about the need for new sanitation approaches. By using these tools, we aim to overcome peoples' uneasiness about discussing 'toilet' issues.
- 3.2 Promote a wider vision of why people want and society needs good sanitation. Seek the right motivation for change.
- 3.3 Awareness raising is needed at all levels to demonstrate the relationship between alternative sanitation practices and the challenge of food security.
- 3.4 Social preferences, norms, and attitudes may block the transition to alternative sanitation options. However, in practice engineers and managers are often more reluctant to change than consumers. The market strategy for new sanitation options should include the explanation and demonstration of new systems to consumers.
- 3.5 It is important to demonstrate these new approaches and technologies now. Valuable time will be wasted if we wait until the private sector is forced to deal with the mounting problems resulting from current sanitation practices. We can anticipate those problems and highlight economic opportunities of alternative sanitation options.
- 3.6 The announced publication of the WHO Guidelines on Safe Use of Human Excreta and Grey Water will serve as an endorsement of resource recovery from human excreta.



Engineers and managers are often more reluctant to change than consumers

4 Institutional integration

- 4.1 Many stakeholders are directly or indirectly involved in sanitation management. There is therefore a need for an integrated approach, which facilitates the development of a cooperating-management-culture. Sanitation management should move beyond the limits of individual organisations and their responsibilities.
- 4.2 Sanitation systems are complex and often several organisations share responsibility for their construction and operation. Water and sanitation cycles should therefore be managed by an inter-sectoral cooperating body.
- 4.3 The recognition of new viable sanitation options needs to be anchored within institutions and institutional memory. The implementation of new sanitation options should not depend on the participation of specific individuals.
- 4.4 Instead of focussing exclusively on technical aspects in pilot projects, we need to incorporate and clarify their institutional aspects. Experience shows that the main barriers to innovation are related to institutional rather than technical obstacles.



Several organisations share responsibility for the construction and operation of sanitation systems

Cooperating organisations

WASTE

Nieuwehaven 201
2801 CW Gouda
the Netherlands
www.waste.nl

NCDO

P.O. Box 94020
1090 GA Amsterdam
the Netherlands
www.ncdo.nl

Habitat Platform

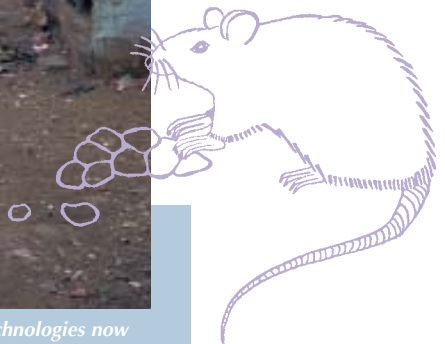
P.O. Box 30435
2500 GK Den Haag
the Netherlands
www.habitatplatform.nl

Netherlands Water Partnership (NWP)

P.O. Box 3015
2601 DA DELFT
www.nwp.nl

Partners for Water

P.O. Box 20907
2500 EX Den Haag
the Netherlands
www.partnersforwater.nl



It is important to demonstrate new approaches and technologies now

