30th WEDC International Conference, Vientiane, Lao PDR, 2004

PEOPLE-CENTRED APPROACHES TO WATER AND ENVIRONMENTAL SANITATION

Driving policy change for decentralised wastewater management (DWWM)

C. Heymans, F. McCluney and J. Parkinson, U.K.

Centralised approaches often run counter to people-centered management of wastewater. Large areas are not served by formal facilities and existing systems are often overloaded and poorly maintained, with major effects especially for poor people. A possibly more people-centered alternative may be to adopt a decentralised approach that locates planning and aspects implementation at community level and enhances local ownership of wastewater management. (DWWM). Although DWWM should not be considered to be a panacea, this paper presents a number of decentralised options and considers their implications. To implement decentralised options requires more than local initiative – a supportive cross-cutting policy environment is crucial to move initiatives beyond a pilot scale. The paper considers the requirements of an effective enabling policy and what it means in practice It argues for holistic, inclusive and replicable policies that link to the wider context of poverty reduction within a cross-cutting framework of good governance in decentralised political administration.

Introduction

As cities grow and water supply systems extend, more wastewater is produced. Yet, it is doubtful whether more than 10 percent of wastewater produced in South and South-East Asia is treated before being discharged to a watercourse or used to irrigate agricultural areas. Much of this wastewater includes black water, created when water is used to flush faecal solids, and threatens the environment and, if used for food production, the health of workers and consumers, especially poor people.

Centralised approaches have had limited success to make wastewater management people-centered and effective. Large areas in most cities are not served by formally provided sewerage. Facilities are often overloaded and poorly maintained and the wastewater flow is often re-directed to by-pass them. Even where sewerage systems exist, they often collect only a small proportion of the wastewater produced, and the remainder is discharged to open drains or disposed of locally. The World Health Organization (WHO) estimated in 2000 that only 35 percent of wastewater collected by sewers is treated.

One possible response is to decentralise wastewater management, making it locally organized and people-driven. To make this replicable, however, requires a supportive policy environment. This paper explores what a supportive environment might mean in practice. It draws on experience from South Asian countries and on case studies in Bangladesh and Vietnam through DFID-funded GHK research

'Capacity Building for Effective Decentralised Wastewater Management'.

Conceptual issues

DWWM can take different forms. The first involves the devolution of management responsibilities for local components of a physically centralised system. The second involves physical segregation of various infrastructure components from the arrangements for service delivery. The third area of DWWM involves devolution of decision-making to make planning processes more people-centered.

Reference to at least two relevant conceptual notions is necessary. First, the World Bank's 1994 Development Report introduced the concept of 'unbundling', which proposed the differentiation of clear roles for different actors both in and outside government in the policy-to-delivery chain (Also see Wright 1997). Decentralisation is more than unbundling, but also requires clear demarcation of roles and responsibilities.

Second, the Household Centered Environmental Sanitation (HCES) approach provides a theoretical framework for people-centered DWWM, emphasising that wastes should be viewed not as a problem, but as a resource to be managed as close to their source as possible. The responsibility for making and implementing decisions should flow from household to community to city, rather than the other way around (Schertenleib and Morel 2003).

Examples of decentralised systems

Examples of household wastewater disposal are found throughout the world. The majority of examples incorporate some form of cesspit, aqua privy or septic tank. In general, they result in improvements in household sanitation, but the unregulated disposal of effluent and septage can cause

a threat to environmental health conditions, especially when reused for irrigation or aquaculture.

Although less common, there are examples of DWWM systems that manage wastewater in a way that reduces environmental health problems. Examples in Asia include systems based on constructed wetland treatment in Nepal (Shrestha et al. 2001); systems incorporating baffled reactor septic tanks in India and Indonesia (Sasse 1998).

Examples of efforts to devolve management responsibilities for local components of more centralised systems include the community-built systems in Malang, Indonesia (Foley et al. 2000) and sewerage initiatives in Pakistan, based on the Karachi-based NGO Orangi Pilot Project's distinction between internal and external facilities. The model for sanitation provision distinguishes between 'external' facilities, which it argues should remain the responsibility of government, and 'internal' facilities, which can and should be managed by the communities that they serve (Hasan 1997). This model, which has also been adopted by a number of other NGOs in Pakistan, is seen to offer a viable model for decentralisation, but is limited primarily by the lack of a supportive institutional and policy framework endorsed by government.

In India, SPARC, Sulabh International and other NGOs promote various forms of devolved management for communal sanitation facilities, which may be connected to municipal sewers (Burra et al, 2003). In Bangladesh, the NGO, DSK has initiated a system for desludging septic tanks and leach pits in Dhaka, which is currently managed by the NGO employing local 'sweepers' but may be replicated to involve the small-scale private sector entrepreneurs. In areas where urban density is high, as in Dhaka, this approach is also reliant on the availability of a centralised collection system, but could operate in a completely decentralised mode in peri-urban areas. Another NGO in Bangladesh, PRISM, has developed a system that involves a combined wastewater treatment and resource recovery utilising duckweed ponds (Iqbal 1999). In the case of Mirapur, this system operates in a decentralised manner, but in Khulna the facility, extracts wastewater from an existing outfall drain in which flows urban wastewater.

Some of these initiatives incorporate innovative administrative arrangements. For instance, the Khulna wastewater treatment initiative is supported by a Project Advisory Committee, which is chaired by the local mayor and as such provides a link to formal systems of governance.

In Vietnam, peoples' committees take responsibility for wastewater collection and disposal in some areas. In Hai Ba Trung district and other peri-urban areas and small towns, communities have participated in small projects for upgrading or construction of new sewerage lines in the local area, funded through a mix of public funds and community contributions. In metropolitan Hanoi, the Sewerage and Drainage Company (SADCO) has been contracted by the City to manage sewerage on the basis of quantitative and qualitative economic and technical norms and unit prices. It has also been made possible for communes to take responsibility for wastewater collection and disposal, and a number have done so, basing their efforts on household participation and resource investments.

These projects demonstrate how decentralized approaches may be more responsive to local needs, for example by extending coverage to serve the local population. However, few initiatives have gone beyond a pilot scale and have tended to be led institutionally by NGOs rather than government.

However, DWWM systems are generally not perceived of as part of a city-wide approach, for a number of reasons. First, the national policy context has not yet shifted to acknowledge the benefits and therefore encourage DWWM initiatives. In addition, ideas around the decentralised or the unbundled approach are not widely accepted as the norm and supported by appropriate legal systems and procedural arrangements. This is partly due to insufficient lesson-learning from successful initiatives. To achieve a wider take up of the DWWM approach, a more conscious emphasis on the policy environment is necessary. This is elaborated on in the next section.

The need for enabling policy

Ensuring that the overall context is favourable to improved wastewater management requires both a strengthening of people-centered urban management practices and the introduction of supportive crosscutting policy. Effort is required at a municipal level, where there are political incentives to respond to local level demand. Where local communities lobby around wastewater problems, local governments may be encouraged to respond. However, the issue of DWWM is not simply local; national policy guidance or cooperation between levels of government is important to create an enabling approach.

The first principle national policy could help establish is that decentralised wastewater management is an option, and not a panacea. Reality is that decentralised facilities and systems may be appropriate for some areas and not for others. For example, the Bangladesh case study suggests a number of factors that limit the scope for DWWM approaches: the availability of land for disposal sites; the levels of contamination from industrial waste; and financial constraints. However, by considering DWWM as a clear policy option it is recognized, and while not appropriate for all circumstances, it may be considered as one option for the delivery of system for wastewater collection, treatment and disposal (Hasan, M., Uddin, N, and Parkinson, J. 2004).

Second, wastewater management cannot stand alone. The issue of wastewater management is important because it affects the environment, health and livelihoods of communities. However, it cannot be seen in isolation from issues such as land availability, local culture and other considerations. Decisions about wastewater management should be dealt with in the context of broader policies and initiatives on sanitation, the environment and urban management. The policy framework is the main vehicle for aligning practice in diverse areas and the basis for managing the linkages.

Third, initiatives should build on existing realities and respond to actual problems and opportunities. There is little sense in imposing wastewater management schemes on communities where there is no perceived local need. It adds considerable momentum to implement if wastewater is perceived as an important local issue. Awareness raising around the benefits of DWWM can cement projects in the long run. But it still requires that people turn that awareness into a locally-driven demand. The initiative taken at commune level in Vietnam for example, points to a core level of awareness that is needed and could be used to build such momentum (Viet Anh Nguyen et al. 2004).

Fourth, policy should be enabling, not prescriptive.

Wastewater management policy aimed at supporting decentralization should provide guidance on quality standards for wastewater that is used for either irrigation or aquaculture and/or discharged to natural watercourses. A good reference point may be, for example, the WHO's recommended standards. However, in wastewater management, regulatory concerns are often about countering restrictive conditions, rather than prescribing new ones. Sound policy should therefore aim to provide an enabling environment that aims to remove unnecessary restrictions and not to be overly prescriptive, as this will restrict initiatives at the local level. Typical restrictions constrain the scope for 'unbundling' of responsibilities to private sector operators and community organisations; or adjustment to health and environmental requirements that are unrealistically high.

Fifth, policy should promote replicable practice. While recognising the overall need to adopt an enabling rather than a prescriptive approach, and for focusing on letting local processes unfold, it is wise to generally discourage initiatives that have no chance of being widely replicated, or that do not make clear provision for some form of recovery of operation and maintenance costs. Wastewater management beyond the boundaries of the local neighbourhood is essentially a public good, and it may therefore be appropriate for the policy to encourage indirect cost recovery, for instance through property taxes or surcharges on the water supply tariffs. Policy should discourage politicians and others from providing free facilities in an attempt to garner votes. This will undermine sustainable approaches to drainage improvement. It may also result in the provision of facilities and services for which there is no real demand or commitment to operate and maintain them.

Developing and managing demand for improved policy

None of these policy principles will have much impact unless there is a demand for improved wastewater management from municipal authorities and the population as a whole. This requires an understanding of the drivers of change in a community and society, and the success with which coalitions for policy reform can be built around the issue of wastewater management.

Policy needs ownership at the local level. Centralised policies need to be discussed translated and developed before they will be adopted and implemented at the local level. For example, working closely with local core groups such as the Project Advisory Committee in Vietnam is an important part of this approach, because it raises awareness, is people-centered and adds momentum to local effort. One way of assisting such groups is to provide support on the financial and technical issues at a policy level. This support should assist stakeholders in developing local plans for wastewater management that are grounded in local realities, draw upon local resources, and link wastewater issues to the wider development priorities. For this reason, the GHK research Capacity Building for Effective DWWM is also aimed at assisting in the development of planning guidelines and training modules to help orientate local stakeholders.

The starting point for capacity building is to identify and engage those with an interest in improved wastewater management (such as politicians, senior government officials, NGOs, international agencies and perhaps representatives of farmers and stakeholder who use wastewater associated with income generating activities). Formal initiatives can include mobilising the most actively interested together into a core group, dedicated to the cause of improved wastewater management. Changing policy requires champions of the issue, willing to drive the agenda, mobilise the relevant interests around the issue, and coordinate activities. Often, international agencies or NGOs play this role, although the aim should always be to develop local 'ownership' as soon as possible. Armed with such driving force, it then becomes possible to raise awareness and advocate new approaches, and bring wastewater management onto the public agenda. As the process unfolds, and the pressure grows, it becomes possible to invite technical expertise, to assist in exploring viable systems, and to assess existing policies, rules and procedures on wastewater management.

Rooting this in local processes is a clear strength, as it strengthens the momentum from people with an interest in actually changing the situation on the ground. The effects are often powerful – for example, in Malang, Indonesia, the slum dweller who initiated local community-built schemes in the city is now employed by the municipal authorities to encourage other groups to take similar action. There is considerable potential to achieve similar impact in Vietnam, for example, where some communes and District People's Committees have initiated and implemented local wastewater management schemes that have brought new knowledge about technological options and gave birth to considerable institutional innovation. This could drive forward further reforms.

Momentum can be strengthened through bringing in other local or international experiences, and by documenting local progress. But the real value of a decentralised approach lies in the local potential to develop models appropriate to the local context.

Conclusion

The conventional approach to wastewater has been to collect water and sludge and bring it to a central point for treatment and disposal. Such systems have had limited effect, and the view is gaining ground that decentralisation offers a strong alternative because it makes wastewater management more people-centered by emphasizing the role of households, communities and decentralised municipal structures in wastewater management.

The challenge is to ensure that control measures and technologies provide protection to the environment, at lower cost and with economic and social benefits. However, our research has highlighted that wastewater management is not yet a major concern for many stakeholders. Health risks posed by irrigation with untreated water are underestimated and information about technological and institutional options is inadequate. Government regulations also often do not support affordable decentralisation and lack of skills and organisational capacity remain obstacles.

The paper emphasises the importance of good governance and transparent decision-making in decentralised systems for wastewater management. In addition, coordination and partnerships between various agencies and organisations working in the sector is considered to be critical. However, contextual social realities and physical constraints such as lack of access to land can hamper decentralisation. Local initiatives have begun to deal with the challenges, but will ultimately succeed only if policy is supportive. While it is important to view decentralization as an option, not a panacea, a policy approach that is holistic and that links wastewater management to the wider context is necessary. Similarly it is necessary to address environmental and health issues with an awareness of the impact on livelihoods. These considerations could build momentum for decentralization, making it replicable and practical.

References

Burra, S., Patel, S. and Kerr, T. (2003) Community-designed, built and managed toilet blocks in Indian cities. Environment and Urbanization Vol 15, No 2, IIED October 2003.

Foley, S., Soedjarwo, A. and Pollard, R. (2000) Community-based sewer systems in Indonesia,: A case study in the city of Malang. Learning Note, Water and Sanitation Program - East Asia, Jakarta.

Hasan, A (1997) Working with Government: The story of OPP's collaboration with state agencies for replicating its low-cost sanitation programme. City Press. Karachi, Pakistan.

Hasan, M., Uddin, N, and Parkinson, J. (2004) The role of non-governmental organizations in decentralised wastewater management in Bangladesh 30th WEDC International Conference, Vientiane, Lao PDR, 2004

Iqbal, S. (1999) Duckweed aquaculture potentials, possibilities and limitations for combined wastewater treatment and animal feed production in developing countries. SANDEC Report No. 6/99. EAWAG, Switzerland.

Sasse, L. (1998) DEWATS: Decentralised wastewater treatment systems in developing countries, Bremen, Germany, Bremen Overseas Research and Development Association

Schertenleib. R. and Morel, A. (2003) The Household Centred Environmental Sanitation Approach. http://www.sandec.ch/Publications/Publications/ Home.htm

Shrestha, R., Haberl, R., Laber, J., Manandhar, R. and Mader, J. (2001) Application of constructed wetlands for wastewater treatment in Nepal, Wat.Sci. Tech. 44 (11-12), 381-386, London, IWA Publishing

Viet Anh Nguyen, Hanh Tran Thi Hien, Thanh Vu Thi Minh, Parkinson J., Barriero, W (2004) Decentralized wastewater management - a Hanoi case study. 30th WEDC International Conference, Vientiane, Lao PDR, 2004

WHO/UNICEF (2000) Global Water Supply and Sanitation Assessment Report, Geneva.

World Bank (1994) World Development Report 1994: Infrastructure for Development, Washington

Wright, A. (1997) Towards a Strategic Sanitation Approach: Improving the Sustainability of Urban Sanitation Planning in Developing Countries.

Water and Sanitation Program, Washington DC, USA

Contact address

Chris Heymans
GHK International
526 Fulham Road
London SW6 5NR
United Kingdom
Tel: +44 20 7471 8000
Fax: +44 20 7471 8050
Email: heymansc@ghkint.com

Dr. Jonathan Parkinson
GHK International
526 Fulham Road,
London SW6 5NR
United Kingdom
Tel: +44 20 7471 8000
Fax: +44 20 7471 8050
E-mail: parkinsonj@bigfoot.com