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Review

Towards Sustainable Urban Water and Sanitation Services: Barriers and Bridges

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Abstract: The Mar del Plata International Water Conference provided the first global assessment of the water sector. It was found that in most developing countries the state of water supply and sanitation services were deplorable. Consequently, a call for concerted action to improve coverage and efficiency of the water supply and sanitation sector was launched. This call resulted in the International Water Supply and Sanitation Decade (1981–1990). The Decade provided important lessons concerning effective methodologies to improve the state of the WSS sector. The paper discusses why the poor state of the water supply and sanitation conditions still tend to be the greatest development failure during the 20th century. The recipe for success was there, and the money was there. So, why were governments and big donors like the World Bank refusing to apply the lessons from the Decade? The basic conditions for success are spelled out, and some successful cases are used to illustrate these. The conclusion is that change is possible but that civil society organizations have to be empowered to make governments “feel the heat” and spend more money on water and sanitation, and to spend it more wisely.

Keywords: water supply; sanitation; integrated approaches; sustainable development

1. Introduction

We have long believed that science and technology can provide effective solutions to most, if not all, environmental problems facing modern society. However, the validity of this optimistic assumption has become increasingly questioned [1]. One reason is that modern science is characterized by ever-increasing specialization. As a result, it has delivered lots of knowledge but very little understanding [1].

There are large numbers of poor people in developing countries and a majority of them are slum dwellers or squatters. Yet, our understanding of them is incomplete. Thus, the policies for the poor are based on inadequate knowledge and false notions, with the result that they do not achieve the goals/objectives for which they were formulated and implemented [2].

Thus, the greatest development failure during the 20th century is that more than one billion people still lack adequate access to safe drinking water and that more than two billion people lack access to adequate sanitation [3].

It seems reasonable to claim that the United Nations Water Conference in Mar del Plata in 1977 spelled out the recipe for sustainable water supply and sanitation services. Furthermore, it was here that people first expressed the need for concerted action to improve the coverage of water and sanitation services. Thus, one important result of the conference was the launch of the International Drinking Water Supply and Sanitation Decade (IDWSSD) 1981–1990. It operated under the slogan “Water and Sanitation for All”.

The Mar del Plata conference called for profound shifts—in ideology, in policy, in institutional approaches and structures, in engineering R&D, and in donor and recipient government attitudes—to develop and apply alternative service models to provide water and sanitation for all within a reasonable time limit.

Although the Decade failed to reach its targets and tended to work more on improving services to people that already had reasonable access, it provided some important lessons, which were summarized in the New Delhi Statement [4]. However, as Hoekstra [5] states, the decade was a rather democratic undertaking while the institutionalization of the results were rather bureaucratic.

The New Delhi Statement i.a. called for institutional reforms promoting an integrated approach, including changes in procedures and behaviour, and the full participation of women at all levels in sector institutions and community management of services, backed by measures to strengthen local institutions in implementing and sustaining water and sanitation programmes.

It was stated that improvements to the household environment can be best achieved through the community’s involvement as an equal partner with government and sector agencies. This means building on indigenous knowledge, so that policies and programmes are credible and relevant to the beneficiaries. Emphasis must be placed on education, social mobilization, and community participation. To this end, a changing role of government was envisaged, from that of provider to that of promoter and facilitator. This would enable local, public, private, and community institutions to deliver better services. It was also stressed that community management goes beyond simple participation. It aims to empower and equip communities to own and control their own systems.

2. Some Starting Points

Cairncross [6] claims that the principal lesson from the Decade is that progress and continuing success depend most on responding to consumer demand. It is stated that community contact and consumer education are essential and that it is useful to begin promotion and education efforts with an established cadre of community workers and to build on the sanitation solutions the target community has used in the past, aiming for sustained growth rather than rapid coverage. It is better to improve an

existing system in ways that are affordable, sustainable, and upgradeable than to aim for a new solution that may be ideal but often proves to be unsustainable. Another finding was that it is important to test several options and approaches in the communities where they will be used. Furthermore, that it is vital to offer consumers a range of choices and allow them to choose the one they prefer and are willing to pay for.

Considering all this good advice from the Decade, the great question is why 30 years after the Mar del Plata Conference water and sanitation still tend to be our greatest development failures. The money needed to provide everybody with access to safe water and sanitation was there. The cost would be less than the amount of money that developing countries spent on largely unprofitable large dams during the 1990s. Anderson notes that despite the evidence that most water projects do not make economic sense, political pressure continues to allow these projects to proliferate because the interest groups that capture the benefits constitute a formidable political force [7].

One may also wonder why major donors such as EU and the World Bank neglect this advice and still insist on privatization of municipal utilities and the use of conventional mains and drains. Budds and McGranahan [8] claim that despite being vigorously promoted in the policy arena, privatization has achieved neither the scale nor the benefits anticipated.

Black [9] states that it has been abundantly clear that if the urban poor have to wait until their turn comes for the conventional package of sewerage and household water connections, they will have to wait for ever.

As Cracknell [10] observes, inertia and risk aversion are powerful forces working against change as is also turf defensiveness. However, an embryonic set of new approaches to providing basic water and sanitation services to the poor had gradually emerged. But most of what was happening was still in the missionary category, undertaken in the name of humanitarian improvement. It did not warrant attention from serious investors [11]. Thus, the instruments are there and change should be possible, but it will take concerted action by developing country governments, supported, not undermined, by rich countries, and held to account by active citizens demanding their rights [12].

Political commitment and the will to reform is key to making services work, and to do this, governments must feel the heat. They must be pressured to spend more on essential services and to spend it better [12]. Thus, it is essential to empower civil society organizations to pressure their governments.

The conditions were well portrayed by Curt Carnemark, Chief of the Supervisory Division of the World Bank, when he stated that "It is as though everybody is agreed on what ought to be done, but no one does it" (quoted by Black [11]).

A major reason for the poor achievement is corruption. If you apply transparent approaches where actors are held accountable, the opportunities for kickbacks or other kinds of fraud are reduced. For example, Zaidi [13] claims that the OPP development model finds it hard to be accepted in Pakistan. This is because it cuts out all extra costs that are incurred in construction. These include contractors' profits, kickbacks, overdesign, *etc.* Thus, the government has a great deal to lose if the OPP model is accepted widely.

Bureaucracy is another problem. It is based on firm rules and hierarchical systems. Hence, there is limited opportunity to adapt to local conditions. Unfortunately, most organizations tend to work

according to standardized bureaucratic procedures which inhibit new, flexible practices [14]. Furthermore, it is difficult to apply holistic approaches since institutions are fragmented and characterized by tunnel visions.

An important reason for the recurrent failures in development efforts is that actors in development projects have preconceived narratives regarding development processes, narratives that tend to prevail even in the face of research demonstrating their falsehood [15]. This is partly due to the problem that, at the heart of many development programmes, there is a fundamentally flawed logic that confuses ends with means and processes with outcomes.

Instead of learning from the failures, “experts”—convinced that they already know all the answers—merely urge more dedication to the “right” steps [15]. Odada [16] adds to the criticism and points out that the developed country model for building capacity in water supply, sanitation, and hygiene is inadequate for developing countries. They require a different approach.

3. The Way Forward

Experience shows that it is indeed possible to make successful interventions. However, to be successful, they need to be holistic, people-centered, and focused on action and learning [17]. Projects and programmes should build on the knowledge and skills of all people involved.

The conception of a largely one-way traffic of information from the experts to the public, and from developed countries to the developing ones, has to be replaced by a more reciprocal partnership among all actors. This new concept requires manifest innovations in institutional arrangements and the building of capacities to perform well. Such an approach requires a substantial public dialogue and social interaction at all levels of society to an intensive degree that has not been seen before, except in times of emergency, war, pestilence and famine [16]. As solutions are not obvious, change projects should build on a small steps approach, where lessons are constantly learned and applied.

Cracknell [18] found that the procedures used by public sector aid agencies (especially the logical framework) have tended to exacerbate the existing power differentials between donors and recipients, and that more flexible and more participatory approaches are required. He quotes the World Bank’s 1998/9 World Development Report “Knowledge for Development” that states that “Since human beings often fully trust only the knowledge they themselves have helped create, development knowledge bases will reach their full potential only if practitioners in developing countries take part in building them”.

Dalai-Clayton and Bass [19] claim that the old belief was that what was needed was a single, new master plan for sustainable development. Today, however, there is an increasing understanding that we need a set of coordinated mechanisms and processes that, together, offer a participatory system to develop visions, goals, and targets for sustainable development, and to coordinate implementation and review. They also claim that there is a need for learning processes in which information about progress towards sustainability or lack of progress, is used constructively to revise the mechanism and the means of realizing progress.

A major problem has been that actors have had difficulties to understand that the main barrier to water and sanitation is not lack of resources; it is a lack of willingness to learn from past failures and to

listen to those who have pioneered the new approaches [20]. Thus, it is now possible to identify some key steps in improving strategies to provide water for all:

- Develop participatory mechanisms;
- Develop change management mechanisms including pilot activities;
- Develop communication and awareness-raising mechanisms;
- Start tracking trends, issues, and needs.
- Develop participatory processes to promote
 - Greater stress on developing human capacities than on developing infrastructure;
 - Greater focus on the needs of local people;
 - An increasingly strong emphasis on sustainable development;
 - An interdisciplinary, multi-sectoral approach to development bringing together a range of organizations;
 - Greater awareness of the importance of institutional development as part of the participatory process.

However, one needs to understand that there are several levels of participation, starting with the manipulative participation, where participation is simply a pretence. At the highest level, we have interactive participation where people participate in a joint analysis, which leads to action plans and the formation or strengthening of local groups or institutions that determine how available resources are used.

Guèye [21] claims that there is a widespread misconception that “participation” can be reduced to a mechanical application of techniques and, consequently, that anyone can do it. Participatory approaches should serve to provide local communities with the capacity to define their own objectives, pursue their own priorities, and play a central role in decision-making. Participatory development should therefore be seen as a continuous process of empowering communities, while taking into account organizational and behavioural aspects, long term objectives, *etc.*

UNEP has developed two Guidance Manuals, one on Integrated Assessment: Mainstreaming Sustainability into Policymaking [22] and another one on Integrated Policymaking for Sustainable Development [23]. In these manuals, Integrated Assessment (IA) is defined as a participatory process of combining, interpreting, and communicating knowledge from various disciplines in such a way that a cause-effect chain—involving environmental, social, and economic factors—associated with a proposed public policy, plan, or programme can be assessed to inform decision-makers.

It is pointed out that IA should be an integral part of the policymaking process and not just an isolated exercise. It is suggested that an IA should build on building blocks that can be combined in different ways. This approach offers an opportunity to make assessment less procedural and more flexible, tailored to different assessment contexts and policy processes.

The Integrated Policymaking manual notes that synergy among different issues exists and a policy intervention can be designed to achieve multiple benefits. It is highlighted that successful implementation of a policy relies on the support from a range of stakeholders who may have diverse values and interests that need to be harmonized. There is also a severe warning that implementation, the stage where a selected policy option must be translated into action, is probably the most difficult, demanding, and critical stage in a policy process. Yet implementation is often neglected in practice. Policy managers, initiators, formulators, decision-makers, and others involved in the policy process

often fail to systematically prepare the ground for implementation, resulting in policies that perform far below expectations or even policy disasters.

Mary Douglas [24] has developed a framework to characterize how institutions or individuals think and act. The framework has only two dimensions: Group, which refers to how strongly one is integrated into a group, and Grid, which shows how strongly one is controlled by some external system. These two dimensions come together to provide a simple 2×2 matrix: high group and low grid is hierarchy, low grid and low group is individualism, high group and low grid is egalitarianism, and low group and high grid is fatalism. This simple model turns out to be a powerful tool for understanding social relations, and for making sense of how people see the world [25].

These four world-views can be found at every level of human organization. They are constantly in tension, but they need each other. Thus, the most successful policies tend to combine expert analysis and design with deliberation and partnership between many players, along with markets and other arrangements that tap into individual motivations.

Mary Douglas's biggest insight is, perhaps, a warning against depending too much on rational arguments. How we see the world depends as much on where we sit as on what we think, and human beings can often be understood better through their rituals and behaviours than through their doctrines and their beliefs [25]. Thus, her message is that it is better to be approximately right than to be precisely wrong. Yoris and Costa [26] seem to be thinking along the same lines when they complain that: "Since 1990, water management in the Guanabara Bay has been characterized by an increasing 'scientificisation', which has also proven to be inadequate to deal with the political origins of the water problems".

4. Model Examples

4.1. The Orangi Pilot Project, Karachi, Pakistan

The Orangi Pilot Project (OPP) started in the 1980s and has helped some one million slum dwellers in Karachi gain access to adequate sanitation. Its success is based on its methodology. It works on the principle that one spends a great deal of time observing the community and only then does one get involved [13]. According to the OPP paradigm, a study is not needed to identify the projects, but a study is needed to understand the people, their processes and relationships, and to identify the solutions and methods that are appropriate. This means that the process was slow in the beginning. However, as success started to show, there was a steady increase of momentum.

The OPP has built on the community's efforts rather than imposed its will upon them. The method is about observing and learning. Furthermore OPP works as an advisor and facilitator. There are no cash handouts and no subsidies. OPP thinks that the community has the resources needed to achieve development results. It supports the development of skills within the community and does not see conventionally trained professionals as viable alternatives to local para-professionals and technicians.

4.2. The Urban Community Development Office (UCDO), Thailand

UCDO was set up by the government of Thailand in 1992 to address urban poverty. This was partly an effort to cater for the need to develop more participatory models of support for low-income groups and for possibilities of doing so through supporting community-based savings and credit groups.

UCDO provides grants in such a way as to enhance the self-help capacities of communities and to help communities to transform existing relationships between community organizations and external agencies [27].

From the outset, UCDO sought to bring together different interest groups. Any community could receive loans provided they could show that they had the capacity to manage savings and loans. Through this, UCDO developed links with a wide range of community organizations.

As the number of savings and loans groups grew, UCDO found it increasingly difficult to administer its grant programme. Thus, individual savings and loans groups were brought together in the form of networks or federations. UCDO loans could now be provided to networks and not only communities. These networks would then lend to their member organizations. Thus, they increasingly became the means through which the funds of UCDO were made available to low-income groups.

The decentralization of the management of the funds to communities and networks makes the management of the funds a political process, linking the communities and the larger community network all the time. This ensures that the process is transparent—the network and the communities look at the proposals together [27]. Another component of the approach is the development of human resources that contribute to towards a participatory process for improved community management. This involves awareness building, training, opportunities for exchange of experience between different communities, and partnerships with relevant local professional agencies. Thus, UCDO has shown that low-income communities can gain considerable confidence and pride through being the owners of the development and through managing the process themselves. It has also been shown that decentralization of the development process to community and local partnerships is possible and much more effective than centralized development, if organized properly. The UCDO experience clearly shows that community-based savings and loan activities are important because they build community capacity to determine priorities, transparently manage finance, negotiate with other powerful local groups and plan and reformulate their own strategies.

Projects draw on the creativity and diversity inherent in low income communities and are not blocked by professionals. Furthermore, successful community initiatives encourage community members to work together in other areas, to develop linkages with other communities and to develop the means of addressing broader issues.

In the year 2000, UCDO was merged with the Rural Development Fund under the umbrella of the Community Organizations Development Institute (CODI), which is an independent public organization under the Ministry of Social Development and Human Security. However, the main focus of UCDO remains. Experience to date has shown that community networking is a very powerful platform for larger-scale development—a platform that involves a synergy of learning, sharing of experiences, boosting the morale and mutual inspiration. The networks have given urban poor groups enormous confidence. Most community organizations have strengthened their own development capacity and

developed links with municipalities and other development actors in activities such as infrastructure improvement, income generation and urban community environment activities [28].

4.3. Community-Designed, Built and Managed Toilet Blocks in Indian Cities

In India, there has been a fifteen year programme of community-designed, built and managed toilet blocks undertaken by urban poor federations and women's cooperatives, with support from the Indian NGO SPARC. This programme has reached hundreds of thousands of poor urban dwellers with much improved sanitation. The three organizations behind the programme are the society for the Promotion of Area Resource Centres (SPARC), the National Slum Dwellers Federation, and Mahila Milan (women together).

Few city governments in India have invested much in provision of sanitation to the slums. Lack of funds may explain the lack of attention to sanitation in many cities, but this is not so for cities such as Mumbai or Pune where, until recently, municipal authorities did not spend the money that had been allocated to construct toilets [29].

Existing public toilet blocks are often in serious disrepair within three months of being constructed, leaving people with little or no alternative but to defecate in the open. The space around the public toilets often becomes heavily used for open defecation which, in turn, produces a very large health burden and contributes to high infant and child death rates. Toilet blocks also become places where household wastes are dumped, since communities often have no garbage collection.

A survey by Mahila Milan/Slum Dwellers Federation of 151 settlements in Mumbai with one million people found that there were 3,433 seats provided by toilets built by the municipality (one for every 1,488 persons), and 80 per cent were not working. Thus, a critical question is when and how city authorities develop some sensitivity to issues of sanitation for the poor? For Mumbai (formerly Bombay), India's financial capital, the first investment in a comprehensive drainage system for parts of the city was spurred by external pressure. At a conference on cholera in 1867, the French and Egyptian representatives referred to Bombay as a "cholera nest".

More than a century later, pressures for attention to sanitation came mainly from civil society. The city of Mumbai sought and got loans from the World Bank. The Bank, however, was not interested in letting money go to the kind of community-driven projects proposed by the Alliance.

Many politicians also opposed community-managed processes, which remove from their control a key part of the patron-client relationships with slum populations through which they sustain their political careers. Community management also goes against the long and dishonourable tradition of contractors, engineers and councilors all getting a cut from each project. Furthermore, government staff does not want to work with groups which they have difficulties to approach for bribes.

In 1985, the women pavement dwellers in central Mumbai started to lobby for adequate toilet facilities. However, they were laughed at when they suggested improvements to municipal agencies. When they suggested that community processes could lead to better quality, better designed community toilets at a lower unit cost, they were ignored. Few engineers would concede that low-income communities could do this. Also International donors were approached, but they lacked mechanisms to support projects that were that simple and cheap. However, the Alliance got some funds from the UK

charity Homeless International and decided to build some toilet blocks. This effort followed the Alliance's long established practice of supporting urban poor community organizations that want to try out new ways of addressing their problems, learn from experiences and, over time, develop precedents and practices that work.

In the Indian city of Pune, the Alliance managed to strike a deal with the city government concerning 114 toilet blocks with a total of more than 2,000 toilet seats and 500 children's toilet seats. The Alliance designed and costed the project, the city provided the capital costs, and the communities developed the capacity for management and maintenance. An impressive outcome was that between 1999 and 2001, more toilets were constructed and more money spent than in the previous 30 years. This programme was unusual for India for its transparency and accountability. There was constant communication between senior government officials and community leaders. Over time, the groups working with the projects learned how to deal with local government bureaucracies, and this gave them the confidence to deal with other government officials.

In November 1998, the World Bank and the Mumbai Municipal Corporation invited the Alliance back because their initial approach was not working. One reason for this was that the new models developed in Pune had shown themselves to be highly adequate and viable. The Alliance had developed many innovations in the design, construction, and management of toilet blocks. Unlike the previous municipal models, they were bright and well ventilated. They had large water storage tanks to ensure enough water for hand washing and maintenance. Each of the new toilet blocks had separate entrance for women and men, and they also provided children's seats.

The Indian government has now introduced a new programme—the Nirmal Bharat Abhiyan—where a 50 per cent subsidy for the construction of community toilets is available to local bodies and public authorities. This was influenced by the community toilets in Pune and Mumbai. One important lesson from the work of the Alliance is that one should start small and then keep pressing.

5. Conclusions

The lessons from the International Drinking Water Supply and Sanitation Decade (IDWSSD) are as valid today as they were in 1990. However most of the major aid agencies have failed miserably to be heedful to these lessons. Thus, they face an urgent need to rid themselves of ideological dogma to revamp their policies and practices in line with the experience from the Decade.

To obtain maximum results, government agencies have to appreciate that different stakeholders have to be enabled to play the role that they can do best. Developing the right framework for this to happen requires an initial investment in a learning-by-doing phase. This implies that communities participate in the programme as equal partners from the very beginning. It has to be taken into account that development of lasting partnerships takes time because the stakeholders need to get to know and trust each other, and learn how to work together.

These participatory approaches should serve to provide local communities with the capacity to define their own objectives, pursue their own priorities, and play a central role in decision-making. Participatory development should therefore be seen as a continuous process of empowering

communities, while taking into account organizational and behavioural aspects, long term objectives, *etc.*

Slums come in many different shapes. Thus, there is no single off-the-shelf model that can deliver scaled-up water and sanitation coverage. However, there are some *sine-qua-non* principles:

Communication, trust, mutual respect, partnerships, sense of ownership, transparency, accountability and learning from monitoring and evaluation are essential components for success. Furthermore, the partnership of stakeholders is an important key to success and experience shows that it is better to improve an existing system in ways that are affordable, sustainable, and upgradeable than to aim for new solutions that may be ideal but often prove to be unsustainable.

The experience from Orangi, India, and Thailand shows that even poor communities can and will pay for WSS services when low cost approaches are used and community management ensures transparent and accountable systems. It also shows that improvements in the water and sanitation sector can be best achieved through the community's involvement as an equal partner with government and sector agencies. This means building on indigenous knowledge, so that policies and programmes are credible and relevant to the beneficiaries. Emphasis must be placed on education, social mobilization of both women and men, and community participation.

A changing role of government is essential, from that of provider to that of promoter and facilitator. This would enable local, public, private, and community institutions to deliver better services. In such a transformation, it is important to appreciate that community management goes beyond simple participation. It aims to empower and equip communities to own and control their own systems, creating a transformative movement.

An important issue is that it is useful to begin promotion and education efforts with an established cadre of community workers and to build on the sanitation solutions the target community has used in the past, aiming for sustained growth rather than rapid coverage. It is better to improve an existing system in ways that are affordable, sustainable, and upgradable than to aim for a new solution that may look to be ideal but often proves to be unsustainable.

Furthermore, it is important to test several options and approaches in the communities where they will be used and to offer consumers a range of choices and allow them to choose the one they prefer and are willing to pay for.

Governments must be pressured to spend more on essential services and to spend it better. Thus, it is essential to empower civil society organizations to pressure their governments. Experience also shows that it is indeed possible to make successful interventions. However, to be successful, they need to be holistic, people-centred, and focused on action and learning. Furthermore, as solutions are not obvious, change projects should build on a small steps approach, where lessons are constantly learned and applied.

There will be no sustainable development unless we develop coordinated mechanisms and processes that, together, offer a participatory system to develop visions, goals, and targets for sustainable development, and to coordinate implementation and review.

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