

Enhancing Livelihoods Through Sanitation

Thematic Overview Paper 19

Maria-Lúcia Borba, Jo Smet and Christine Sijbesma

Thematic Overview Papers



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By Maria-Lúcia Borba, Jo Smet and Christine Sijbesma (IRC)

Reviewed by: Steven Sugden (LSHTM)

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Table of Contents

Thematic Overview Papers (TOPs): an effective way to TOP up your knowledge 2

Foreword	3
1. Introduction	5
1.1 The subject of this TOP	5
1.2 Reasons for selecting this subject	5
1.3 Definitions	6
1.4 The target audience of this TOP	7
1.5 The sections of this TOP	7
2. An overview of the concept of livelihood	9
2.1 Authors and agencies inspiring a livelihood approach	9
2.2 Some preliminary general observations	14
2.3 The various dimensions of livelihoods, of sanitation and the different roles played by the poor	14
2.4 The role of the poor: linking sanitation with livelihoods	16
3. Links between sanitation and poverty, health and environment	22
3.1 Consequences regarding morbidity and mortality	22
3.2 Consequences for the environment	23
3.3 A brief note on gender differences regarding sanitation and the livelihoods dimensions	26
4. Lack of recognition of sanitation in poverty reduction	30
4.1 Water and Sanitation: the low profile of sanitation around the world	30
4.2 Some of the reasons for the low profile of sanitation	30
4.3 The consequences of the low profile of sanitation in Asia, Africa and Latin America & the Caribbean	31
4.4 Consequences of the low profile of sanitation regarding poverty	33
4.5 Putting sanitation on the livelihoods agenda	35
5. Stories from the field: a review of practices	40
5.1 Sanitation and livelihoods – Stopping open defecation in Bangladesh	40
5.2 Sanitation and livelihoods – Ecological Sanitation in Malawi	41
5.3 Sanitation and livelihoods – The Condominium Sewer System in Brazil	43
6. Final remarks and the road forward: points for reflection...	46
TOP References	48
TOP related main books, documents, articles	54
TOP related websites	58
TOP contacts	61

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Foreword

Reviewing the literature during the preparation of this IRC TOP, reminds us how far human waste issues remain the Cinderella of the water and sanitation sector, not to mention the role of hygiene as Cinderella's slipper, as pointed out by Christine Sijbesma*. This low priority means not only that the Millennium Development Goal (MDG) target to halve those with no access to improved sanitation by 2015, will be missed, but also that those left out will be the poor. Their health and human dignity will not improve through better sanitation. Nor will they benefit from an improved living environment or be able to reduce the time lost to illness and the costs and expenditures from bad health. They will miss the opportunity to invest those reductions in a better life for themselves and their families. Neither their lives nor their livelihoods will get the benefits of sanitation, while lack of livelihoods will remain a barrier to improving their sanitary conditions.

This TOP represents a new effort to put human waste issues on the map, focusing on the connection between sanitation and livelihoods from the perspective of the poor. This is done in the belief that the poor deserve immediate attention and we should support initiatives by poor communities and their allies to struggle against social exclusion.

The authors have benefited from several contributions. We are especially thankful to Frits Wils for his valuable contribution on seeing the poor as consumers, producers, workers and citizens and to Sascha de Graaf for her comments.

The authors

* Wijk-Sijbesma, 1998

1. Introduction

1.1 The subject of this TOP

The subject of this TOP is the relation between sanitation and livelihoods in the context of poverty reduction, health improvements, increased levels of education and environmental protection. The main question to be explored in this TOP is: how can human excreta disposal, management and re-use improve poor people's livelihoods in urban and rural areas?

Although the linkage between sanitation and income generation has been the subject of projects and documents, the theme of sanitation and livelihoods, focusing on role the poor and their 'partners' can play, is fairly new and has not been sufficiently covered. That is the focus of this TOP.

1.2 Reasons for selecting this subject

Despite the importance of safe sanitation to health improvements, poverty alleviation and environmental protection, sanitation still has a low profile when compared to water supply. Sanitation is highly deficient in most poor regions of the world, and needs to be put on the agenda in a more challenging manner. It is significant, in this connection, to note that drinking water has had a far higher profile for many years, even though sustained access to clean water and sanitation are closely linked at institutional, policy and implementation levels.

This paper goes into the importance of safe sanitation for the livelihoods of poor families. It addresses what poor sanitation means for their resources, including their income and expenditure in cash and kind, and for the environments in which they live and work. While the focus is on the effects of sanitation on the livelihoods of the poor, this TOP also addresses how the livelihoods of the poor affect their potential to improve sanitation.

The linkage between sanitation and livelihoods, will hopefully contribute to raising the profile of sanitation, especially given the present worldwide effort to alleviate poverty. Highlighting this linkage may open eyes to the potential of sanitation for poverty reduction. It may also bring new ideas to project implementers, organisations and policy-makers on how to use sanitation to help the poor in their attempt to improve their life conditions and bring new understanding of how improved life conditions have an impact on sanitation.

Another reason for choosing this topic is that it will hopefully raise the awareness of policy makers and other sector professionals to the importance of systematically assessing the implications of their decisions on the livelihoods of poor men and women living in rural and periurban areas.

In summary, this TOP discusses the ways in which sanitation can be a means to improve the livelihoods of poor people. It also stimulates discussion about how enhanced livelihoods can improve sanitation.

1.3 Definitions

Sanitation refers to the *hygienic disposal or recycling of waste*. It is an important measure to prevent the outbreak of diseases and thus protect public health and control environmental pollution. From this definition, one could conclude that sanitation refers to all types of waste. However, nowadays sanitation refers in most cases only to the hygienic disposal or recycling of human excreta and grey water (waste water from washing, laundry and kitchens) produced by households. According to guidelines for the selection of sanitation services, sanitation refers to *the means of collecting and disposing of excreta and community liquid waste in a hygienic way so as not to endanger the health of individuals or the community as a whole* (Cotton and Saywell, 1998).

For the purpose of this TOP, '**sanitation**' refers to issues around human excreta: disposal, collection, treatment, transfer and re-use in whatever form. '**Safe sanitation**' refers to the secure and effective management of human excreta, including treatment and reuse, and universal coverage (ie. widespread usage of safe toilets).

As shown in Figure 1, safe sanitation contributes to health improvements, poverty reduction and environmental improvements. By preventing human excreta from polluting the human environment, the transmission of pathogens is reduced. People enjoy better health and are physically fitter, which allows them to spend more time and energy on productive activities of one form or another, while the costs and expenditures of poor health are reduced. Having more energy and income, they may use this to improve their sanitation, for example by moving from a more temporary to a more permanent sanitation solution, and/or enhance the positive impacts of sanitation by buying and using soap for handwashing.

The concept of **livelihood**, as understood in this paper, refers to the use of capacities and resources by poor men and women in rural areas and on the periphery of towns and cities to undertake activities in order to survive in adverse circumstances. Livelihoods are therefore people's means of survival, and are fundamentally affected by the situation in which people find themselves, especially their physical, economical, social, environmental and psychological conditions.

The activities are meant especially to:

- Generate an income which contributes to improving life conditions and enhance human dignity
- Improve family members' health, – especially of those most affected: children, women and the elderly
- Improve their immediate environment.

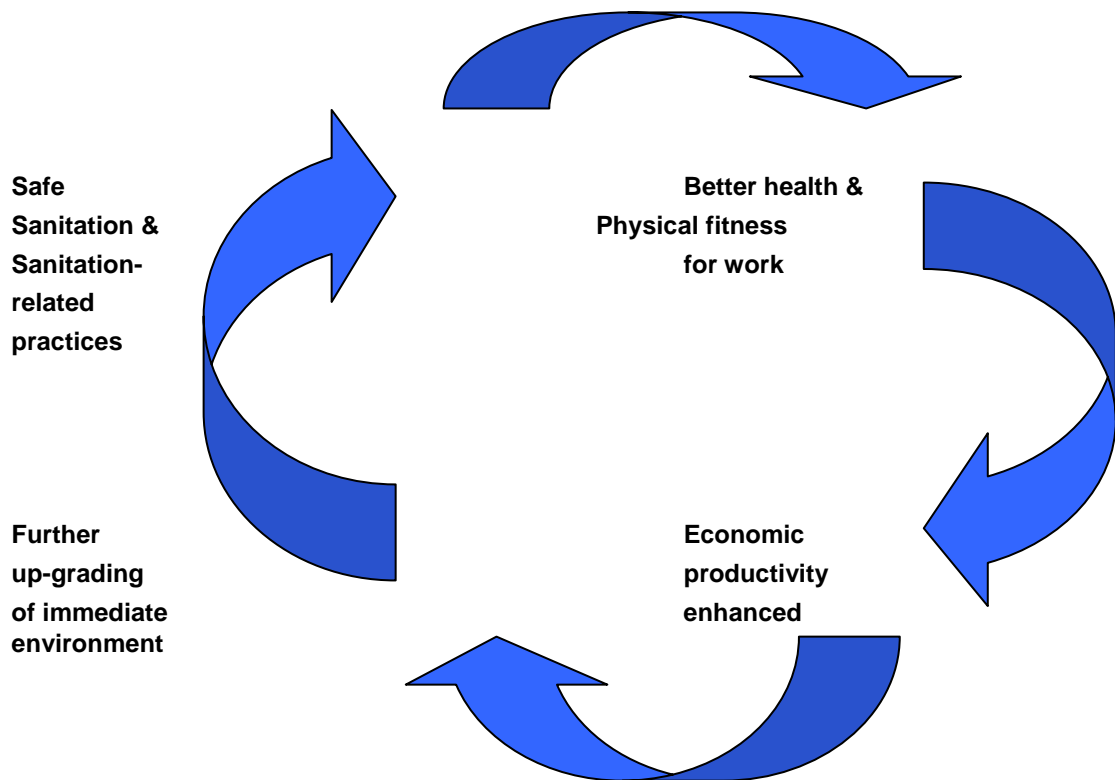


Figure 1. The safe-sanitation cycle and its impact on livelihoods

1.4 The target audience of this TOP

The target groups of this TOP are those working in water and sanitation and related sectors at policy and policy implementation levels. It is especially meant for those interested in issues connected with the disposal, management and re-use of human excreta and who would like to identify possibilities for improving the well-being and immediate environment of poor families, through sanitation.

This paper also offers a brief overview of the status of sanitation in various regions and of approaches to (sustainable) livelihoods developed by different authors. It may therefore be useful to those looking for information on human excreta issues and strategies to deal with them.

1.5 The sections of this TOP

This TOP is organised in eight sections:

- **Section 1 Introduction** (this section) presents the TOP and sets out the questions to be elaborated.

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- **Section 2 An overview of the concept of livelihood** gives a brief overview of how main authors and agencies interpret this concept and its practical application in policies and projects.
 - **Section 3 Links between sanitation and poverty, health and environment** focuses on the linkages between sanitation and people's livelihoods. Here, the analysis evolves around who are the poor and how they actively participate – not only as consumers, producers and workers, but also as citizens – in the area of human excreta management to alleviate poverty, to contribute to health improvements and to protect the environment.
 - **Section 4 Lack of recognition of sanitation in poverty reduction** presents the status of sanitation in the world and the consequences of unsafe sanitation for the alleviation of poverty as part of livelihood and gender approaches.
 - **Section 5 Stories from the field: a review of practices** presents case-studies from Asia, Africa and Latin America, where efforts are made to improve human excreta management and their impact on people's livelihoods.
 - **Section 6 Final remarks and the way forward: points for reflection...** explores ideas for the way forward in highlighting the importance of sanitation for improved livelihoods at the level of project implementation, organisations and policy-making.
 - **The final section containing resources (references, TOP books and documents, websites and resources)** will help those interested in further exploring written documents and websites on the subject of the links between sanitation and livelihoods.

2. An overview of the concept of livelihood

2.1 Authors and agencies inspiring a livelihood approach

This section contains a summary of the most commonly found definitions of livelihoods in the documents and literature. This provides useful background information, and helps to focus on which elements of the livelihoods concept and approach address the central questions raised in this TOP: how can sanitation improve poor peoples' livelihoods and how do improved livelihoods benefit sanitation?

A systematic discussion about the poor and their livelihoods was initiated by Chambers and Conway in 1992. In their view, livelihoods refer to the capability of the poor to perform certain basic functions in order to have access to assets and their more equitable distribution, and their capability to sustain life improvements even in a situation of natural disasters such as floods or drought (Box 1). The authors highlight differences between rich and poor in accessing natural resources: resources that have little value to the rich, such as flooded, eroded and bare land or natural products from forests, can be used by the poor to improve their livelihoods. Although the authors write about rural areas one can extrapolate their thinking to the periphery of cities and small towns, as an increasing number of poor people are changing or have already changed from rural to urban livelihoods.

Box 1. Definition of livelihood

“A livelihood comprises people, their capabilities and their means of living, including food, income and assets. Tangible assets are resources and stores, and intangible assets are claims and access. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets on which livelihoods depend, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable when it helps cope with and recover from stress and shocks, and provide for future generations” (Chambers and Conway, 1992)

The work by these and other authors has influenced policies and approaches of multi-lateral and bi-lateral aid organisations in relation to enhancing the livelihoods of the poor.

Understanding poor people

In their work on livelihoods, both UNDP and DFID stress the need to understand poor people. The UNDP Sustainable Livelihood Approach (SLA) addresses people in their local context to create an enabling environment so that men and women can optimally use what they are capable of using and let their capabilities flourish (UNDP, 1999). DFID, the UK Department for International Development, calls for a realistic understanding of poor

people's livelihoods and the factors that shape them (DFID, Livelihoods connect. <http://www.livelihoods.org/SLdefn.html>).

Supporting their means of living and assets

Activities that enhance poor people's means of living include income-generating activities that bring a cash income, for example through paid jobs and services. However, they may also generate in-kind products that add to the monetary income of the households and/or reduce expenditures, such as the production of milk, eggs, meat, fruits, vegetables, wood for fuel, timber for building, and medicinal herbs and plants.

Under livelihood-related assets, UNDP lists natural/biological assets such as land, water, and natural flora and fauna products, physical assets such as houses and roads, socio-political assets such as the groups and communities to which people belong and human assets such as knowledge and skills (Box 2). Maintaining and enhancing the productivity of natural resources is an important element of the UNDP sustainable livelihood approach, which also includes access to and use of appropriate technology and financial services.

An important part of any livelihood approach is to encourage development based on what the poor already have: the talents, knowledge and expertise of individual men and women (UNDP, 1999).

Box 2. Strategies of UNDP's Sustainable Livelihood Strategy (SLA)

The economic, social and physical strategies used in **UNDP's SLA** are realised through

Activities:

- Not only jobs that bring an income but also other actions to improve well-being

Assets:

- Natural/biological assets (i.e. land, water, common-property resources, flora, fauna)
- Social and political (i.e. community, family, social networks)
- Human (i.e. knowledge, skills)
- Physical (i.e. roads, markets, clinics, schools, bridges)

Entitlements:

- Human rights - political, social and economic - that are mandated and recognised by the international community
- In a private ownership market economy, this includes trade-based entitlements, production-based entitlements, own-labour entitlements, and an entitlement to inheritance and transfer of assets
- Other entitlements of a more complex nature such as inheritance through a community based customary law, or social security, or unemployment insurance and other government funded safety-nets

For DFID too, the sustainable livelihood approach prioritises people's assets, both tangible such as resources and stores, and intangible such as claims and access (DIFD, Livelihoods Connect, <http://www.livelihoods.org/SLdefn.html>)

Capacities and support to withstand shocks

Coping (a short term mechanism to respond to a specific shock such as drought or flood) and adapting (a longer-term strategic change in behaviour to adapt to shock or stress) are elements of the UNDP Sustainable Livelihoods Approach. For DFID, the emphasis is on reducing the vulnerability of the poor by enhancing their ability to withstand shocks. CARE centres its interventions on household livelihood security, distinguishing between activities that strengthen the livelihoods of the poor, and activities that help them cope with, adjust to, or mitigate vulnerabilities e.g. from diseases and disasters (Box 3).

Box 3. CARE's three-pronged livelihoods strategy

CARE adopts a three pronged strategy:

- Livelihood promotion: improving resilience of households using participatory and empowering methods
- Livelihood protection: preventing declines in livelihood security by supporting work on vulnerability mitigation
- Livelihood provisioning: emergency support for key livelihood assets during times of hardship

Source: www.livelihoods.org/info/linksEvents_Sub/linksEvents_CARE.html

Political and institutional environment

A fourth dimension is a policy that strengthens people's empowerment and good governance as the basis for improving people's livelihoods (UNDP, 1999). DFID also calls for building a policy and institutional environment that supports poor peoples' livelihoods and reflects poor people's priorities, rather than those of the elite (Box 4).

Box 4. DFID's sustainable livelihood approach....

- Puts people – rather than the resources they use or the governments that serve them – as the priority at the centre of development
- Builds on people's strengths rather than their needs
- Brings all relevant aspects of people's lives and livelihoods into development planning, implementation and evaluation
- Unifies different sectors behind a common framework
- Takes into account how development decisions affect distinct groups of people differently, such as women compared to men
- Emphasises the importance of understanding the links between a policy decision and household-level activities
- Draws in relevant partners, whether State, civil or private, local, national, regional or international
- Responds quickly to changing circumstances

Source: DFID and IDS: Livelihoods Connect <http://www.livelihoods.org/SLdefn.html>

Using the DFID sustainable livelihood framework, Moriarty and Butterworth explored the linkages between water and livelihoods in their IRC TOP *The Productive Use of Domestic Water Supplies: How water supplies can play a wider role in livelihood improvement and poverty reduction* (Moriarty and Butterworth, 2003, <http://www.irc.nl/page/3733>).

Oxfam's sustainable livelihoods approach differs from those analysed above in that it aims to meet a need for a broad framework that accommodates issues of environmental change together with concerns about global markets, deteriorating economic rights, gender and social inequality, and the need to strengthen deprived people's participation in the development process. The organisation uses a sustainable livelihoods checklist and framework in project appraisal, planning and review. Experience has further shown that in order to make this sustainable livelihoods approach operational it is necessary to combine some conceptual analysis with a range of existing project management and analytical tools, including Participatory Rapid Appraisal (PRA).

Source: http://www.livelihoods.org/info/linksEvents_Sub/linksEvents_Oxfam.html

The search for elements to link sanitation with livelihood

It is clear that the concept of livelihoods and approaches to project intervention do not differ substantially from one agency to another. The common basis is a **people-centred approach**. As such, the concepts by the above mentioned agencies and authors emphasise the capabilities of the poor to access resources or assets, and to be able to maintain these and use them to improve their conditions of life.

Some issues can be extracted from the above definitions to design a framework for constructing the linkages highlighted in this TOP and to consider how sanitation can play a role in enhancing livelihoods.

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- **A livelihoods approach is a people-centred, dynamic concept**, with an interest in the action and ‘activism’ of the poor in the context of their struggle against poverty not just to survive, but also to modify their conditions and maintain life improvements.
 - It is a **holistic (not a sector) approach** paying attention to the relation between the various perspectives: improvement health, environment, income generation, and in the overall conditions of life.
 - **Poor men and women have capabilities that ensure access to resources.** They have knowledge, ideas, aspirations, and a feeling of what is good for them and their families, which defines them as agents of development. They are also the agents of the solution, as they are the ones who most suffer from the problem.
 - **Poverty is a complex notion and its complex dynamics should not to be underestimated.**
 - **Different groups are included in livelihood friendly policies and approaches.** They include groups of poor people themselves, central and local government, NGOs, private sector providers, CBOs, water and sanitation utilities, water and sanitation committees and organised groups.
 - **An enabled community is secured by enabling policies** by central and local government. Being closer to decentralised government departments, community members will have better access to policy making which has a direct impact on their lives, while local government becomes a facilitator of pro-poor processes.
 - **An enabling market is supported by policies and institutional arrangements** so that community members are able to realise their goals as private agents and entrepreneurs
 - **The poor are not passive beneficiaries** but engage in development processes in accordance with their specific physical and cultural context.
 - **People’s organisation and empowerment should be just as much the focus of attention in a livelihood approach as access to assets.** Organisation and empowerment support the poor in controlling assets and in ensuring the sustainability of improvements.
 - **Maintaining and enhancing the productive use of natural resources** is an important element in the livelihood approach.
 - **Education, including adult literacy and skills-training, will mobilise and transform resources and their redistribution among the various groups.** This will help to determine the extent to which this people-centred approach can generate sustainable impacts.

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- **Increased levels of education / training, health, and environmental preservation** will each have a positive impact on people's livelihoods.
 - **Participation, decision-making and management** are important components of the livelihoods approach.

These elements offer an opportunity to reflect on the connection between the identity of the poor, their situation and the way in which they can use safe sanitation to enhance their livelihoods.

2.2 Some preliminary general observations

The linkage between safe sanitation and enhanced livelihoods is a two-way street:

- **Sanitation has a positive impact on the livelihoods of the poor.** Safe sanitation makes it more possible for poor women and men to undertake initiatives and mobilise their assets. Without a minimal degree of safe sanitation, and the resulting improvements in health and the environment, the poor might lack sufficient energy and productivity to initiate and sustain relevant action, whether at household or community level. At household level, for example, better sanitation can stimulate poor households to increase their economic status through house building or improvements.
- **Enhanced livelihoods have a positive impact on up-grading sanitation.** Improved life conditions encourage poor men and women to define safe sanitation as a relevant goal to be achieved through their own efforts and or with help.

These mutual benefits are often found together, as the level of safe sanitation and the capacity of poor people to improve their income, health and environment are enhanced. This was the experience for example given by the Blue Bay Project in Salvador, Bahia, Brazil in Box 5).

2.3 The various dimensions of livelihoods, of sanitation and the different roles played by the poor

In order to be able to analyse the relationships between them, it is necessary to gain an insight into the multiple dimensions of sanitation and livelihoods.

The main factors that are important to people's **livelihoods** are the various types of resources (or assets) and entitlements that people can access, and their capacity to control these assets and entitlements in order to sustain life improvements.

As for **sanitation**, the main components for the purpose of this TOP, relate to disposal, collection, treatment, transfer, re-use, coverage and management of human excreta, summarised as coverage, management and re-use, where coverage refers to the proportion of households with access to safe sanitation.

To illustrate the potential linkage between sanitation and natural resources, one may think for example of how sanitation (human faeces and urine and sludge from sewage treatment plants) could become an asset (agriculture fertilizer). One can also think of how a natural resource such as soil, sand or stone can be used by the poor to build and maintain sanitation infrastructure to increase sanitation coverage.

The matrix in a later section (4.5) will illustrate the connections between various dimensions of livelihoods and of sanitation. The central actors in this connection are the poor themselves, in the different roles they perform¹ in a livelihood strategy as:

- **Consumers** of sanitation products and services
- **Producers** of sanitation products
- **Workers** formally employed or working in the organised informal sector to perform sanitation services
- **Citizens** participating in decision – and policy-making – determining access and control over sanitation services and related income and employment generating activities

There are other differences to be considered within groups of poor people. These differences relate to:

- **Gender**, as men and women have different motivations and needs which will determine the roles they play
- **Financial situation**, as the better-off and the poorer among community members have different priorities
- **Age groups** who have different needs, and
- **Societal position** which determines opportunities to access and control resources.

These differences are relevant to an analysis of various ways in which the poor make use of their resources to improve sanitation and, in turn, to improve the conditions for a livelihood strategy. Gender differentiation is introduced in this TOP, as a means of illustrating, in the context of the matrix in section 4.5 the different roles played by men and women in a livelihood approach to sanitation.

The notion of consumers, producers, workers and citizens is further clarified to develop a better understanding of these roles. The matrix in section 4.5 links different resources or assets with the different roles of the poor regarding sanitation coverage, management and re-use. This will put more detail on the outline in Figure 2.

¹ The notion of the poor as consumers, producers, workers and citizens was firstly used by Wils and Helmsing in their work “Enabling Communities and Markets: meaning, relationships and options in settlement improvement”, Institute of Social Studies, February 2001.



Figure 2. From coverage to commercial re-use – the road to sanitation based livelihoods

Source: Private Sector and CBO Participation in Human Waste Issues – Enhancing the Achievements. After the many failures in sanitation, the agenda has changed!

Adapted from WSSCC publication for Kyoto 2003 (IRC, 2003)

Case-studies in Section 5 explore the different roles of the poor to see whether, and to what extent, connections with a livelihoods dimension already exist or could be developed. Hopefully, this way of proceeding will help to identify in substantial operational terms – rather than generic abstract ones – the connections between sanitation and livelihoods, as well as the areas where deficiencies still exist, defining an agenda for future action.

2.4 The role of the poor: linking sanitation with livelihoods

The poor as consumers, producers and workers with sanitation

For a long time the poor have been considered mainly as beneficiaries of sanitation products and services. In this perspective, their views concerning the location of facilities, the type of technology or any other issue were not taken into consideration by interventions.

- More recently, the poor have started to be seen as **consumers**, having differentiated and expressed needs taken into account in sanitation coverage. An example is the demand responsive approach, which offers different models of toilets with different local materials to cater to differences in what future users want and can afford. A refinement is the gender-sensitive approach, which recognises that women and men of various ages and cultures have their own needs and demands for what constitutes an acceptable, usable and sustainable toilet.
- The poor are also becoming recognised as **producers** as they emerge as small-scale entrepreneurs for the delivery of sanitation services or for manufacturing products. Examples are the latrine masons in Kerala (Kurup, 1996), the male and female latrine builders in Lesotho (Blackett, 1990) and the women plumbers who played a significant role in achieving a 97% coverage for sewerage in Santiago de Chile (Alfaro, 1997; van Wijk-Sijbesma, 1998).
- They are also gradually becoming **workers** in water and sanitation projects, organisations and companies, as they gain access to training in technical or social aspects related to community work, to wages and to an income from their work.

One factor that brought this change from beneficiaries to consumers, producers and workers was the need to decentralise to local levels, due to the incapacity of central governments alone to resolve serious backlogs in the sector, and achieve higher levels of effectiveness, efficiency and sustainability. In this connection, the principles highlighted by the Household-Centred Environmental Sanitation Approaches based on the Bellagio Principles (Schertenleib and Morel, 2003) places poor men and women, consumers and producers of sanitation services, at the centre of analysis and planning, in order to ensure human dignity, quality of life and environmental security, while involving partners such as an enabling local government and other relevant stakeholders.

The livelihood approach helps to underline this analysis and to promote the need for an operational strategy in which the poor, become the main force in this effort, supported by a variety of actors such as community based organisations (CBOs), non-governmental organisations (NGOs), local government organisations (LGO) and other agencies.

The poor as citizens with access to decision-making and control over resources

As we have seen, not all poor people are the same: their access to and control over resources vary. For example, poor illiterate women may enjoy fewer opportunities to take part in decision-making about the type of sanitation facility they would like to have. Even when access to sanitation facilities has been achieved, lack of training about how to clean and maintain toilets can lead to them losing control and, eventually losing access to what they had gained.

Having control over assets helps the consumer, producer and worker to become **citizens**, engaged in informed decision-making, mobilisation, organisation and management. Citizens not only have access to resources or assets, but also the right to take their own initiatives (Helmsing, 2002) and contribute to defining policies which affect their lives. Such policies support citizens in maintaining control over and sustaining their assets or resources, and so contribute to improving their livelihoods in the longer term. This eventually contributes to improving their position in society.

Differences exist between rural communities and urban neighbourhoods in accessing and controlling resources. Those living in low-income neighbourhoods on the periphery of cities and towns normally enjoy to a larger variety of possibilities, including access to information about their rights to improved sanitation. They may use this information by taking action to gain access to improved sanitation. Once they have improved sanitation, such as use of a clean toilet, this becomes their asset, and they need to develop the capabilities to use, maintain and repair it properly, to ensure its durability. In rural areas, deprived communities have less access to information and opportunities. This changes the way that support is needed. Agencies and other actors need to organise to ensure that information is disseminated so that it can be accessed by people in rural communities.

In both urban and rural areas, enabling policies are needed to ensure a more equitable distribution of opportunities. For example, enabling policies are needed at local

government level to regulate the use of human waste for agricultural crops, and to create a local market for sanitation products and infrastructure and to provide training on sanitation issues. Without such policies, poor people cannot access the market to sell products from sanitation (fertilizers), and cannot therefore sustain control over these resources.

These policies create a legal, administrative and financial framework which establishes an institutional basis to enable the poor to take action (Helmsing and Wils, 2001) and to become citizens. As citizens, they engage in mobilising, organising and making decisions about improvements in sanitation conditions, which benefit the livelihoods of consumers, producers, workers and the citizens themselves.

Whatever the level of poverty, poor men and women are not passive beneficiaries. As empowered consumers of sanitation services, as producers or workers in the sanitation sector, they contribute to the redistribution of assets. Improvements in training and education from one generation to another, or even within a generation, contribute to changing patterns of access to and control of assets, through a larger spectrum of possibilities such as participating in sanitation committees at community level, in project design and in neighbourhood meetings to decide on sanitation tariffs.

Box 6. Decision-making makes people citizens

Dona Domingas who lives in periurban Brasília participated in decision-making meetings where the level of a new sanitation service and the technology to be used were decided. She had an influence on the level of the tariffs and the material to be used. This made her a citizen, as she was able to choose the type of sanitation best suited to her and her sons, to be trained on how to repair the system, to mobilise neighbours to improve the environment and to discuss other issues related to the development of the neighbourhood (Borba, 1996).

Due to their flair for innovation, the poor in many regions are not only gaining access to housing in urban areas, but also learning to negotiate the acquisition of land, legalise it as their property and initiate home improvements that include new sanitation facilities. They are obtaining access to work, and transforming this into a job regulated by law, with financial and social benefits. They are also receiving appropriate training to work with communities in upgrading sanitation, as in the case of CAESB, the water and sanitation company of Brasília, Brazil (personal communication).

The creation of new job opportunities for the poor as part of environmental sanitation programmes applies to both men and women. Women are taking up productive activities in the labour market as employees or as independent service providers and are gradually becoming house-owners, eligible for credit in the regular financial market.

The poor should not be left to cope alone

In this dynamic context, the poor should not be left to cope alone. Enabling policies, information, training, and other types of support have been mentioned above as an important contribution to enable communities and neighbourhoods to take action and mobilise for sanitation systems, increasing coverage and other activities. Boxes 7 and 8 below bear testimony to the importance of targeting such support also to women.

Utilities, (local) government and support agencies, associations and other organisations engaged in a facilitative process are potential allies to improve livelihoods. Whether at community level, or within agencies, local or central government departments and authorities, facilitation and empowerment are needed, not imposition. At community level, facilitation involves the relevant agency and residents in a learning and capacity building process, which contributes to real engagement by all parties, and identifies relevant actions for the short and the longer term. “Properly ‘empowered’ or at least ‘enabled’, the poor are assumed to be able to overcome deficits of infrastructure and services and exhaust their tremendous entrepreneurial potential” (Berner and Phillips, 2003). In agencies, it this approach will help staff to work on what they are best suited for, and most capable of engaging in, regarding project planning and implementation (Kar, 2003). In local or central government departments and authorities, facilitation helps officers to understand the need to place the poor – and their role in achieving better sanitation – at the centre of their analysis, and assists in developing policies to support operational activities in the field.

Box 7. Importance of information dissemination

“One of the first people to build a latrine with materials supplied by the eco-sanitation project in Malawi was Mrs Sankhepo Mvula, a relatively well off (in rural Malawian terms) woman. She paid MK150 for a slab produced as part of the mason training process, plus labour for digging the pit, walls and roof, half bag of cement, window blocks for decoration. When Mrs Mvula was asked why she had not built a latrine before the project, she replied that she had always wanted one but didn’t know where to buy a latrine slab. This prompted the question, how many more Mrs Mvula’s are there in Embangweni? How many more are there in Malawi? Are people willing to build their own latrines without subsidy and simply lack access to a supplier of good quality materials and the necessary advice?” (Sugden, 2003)

In this approach, local structures become the means or channels that help the poor to achieve greater involvement in decision-making about:

- Sanitation improvements, appropriate services, access to their benefits and control over them
- Training and education for informed choice and more efficient service delivery
- The promotion of products and mobilisation

-
- Advocacy to commit household members to behavioural change regarding hygiene practices
 - Peer discussion to strengthen their power of negotiation with other partners
 - Financing issues, which includes support and organisation for community members to actively participate in discussions about levels of service, choice of technology, tariffs and contribution levels
 - Operation and maintenance (O&M), and other topics

Although the poor in both urban and rural areas make efforts to find ways to improve their livelihoods and use the possibilities offered by human excreta, the channels mentioned above are likely to be more available in urban settings, where a larger variety of actors is physically visible and access to organisations is easier than in the rural areas. These organisations include training institutes, local government departments, external support agencies, water and sanitation company offices, private sector providers, NGOs and CBOs, just to mention some of the main actors.

Box 8. Importance of training

In Kerala, as in other parts of India, masons are generally men while women are mason-helpers who do unskilled manual work. They work on temporary contracts and are often treated badly and sexually abused. When the migration of craftsmen to the Gulf States caused a shortage of masons, the Socio-Economic Unit Foundation (SEUF) began to train groups of women mason-helpers to become skilled latrine block-makers and builders. Some 1,200 women have been trained as masons and 250 have developed into fully skilled construction workers in a cooperative in the housing industry. The training and group-work built the women's self-confidence and skills to solve problems together. The shift from helper to mason has doubled their income and enhanced their status and (self) respect (Wijk-Sijbesma, 2003).

Evidence has shown that it is often NGOs, local government, multi/bilateral agencies or even wider associations of (well trained) CBOs that stimulate local poor settlements to organise and take action together (Helmsing and Wils, 2001).

However, it is interesting to note in this connection that the participation of CBOs and NGOs specifically in human excreta issues is relatively insignificant. This is the case in Latin America, for example, as shown by a literature review on the subject (Borba, 2003). Cacanowski found that the activities of CBOs and NGOs regarding human excreta worldwide are rather limited in number and in capacity (Cacanowski, 2003). Enabling policies should provide for a more active participation in sanitation by such important actors. This should also be an important action point for CBOs and NGOs, so that they take participate more strongly in finding ways to support the poor on sanitation issues.

Directly or indirectly supporting the poor to improve their livelihoods through sanitation

Studies suggest that support for the provision of sanitation infrastructure can directly or indirectly contribute to improving livelihoods, and thereby to improving life conditions. Direct support refers to the implementation of sanitation infrastructure which will produce an income such as eco-sanitation producing fertilizers. Indirect support can for example consist of training to help the poor choose the sanitation infrastructure they need, which will eventually bring higher levels of health and hygiene.

Direct support to livelihoods comes from the poor people's participation in the design and the choice of infrastructure, the type of technology and the level of service, which may help them to enjoy appropriate facilities in their household, with the consequent higher levels of health and a cleaner environment, making it more possible for them to engage in productive activity. Beyond the household, direct support means facilitating engagement in productive activities and in accessing markets. The literature presents a wealth of examples, such as EcoSan latrines (the ArborLoo, the Fossa Alterna, the Skyloo²) (Sugden, 2003), studies on the use of faecal material for soil reconstitution and as soil fertilizer (Montangero, et al 2001), organic waste used in pisciculture (Lindberg and Nylander, 2001) and forestry, waste water treatment and reuse for urban agriculture (Rose, 1999; Keraita et al, c. 2000; Bunting, et al 2002), and a diversity of small-scale independent providers of sanitation services tailored to individual households' needs and incomes, and to municipal work in clearing roadsides. Some examples of productive activities involving human excreta are manual cleaners, suction truckers, masons, public toilet operators and small-bore sewerage maintenance workers (Vézina and Collignon, 2000). In addition, there are private consultants who execute awareness-raising projects, manage programmes and design facilities (Coad, 2003). Sanitation companies provide employment and a source of income for thousands of workers in the various regions of the world.

Indirect support to livelihoods (rather than physical inputs into production processes) includes technological support, training, capacity building, organisational development and lobbying. NGOs/ CBOs in the studies aimed to persuade others to adopt policies and practice that served the goals of social equity (Cavill et al, 2001).

Attention should be given to identifying of what type of support will further enhance the efficiency and effectiveness of sanitation interventions enabling the poor to act as consumers, producers, workers and citizens.

² For a brief description of these see section 5.2.

3. Links between sanitation and poverty, health and environment

3.1 Consequences regarding morbidity and mortality

The role unsafe sanitation plays in the disease/poverty cycle is well known: poor sanitation leads to sickness and disease, which lead to low productivity, and, consequently, to poverty. By contrast, individual household and community development projects, through the management of human excreta, have brought interesting results for the community and the improvement of household health and well-being, as well as having a positive impact on the environment.

“When poor people fall ill, they lose income and may lose their jobs. Other family members have to spend scarce resources on treatments and may have to stop working, or attending school, to care for sick relatives. Valuable time, energy and resources are absorbed in household-level care, which would otherwise be put to productive and educational use” (Scott and Govindan, 2003).

The major global consequences of lack of sanitation are the 4 billion cases of diarrhoea reported each year between 1990 and 2000, and the annual death toll of 2.2 million people (WHO-UNICEF, 2000). In 1998 in Brazil, 65% of all hospital beds were occupied by children less than 10 years of age whose diseases were linked to the lack of effective sanitation programmes (Água e Cidade, c. 2000).

The impact of sanitation on human health is the most widely recognised benefit of good sanitation and hygiene practices. The figures in Table 1 below confirm this.

Table 1. The impact of sanitation, water and hygiene on morbidity by diarrhoea

Water and Sanitation measures:	% decrease in cases of diarrhoea:
Water and sanitation	30
Sanitation (improved excretal disposal)	36
Improved hygiene	33
Quantity of water	20
Water quantity and quality	17
Water quality	15

Note: There is not complete consistency between these figures (for example, Quantity of Water 20% but Quantity and Quality only 17%) because the figures come from different cases.

Source: AGUASAN, 2003, quoting Esrey et al, 1990-1991

It is clear from these data, that when sanitation is taken by itself, health improves at a higher level than through provision of water alone. The same can be said about hygiene interventions.

Most of all, the health of women and girls is affected by the lack of safe sanitation. In rural areas, where open defecation is a rule, women and girls will wait until dark, risking acute intestinal problems. They also tend to defecate in remote places, a risk especially for girls (See Box 12 in section 3.3).

For children living in urban slums, improved water , sanitation and hygiene means they are less likely to contract water-related diseases and they can live in a more hygienic environment, both at home and in the wider community (WELL Briefing Note 6: <http://www.lboro.ac.uk/well> - publications). Poverty and household vulnerability are important factors in the incidence of diarrhoea in children under five (Box 9).

Box 9. Livelihood factors and sanitation-related disease

In Bangladesh, more than 15% of the under-five mortality is due to diarrhoeal disease and in many communities 40% of the overall morbidity is due to water and sanitation related diseases. Links between the incidences of diarrhoea in children under five years old are positively associated with the index of household vulnerability, levels of under-nutrition and the number of children under five within the household. In addition to the human costs, the economic losses associated with these practices (diarrhoeal diseases, treatment, mortality, morbidity and labour days) have a major impact on the economy (Kar, 2003)

3.2 Consequences for the environment

“The universal goal of environmental sanitation is water and sanitation for all, within a framework that balances the needs of people with those of the environment, to support a healthy life on earth” (SANDEC/WSSCC, 1999). To achieve this goal, environmental sanitation interventions should enhance the individuals’ or families’ well-being, maximising the economic and social benefits of development, without disrupting the environmental balance.

It seems that such attempts have however failed to improve sanitation levels and to protect the environment in many regions of the world. In general, services to the poor, especially in growing urban settings, do not receive adequate attention from water and sanitation authorities, causing the contamination of urban rivers and streams. “...increasing populations, proliferation of manufactured goods, and indiscriminate discharges of untreated wastes created intolerable pollution problems.The sanitary and environmental conditions in some urban and peripheral urban areas in developing countries have become a serious threat to public health and the preservation of natural assets” (Crenan and Berry, 2003).

In general in urban areas, collected sewage is disposed of without treatment, adding to environmental pollution and contributing to important financial losses (Schiller, 2001). This is the case, for example, in six small towns in Peru. Even when 90% of houses were connected to the water supply scheme and the sewerage system and public education on WSS and hygiene training was offered to communities, sewage continued to be dumped into the nearby river. Interventions do not make sufficient use of the 'software' side of project implementation such as education and training for a better environment. In Latin America in general, suction-truckers dispose of sewage and sludge wherever they can, due to lack of appropriate dumping sites and a lack of training in environmental degradation and health hazards (Borba, 2003).

Improved drainage, sewerage and solid waste services are essential to improving the quality of life for slum dwellers (WELL, 2004).

Increasingly, solutions are being sought for both urban and rural areas. The condominium sewer system among densely populated low-income city dwellers in some cities of Brazil has reduced environmental contamination through achieving a high number of household connections and final sewage treatment. Other -- less simple -- solutions have also been found by water and sanitation utilities. In Judiaí, Brazil, population 350,000, 95% of sewage is collected and all collected sewage is treated before disposal (www.daejudiai.com.br). This indicates that simple and cheaper not so simple sewerage systems that are effective benefit low-income city dwellers, with combined waste treatment to reduce environmental impact.

An innovative and effective technical alternative to the use of drinking quality water to flush human waste is still needed, and would benefit millions of people. Ecological Sanitation is recommended by some agencies as a means of avoiding the use of water of drinking quality for flushing and of protecting the environment (Box 10). It is also considered a strong contributor to preventing the loss of economic value, by saving water and recovering nutrients (GTZ, 2003).

Box 10. The need for incremental ecological sanitation technology

“**Ecological sanitation** is concerned with using the natural fertilising value of excreta, and minimising pollution and the wastage of water and energy. Its message is for both North and South, but the majority of people in both hemispheres may not be ready for it. Taboos, cost and convenience may deter many from installing “ecosan” toilets and using the excreta in the proposed way. If farmers understand the benefits and safety of using urine and composted faeces, they will value this approach and use toilet facilities in the correct way. The private sector could become more involved in emptying composting toilets, seeing composted excreta as a resource and a business opportunity.

“However, promoting ecological sanitation in some settings could be like telling people that they need a car when a bicycle would meet their needs and suit their resources. Here, a stepwise development, beginning with a simple latrine, might be more appropriate than an insistence on immediate transition to ecological sanitation. Offering a range of sanitation alternatives, rather than one latrine design for all, would provide a selection of alternatives according to a variety of social and economic factors (including ability to pay) so that each household has a sense of ownership and responsibility.” (AGUASAN, 2003)

Ecological Sanitation is one alternative included in the Household Centred Environmental Sanitation (HCES) approach, which was defined under the ‘Bellagio Principles’³. This approach was developed by the Water Supply and Sanitation Collaborative Council (WSSCC) working group on Environmental Sanitation. It focuses on solutions to correct unsustainable practices regarding sanitation planning and management (Schertenleib, 2003). HCES makes the household the focal point of environmental sanitation planning, based on the idea that the solution to problems can be found in the place where the problems occur. It focuses on the social, economic and technological aspects of conservation, recycling and reuse of resources (Box 11).

³ The ‘Bellagio statement: Clean, healthy and productive living: A new approach to environmental sanitation’ by EAWAG SANDEC/ WSSCC, is available as a PDF at http://www.sandec.ch/EnvironmentalSanitation/Documents/Bellagio_Statement.pdf

Box 11. The characteristics of HCES in an urban setting

Household Centred Environmental Sanitation (HCES), focuses on creating and maintaining conditions whereby:

- People lead healthy and productive lives
- The natural environment is protected and enhanced

The HCES approach in Urban Environmental Sanitation Services (UESS) is:

- Multi-sectoral: accounting for water supply, sanitation, storm drainage and solid waste management
- Multi-actor: emphasising the participation of all stakeholders, beginning at household level, in planning and implementing UESS
- Based on household 'effective' demand, leading to sustainable, balanced services
- Based on the concept of 'zones', and solving problems within the 'zone' nearest to where the problems arise

The HCES approach is based on a 'circular model', which emphasises resource conservation and reuse to reduce waste disposal, in place of a traditional linear model of unrestricted supply and subsequent disposal.

A guideline for the implementation of the HCES approach for better urban environmental sanitation services (UESS) was published under the WSSCC Water, Sanitation and Hygiene (WASH) programme (WSSCC/SANDEC, 2004). It presents a 10-step process for developing neighbourhood / catchment UESS programmes using the HCES approach, integrating these into the broader municipal environmental services programme, and implementing them.

The use of waste water for urban agriculture under the right sanitary conditions, already mentioned as a contribution to poverty alleviation (WASPA⁴), preserves a clean environment. One of the ideas behind this statement is that the controlled use of waste water can help decrease the pollution of surface water. Although both urban and rural initiatives may face difficulties in achieving poverty reduction, improved health improvements and environmental protection, they may contribute, directly or indirectly, to enhancing people's livelihoods and their lives.

3.3 A brief note on gender differences regarding sanitation and the livelihoods dimensions

Most documents and available literature on human excreta disposal, transport, processing, management and re-use, fail to give gender sensitive information. It is important that a

⁴ WASPA, Wastewater Agriculture and Sanitation for Poverty Alleviation, is a joint initiative of IWMI, STREAMS and IRC – see <http://www.irc.nl/page/13348>

people-centred approach explicitly recognises gender implications of policies, strategies, programmes and interventions in the field. There are however some good examples. Most recently, relevant sector discussions have drawn attention to the need to design gender-sensitive programmes to achieve higher levels of sanitation coverage, efficiency and effectiveness, e.g. the South Asian Ministerial Conference on Sanitation of October 2003 (SACOSAN, 2003).

Gender sensitivity recognises that women play different roles from men, and occupy different positions and that consequently their needs and motivations regarding sanitation issues are often very different. A gender sensitive people-centred approach recognises that the capabilities, activities, assets, entitlements and the distribution of burdens and benefits may also be of a different nature.

In performing a variety of activities to improve their livelihoods, women may be both constrained and supported by their traditional roles: the reproductive or biological role, the productive role, their role in home economics and maintenance and their community management role. Equity in opportunities to access assets and entitlements are often determined by these roles and by the position women occupy in society. How does this affect their access to the human, natural, social, financial, physical and political resources that make up the essential components of livelihoods? How do the differences between poor men and women surface in such a context? It is unfortunate that most literature and documents on human excreta disposal, management and re-use are not specific about gender. What follows is an attempt to make-up for such a failure.

Natural resources – Transforming and / or using human excreta as a natural resource for composting and sludge for farming for domestic or productive use is, in general, an activity performed by men.

Human resources – Women's knowledge and capabilities concerning human excreta management comes mainly from their conventional role of cleaning and maintaining hygiene, constructing sanitary structures, digging pits, and preparing and using compost. Although women masons may be found in many regions, it is mostly men who are engaged in construction. Although women masons fulfil an important role and are careful and expert constructors, physical fitness and body structure of men would make them more fitted for hard work and women more fitted for other activities related to sanitation. In this sense, women may prefer to engage in supervision, for example, which requires knowledge on construction principles, the appropriate mixture of inputs, materials, better location of facilities and other matters.

Social resources – The capacity to access institutions, employment and work related to sanitation coverage, the management and reuse of human excreta; and the right to participate in decision-making processes and to negotiate with financiers, are often the prerogative of men, with women traditionally more confined to the household and its surroundings, especially in rural areas. However, experience has shown that with the proper procedures, women can be very vocal during meetings prepared in a gender-

sensitive way. These procedures include making sure that women can attend meetings, can sit together where they can properly hear and see and have opportunities to speak out, getting time for internal discussion and reaction and, if necessary, being able to nominate an acceptable spokeswoman. Women have the knowledge and experience to participate in planning, design, setting tariffs, and even in the operation and maintenance of, for example, the condominium sewer system, (for which they are responsible). Making time available for training, meetings, and other activities is also an asset, yet women suffer greater constraints in that area than men, due to the variety of roles they perform.

Financial resources – It is mostly men who gain an income from work in sanitation coverage, management and re-use. For example, latrine truck-cleaners and those using other type of suction equipment are almost always men. As noted above, there are examples of women masons who work in the production and sale of slabs and latrine construction. There are also cases of women performing public roles such as the maintenance of public latrines and cleaning latrines in neighbourhoods, and receiving an income from it. In general, however, the work practised by women regarding cleaning latrines and hygiene practices is not paid work as it is done in the home.

Physical resources – Sanitation infrastructure such as latrines, septic tanks and simple sewer systems constitute household assets which may not be distributed in an equitable manner between men and women in the family when the value of property is defined for inheritance or for sale. In many regions of the world, women have no right to property. Men also have the advantage regarding access to sanitation facilities outside the home, since there are more facilities for men, while women may find it less acceptable to use public latrines. Opportunities for school enrolment or staying in school in the older age groups are in many situations constrained by lack of sanitary physical conditions in schools. It is widely documented that the lack of appropriate sanitation facilities in schools keep girls out of education, with serious adverse consequences on their future opportunities for paid employment. The absence of proper sanitation facilities in school or in the home has serious health consequences for girls and for women (Box 12).

Box 12. Gender impacts from lack of access to toilets

In South Asia, women and post-pubescent girls complain that if there is no toilet in the house or plot they cannot relieve themselves during the day because they can only go to the sanitation field before dawn and after sunset. This limits what they can drink during the day, and creates great problems if they have diarrhoea. Better sanitary conditions provide real benefits to women in the form of greater privacy, convenience, safety and dignity and safe hygiene practices in the family. This releases women's time and energy, much of which is invested in care of the family. Despite these apparent benefits, demand for improved sanitation from poor women and men remains relatively low. (Lidonde and Smet, 2003)

Political resources – Access to decision-making outside the domestic sphere is a man's prerogative more than a woman's, especially in societies where women are confined to the home environment.

These differences in access and control of assets, and the example given in Box 12 from Southern Asia, show that there is still a long way to go concerning equitable distribution of benefits between men and women, which are determined at an early age inside the families and communities, later by the school system and finally in the labour market. However, there are some positive developments, as roles are not static and do change, contributing to the redistribution of assets and helping both poor women and men to become citizens. More examples on this and the other situations described in this chapter can be found in Wijk-Sybesma, 1998

It would be instructive to use gender-sensitive participatory tools for an analysis of access and control over resources as well as to analyse the impact of a situation or an intervention on the livelihoods of men and women. Good examples are the Harvard Analytical Framework, the Gender Analysis Matrix (Williams and Seed, 1994) and the Methodology for Participatory Assessment MPA (Mukherjee and Wijk, 2003).

4. Lack of recognition of sanitation in poverty reduction

4.1 Water and Sanitation: the low profile of sanitation around the world

Although more attention is gradually being given to sanitation at both policy and implementation levels, it is well known that in the water and sanitation sector, there is still a much higher concentration of efforts on water supply than on sanitation. In discussions concerning improved livelihoods, water always comes first. Recently, awareness has been raised over the need to examine *water* potential for productive use. The IRC Thematic Overview Paper (TOP), by Moriarty and Butterworth on the productive uses of domestic water is a good example in this direction. The paper “looks at the broader range of uses which people allocate to their water supplies. It looks in particular at productive activities and micro-enterprises within households in villages, towns and cities in developing countries. It examines how domestic water supply can become productive and how this can contribute to people’s livelihoods, particularly those of women and the poor, thus increasing the impact of an intervention” (Moriarty and Butterworth, 2003). In their work, the authors give a wealth of information on water and livelihoods.

Attention to sanitation is gradually increasing, but it still has a lower profile in general, and in connection with livelihoods in particular.

4.2 Some of the reasons for the low profile of sanitation

There are some important reasons for the lower profile of sanitation when compared to water.

The collective aspiration for improved sanitation is low to non-existent in many low-income rural communities and in low income high-density periurban areas (Scott and Govindan, 2003). This shows the discrepancy between the real **need** for sanitation to improve life quality and the actual **demand** for it.

Sanitation is still a question of **intimacy**. In many societies, addressing water issues in households is easier than addressing human waste. Establishing a conversation on issues related to excreta may be a difficult task, especially when project teams mainly consist of men, while in the household the most interested members may be women (IRC/SEUF, 1996; Wijk-Sybesma, 1998; Lidonde and Smet, 2003).

The low-profile of sanitation has also to do with the **lack of trust** on sanitation services (public or private) when inappropriate sanitation projects do not meet the needs of the poor.

For **suppliers**, investment in water supply shows a greater return than investments in sanitation, even where demands exist. It is known that poor communities will more readily pay for water than for sanitation. (Crennan and Berry, 2003). Water vendors obtain much more profit than providers of sanitation services, even when there is local demand.

Politicians too see water supply as an investment that pays off better in terms of their political agendas, as shown by the way that politicians make use of it in campaigns (Água e Cidade, c. 2000). By comparison, getting public attention for sanitation is not an easy task.

Financial resources from governments and the private sector for sanitation and hygiene in many low-income regions are usually **insufficient** and **inadequate**. Insufficient, because there is an unwillingness to spend money when the short-term benefits are unclear (Ahmed, 2003). Inadequate, because sanitation interventions and systems do not reach all the poor in rural areas and in low-income urban neighbourhoods, which, in many cases, consist of illegal settlements.

It is a proven fact that unsafe sanitation leads to higher rates of infant mortality, morbidity and infections, contributing to malnutrition and a weaker human condition (Coad, 2003). Nonetheless, in **public health policies and programmes**, sanitation and hygiene have received far less attention than water quality.

From the **policy and institutional** perspective, sanitation also has a lower profile (SACOSAN, 2003). Policies often do not focus specifically on the poor and their needs. Other factors, such as institutional fragmentation, governments changing their role from provider to facilitator without adequate human resources development, and lack of appropriate legislation and regulation, create political and institutional constraints to raising the profile of sanitation.

4.3 The consequences of the low profile of sanitation in Asia, Africa and Latin America & the Caribbean

Differences in sanitation coverage in the various regions of the world are given in Figure 3. The region most affected by unsafe sanitation is **Asia**. Of the 2.4 billion people who live without access to safe sanitation, 1.9 billion live in Asia (SACOSAN, 2003). Although in the last decade, efforts have been made to reduce their number, still, only 39% of the population of South Asia and 48% in East Asia and the Pacific have adequate sanitation facilities. In October 2003, during the South Asia Conference on Sanitation (SACOSAN), participants confirmed that sanitation interventions are mainly focused on the better off in urban areas, while improvements do not reach low income neighbourhoods on the periphery of cities. Open defecation is still common practice, threatening the environment and the health of the population. This confirms that the most marginalised and vulnerable, the majority of the population, are usually not served (SACOSAN, 2003). Sanitation has received less attention than water supply. In rural India, for example, rural sanitation has long

lagged behind rural water supply in Indian policies and programmes. This is reflected in the implementation of sanitation projects which are carried out on a much smaller scale than rural water supply (Wijk-Sybesma, 2003).

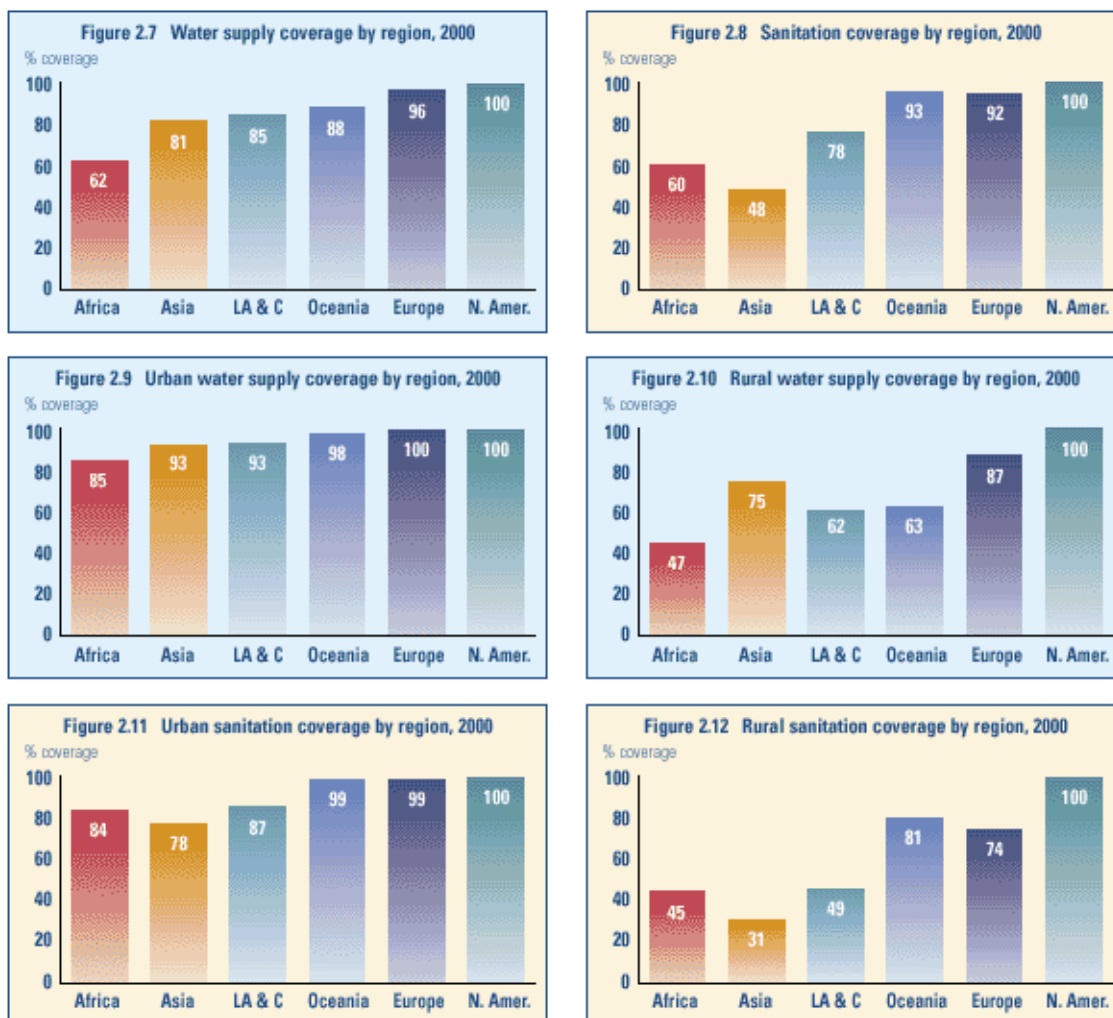


Figure 3. A comparison between water and sanitation coverage, for urban and rural areas, in the various regions of the world, 2000

Source: http://www.who.int/water_sanitation_health

In **Latin America and the Caribbean (LA&C)**, an estimate suggests that the region has relatively high service levels: in 2000 water supply coverage was 85% and sanitation 78%. Although on average the percentage of those who lack safe sanitation in LA & C (23%) is lower than the world wide figure (40%), notable disparities exist between urban and rural areas. Water coverage in urban areas is 93% while rural coverage falls to 62%. For sanitation, coverage is 87% and 49% respectively in urban and rural areas (WHO-UNICEF, 2001), ie. much lower than water supply levels. Although in Latin America coverage of sanitation facilities and systems is higher than in Africa and Asia, still much remains to be done concerning human excreta treatment. In fact, a very low percentage of

sewage collected in Latin American cities and towns receives treatment before it is disposed or ejected into rivers and other water bodies.

This is also true at different levels in other regions of the world. It is important to go beyond the bare statistics of coverage and look effective coverage (quality). In Tanzania, **Africa**, coverage appears to be good, as 98% and 86% of total population in urban and rural areas, respectively, are served with sanitation facilities (WHO/AFRO, 2000). However, the suitability and quality of the latrines is quite another issue, and sanitary conditions are deficient as a result. Many latrines in high water table areas are built without proper design, materials or technical assistance. Latrine slabs are often difficult to clean and unsafe for users. This results in poor or even collapsing structures, creating hygiene problems rather than sanitary solutions. (Shayo and Chaggu, 2003).

The main consequences of this situation are increased poverty, increased morbidity / mortality rates and environmental degradation.

4.4 Consequences of the low profile of sanitation regarding poverty

Poverty reduction, and eventually poverty eradication, has been the focus of attention of international and national development agendas. An important reference is the Millennium Development Goals (MDG) (<http://www.developmentgoals.org>) – the first one being to 'reduce extreme poverty'.

In the water and sanitation sector, much has been said and written about sanitation and the poor, resulting from discussions based on the MDG, the results of international conferences (Coad, 2003; SACOSAN, 2003; GTZ, 2003), and on work by researchers and other professionals. Most attention has been paid to the lack of safe sanitation and its direct contribution to both adult and infant morbidity rates, with considerable direct losses for the poor in terms of income and indirectly in terms of low productivity (Scott and Govindan, 2003) and lack of motivation to look for a job.

In general, lack of sanitation and hygiene facilities has a negative impact, especially for women. In urban slums, sanitation makes a significant difference to the quality of women's lives. When women can use safe sanitation facilities in private they are healthier and have more time for childcare and work which generates income (WELL, 2004).

It is gradually becoming more widely understood that lack of appropriate sanitation facilities in **schools** has led to low levels of female enrolment and/or staying on in higher levels of education and to females dropping out of school (Borba, 1998; Lidonde and Smet, 2003). Due to lack of proper education and training, at a later stage in their lives these girls will be deprived of work or a job which could contribute to poverty alleviation in the household. Box 13 lists the advantages of improved school sanitation and hygiene promotion for overall development.

Box 13. Development impacts of effective school sanitation and hygiene education

The School Sanitation and Hygiene Education (SSHE) Symposium held in Delft, the Netherlands in June 2004 (The Delft Framework of Action, www.irc.nl/page/13130) focused especially on school sanitation and hygiene. It highlighted the that effective SSHE programmes:

- Contribute to improved health, nutrition and learning performance of children
- Contribute to increased school enrolment and attendance, particularly of girls, when the school environment is safer and healthier for all children
- Lead to sustained good practices with regard to hygiene and sanitation because new behaviour developed in schools continues for years
- Improve sanitation, environmental and hygiene practices in the community
- Strengthen cooperation among local institutions and, through this, support sustainable development

The loss of economic value due to lack of safe sanitation is also highlighted by sector professionals in national and international debates and in their work (Morgan 2001; GTZ, 2003). In fact, huge quantities of nitrogen, phosphorus and potassium in human excreta, especially in urine, are wasted in sewerage systems and pit latrines. This represents a financial loss for public and private sewerage treatment services; donors and investors in sanitation infrastructure, who could recuperate some of their investments; technical support agencies who miss the chance to learn how to support this field; and, finally, by those who are most affected by poverty, poor women and men. Both rural and urban agriculture could use nutrients from human urine and faeces to improve people's livelihoods (Buechler et al, 2002).

Highly populated urbanising rural areas and low-income urban areas are generating an increasing volume of waste water, presenting a serious health and environmental threat to the population in these areas. This, combined with water scarcity and the need to respond to poverty, suggests the use of waste water and grey water – which contain high quantities of nutrients – to produce food and generate income for better livelihoods. To mitigate the health and environmental risks resulting from the use of such waters, safe and holistic approaches involving all stakeholders are needed. WASPA, the Wastewater Agriculture and Sanitation for Poverty Alleviation programme, proposes innovative approaches for waste water management and household-centred sanitation, to be adopted by municipalities for decentralised waste water collection, and its treatment and first use for urban agriculture in neighbourhoods and urban/town zone levels. This demands non-conventional decentralised waste water collection systems affordable for the municipality in investment and operation and maintenance.

4.5 Putting sanitation on the livelihoods agenda

The matrix below draws an operational map of the broad gamut of opportunities which sanitation offers to the poor and which may help them to exploit their (potential) resources and enhance their livelihoods while contributing to improved sanitation.

The first column refers to these potential resources:

- **Natural resources:** such as human excreta, soil, sand, local material, etc, which can be of use to improve sanitation and consequently enhance livelihoods
- **Physical resources:** such as latrine structures, soap, cleansing materials, spare parts, etc.
- **Human resources:** such as skills, knowledge of their own community / household aspirations and needs, knowledge of their traditions and culture, physical fitness to engage in action for sanitation improvements
- **Social resources:** such as capacity and potential for organisation, networking, mobilisation, participation, management
- **Financial resources:** in cash, kind or labour
- **Political resources:** such as their entitlement to better basic sanitation, health and a clean environment

The matrix indicates the roles the poor perform or may perform as consumers, producers, workers of sanitation in order to have access to and control over the various kinds of capital. The cells give examples of actions they can or do perform. This is indicative rather than exhaustive.

A special effort has been made to keep the focus on a people-centred strategy, in which improvements in livelihoods start primarily from the efforts of the poor themselves in their households (HH) and communities (CO), and looks at others as 'enabling' and supporting partners: community based organisations (CBO), non-governmental organisations (NGOs), private sector (PS), local government (LGO), government (departments) (GO) and others. Some poor people's allies are highlighted in **bold**.

In the Matrix, the Bellagio Principles for sanitation – which set the basis for the HCES approach - serves as a guideline to explore the ideas behind the poor as consumers, producers, workers and citizens and their livelihoods: human dignity and environmental security are central issues; decision-making involves all stakeholders, especially consumers (men and women from all socio-economic groups) and providers of services; waste should be considered as a resource, important in the nutrient flow and waste management process; waste should be managed as close as possible to its source (zonal approach). (IRC, 2003).

Matrix 1. The poor in their various roles and ways of using their capital resources to enhance their livelihood

Dimensions of livelihood: resources or assets	The consumer	The producer	The worker	The citizen
<p>Natural resources:</p> <ul style="list-style-type: none"> • Water, human excreta, soil, sand • Sludge from waste treatment plants • Nutrients from organic waste 	<ul style="list-style-type: none"> • Uses sanitation facilities/ other services in an hygiene/ effective way • Uses human waste to improve crop for household consumption 	<ul style="list-style-type: none"> • Uses human waste as entry point for production of latrines and for service delivery • Participates in excreta collection, transfer and processing for market purposes • Transforms / re-uses excreta for productive purposes 	<ul style="list-style-type: none"> • Works in organised informal sector • Works on sanitation related products and services 	<ul style="list-style-type: none"> • Can decide on uses, collection, and is entitled to the outputs of sanitation
<p>Physical resources:</p> <ul style="list-style-type: none"> • Sanitation facilities infrastructure and super-structure • Inputs such as soap, cleansing material and spare parts • Appropriate equipment and tools 	<ul style="list-style-type: none"> • Participates in choice of technology and level of sanitation service for household cluster / public standpost (with water kiosks and latrines) • Accesses inputs such as soap, cleansing materials, spare parts and infrastructure 	<ul style="list-style-type: none"> • Has access to equipment such as wheelbarrows and other tools • Has access to material - cement, spare parts, slabs, for construction/aggregation • Has access to bigger vehicles like trucks • Has a workshop / production units • Negotiates and receives financial support from enabling donors / NGOs 	<ul style="list-style-type: none"> • Has physical fitness to perform well in PS company or utility, NGO, in the organised informal sector • Has access to transportation facilities to and from work • Has access to tools and equipment 	<ul style="list-style-type: none"> • Influences the establishment of rights and entitlements over levels of service and safe sanitation technology • Claims participation / representation in decision making about the technology and the level of service

CBO = community based organisation, GO = government (departments), HH = household, LGO = local government, NGO = non-governmental organisation, O&M = operation and maintenance, PS = private sector. Allies of poor people are highlighted in **bold**.

Dimensions of livelihood: resources or assets	The consumer	The producer	The worker	The citizen
Human resources: <ul style="list-style-type: none"> • Skills • Knowledge • Physical fitness • Good health 	<ul style="list-style-type: none"> • Identifies needs of men, women, girls, boys • Has experience & knowledge of hygiene practice & diseases • Has some information about O&M. • Is able to help & train children in use of latrine • Understands environmental contamination • Elaborates schemes to help family adopt new behaviour 	<ul style="list-style-type: none"> • Has construction skills for sanitation • Has knowledge of facility designs • Has knowledge of demand from different consumers for sanitation related products and services • Has knowledge about the availability of materials and about markets • Has knowledge of environmental health and health hazards • Receives training from & discusses with NGOs/CBOs 	<ul style="list-style-type: none"> • Has skills / training on technology and services provision and O&M requirements, given by employer (NGO, PS, LGO or GO) or has access to training by third party • Has skills / receives training on hygiene practices and environmental protection • Receives training on needs and aspirations of communities regarding sanitation 	<ul style="list-style-type: none"> • Has information & knowledge about possibilities of types of infrastructure & tariffs • Has information and knowledge about the results of Research and Development (R&D) relating to technology options • Receives training and has training skills in promotion, O&M, supervision, monitoring & evaluation • Receives training on participation in and rights during assemblies (types of decision, processes of decision-making) • Has knowledge about and influences committee formation
Social resources: <ul style="list-style-type: none"> • Organisation • Mobilisation • Networking • Negotiation 	<ul style="list-style-type: none"> • Networks among peers • Organises HH members for efficient use of facility • Participates in meetings / groups / associations to discuss sanitation issues • Can use referral/alarm system to point out problems • Relates to other community members, NGOs / CBOs / LGOs 	<ul style="list-style-type: none"> • Links-up with HH and CO members • Associates with other PS producers for enhanced efficiency in the delivery of sanitation services and products. • Negotiates with LGO, GO or PS sanitation utilities for joint / complementary work • Markets products/services • Establishes complementarities / co-operation 	<ul style="list-style-type: none"> • Participates in workers' associations • Mobilises for better working conditions • Establishes networks with other workers • Participates in co-operatives as independent sanitation sector worker • Can influence the creation of demand for sanitation products and services 	<ul style="list-style-type: none"> • Organises sanitation groups for action • Participates in CO committees, on design, O&M, mobilisation • Women have access to special organisations / to build self-confidence to talk in public • Participates in networks with other COs and neighbourhoods • Participates in networks with LGOs, GOs and PS • Has dignity and self-confidence

Dimensions of livelihood: resources or assets	The consumer	The producer	The worker	The citizen
<p>Financial resources:</p> <ul style="list-style-type: none"> • Contribution in cash • Contribution in labour 	<ul style="list-style-type: none"> • Contributes labour for construction, O&M, monitoring and evaluation • Contributes cash for same issues/ or labour contribution is translated into its financial value for projects 	<ul style="list-style-type: none"> • Initiates income generating activities through sanitation projects • Has knowledge about prices / costs and possibilities of contribution by users • Is able to raise contribution from HHs, COs, NGOs, CBOs & LGOs • Has access to credit and subsidies 	<ul style="list-style-type: none"> • Receives an income or wage from work 	<ul style="list-style-type: none"> • Participates in decision making for tariffs & fees / unit costs • Is entitled to / has claims over credit & subsidies from NGO/ LGO/ GO & credit organisations • Controls contributions & has access to bookkeeping • Influences redistribution of assets
<p>Political resources:</p> <ul style="list-style-type: none"> • Rights • Entitlements 	<ul style="list-style-type: none"> • Accesses information for better decision making • Organises in pressure groups for better sanitation • Participates in assemblies to be informed of decisions • Accesses decision-making for design of technology and level of service and supervision • Accesses committee regulations 	<ul style="list-style-type: none"> • Has capacity for organisation / mobilisation of HHs, COs, CBOs and PS • Is able to establish association for public-private partnerships • Has access to decision making, design, planning, choosing technology and service level • Has the benefit of enabling policies & regulations • Has the benefit of market decentralisation 	<ul style="list-style-type: none"> • Has access to training on workers rights • Has security in job / work from employer PS, LGO, GO, NGO or in the organised informal sector • Has access to function description and a clear vision of promotion opportunities in organisation • Has rights as informal worker • Participates in workers / employees associations • Has access to norms & regulations on rights 	<ul style="list-style-type: none"> • Has access to / participates in decision making bodies / platforms / regulatory boards / sanitation committees with voice and choice • Benefits from the availability of gender-sensitive policies & programmes • Controls / monitors decision making & implementation of sanitation plans • Benefits from the availability of enabling policies and regulations from LGO, NGOs, other agencies • Can access rights even in emergencies,

The matrix does not exhaust all the issues in exploring how the poor can act as agents of sanitation development and improvements for livelihoods. It gives ideas where to look when using people-centred approaches to development, at policy, strategies and project implementation levels. Hopefully, it also offers an opportunity for further reflection on the connection between sanitation and livelihoods. There are other examples, such as a lack of space for new pit latrines in poor households (Box 14).

Box 14. Fossa Alterna solving limited space of poor rural households

A practical example of how to examine where attention can be focused on the different roles of the poor, comes from Mozambique in a case documented by Ned Breslin (Breslin, 2002):

“A woman whose family has a **Fossa Alterna** recently stated, “I will have this latrine for the rest of my life. I had no more room in my yard for new pits. I no longer need to worry about space in my yard for new latrines because I will never need to relocate my Fossa Alterna”. And it is this sentiment which is proving to be a powerful incentive for people to choose a Fossa Alterna over other conventional pit latrines.”

In this ecosan project, one could further explore if both access and control are ensured for sustainable livelihood improvements: access to information and participation in decision concerning types of technology, gender-sensitive planning, community monitoring and evaluation; training on O&M and hygiene for both men and women; availability of enabling policies to develop a market, including demand for agricultural outcomes of ecosan, access to credit, voicing views in assemblies; representation in sanitation committee, the role of other actors.

See section 5.2 for a brief description of the Fossa Alterna

5. Stories from the field: a review of practices

5.1 Sanitation and livelihoods – Stopping open defecation in Bangladesh

The community-led total sanitation approach (CLTSA) concentrates on empowering local people to analyse the extent and risk of environmental pollution from open defecation and to construct toilets without any external subsidies for the infrastructure and material. In Bangladesh, Kamal Kar, a social and participatory development consultant, in collaboration with many organisations⁵ is using the approach with success. What follows are excerpts from a paper documenting the experience and presented at the South Asia Conference on Sanitation (SACOSAN), held in Dhaka, Bangladesh in October 2003 “*Subsidy or self-respect? Participatory total community sanitation in Bangladesh*”, by Kamal Kar (Kar, 2003).

Open defecation exists in many regions of the world, in both urban and rural areas. In Southern Asia and in South-East Asia this is a century long tradition. Men squatting for defecation on both sides of the roads, railway line or in open fields and bushes are very common scenes in the mornings and in the evenings. Women also defecate in the open, but are obliged by customary modesty to do this only before dawn or after dark when they will not be seen.

The poor as consumers: To use their capacity for innovation, men and women have to understand the benefits they will get from the new behaviour. The intervention in Bangladesh takes this approach and has resulted so far in the total eradication of open defecation in many villages. The possibility of becoming owners of a toilet, however simple, is always present, which in the end will contribute to the durability of the facilities and the sustainability of the new behaviour.

The poor as producers: Through action planning, villagers started to design their own toilets, innovating on appropriate technology and the use of local and low-cost models of toilets. Nowadays, CIMs (Community Innovated Models) are in extensive use in many places in the south and in northern districts. A booklet published by The Village Education Resource Centre (VERC) publicises community evolved latrine models with drawings and pictures and the names of the community designer (VERC, 2002).

In some communities, a variety of toilets are in use, household members having decided on the types that suit them better.

The poor as citizens: The other factor for success was to allocate subsidies for motivation, training on hygiene and ways of treating diarrhoea instead of subsidising latrine construction. A participatory approach was used, where both agency staff and community members were engaged in the whole process, the first as facilitators, the latter leading the

⁵ Village Education Resource Centre (VERC), Water Aid, Integrated Food Security Programme (IFSP) of CARE Bangladesh, Rural Advancement Committee for Bangladesh (RAC-BD), CBOs, and other partners

process. This approach proved a catalyst for community participation, autonomy and self-reliance.

In general, people explored various possibilities to reduce the cost of latrines, adapting or redesigning the standard model. Savings were put into associations (especially women's associations) as an element of micro-credit funding for collective latrine construction. Private entrepreneurs and "village sanitation engineers", who develop low-cost simplified latrines have also become important partners in the programme.

Impacts on livelihoods at household level:

- Reduction in diarrhoea
- Savings from buying medicine and visiting doctors
- Increase in labour hours due to absence of sickness
- Increase in salary
- Improvement in school attendance
- Women have become strong advocates for sanitation

Impacts on livelihoods at community level:

- Farmers get higher prices at the market
- Better general health in communities
- Agencies working directly with the communities realise that communities have the ability to do things without permanent external assistance
- A new professional accessory has appeared in many communities: the toilet
- Private providers and village engineers have become common faces in villages
- Social innovations, such as slogans to promote toilets and penalties for open defecation have been introduced
- Economic innovations have emerged, such as the formation of small groups to save money for latrine slabs
- A monitoring chart has been developed from community's own ideas
- Management innovations have been introduced such as lights in orchards to prevent open defecation at night
- Institutional innovations have developed, such as weekly savings by small groups of women and weekly lottery draws to enable families to purchase latrines.

5.2 Sanitation and livelihoods – Ecological Sanitation in Malawi

Since early 2001, the Central Church of Africa Presbyterian (CCAP), in partnership with WaterAid, has been developing a latrine building programme at Embangweni in the Northern Region of Malawi. During this period, 250 latrines have been constructed by small-scale private sector organisations using a social marketing approach. The demand for eco-sanitation latrines has added an interesting dimension to the possibilities of developing a sustainable latrine building programme; that is, one where latrines continue to be built after subsidies and external support have been removed. This experience is described by Steven Sugden (Sugden, 2003) of Water Aid Malawi in his "One step closer

to sustainable sanitation: the experiences of an eco-sanitation project in Malawi” published on the Water Aid website. Below are excerpts from this project.⁶

When soil and ash are added to faeces, it rapidly breaks down to produce compost that is an asset to any farm or garden. The mixture is odourless, as long as it is not too wet. Therefore, besides being durable, cheap and easy to build, ecological latrines generate an easy to handle and rich compost over time.

A number of ecological toilets have been built, called the ArborLoo, the Fossa Alterna and the Skyloo. ArborLoo systems consist of a dry toilet above a pit about 1 metre deep. When the pit is nearly full, the toilet and superstructure are removed, the pit is filled with soil and a tree is planted on top. The Fossa Alterna is a double pit system. When one pit is 3/4 full, the concrete slab and portable superstructure are moved to the second pit, while the original pit is filled with soil and left to compost. The Skyloo is a urine diverting latrine that stores faeces and urine separately.

The poor as consumers: The project initially worked with members of the community who were enthusiastic and willing to try the new approach to sanitation. Demand grew to such an extent that the project found that it lacked the capacity to meet it. One of the positive effects was that it enabled the project to charge increased amounts of money for the concrete latrine slab which is in effect a welcome reduction of the subsidy.

The poor as producers: In Embangweni, a baseline survey showed that to some extent eco-sanitation was already being practiced. Forty seven percent of households said they planted banana trees on their old latrine pits. This shows that eco-sanitation may be an innovation in the eyes of the development professionals, but is not so new to the communities who have been practicing eco-sanitation for generations. When people saw the power of human waste as a fertilizer they quickly made the economic link with increased crop production and the economic benefits that this would bring.

The poor as citizens: Members of the community made their own choices and decisions about whether and when to invest in an eco-toilet, and they also chose which variety to install. The community demonstrated an effective communication and learning process as word quickly spread within the project area. One early innovator was so proud of his latrine and told so many people about it, that he was given the nickname “Mr Skyloo”.

Impact on livelihoods at household level:

- Households gained first hand experience of emptying human manure from the latrine pits.
- They came to understand that the pit contents are neither obnoxious nor unpleasant to handle.

⁶ Water Aid’s site has a rich collection of case-studies, many relating to the issues which are the subject of this overview (www.wateraid.org)

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- Some households have dug out their old traditional latrine pits and spread the contents on to their land prior to planting their annual crop of maize.
 - Both women and men started to teach their children about latrine use, moved by different motivations: women interested in personal and domestic hygiene and not having to deal with children's faeces, while men were more interested in having a larger amount of fertilizer.
 - Women feel safer using the children's latrine at night, as its simpler design and lack of superstructure does not offer a hiding spot for snakes and insects.
 - The amount of faeces and levels of pathogens in the area around the home were reduced.
 - Oral-faecal transmitted diarrhoea diseases within the family were reduced.
 - Women became latrine builders in cases where men refused to do it.

Impact on the communities' livelihoods:

- Eco-sanitation meets the need of farmers, as the price of industrial fertilizers is very high for low-income rural families.
- The trees resulting from eco-sanitation ArborLoo result in income generating possibilities and increased status.
- Communities themselves lead the process as ownership and development of eco-sanitation has been achieved. This leads to excellent internal promotion and allows for natural organic growth between communities.

Impact on small scale private sector providers' livelihoods:

- Women have become latrine builders / masons.
- Masons advise on and promote latrine building and supply the concrete slabs in the area where they live. They make a profit from selling latrine slabs and associated materials.
- Eco-sanitation has now become self promoting within the area.

5.3 Sanitation and livelihoods – The Condominium Sewer System in Brazil

This case study is about the use of a simplified sewer system suitable for settlements on the periphery of cities and towns. Information was taken mainly from Brazilian Association of Sanitary Engineering (ABES) and other Internet sources (ABES, 2003).

An early example was implemented in periurban Natal, the capital city of Rio Grande do Norte state in Brazil. Since then, condominium sewer systems have become the norm for sanitation services in the periurban areas of other cities in the country.

The condominium sewer system is so called because periurban communities are invited to see themselves as similar to the condominium blocks where rich people live, where residents have a common interest in making essential services work for everyone. Initially implemented by public governmental water and sanitation

companies, the condominium system is packed with innovations and differs from the conventional sewer system in a number of ways:

- The system is up to 75% cheaper than the conventional system due to simplified pipeline and tubes, a need for smaller quantities of materials and easier ground levelling.
- Simplified waste treatment plants are part of the system, which aims at 100% treatment. This has already been achieved in many urban areas using simplified sewer system.
- Users determine level of service and tariffs (in neighbourhood 'condominium meetings').
- It adopts a household-centred approach, where especially women participate in operation and maintenance, and in separating solids that might enter the system.
- Water companies decentralise their work, opening offices in periurban areas for a more participatory and facilitation approach.
- The system contributes to poor people dignity, poverty reduction, health improvements and environmental protection.
- It also contributes to other activities such as solid waste recycling (e.g. in Recife).

The poor as consumers: The conventional system does not reach the poor who suffer human indignity, living in most of the cases in illegal settlements, bordering natural water sources where human excreta and solid waste are discharged, risking disease and death from contamination and contributing to environmental degradation. Thanks to condominium sewer systems, poor households represent 100% of all new sewer connections in the last decade in many cities. Instead of being marginalised, they are now consumers.

The poor as workers: Men and women in the neighbourhood divide responsibilities regarding decision-making and implementation the new sewer system with the public agency. Neighbourhoods take responsibility for operating and maintaining facilities within the household and the condominium pipeline.

The poor as citizens: Decision-making concerning the technology and the level of service and the arrangements for participating in O&M is done in collaboration with the residents of a block. This contributes to the ownership of the system by the users, its durability and the sustainability of the intervention.

The publicly managed Sanitation Company takes responsibility for operation and maintenance of the basic pipeline. One important innovation is that staff are trained not only in the technical aspects of the system but also, importantly, about how to plan and work with poor neighbourhoods. The adoption of this system requires a set of actions for mobilisation, education, organisation and participation of the residents, as well as the involvement of the public company, the private sector service suppliers and the community regarding new forms of management and maintenance of equipment.

Impact on livelihoods at household level:

- Women in the household understand how the system works and take-up income generating activities by separating solid waste for recycling and selling.
- Household members upgrade their homes in a variety of ways once the sewerage system is installed, as the home area is now cleaner.

Impact on livelihoods at community level:

- Community members upgrade their immediate environment, cleaning plots and smartening up the surroundings.
- Neighbours adopt a new attitude regarding the service provided – changing from beneficiaries to decision makers.
- Neighbours collaborate with each other to hold discussions with the utility company, regarding tariffs and the O&M of the network inside their plots.

6. Final remarks and the road forward: points for reflection...

The unbearable sanitation situation facing the poor in many regions of the world calls for innovative and challenging approaches. Discussions at international (Coad, 2003; GTZ, 2003; SACOSAN, 2003) and national meetings point out for the need of such innovative approaches. One of these is the effort to find the links between sanitation and sustainable livelihoods.

The issues discussed in the sustainable livelihood approach are not new. What is new is the effort to focus, in a systematic way, on people as the centre of concerns and in particular on peoples' assets and capabilities to undertake innovative sanitation activities to improve their lives. While other approaches have focused on the poor as beneficiaries and later as consumers, here the effort is also to highlight the role poor people perform as producers and workers, generating an income and employment, and as citizens, who take decisions about their immediate and societal needs.

This sanitation-livelihoods linkage is very much to be welcomed, because of the tremendous need for sanitation interventions, and the recognition that governments and utilities alone will not be able to provide for the needs of the poor. Self-initiative from the poor as informed consumers, producers, workers and citizens, rather than as beneficiaries, is important, particularly in the context of decentralisation. Their allies – Local Governments, Local and Regional NGOs and CBOs – are also needed, mostly for mobilisation, advocacy and facilitation. This ultimately leads to a twofold benefit: while sanitation helps to enhance poor people's livelihoods, enhanced livelihoods help to improve sanitation.

Linking sanitation to livelihoods, with a perspective of the poor as consumers, producers, workers and citizens, ensures a holistic approach to issues of human excreta. This means that sanitation will be seen in a broader context of enabling (local) governments, community enablement, markets enablement, social and economic development and citizenship building.

Points for reflection when looking for ways of strengthening the links between sanitation and livelihoods, include:

- The knowledge and capabilities of men and women should be the basis for training for new skills in human waste issues.
- Initiatives by community members are the basis for innovation.
- The benefits of adopting new attitudes and behaviours vis-à-vis sanitation issues need to be recognised and promoted.

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- Community organisations should be recognised as the basis for community participation and management regarding sanitation.
 - More attention needs to be paid to the possibility of simplified sewer systems connected to decentralised sewage treatment plants, especially in small towns.
 - Small businesses can become important partners in sanitation services, at the same time making a contribution to enhancing the livelihoods of poor men and women through income and employment generation.
 - Small scale service providers can play a role with public or private sanitation utilities, performing complementary roles in transport, cleansing, construction of parts, and undertaking other specific jobs.
 - (Local) NGOs and CBOs need support from enabling governments and donors to take up stronger roles on sanitation issues in training, facilitating processes and mediation.
 - Scaling-up networking between households, CBOs, NGOs, LGOs, regional associations will support sanitation innovative approaches and enhance livelihoods.
 - Civil servants in government departments, government officials, workers in water and sanitation companies and project workers need to be stimulated to be more concerned with poverty reduction and to show more solidarity with the poor.
 - Enabling policies and strategies are needed to decentralise markets in order to locate them closer to the production of sanitation outputs.
 - Training for micro- and small scale enterprises needs stimulating.
 - Access to credit and marketing skills needs facilitating for producers of sanitation facilities.
 - Enabling policies by (local) governments and agencies can create an institutional channel for discussions on relevant issues affecting levels of sanitation where community members participate and voice their concerns and views.
 - More incentives are needed to study and implement sanitation interventions, such as ecosan and urban agriculture, that may contribute directly to raising an income.
 - More studies are needed on the risks of contamination and more attention should be paid to regulating the use of human waste or sludge for agriculture.

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TOP related main books, documents, articles

Community Led Total Sanitation as a Livelihoods Entry Point – A Brief Introduction.

By Katherine Pasteur, Institute of Development Studies, University of Sussex, Sept 2005

A livelihoods approach takes a holistic and integrated approach to development in communities, however a key challenge can be finding an entry point. Community Led Total Sanitation (CLTS) has been found to be an effective entry point activity for wider livelihood interventions. This document outlines the CLTS approach to sanitation, building solidarity and a sense of empowerment to take further action for community improvement. It describes experiences from Bangladesh as illustration of successes and challenges.

Livelihoods and Gender in Sanitation, Hygiene, Water Services among the Urban Poor. Maili Saba Research Report, March 2005.

www.odi.org.uk/wpp/publications_pdfs/Kenya_Report.pdf

Kenya's Poverty Reduction Strategy Paper (PRSP) recognises the links between poverty and a lack of access to water and adequate sanitation. It also highlights the particular role of women in the provision, management and safeguarding of water and sanitation services. This has fed into policy debates in the water and sanitation sectors, opening space in the policy environment for greater community control and a greater recognition of women's particular responsibilities and needs. However, if this is to make a real difference to the lives of poor women and men in informal settlements, a better understanding of some basic issues is needed. This paper provides extensive data on how sanitation (and also water) provision is linked to livelihoods and how access to benefits varies by gender and across wealth groups within informal settlements.

The Value of Environmental Sanitation – Case studies.

By Mariëlle Snel and Jo Smet (editors) Occasional Paper Series 42 IRC International Water and Sanitation Centre, Delft, the Netherlands 2006.

This paper focuses on case studies reporting experiences on environmental sanitation in Malawi, Tanzania, Ghana, Bangladesh, Philippines, Mexico and Peru. Although each of the case studies in this paper is unique, the overall goals reflect the need for further insight into the development of alternative sanitation options both in rural and urban areas. Every case study has its own introduction so that the reader can dip into a number of case studies without reading the occasional paper in its entirety, with the aim of stimulating discussion among those who are interested in the subject. The case studies give important information to aid reflection on how to use environmental sanitation as a means of improving livelihoods in rural and urban areas.

Subsidy or self-respect? Community led total sanitation. An update on recent developments.

By Kamal Kar and Katherine Pasteur

IDS Working Paper 257 November 2005 Brighton, Sussex BN1 9RE ENGLAND

This paper presents the Community Led Total Sanitation (CLTS) approach as facilitating a process of empowering local communities to stop open defecation and to build and use latrines without the support of any external hardware subsidy. Since the approach was first

pioneered in Bangladesh in 1999, CLTS has continued to spread within that country. Many interesting innovations, as well as some important sustainability issues, have emerged. The approach has been introduced in a number of other countries in Asia and in Africa with much success. Interest amongst different institutions is growing, particularly as it is realised that CLTS has a great potential for contributing towards meeting the Millennium Development Goals, both directly on water and sanitation (goal 7) and indirectly through the knock-on impacts of improved sanitation on combating major diseases, particularly diarrhoea (goal 6), improving maternal health (goal 5) and reducing child mortality (goal 4).

Closing the loop : Ecological sanitation for food security.

By Steven A. Esrey, Ingvar Andersson, Astrid Hillers, Ron Sawyer.

Sida, Publications on Water Resources no. 18

Available at http://www.ecosanres.org/pdf_files/closing-the-loop.pdf and at: <http://www.gwforum.org/gwpef/wfmain.nsf/Publications>

First Edition, 2001

ISBN: 91-586-8935-4 / Printed in Mexico

This document focuses on human excreta as a resource and not a waste. It offers the alternative approach to sanitation —ecological sanitation— where excreta is processed on site or, if required, off site, until it is completely free from pathogens and inoffensive. It shows through the description of cases from different continents (eg. Mexico and Zimbabwe) how the faeces are sanitised (composted or dehydrated) close to the place of excretion, and the composted organic matter is applied to the soil to improve its structure, water-holding capacity and fertility. It gives useful insights for those interested in enhancing livelihoods through sanitation.

Small-Scale Private Sector and CBO Participation in Human Excreta Management in Latin America: Are They Making a Difference? A Literature Review.

By Maria-Lucia Borba, IRC International Water and Sanitation Centre
Delft, November 2003. Available at

www.irc.nl/content/download/11601/170010/file/LitReview_human_waste_manag.pdf

This literature review presents the role being played by private small-scale independent providers' (SSIPs), community based organisations' (CBOs) and other actors in Latin America in sanitation coverage, maintenance and (re) use. It also gives information on who, among these, are using their involvement in sanitation to improve their livelihoods.

How to strengthen community operation and maintenance of human excreta disposal facilities in Busia Town, Tororo District, Uganda.

By Bwengye-Kahororo, E. (1997) Amsterdam, The Netherlands, Royal Tropical Institute.

This thesis reports findings of a study carried out in Busia Small Towns Water and Sanitation Project (STWSP), Uganda, to examine the problem of human excreta disposal and to recommend a strategy for marketing latrines in Busia town. The study is based on household interviews, focus group discussions with key informants, observations/inspection, and literature research. It found that there were practical problems that constrain latrine construction and use, including landlord restrictions on

latrine use, an unfavourable physical environment (hard rock and high water table) and the lack of a sustainable latrine operation and maintenance system.

Introducing ecological sanitation: some lessons from a small town pilot project in Mozambique.

By Ned Breslin. *Water, Science and Technology*, vol 45, no. 8, 2002, p. 217-224. The paper explores the development of ecological sanitation (EcoSan) within the small-town context of Lichinga, Niassa Province, Mozambique. The paper looks at how ESTAMOS (a Mozambican NGO) and WaterAid introduced EcoSan in Lichinga, how families and communities have responded to EcoSan, and key lessons learned during the process to date that could be relevant to others within and beyond Mozambique.

http://www.tu=harburg.de/susan/downloads/ecosan_lessons_mosambique.pdf

Technical brief no. 63 : using human waste. By Reed, B. ; Shaw, R. In: *Waterlines*; vol. 18, no. 3 (2000) ; p. 15-18 : 1 box; 3 fig.; 1 tab. (Available as Pdf file) Human and animal excreta has been used since ancient times as a fertilizer and soil conditioner. In Europe and North America it has been virtually replaced by artificial fertilizers, but in many other parts of the world it still plays a major role in the provision of soil nutrients. Waste recycling is promoted for both economic and environmental reasons, but the use of fresh excreta carries considerable health hazards. This Technical Brief introduces the main issues one needs to consider to both control the process and to optimise the benefits gained from using human waste, whilst minimising the threat.

The collection of household excreta : the operation of services in urban low-income neighbourhoods/ ENSIC -Bangkok, TH; Muller, M.S.- Pathumthani, Thailand : Environmental Systems Information Center, 1997. - 73 p. fig., tab. - (Urban waste series / WASTE; 6). Includes references. ISBN 9748256774

This publication deals with the collection and disposal of human excreta from pit and bucket latrines in low-income urban settlements. It includes a literature review, four case studies and a discussion on institutional aspects. The cases are from Dar es Salaam in Tanzania (MAPET, Manual Pit Emptying Technology), Ghaziabad in India (scavengers), Accra in Ghana (bucket latrines) and Yichang in China (pit and bucket latrines). It gives insights on the use of sanitation appropriate technologies for enhancing livelihoods.

Making water a part of economic development: The Economic Benefits of Improved Water Management and Services. By SIWI Stockholm International Water Institute

Available at the SIWI website www.sivi.org/downloads/Reports/CSD_Economics.pdf A report commissioned by the Governments of Norway and Sweden as input to the Commission on Sustainable Development (CSD) and its 2004–2005 focus on water, sanitation and related issues.

This report argues that improved water services and water resources management are an essential and necessary condition for economic development and growth. However, it is

also clear that the interaction runs both ways. Economic growth itself can also drive increasing investments in improved water management and services. Thus, it can be argued that the interaction between improved water supply and sanitation and economic growth is mutually reinforcing and has the potential to start a “virtuous cycle” that improves the lives of poor people.

Sustainable Livelihoods: Building on the wealth of the poor. by Kristin Helmore a development journalist and Naresh Singh of UNDP. Kumarian Press. 2001 / 144 pages. Available from <http://www.kpbooks.com/details.asp?title=Sustainable+Livelihoods>

This book positions the priorities of the poor at the front of development planning and action. Through the Participatory Assessment and Planning for Sustainable Livelihoods, the authors show how the poor can analyse their own circumstances, identify their own priorities, and launch development initiatives. The authors outline three key elements which the poor must have access to if their home-grown development plans are to come to fruition: science and technology, investments and financial services, and sound governance and policies.

TOP related websites

Livelihoods connect

<http://www.livelihoods.org/SLdefn.html>.

This site gives valuable information on relevant aspects treated in this TOP. Gives a thorough introduction to sustainable livelihoods approaches (SLA), on DFID's (the United Kingdom Department for International Development) use of SLAs and other agencies using SLAs. The community led total sanitation (CLTS) is presented as an entry point for improving livelihoods. Many projects experiences in several countries are fully reported in this site and relevant information related to the TOP is made available.

CARE International

Home page: <http://www.careinternational.org.uk>

For the livelihood approach:

http://www.livelihoods.org/info/linksEvents_Sub/linksEvents_CARE.html

Centering its interventions on household livelihood security, CARE's approach focuses on: livelihood promotion (improving resilience of households using participatory and empowering methods), livelihood protection (preventing declines in livelihood security by supporting work on vulnerability mitigation), livelihood provisioning (emergency support for key livelihood assets). CARE sees the livelihoods approach as helping to incorporate important factors like basic needs and rights. The site gives important links to documents relevant to the purpose of this TOP

EcoSanRes Ecological Sanitation Research – closing the loop on sanitation

<http://www.ecosanres.org>

This site provides useful information concerning training, events, conferences and their proceedings, publications, organisations working on the field of sanitation / ecological sanitation. It offers the possibility of downloading relevant documents linked to the issues discussed in the TOP.

GTZ Ecological Sanitation Site - ecosan - closing the loop in waste water management and sanitation

<http://www.gtz.de/ecosan>

The further development, testing and dissemination of alternatives to conventional waste water and sewage disposal systems is becoming indispensable for both economic and ecological reasons. In order to effectively and purposefully promote strategies oriented to the material-flow recycling process in the field of waste water management and sanitation and within the scope of development cooperation, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, acting on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), has started to conduct the supraregional sector project "ecosan" in May 2001.

This site includes relevant information on both the 2nd International Symposium "ecosan - closing the loop" in cooperation with IWA Specialist Group on Sustainable Sanitation held of 2003, in Lübeck, Germany and the 1st International Symposium "ecosan - closing the

loop in waste water management and sanitation" of 2000 held in Bonn, Germany. It includes the proceedings of these events and publications, events, links and contacts relevant for the purpose of this TOP.

OXFAM

Home page: <http://www.oxfam.org.uk>

For the livelihoods approach:

http://www.livelihoods.org/info/linksEvents_Sub/linksEvents_Oxfam.html

Oxfam's sustainable livelihoods approach aims to meet a need for a broad framework that accommodates issues of environmental change together with concerns about globalising markets, deteriorating economic rights, gender and wider social inequality, and the need to strengthen deprived people's participation in the development process.

Oxfam flexibly uses a sustainable livelihoods checklist and framework in project appraisal, planning and review. Experience has shown that in order to make sustainable livelihoods operational, it is necessary to combine some conceptual analysis with a range of existing project management and analytical tools, including PRA.

SANDEC

http://www.eawag.ch/d_welcome.html

SANDEC is the Department of Water and Sanitation in Developing Countries at the Swiss Federal Institute for Environmental Science and Technology (EAWAG) in Duebendorf, Switzerland. Its activities centre on problems of sustainable development in economically less developed countries. Its mandate is to assist in developing appropriate and sustainable water and sanitation concepts and technologies adapted to the different physical and socio-economic conditions prevailing in developing countries.

The site presents relevant information on solid waste management, rural and periurban water treatment, material flux analysis, faecal sludge management, decentralised waste water treatment and urban agriculture. The site offers a wealth of information and events, with updated publications and news sections. It has, for example, a comprehensive list of publications on On-site Sanitation Management from 1998. A visit to the SANDEC site is recommended for those interested in this TOP.

Sanitation Connection – An Environmental Sanitation Network

<http://www.sanicon.net/home.php3>

This website includes updated news on sanitation, information by regions, themes (financial, institutional, health, etc.) and related topics (ecological sanitation, emergency sanitation, participatory approaches to sanitation, etc.)

It presents relevant references in terms of publications and websites under the topic of Ecological Sanitation ("ecosan"). It defines Ecological Sanitation as a cycle, or closed-loop system, which treats human excreta as a resource. In this system, excreta is processed on site until free of pathogenic (disease-causing) organisms. Thereafter the sanitised excreta is recycled for agricultural purposes.

Key features of ecosan are prevention of pollution and disease caused by human excreta; treatment of human excreta as a resource rather than as a waste product; and recovery and recycling of the nutrients.

The World Bank Water and Sanitation Project WSP

<http://www.wsp.org>

Poverty reduction, the citizens voice in service provision and public reform, gender mainstreaming and other actual topics are addressed on this site.

Publications (in English and the languages of the regional offices), events, news, newsletters, links to other sanitation sites are offered.

Key WSP publications on sanitation and sustainability may be downloaded from the site, which also examines how the poor can assess the benefits of water and sanitation projects. Links to IRC International Water and Sanitation Centre and its partners are indicated in the site. Has a wealth of documents on sanitation and the poor

UNDP United Nations Development Program

Sustainable Livelihoods: building on the wealth of the poor

http://www.livelihoods.org/info/linksEvents_Sub/linksEvents_UNDP.html

This site introduces the Sustainable Livelihoods approach by the UNDP in some detail and attempts to redefine development in terms of exploring what poor people already have. It seeks to direct the focus of development thinking toward supporting the talents, the knowledge and the expertise of individual men and women.

Water Aid

<http://www.wateraid.org.uk/>

WaterAid is an international NGO dedicated exclusively to the provision of safe domestic water, sanitation and hygiene education to the world's poorest people. The site offers information in English, French, Portuguese and Spanish, with links to country pages and publications. It offers a wealth of information on ecological sanitation and other topics of interest to this TOP, such as the influence of good water and safe sanitation for poverty reduction. This TOP describes projects supported by WaterAid (Bangladesh and Malawi) are analyses their impact on livelihoods.

Water, Engineering and Development Centre (WEDC)

<http://info.lboro.ac.uk/departments/cv/wedc/>

The WEDC site includes information on education and training, research and consultancy work in the fields of their expertise: emergency water supply and sanitation, enterprise development, environment and health, hydroinformatics, institutional development, knowledge management, solid waste management, transport and urban services.

WEDC is linked to Loughborough University in the UK and one of their main concerns is to improve the health and the well-being of the poor. Their website offers relevant information for the purpose of this TOP.

TOP contacts

Amah Klutsen

Centre Régional pour l'Eau Potable et l'Assainissement à faible coût (CREPA)

03 Ouagadougou

Burkina Faso

Tel: +226 50 36 62 10 / +226 50 36 62 11

Fax: +226 50 36 62 08

crepa@fasonet.bf

<http://www.reseaucrepa.org/index>

Andrew Cotton

Senior Programme Manager, WEDC and Director of WELL

Tel: +44 (0)1509 22

a.p.cotton@lboro.ac.uk

Arno Rosemarin

EcoSanRes:

Stockholm Environment Institute

Kräftriket 2B

10691 Stockholm

Sweden

Tel +46 (0)8 674 7070

Fax +46 (0)8 674 7020

arno.rosemarin@sei.se

Christine Sybesma

IRC International Water and Sanitation Centre

P.O. Box 2869

2601 CW Delft, The Netherlands

Tel: +31 (15) 2192939

Fax: +31 (15) 2190955

Christine Werner

GTZ Ecosan

Tel.:+49 6196 794220

ecosan@gtz.de

Edward D. Breslin,

WaterAid Country Representative Mozambique

CP 276, Lichinga, Niassa Province, Moçambique

Wateraid-mz@teledata.mz

Jo Smet

IRC International Water and Sanitation Centre
Senior Programme Officer
Kampala, Uganda
smet@irc.nl

Katherine Pasteur

Institute of Development Studies,
University of Sussex
k.pasteur@ids.ac.uk

Maria-Lucia Borba

University of São Paulo (USP)
São Paulo, Brazil
Tel: +55 (11) 41860841
mlborba@usp.br

Richard Holden

National Sanitation Operations Manager, Mvula Trust
PO Box 32351, Braamfontein, 2017
Tel: (011) 403 3425
Fax: (011) 403 1260
Richard@Mvula.co.za

Steven Sugden

London School of Hygiene & Tropical Medicine
University of London
Room: 383 Keppel St
Telephone: 00 44 20 7958 8153
Fax: 00 44 20 7636 7843
Steven.Sugden@lshtm.ac.uk

About IRC

IRC facilitates the sharing, promotion and use of knowledge so that governments, professionals and organisations can better support poor men, women and children in developing countries to obtain water and sanitation services they will use and maintain. It does this by improving the information and knowledge base of the sector and by strengthening sector resource centres in the South.

As a gateway to quality information, the IRC maintains a Documentation Unit and a web site with a weekly news service, and produces publications in English, French, Spanish and Portuguese both in print and electronically. It also offers training and experience-based learning activities, advisory and evaluation services, applied research and learning projects in Asia, Africa and Latin America; and conducts advocacy activities for the sector as a whole. Topics include community management, gender and equity, institutional development, integrated water resources management, school sanitation, and hygiene promotion.

IRC staff work as facilitators in helping people make their own decisions; are equal partners with sector professionals from the South; stimulate dialogue among all parties to create trust and promote change; and create a learning environment to develop better alternatives.

IRC International Water and Sanitation Centre

P.O. Box 2869

2601 CW Delft

The Netherlands

Tel. +31 (0)15 219 29 39

Fax. +31 (0)15 219 09 55

E-mail: general@irc.nl

Internet <http://www.irc.nl>



IRC International Water and Sanitation Centre

P.O. Box 2869
2601 CW Delft
The Netherlands

Telephone: +31 (0)15 2192939 Fax: +31 (0)15 2190955
E-mail: general@irc.nl Website: www.irc.nl