

2.3 From Policy to Action



Who should decide what is permitted?
On what grounds?
Top-down vs. Bottom-up



Learning objective: become acquainted with regulations and how to interpret them and translate them into local action

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A scan of what has been done in the sanitation sector worldwide over time shows a mix of trends and adaptations to local conditions. An enabling environment for improving sanitation covers the whole range from policy to action via good governance. A range of stakeholders is involved from individuals to utilities and from the private sector to central governments. The role of central government is threefold: to facilitate and arbitrate, to legislate, and to control/monitor – but NOT to be the operator of the system, because it then will be monitoring itself, which would cause conflicting loyalties.

For an extended period up to at least the 1980s, the supply of water dominated the public water sector, while wastewater treatment lagged behind even in urban areas. Sewage from the middle classes went untreated to water bodies, and it was up to each poor household to arrange its own sanitation. Laws and regulations often prescribed what technologies to use, with no or little consideration of local conditions. However, the ever-increasing investment costs of developing new water sources affected decisions both in the North and South ([World Development Report, 1992](#)). It was recognised that it may be more economical to manage the demand for water and provide various user groups with incentives to reduce their use of water, rather than to open new water sources.

Closer to the new millennium more proactive frameworks were introduced. A move towards principles rather than technology was advocated at the World Summit on Sustainable Development in Johannesburg in 2002. At the local level, utilities introduced progressive water tariffs, and in new districts, stormwater and sewage were kept separate. Industry manufactured water-saving devices like water-efficient showers and washing machines, and pour-flush toilets. In this way the heavy investment required to open a new water resource could be postponed or sometimes even made unnecessary.

Utilities had always been in the hands of the public sector and they were often rated as rather inefficient. In the 1980s and 1990s this monopoly was challenged by privatisation promoted by the World Bank, the IMF and other influential parties. International water companies expanded to fill the market offered to them. A number of metropolitan water utilities were taken over by international companies. Water and sewerage companies bought concessions in developed countries (often buying 100% of shares) and increasingly in developing countries (commonly owning around 50% of shares).

The heated political debate about the merits of privatisation gradually subsided ([BPD, 2007](#)). One reason was that the companies managed rather well in comparison with previous utilities, and they could not charge exorbitant tariffs. A few big companies also withdrew from some cities. Another reason was the emerging understanding that various parts of a utility could be *managed* by private companies without the company having to own the asset.

In the early 21st century, the discussion about privatisation had shifted to one of how to develop a private-public partnership. Such partnerships are typically based on a contract between a public authority and one or more private sector service provider. The public authority entrusts specific tasks to the private sector and stipulates precise objectives, while it retains regulatory control and ownership of all assets.

In 2001 the chairman of Suez Water Company in France wrote an open letter, “The Water Truce”, in which he hails evolving public-private partnerships in the sector. He suggests the basis is a common understanding that water itself is a public good and that the private sector provides the service of clean water continuously to users. The service is charged for but not the water. The public sector remains the owner of the facilities, and the company turns the right of access to water and sanitation into a reality for the poor as well as for the affluent. This indicates a change in the relationships between the companies, the public sector and inhabitants, and what the private sector can offer is to renew water infrastructure, to leverage new sources of finance and to apply more efficient management methods ([Suez, 2001](#)).

The involvement of the private sector was a leading theme of, for instance, the World Toilet Conference in Singapore in 2009. The Asian Bank and the World Water Supply and Sanitation Council (WWSSC) were actively propagating market-based solutions and cooperation between authorities, NGOs and business ([WTO, 2009](#)). The World Bank’s Water and Sanitation Programme has large programmes engaging the private sector in scaling-up sanitation in Asia. Still, households are often left out and have to accept whatever is offered to them.

As household products contain more and more chemical compounds they make wastewater treatment more complex and expensive (see Module 4.5). A number of compounds cannot be removed from the wastewater. The most important consequence of naming the facility a wastewater *treatment* plant maybe to make users blind to the fact that they themselves are the major contributor to the pollution problem. In a situation where the utility cannot treat the wastewater satisfactorily, it seems unavoidable that utilities will let households become a recognised partner of the management system (slide 2.4-9).

With rising public awareness of environmental issues, the engagement of households promises to be a positive development, since they are likely to protect water quality by refraining from discharging hazardous items in the sink or toilet. The awareness aspects were brought up on a broad scale at the Third World Water Forum in Japan in 2003, but not in connection to users’ impact on wastewater quality. The time is now ripe for this to happen. A special feature of the European Water Directive is its insistence that local populations should become involved to a greater extent in water protection ([www.euwi.net/index.php](#)).

In this module we deal with policies, strategies and management issues connected to sanitation development under different conditions.

Policies = stating aims and ideals

2.3 - 2

- '**No water body is to be degraded'**
- '**High protection of human health and ecosystems'**
- '**Cost recovery**'
- '**Pro-poor policies**'
- '**Water for All' and 'Water is a human right'**'
- '**Sanitation by All?**'
- '**No open defecation**'
- '**Recirculation of nutrients and zero emissions, etc.**'

The policy should be SMART = **S**pecific, **M**easurable, **AR**ealistic/resource-related/result-oriented, and **T**ime-bound.

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Policies are typically adopted by governments and political parties to guide their course of action. Governments generally implement policies by enacting laws, creating implementing agencies, and expending public resources. Policies cover a number of aspects pertaining to sanitation. The examples in the picture are certainly not exhaustive and will change over time. New policies are added every year; some remain for a long time and some others are phased out quickly. A policy is likely to remain as long as the problem it is designed to deal with remains. An example is the EU framework directive that '*no water body is to be degraded*'. A similar directive can be found in a 500-year-old by-law for Stockholm city from 1557!

Policies are generally more elaborated and stringent for water than for sanitation. A pinnacle for water issues occurred during the 1980s which UN had declared the Water Decade. The new Millennium Development Goals (2000) resulted in a greater focus on sanitation and so did the Year of Sanitation 2008 – but the amount of attention given to sanitation remained far behind the amount given to water issues. Little research has gone into why this is the case. The reasons cannot be economic, since a cost-benefit analysis in 12 countries revealed that every US dollar invested in improving sanitation resulted in societal economic benefits of between US\$5 and \$23 depending on the country ([ERM, 2005](#)). These benefits are reaped by residents who have fewer sick days, etc.

South Africa is renowned for good policies documented as White Papers on various aspects of water and sanitation (see [www.dwaf.gov.za](#)). The European Union (EU) introduced a Water Framework in 2000 in order to harmonise and improve water and sanitation conditions for 500 million people in its 27 member states (<http://www.euwfd.com/>). China has developed an ambitious integrated river basin management policy to improve water use, water pollution control and sustainable conservation for its 1.3 billion people ([NPC, 2002](#)). Some brief comments concerning the policies mentioned in the picture are given below.

The protection of human health and ecosystems is a policy goal in most countries, and includes conservation of natural resources, upkeep of ecosystem services, and protection of public health.

Pro-poor policies are also almost universal (MDG 7). The earlier Water Decade slogan 'Water for All' is still valid, and 122 countries voted for a non-binding resolution in the UN calling on states and international organisations "to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all" ([UN, 2010](#)). 41 countries abstained to vote. We need a new understanding of the concept of *human right to water* in order to make it a valuable

policy tool. This notion evolved in rural situations where all people must have the right to access existing springs, rivers, and other ‘natural’ water sources. As people move to urban areas, the need for access to water remains but in cities, the water is conveyed from distant sources and access almost always entails energy for pumping. An unconditional right to free water would imply having enough energy for supplying the water. However, there is no human right to energy. This contradiction caused by the mixture of water and energy has to be resolved – possibly by charging a fee at least for the energy cost. This would be in line with the principle that water is an economic good with an economic value that does not have to equal the market price ([WSP, 2010](#)).

The issue of *no open defecation* is dramatized in crowded urban fringe areas. Actual implementation seems to be ‘Sanitation by All’ since poor residents cater for their own needs. This can be very effective from a human resource perspective (see Module 1.4), given that the municipal gives advisory support and by-laws are open to unconventional solutions. An interesting and apparently successful approach called the Community-Led Total Sanitation program has moved the focus from hardware to habit ([Kar and Chambers, 2008](#)). This revolutionary public health approach has reached many villages in Bangladesh (where it started), India, Sri Lanka etc. (Financial Times (UK), November 29/30, 2008). At a village level, promoters apply peer pressure by confronting communities where open defecation is practised. The villagers (transect)-walk in groups to popular squat sites to take in the sights and smells. They discuss how e.g. flies, chickens and human fingers spread the shit around, and that it can easily end up on the food they eat. The horror of realising one may be eating someone else’s faeces forces the villagers to decide whether to improve the situation by building latrines to contain the spread – or not.

Recirculation of nutrients back to agriculture has not yet entered the sanitation policy in many countries, not even South Africa. However, WHO ([2006](#)) has done their part by issuing guidelines for the safe reuse of greywater and excreta.

A sectorial view of wastewater, excreta and greywater in this context would consider them to be costly by-products of the process of urbanisation, requiring substantial investments in treatment plants and disposal mechanisms. Yet such a view overlooks their value as a source of water and/or nutrients for plant production and fish cultivation ([WHO, 2006](#)).

Most policies advocate the right to ‘good’ things such as health, access to water, food security etc. The government usually becomes responsible for providing these benefits and they are prepared to do that in exchange for votes. These rights to goods are rarely balanced with responsibilities for the voters not to waste and not to pollute. Politicians may think that no votes will be gained from attempting ‘to put the burden’ of sanitation on the voters, so they remain silent on this issue. The policies rather concern industrial and agricultural polluters. The policy of ‘no open defecation’ is interesting from this point of view. It pinpoints the individuals, but in a face-saving manner.

When the government takes action, complex social forces may make the outcome of policy recommendations unpredictable ([slide 2.3-12](#)). Two examples can illustrate this point. Many slum dwellers make a housing career by using their own resources. Others are provided with piped water (and perhaps also sewers). They may sell the improved house, move to another slum further away and use the gained money for other purposes. They may request piped water once again, and the same process is repeated. Slum lords may also be active in such a process of relocation of residents. Similar challenges to government schemes may occur among rich residents in rich countries. All slum dwellers in Cape Town in South Africa are scheduled for upgrading. In order to jump the queue, scrupulous residents have deliberately set their slum on fire and been provided emergency attention. These examples show that good policies need good governance and implementation strategies.

Governance guided by principles

2.3 - 3

- **Outcome-based regulation:** The regulation is not prescriptive about the technology or process itself, but about the overall environmental outcomes of the process.
- **Precautionary principle:** Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty is enough reason for postponement of the activity.
- **Deal with pollution at the source:** If a pollution situation is identified, the source of pollution should be addressed rather than the end-of-pipe result.
- **Polluter pays:** The polluter should in general bear the cost of pollution prevention, control and remediation.
- **Recirculation:** Recycling of waste products
- **Risk assessment:** A risk assessment of the pressure and impacts guide the actions to be taken and monitored

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The variety of arrangements on the ground is too diverse to be captured by detailed rules. Instead, functions and outcomes come to the fore. Over the last, say twenty years, there has been a move towards promoting change and improvements through guiding principles rather than detailed prescription of technologies and processes. This change in focus is global and is a challenge for local authorities with limited resources because they have to assess diverse proposals when deciding which ones should be given permits (slide 1.1-12).

1. A prominent example of the use of principles of an **outcome-based regulation** is the European Union Water Framework of 2000 which contains principles such as the ones in the picture above (see www.euwi.net/index.php). The framework deals with how to think and act.
2. The '**precautionary principle**' is necessary since new hazardous substances are emerging faster than authorities can study their effects. A large proportion of the discharges from chemical industries and from their products in household waste remain unregulated. But, with a precautionary principle, suspected hazardous products could be restricted or banned without full scientific proof. This would somewhat balance the industry's use of substantial resources to lobby for weak or less legislation that would interfere with their production (interview with the former EU Commissioner of the Environment, 2010).
3. **Pollution should be dealt with at the source** and not at the end of a pipe. When this approach is taken, there are more measures that can be used to reach the same goal of cleaner waste disposal. Moreover, trying to remove a pollutant once it has entered the environment is usually an expensive option. It is often cheaper to 'negotiate' with industries, households or salespeople at the point of sale to get them to change their practices in order to prevent the pollution of a river or marketplace (see Module 4.5). This may involve threatening the offender with fines or other measures. This may also lead to a more lasting solution.

4. The '**polluter pays**' principle was developed in the 1990s. The idea is to give a clear message to the polluter that he, not the taxpayers, must foot the bill. This principle has turned out to be quite difficult to put to work in practice. Public wastewater treatment plants are rarely sued for discharging less treated effluent, and the principle might only be used in cases of serious neglect. It is politically easier to sue private industries when they discharge polluted wastewater into a public sewer.

5. **Recycling of waste products** is being done in many industries because it is cheaper than making the same product from raw materials. This is particularly true for solid waste such as paper, aluminium tins, and glass, but also for wastewater itself. Faecal matter and urine alone are also possible to recycle in agriculture.

6. The new WHO Guidelines ([2006](#)) **assess risks** concerning reuse of greywater, faecal matter and urine. Handling recommendations complement the previous limits for sample values for bacteria count etc.

A paper commissioned by the Global Water Partnership reflected the prevailing wisdom of the water sector by identifying the following principles of effective water governance

([Rogers and Hall, 2003](#)):

Approaches should be:

- Open and transparent
- Inclusive and communicative
- Coherent and integrative, and
- Equitable and ethical

Performance and operation should be:

- Accountable
- Efficient, and
- Responsive and sustainable

This wish-list contrasts according to McGranahan and Satterthwaite ([2006](#)) with conventional government approaches in the 20th century to water and sanitation management. They characterise these as being

- Bureaucratic and labyrinthine, rather than open and transparent,
- Exclusive and expert-driven, rather than inclusive and communicative,
- Sectorial and segmented, rather than coherent and integrative,
- Biased in favour of those able to access the large water and sanitation networks, rather than equitable and ethical.

Assessing guiding principles and their adaptability to local conditions give rise to strategies for actual management.

Strategies connect policy with resources

2.3 – 4

- Do the right thing – effective
(address problems of the chemical society)
- Do the thing right - efficient
(focus on man-made wastewater, not end-of-pipe)

Good governance is always helpful

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The word “strategy” was developed for war situations, but is today a part of common management jargon. A strategy is an approach to moving or disposing staff and resources so as to implement the policy aims. The first requirement in a change process is to ‘*do the right thing*’ to achieve the goal. This may sound trivial but it is not. There may be more than one right thing to do and that requires a choice. Moreover, the policy goal itself may not be realistic, in which case any strategy will fail. For instance, donors decided as part of the Water Decade to drill a grid of boreholes from where water was to be pumped to surrounding villages in rural Tanzania. The system collapsed almost immediately due to pump breakdowns and a shortage of diesel to run the pumps. The goal to provide water by using a strategy of *piped* water was not realistic. The subsequent strategy was to provide water and this time by involving villagers in digging wells from which water was fetched in buckets. This strategy achieved some success. The lesson is that any strategy must have a realistic goal which is in keeping with the available resources.

A serious analysis of the outcome or progress of any sanitation project must take account of societal norms and attitudes among staff as well as residents. Often the need for training is more urgent among staff than among the so-called beneficiaries. Rolling out a sanitation program just as a technical infrastructure is risky and probably the toilets will not work for long. If a project fails, often the beneficiaries are blamed for not doing their part properly. Such a limited analysis does not help to improve the strategy to ‘*do the right thing*’ next time. If the beneficiaries do not contribute what is expected of them, then the expectation is likely to be faulty. Real learning from failed projects arises from serious reflection about the project itself and its links to the social and economic environment.

A daring experiment is Community-led Total Sanitation, a grass-roots program developed in Bangladesh ([slide 2.3-2](#); [Rosensweig and Kopitopoulos, 2010](#)) which starts with the premise that it is up to the community to make changes if it so wishes. If the community does not make the required effort, it is not seen as a project failure since there was no decision to go ahead. In such cases the approach was not operational and the challenge remains to come up with an alternative one. Experience tells that there may not be an effective strategy in the short term that is also sustainable.

There are many potential derailing factors: lack of social cohesion and civil responsibility, poor monitoring, recklessness such as in the world financial sector around 2008, or corruption ([Transparency International, 2008](#)). We can lump such factors together as poor governance and define good governance as the presence of: a) general adherence to rule of law,

b) transparency, predictability, and accountability in government decision making, c) decision-making that consistently achieves effective and efficient outcomes for society, and d) decision-making processes that consistently allow for public participation, responsiveness, consensus orientation, equity, and inclusiveness ([Halpern et al., 2008](#)). In the real world, such perfection is seldom attainable.

The second requirement is to make the project or intervention efficient by '*doing the thing right*'. Again, it is not an easy requirement due to a lack of good governance which means that vested interests may try to divert attention and resources. The concept of tri-sector partnerships between the public, private and civil society sectors is likely to achieve more than these sectors working independently. In leveraging their own resources, all partners can rely on their core competencies and have other actors fill in any gaps in their skills, abilities or mandates ([Jones, 2002](#)).

Monitoring and evaluation is part and parcel of any strategy. One example is the monitoring of national achievements for the ten Millennium Development Goals (MDGs). The mid-term review reports that:

Half the population of the developing world lack basic sanitation. In order to meet the MDG target, an additional 1.6 billion people will need access to improved sanitation over the period 2005-2015. If the trends since 1990 continue, the world is likely to miss the target by almost 600 million people ([UN, 2007](#)).

The report writer recommends:

In order to achieve the MDGs countries will need to mobilise additional resources and target public investment that benefit the poor. ... Several developing countries are demonstrating that rapid and large-scale progress toward the MDGs is possible when strong government leadership and policies and strategies that effectively target the need of the poor are combined with adequate financial and technical support from the international community.

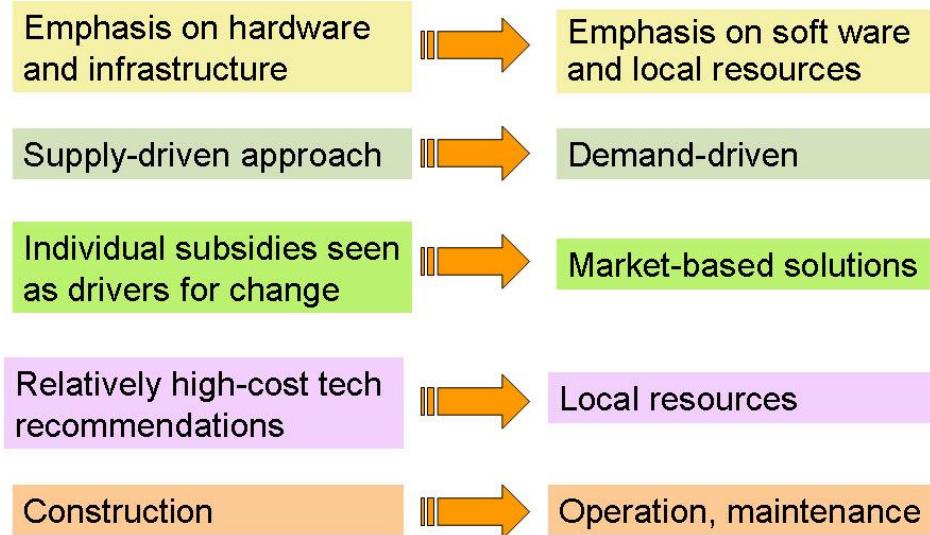
This result-based assessment only advocates additional resources and strong leadership to reach the goal. The goal is not questioned, nor is the recommended strategies. It is hardly helpful to ask for good governance and to blame the leaders without exploring alternative strategies or approaches. The International Water Association, IWA, representing professionals in the water sector, has a task force for analysing the development of the sanitation sector and advising on possibilities and improvements ([IWA 2007](#)). Their first report identifies some key failings in the current approaches which result in a mismatch between the stated objectives of investment and the outcomes. They state that the current technical planning and design practices, based as they are on logical normative technical planning approaches, seem to be failing because:

- the objectives upon which decisions are based are distorted by special interests, or by a poor understanding of the real needs of the population
- the normative technical planning approaches result in plans which do not respond to the rapidly changing urban context and diverse conditions which pertain in modern urban spaces
- they fail to make a realistic assessment of short-term inertia which impedes capital investment
- they result in systems which place an unrealistic management burden on all levels of the city ([IWA, 2007](#))

This kind of assessment of failures addresses various challenges for real-life situations. Each point provides several avenues to enter a discussion about how to revise plans and make them more effective and efficient instead of wishful thinking such as that presented in the mid-term review above.

Some ongoing strategic shifts

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A strategy deals with approaches, means, and processes that are applied to reach a goal.

For example, a strategy for the public sector to improve sanitary conditions comprises:

- Facilitation, such as training of professionals and other staff, providing information to residents, builders and others, stimulate technical and other development, help solving conflicting interests in the field (land deeds etc.)
- Legislation defining the rules of the game through laws, by-laws and punishment
- Control/monitor and assess the conditions in the sector.

There have been major shifts in recommended strategies over the years, and some of these are mentioned in the picture above. These shifts are not all-encompassing however, and may coexist with previous strategies. There is often a competition between stakeholders who have a vested interest in one strategy or the other. For instance, the pro-poor water strategy has moved from emphasising hardware and infrastructure to emphasising soft issues and social resources. Yet, the implementation seems to work in the opposite direction, not least in periurban areas, because of vested interests.

The emphasis on either hardware or software is closely related to whether the approach is supply-driven or demand-driven. Today, the scarcity of virgin water sources makes demand-management options more attractive for utilities and often they introduce software approaches and manipulate the demand. The sanitation sector still struggles with this issue of demand and supply strategies. There is a growing awareness in the sector that just building infrastructure does not guarantee success. A too common outcome is that toilets are not used as intended:

“In Maharashtra, of the 1.7 million toilets constructed between 1997-2000 only about 50% were being used for the intended purpose.” ([MoRD, 2004](#)).

It is often said that the poor do not demand improved sanitation. This assertion has to be investigated. The reason may be that the poor have experienced that the authorities and donors are prepared to supply water, but not wastewater treatment or an efficient solid waste collection or stormwater drainage. Water is an immediate need for the poor and the rich, whereas the effects of no measures to improve sanitation differ. The difference is that the poor live in squalor while the rich transport their wastes outside their living area. A demand management strategy for sanitation would include reducing the waste flows from the households e.g. reduced volumes, avoiding non-degradable goods, recycling products, and selecting where to dispose of the necessary outflows.

The question of subsidies has been part of the water and sanitation sector for a long time. There is a valid argument that subsidies will make it affordable for households to install toilets or be connected to a piped system. However, the operation and maintenance costs are much higher than the initial investment cost. The selected technical solution may therefore end up to be difficult to maintain. The charged fees tend not to be enough to cover all the costs and the infrastructure tends to be poorly maintained as evidenced by large not-accounted for water. An emerging alternative strategy is to promote market-based approaches. That implies that the arrangement is less costly and most of the initial financing is done by households (micro loans) and the private sector and the latter is more motivated and able than a political organisation to collect necessary fees from the users.

There is a growing awareness of the importance of the operation and maintenance of infrastructure. Decision-makers now consider the cost over the life-span of an arrangement and know that this is much higher than the initial investment. Most cities in developed economies cannot afford to replace malfunctioning sewers and water pipes. With the present rate of retrofit in Swedish towns it will take more than 300 years before all have been replaced. The lifespan of a pipe is estimated to be 60–80 years. The low capacity of wastewater plants of City of London results in overflows of untreated wastewater to the Thames sixty times per year.

The financial burden that rich or poor communities are to carry after being provided with a new supply or sewage is rarely affordable, and the result is likely to be an inefficient system of service delivery. A more open approach is required to make households and decision-makers keener to build long-term affordable arrangements (slide [2.3-6](#)). An immediate measure is to monitor construction so that when it is ready the unit is easy to operate and maintain.

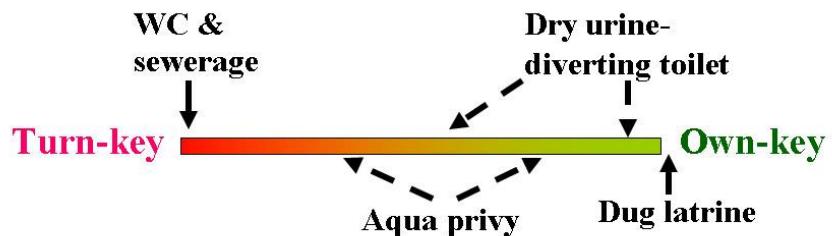
Sanitation arrangements from a management point of view

2.3 - 6

The key question is about control, not decentralisation. Two extremes:

Turn-key management where the utility (private or public) provides the service and the residents just pay the bill

Own-key management where single households or housing associations initiate, build and control, while they put to use available skills, materials, and other local resources



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A crucial question is; **who** is to take on the responsibility for managing the various parts of a sanitation arrangement? There are two extremes:

Turn-key management. A utility (private or public) provides all services, while residents only pay. Piped water and sewerage, presently the most coveted arrangement, can provide a household with one cubic metre of water “from the wall” and get rid of the same amount of wastewater “through the floor” each day without bothering anyone in the household. This is one of several attractive properties of the piped system. A positive perception of this technology has also been transferred successfully to almost all groups, including residents with no such service in developing countries.

Own-key management. Single households or housing associations initiate, build and control the arrangement. They put to use available skills, materials, and other local resources. Such a system is robust and provides services since the users are in full control. There are many up-market technical arrangements as is shown in Module 2.1.

Own-key management does not necessarily imply decentralised management and turn-key management does not necessarily imply centralised management. There are examples of rather small *turn-key* systems as well as large-scale *own-key* arrangements. The qualitative difference lies in who is responsible for initiation, implementation and who operates the system. The user may be proud of his or her arrangement for different reasons. A WC brings status and comfort, while *own-key* solutions make their users proud of being in charge. The user can often rectify operational problems with an *own-key* arrangement, while the WC often requires a specialist to repair it. Sanitation management at household level is not very different from food preparation; some people prefer to go out to restaurants and pay for the service, while others prefer to cook and eat at home. The reasons are multiple and include, among other things, whether the user has more time or more money.

A possible new principle is to implement and operate a sanitation system at the lowest appropriate management level ([Schertenleib et al., 2003](#)). The priority would be to start the planning process by investigating what the household or community could manage. This approach is radically different from starting with a specific technology and then finding out who can manage it. The links between policy-governance and the physical arrangements on the ground can be called the strategic space. This space is explored throughout this sourcebook.



Market-based strategies are gaining ground. If an individual would like to purchase a toilet or wastewater treatment unit, it would be helpful if the whole unit can be seen and purchased at the same outlet. The picture shows a ‘one stop shop’ for a toilet with a septic tank.

A market-based system involves a range of suppliers of various services such as retailer, wholesaler, and manufacturer on the one hand and construction, transport, credit services and training on the other (see diagram). Markets for sanitation products seem to grow by themselves in rich parts of cities all over the world, and there is a willingness to spend private money on interior arrangements, while the handling of wastewater does not fare as well. The product market for the poor, on the other hand, does not seem to develop by itself, and residents typically put money or labour into digging the disposal pits. The interpretation is that the existing markets push ahead with what they already provide, and there is little innovation to reach new markets with new products for the poor.

Some interesting new initiatives are being tried out to open up this avenue. For example, the International Development Enterprises ([IDE, 2006](#); [Sijbesma, 2010](#)) has developed a market-based, no-subsidy approach to improving sanitation. IDE firstly invests in developing a range of sanitation technologies that suits local needs, aspirations and finances. At the same time, IDE invests in building a strong private sector supply chain that provides materials and services to build toilets (see diagram). They also build the capacity of local organisations such as women’s unions and health workers to promote improved sanitation and to inform residents of the social and health benefits of hygienic toilets. This three-pronged approach aims to make toilets a priority for household investment.

A broad range of information and data is required to feed into building up a market. A study in the poor upland area of Yen Bai province in Vietnam assessed the potential to develop a market for sanitation ([IDE, 2006](#)). The study mapped out various components of the sanitation market, analysing the opportunities and constraints of the market’s demand and supply by addressing the following:

- (1) Is there a viable market for sanitation products in Van Yen district?
- (2) How to increase the demand for sanitation among local residents?
- (3) How to strengthen the supply chain so that suppliers can market their products?
- (4) How to facilitate the interaction between latrine buyers and sanitation product suppliers?
- (5) How best to build the capacity for local partners?

Interviews, observations and available statistics and documents were used to address these questions. The IDE analysis showed the following key constraints and opportunities that might influence the development of the sanitation market (IDE, 2006):

Opportunities:

- Sanitation supply networks exist at all levels (provincial, district, and commune).
- There are many suppliers and the competition helps to improve the quality of their services.
- Market potential is huge (especially for masons) given the low number of hygienic latrines.
- A health network exists at hamlet/village level.
- Increased population density results in limited space for open defecation.
- There are many revolving-fund groups to help members to perform economic activities.

Constraints for the whole market:

- Basic infrastructure such as roads, electricity and communication are still weak.
- Local authorities at provincial, district, and commune level do not give due attention to sanitation and environmental problems, and lack clear direction/strategies for dealing with sanitation issues.
- Households and authorities depend on external subsidies and financial assistance.
- Existing latrine models lack features that the local people desire such as low cost, durable, well ventilated (no odour) toilets that allow excreta to become a fertiliser.
- Since the common dug latrine is not so durable, the coverage of household latrines is declining
- The development of new toilet models requires time and money.

Market Supply Constraints:

- Present demand for toilet construction material (bricks, cement) is only 3% of total demand for these products, and so many suppliers do not pay attention to developing the sanitation market.
- Often, all the necessary construction materials are not sold under one roof. The market is still dependent on mobile retailers.
- Toilet construction is a small part of the local masons' incomes, so they do not bother to look for new customers who want toilets.
- Profits for sanitation construction (materials and labour) are very small, so many suppliers are not interested in marketing sanitation products.
- Masons lack basic information of various hygienic toilet-related technologies (e.g. septic tank) so most cannot advise or persuade customers to build hygienic toilets.
- There is a lack of proper direction and investment by local authorities in hygiene promotion
- Grassroot-promoter networks do not have sufficient awareness of hygiene and sanitation, and have few means for promotion and marketing.
- There is a lack of information about different affordable toilet technologies.
- Most local promoters at the commune level do not own hygienic toilets and thus they cannot set good examples for others or convince others to purchase toilets.

This example shows the challenge facing local staff and decision-makers when they are analysing all this information and have to come up with a feasible strategy to overcome the constraints. Another sticky issue is whether they are interested and if there is a career to be made by such an involvement. If not, this will constitute another serious constraint to overcome.

Social marketing - nothing strange

2.3 - 8



When toilets are sold on a market, residents will ideally have some designs to choose from. In Trichy in India, there is a sanitation exhibition with a range of full-scale units and also models of various toilets (right). They offer an option for every pocket, and the visitor can make informed decisions about which toilet they would like.

This is part of social marketing to increase the demand for hygienic toilets and encourage hygienic practices. A formal definition was given by Weinreich ([1999](#)): “the use of commercial marketing techniques to promote the adaption of a behaviour that will improve health or well-being of the target audience or of society as a whole”. The strategy is partly based on information and partly on an emotional process. Improving hygiene does not seem to be a motivator for investing in sanitation, but improving housing and social status do act as incentives. The emerging new culture of sanitation is a result of a carefully designed strategy based on the findings of consumer research. Messages to potential customers are tested and revised until it is believed that they can effectively stimulate the customer to change behaviours. At the same time, local mass media and government officials such as local health workers and mass organisations are trained to effectively communicate the messages and mobilise the local people. The initiative ‘Alternative Pro-poor Sanitation Solutions’ in Peru found that in rural areas people want to live in clean communities with fresh air and no garbage. In urban areas there is a strong vision that progress is based on individual effort. The motivational strategies are adjusted accordingly ([Baskovich, 2008](#)).

A particular challenge occurs when marketing a new product such as waterless urinals or urine-diverting toilets. The promoter/seller needs to address all possible counter-arguments that neighbours and professionals may put forward in order to make the homeowner confident in his/her choice. The picture (left) shows a plumber’s shop in Sweden with a wide range of urine-diverting toilets that he sells and installs in customers’ houses. He has sold and maintained hundreds of such toilets and can share with the customer his knowledge of the operation and maintenance of each brand. The customer can make an informed choice. In this case, the plumber also retains some standing in the community as the customers know him and his business depends on his good performance.

The Vietnam study (previous slide) further identified several **Market Demand Constraints** which are part of a social marketing analysis:

- People are vaguely aware of the health hazards associated with human faeces and the importance of using hygienic toilets.
- Ethnic people living in remote villages, particularly the Dao people, have the habit of defecating in the open. They do not use latrines because they think latrines are unsanitary. They associate latrines with dirtiness, bad smells and flies.
- Most Kinh people use human manure to fertilize their fields so their main reason for digging shallow latrine pits is to collect and store/compost the human waste before applying it.
- Young households do not have the financial means to purchase toilets. They usually share toilets with their parents, if they live nearby.
- Some households can afford a new latrine but prefer to wait until they can save enough money to fix other construction jobs in the house at the same time. They think that doing so saves money. So even if they have to live with a broken or temporarily unhygienic latrine they prefer to wait.
- Households with unhygienic single-vault toilets do not want to spend money demolishing them.
- Some poor households wait for external financial support.
- People lack information on the various models of hygienic toilets, which leads to delays in building low-cost hygienic toilets.
- People overestimate the prices of hygienic toilets. Many believe that only septic tanks and concrete toilet buildings are hygienic. They think septic tank toilets cost over three times more than the actual cost ([IDE, 2006](#)).

Studies have found that corruption is pervasive in the water sector, and significantly increases costs ([Halpern et al., 2008](#)). Opportunities for corruption arise where there is a ‘value for grab’ without a strong owner, in particular the case of a monopolistic public owner. Lack of ownership means that this value can be appropriated. Hot spots for corrupt activity are particularly in sector processes where money or contracts change hands or discretionary decisions are made.

Halpern et al. found that “in less developed countries providers seldom operate with high levels of profits.” Instead, such providers may charge high rents which they justify by pointing to their inflated costs, including inflated prices paid to contractors, or by claiming they suffer from high levels of inventory loss, or by claiming they have to pay for unaccounted-for water. In other words, inflated contract prices provide kickbacks to staff, and the costs are passed on to customers and taxpayers. The cost of theft or non-delivery of services is likewise passed on. Lack of competition means customers have no choice but to pay prices that are inflated by corruption. They pay them directly, or as taxpayers funding the losses.

The market-based approach to sanitation is thought to reduce corruption (Halpern et al., 2008). However, staff of any utility may supplement their low incomes by demanding bribes in return for turning a blind eye to illegal connections, fixing meters or omitting billing data. They may also charge extra to install new connections. Also, officials who can influence the awarding of construction and equipment contracts may get a kickback of a percentage of the contract value. Such corruption in capital projects is generally financed by private contractors inflating the price or reducing the quality or reducing the amount of the work (or all three). The public sector ends up paying more to the private contractor than the work is worth (go to <http://worldbank.org/>, select “Countries” section, and click on the particular country of interest).

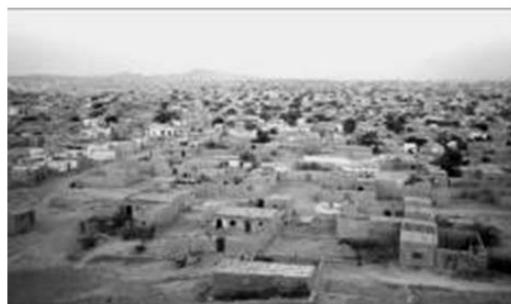
Orangi sanitation project in Karachi, Pakistan

2.3 - 9

Part of the Orangi area in Karachi
in the flat, flood-prone area



Digging for sewers in Orangi



Ready underground
sewer in a lane in
Orangi constructed
by self-help work
under the guidance
of OPP project

Source: Pervaiz, Rahman and Hassan, 2008

Karachi has grown rapidly from about 400 000 residents in 1940 to 15 million 2007, and some 60% live in low-income settlements on State land. Less than 15% of the wastewater and sewage is treated. Official record tells that 40% are connected to a sewer, but in reality almost 90% are serviced, of which half has been built by communities on a self-help basis ([Pervaiz, Rahman and Hassan, 2008](#)). Orangi was a new suburban low-income settlement in Karachi in the early 1970s. Ten years later there were about one million inhabitants. The government programmes had failed miserably and had the capacity only to upgrade one per cent of the country's low income areas and slums annually ([Khan, 1998](#)). A non-government organisation, the Orangi Pilot Project (OPP), started a low-cost sanitation programme in 1980 to address the poor sanitation conditions with bucket latrines and soakpits for excreta and open sewers for disposal of greywater.

The innovative OPP programme first analysed the constraints and possibilities in the community. Four barriers were identified: official agencies were believed to provide sewerage free of charge, sanitary latrines and sewers were beyond the paying capacity for low-income families, the families and masons did not possess the necessary skills for improvement, and the necessary social organisation did not exist. OPP addressed these barriers by developing low-cost technical solution, a bank for loans, and trained masons and families.

Orangi managed to demonstrate that, with some organisational and training support, residents could mobilise their own financial and managerial resources. By 1995 the resident had constructed 80 000 indoor flushed sanitary latrines and 400 km underground sewers (pictures). The government constructed connecting main drains and in some cases wastewater treatment plants (Khan, 1998). The residents retain responsibility for operation and maintenance of the community system. Ten years later almost 90% of Orangi settlement, altogether 108,000 households with 865,000 residents, are connected to sewers built in 7 600 lanes (Pervaiz, Rahman and Hassan, 2008).

Infant mortality in the Orangi area dropped from 128 per thousand live borne in 1984 to 37 in 1991, and the cost for treatment of diseases went down drastically (Khan, 1998; slide 1.1-19). This was achieved with a collective investment by the communities of US\$ 1.7 million or 2 US\$ per capita (Khan, 1998).

The OPP's strategy focussed on scaling-up people's initiative through support of small NGOs, community organisations and young activists to organise and promote the OPP methodology and programmes. In addition, the OPP helps to arm these groups with knowledge and ideas so that they can monitor, supervise, and keep account of the work they and the government agencies are doing in their areas, and by presenting the government with cheap and appropriate option for those aspects of development that they cannot undertake themselves. A main result seems to be that "... *they now prevent government contractors working in their localities, or contractors appointed by them individually or by their community organisation, from doing substandard work or work that is technically faulty. This has made the relationship between local government, the informal sector and the people more equitable.*" ([Khan, 1998](#)).

Since 1999 the OPP works together with central and local governments and communities. In 2006 the government adopted OPP's component-sharing model for sanitation improvements as part of the National Sanitation Policy. Already in 1999 OPP managed to convince the government to cancel a big conventional sewerage project to be financed by the Asian Development Bank loan of 70 million US\$. They instead agreed to use a community-approach. In this way they intend to address the challenge posed by a need for some 80,000 housing units per year ([Pervaiz, Rahman and Hassan, 2008](#)).

Pervaiz, Rahman and Hassan attribute the ad hoc and piecemeal development and maintenance to lack of information about existing infrastructure. They argue this has "... opened the door for corruption and a waste of resources in large sewerage and drainage infrastructure projects. Collusion between government officials, engineers and contractors leads to substandard yet expensive work. Proposals are regularly overdesigned and overpriced, while implementation is generally of poor quality, lengthy, and without proper technical supervision."

Guiding policy of a municipal council

2.3 - 10

The council shall be generous in granting house connections to the communal water supply

on the condition that the discharge system for wastewater from the premises is of good standard

- all new building plans shall include a clause on **urine to be discharged separately** in new houses and in houses that are being rehabilitated
- laying a separate urine pipe from the house to the border of the premises is the responsibility of the property owner
- the municipality is responsible for the emptying, storing, and disposal of the urine

Jan-Olof Drangert, Linköping university, Sweden

Tanum is a coastal community in Sweden with 12,000 permanent residents. The population reaches 60,000 in the summer. The seasonal population adds to local tax collection and contributes to high service levels for the permanent residents for the whole year. But, the municipal council is faced with problems of eutrophication of the water bodies. In order to remain attractive to tourists and to be able to increase the number of summer cottages, they had to do something about the wastewater discharge.

The landscape is dominated by bedrock which would make it very expensive to lay long sewers. Urine contributes about 50% of the phosphorus and 80% of the nitrogen in ordinary household wastewater (Module 4.1). The council estimated that they would reduce eutrophication to the desired level if they handled the urine separately, and faecal matter was composted and greywater treated in a septic tank or soil-bed or a cooperative treatment unit. Tanum municipality became famous for its 1992 decision to request all new houses and rehabilitated houses to be fitted with urine-diverting toilets and a urine pipe to the street. The council took responsibility to collect, store and transport the urine to surrounding farms. The house-owner paid a reduced fee for greywater connection and operation if he/she voluntarily secured a satisfactory system for disposed products.

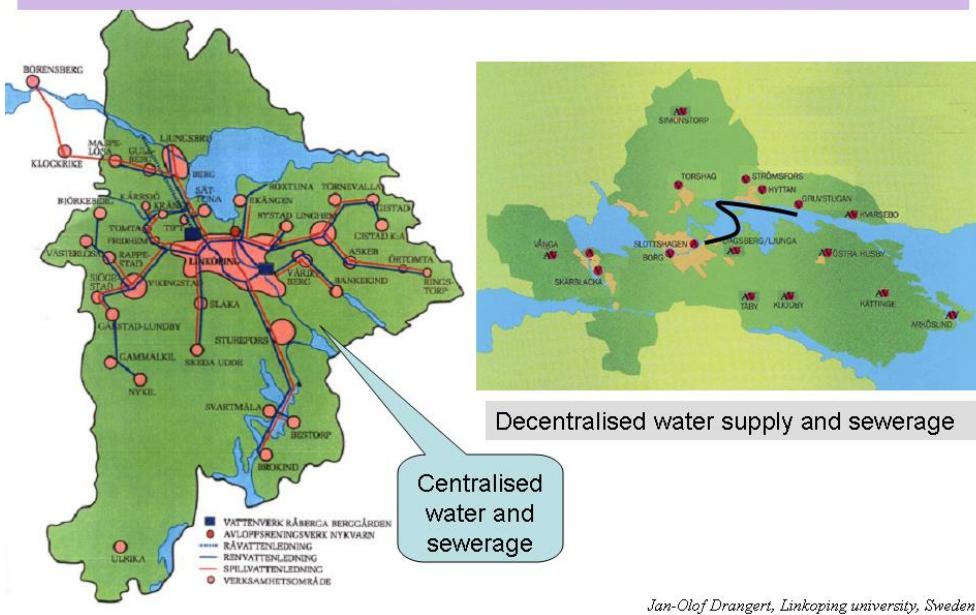
The objective of the new five-page policy (see www.tanum.se) was to support politicians and professionals to execute uniform and widely understood decisions on:

- Physical planning
- Provision of communal water and sanitation
- Screening applications for private installations and monitoring private installations

The municipal council will, according to its policy, be generous in granting house-owners connections to the communal water supply, even if this means that the water capacity has to be increased. A precondition is that the household's discharge system for wastewater is of a good standard. Further, the use of water should be minimised and reserved mainly for drinking, hygiene use, and the production of food. Storm and drainage water is to be returned to nature without using extended pipes. Local handling of greywater is recommended. Also, the aim is to recycle the nutrients in sewage back to agricultural land. All these requirements were met.

One policy and two strategies and their impacts in two cities and their rural hinterland

2.3 - 11



A national strategy may produce different outcomes depending on local circumstances.
The following is an example from the water and sanitation sector in Sweden.

There were some 2,300 self-governed municipalities in Sweden in the 1950s with populations ranging from a few hundred to half a million. The cities had utilities to manage water and sanitation services, while smaller communities and villages had their own combination of single household and community-run arrangements. At this time cities were about to build wastewater treatment plants in order to reduce rampant pollution of water bodies and groundwater.

To facilitate development planning and to enhance implementation capacity, the Swedish parliament enforced amalgamation of groups of previously self-governed municipalities into 283 larger ones, each containing a town as its central service unit. The scattered professionals in utilities were expected to come together and plan, for example, the water and sanitation networks in an integrated way (slide 2.5-10). The government provided subsidies for large conveyor pipes to facilitate centralised solutions and sometimes for establishing wastewater treatment plants.

A comparative study was conducted of two neighbouring cities with about 100,000 inhabitants each. Large stretches of rural areas (in green) and scattered villages were now part and parcel of the cities. The two cities were similar: same landscape and climate, same size of population, wealth, infrastructure and access to water sources. The aim was to analyse the impact of the amalgamation on ensuing development of the sanitation and water sector.

The two cities opted for very different strategies to improve the supply of water and treatment of used water. Linköping city (left) took a firm grip over the incorporated villages and used the government subsidies to connect them to a centralised network. The villages and their residents were encouraged to join by being offered low connection fees (conveyor pipes were heavily subsidised by central government). This was a time of low energy costs before the world oil crises in 1973 and 1975. Thirty years later, all villages except one were connected to the centralized water supply (dark blue) and sewage (in red). The tariffs for services have increased due to rising energy costs for pumping water back and forth. At this stage, it would be too costly for a house-owner to disconnect and build a private system. They would not receive a subsidy and the utility would fight such a move in order to retain subscribers.

The other city Norrköping (right) opted for a decentralised system and did not make much use of the government subsidies. After 30 years their network is minimal and has three nodes while most villages retained and further developed their local systems. All villages improved their water supply (V) and only four, on the rocky north side of the lake, connected to the treatment plant in the city centre (blue coloured pipe laid in the sea!) The picture also shows that they have a local WWTP (denoted A).

The reasons these cities chose opposing options are manifold, despite a common legal and economic background. The explanation cannot be differences in wealth, infrastructure etc. so other reasons must have been decisive.

Linköping is an old administrative centre for the county government, national church, and military. Thus, the surrounding villages had close connections and cooperation with the old city. Norrköping, on the other hand, was an industrial hub which competed with village industries and had no natural links to the surrounding countryside. Norrköping even faced opposition from the communities to be incorporated in the new city, to the extent that the national government had to intervene. Another important difference was that Linköping turned the water and sanitation department into a city-owned company, while Norrköping retained the municipal department for water and sewerage. In Linköping, historical relationships and the organisation of the water and sewerage sector were decisive in the choice of a more commercial approach which involved a centralised structure for all water and sewerage services.

Managing sanitation through effective policies, strategies and sustainable arrangements

2.3 - 12

- Match policies with the level of governance
- Coordinate responsibilities for water, wastewater, stormwater, sanitation and solid waste
- Devolve responsibilities to the lowest level starting with what the household can do
- Make sure the resources are adequate to perform the tasks at the intended level
- Reuse recovered resources (water, urine, faeces, etc.) on soil, **not** in water

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Policies give guidance as to what the public sector intends to do. They give rise to strategies that identify the main ways to achieve the desired goals. Such strategies take into account local conditions. They may achieve the intended outcomes or they may be adjusted or derailed due to vested interests among stakeholders. They aim not only at better health and environmental outcomes, but also include sustainable global resource use (economic, ecologically and socially).

It seems likely that in an environment with good governance it is relatively easy to fulfil plans and objectives. In a society with poor governance, however, it becomes even more important to understand the social forces at work. But sanitation can be improved even where governance is poor. Here, effective approaches may involve more local projects and systems which are transparent and give users a better chance to rate the services rendered. Public utilities typically are more difficult to scrutinise and monitor than smaller or localised ones (slide 2.2-5). Own-key options may have a better chance to succeed than turn-key arrangements. SMART policies (Specific, Measurable, Achievable, Realistic/ Resource-related/Result-oriented, and Time-bound) can be assessed properly.

Sanitation issues are becoming more and more pressing due to population growth and increased consumption of chemical products. Households must be part of improved resource management in communities since utility services alone cannot cope effectively with these problems. Any system has to be informative and provide feedback about the impact of its routines, product use, and discharges. There is usually no policy requiring urban residents to save on water or to avoid polluting water while using it. If all residents were careful with what they put into water, it could be easily treated and used again. If a person is given 40 litres to use in one day and does not pollute this ration, 38 litres can be treated and reused (with 2 litres transpired and urinated in other places). If the same person is given just 2 litres the next day, he or she will still have access to another 38 litres. Such self-contained sanitation arrangements are described in Module 2.1. In conclusion, there is plenty of water available for household use, and scarcity in urban areas is man-made. We have only just begun to explore ways of reducing consumption and increasing recycling.

Recent trends in sanitation shift the focus from ‘supply-driven’ to ‘demand-driven’ approaches which create low-cost sanitation facilities with affordable operation and maintenance costs. The approaches include social marketing, total sanitation to eliminate open-defecation through community dynamics, and stimulating a sanitation market with stores that sell hardware to individual customers.

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