


Risk Reduction: A Sectoral Responsibility



During the past several years, while national and local initiatives have been developing disaster prevention, preparedness, and response programs, in most countries institutions from the water and sanitation sector and service providers have been largely absent. In some cases private operators have not been included in government initiatives; in others there has been the mistaken belief by some providers that in emergencies institutions such as the Red Cross, the military, or humanitarian assistance agencies should provide basic services to the affected population.

The reform processes in the water and sanitation sector (decentralization to local municipalities, concessions, and privatization) have not incorporated mechanisms into concession contracts or in the regulations that make the service providers responsible for provision of services during emergencies. In fact, providers have been exempted from this responsibility. In light of this, the providers do not have incentives to reduce risk or to carry out preparedness measures to ensure that basic levels of service will be available during emergencies.

It is easier and more economical to incorporate protective measures against the impact of disasters during the installation of new systems than to install them in existing systems. Service is not interrupted during the execution of new works, and there are technical and logistical limitations to accessing underground components or in areas that are difficult to reach. However, this does not mean that protection of existing systems is not desirable and feasible; on the contrary, this work is important, particularly in those areas where there are latent and recurrent natural hazards.

The new settings in which water and sanitation systems are built have increased their vulnerability. Following are some of the reasons why risk management and vulnerability reduction in water and sanitation systems have become more urgent:

- There are more populations that, because of migration to cities and the limited land available in major cities, are forced to build houses in very high-risk areas on the periphery of the urban zones (urban fringe settlements). The water and sanitation systems installed to provide service to these populations are exposed to the same high level of risk.
- The systems need to be bigger, either because the safe water sources are increasingly limited and distant, or because the growth of cities makes it necessary for the systems to be built over great distances in the push to take services to the entire population.
- Increased environmental degradation has brought with it an increase in vulnerability not only for water and sanitation systems, but for the physical environment in general. Both at the local level (where deforestation of slopes increases the frequency of landslides) and at the global level (where climate change causes more frequent and more severe floods, hurricanes, and drought), environmental degradation increases the vulnerability of water and sanitation systems exposed to an ever-increasing number of hazards.

Regulation of services

In most countries, the regulatory and normative frameworks that govern the water and sanitation sector consider the occurrence of natural disasters as “Acts of God” or force majeure, which exempt the public, private, or public/private providers from the responsibility of providing services during an emergency.

Regulatory agencies and sectoral authorities have a direct and urgent responsibility to change these practices. They should be explicit about the responsibilities at the moment of the emergency, the actions that should be taken so

that a population is not left without services after a disaster, and the minimal conditions that should be provided in emergencies, that is, quantity, quality, and continuity of service. All of these actions should be established in a coordinated manner with local authorities.

Currently, technical and scientific tools can identify hazards and to what degree they can affect a specific system over its serviceable life or during the concession for its operation. Using this information, decentralization and concession contracts should include guidelines on the protection of the systems so that populations are not left without services during an emergency.

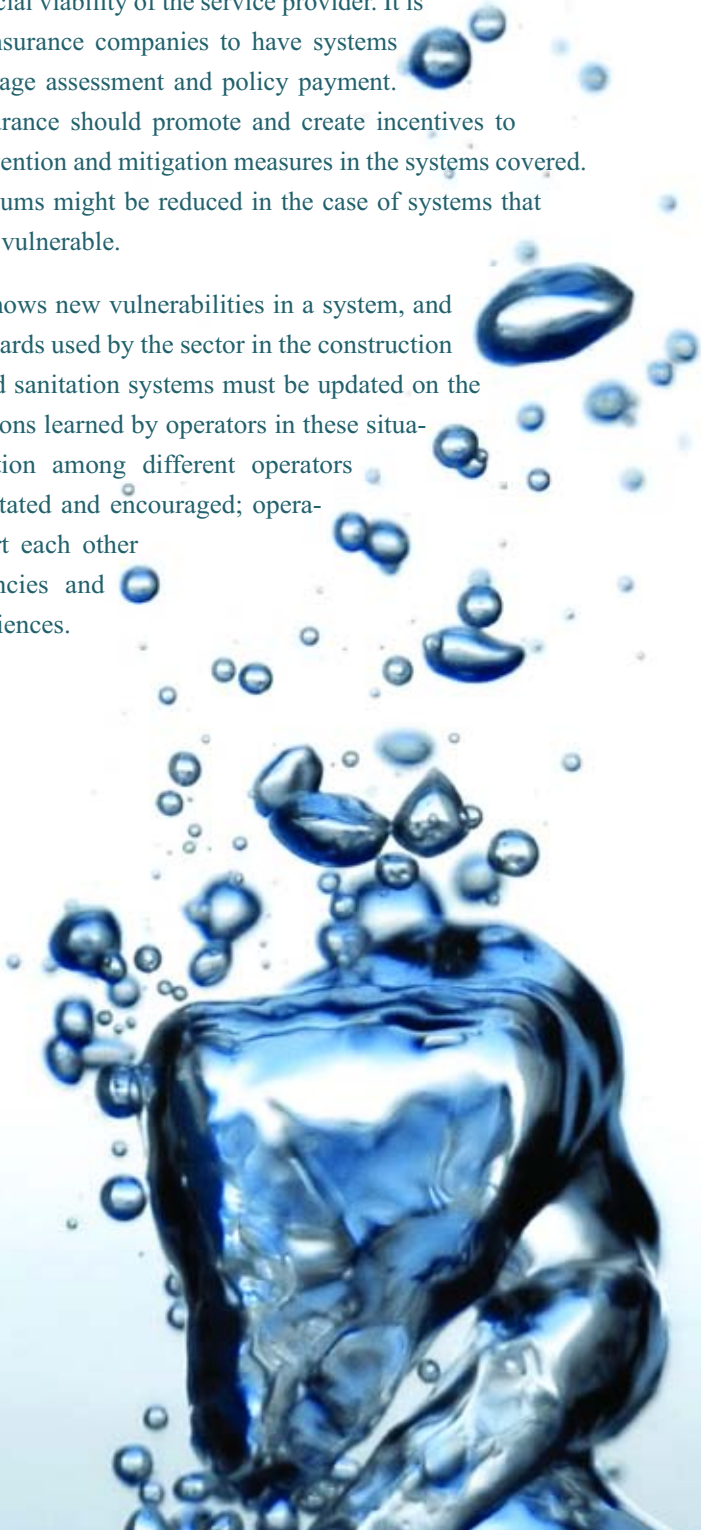
The importance of these services in emergency situations demands that mechanisms go beyond fines and penalties for noncompliance by service providers. On the contrary, mechanisms should create incentives for the service providers and operators and include the necessary measures to ensure provision of services, thereby reducing and transferring the risks and ensuring the sustainability of the systems and repair of the services after a disaster.

The transfer of risk by subscribing to insurance, although it does not reduce the physical vulnerability of the systems nor ensure the continuity of service, is a tool that can be relied on for the resources needed to repair damage and



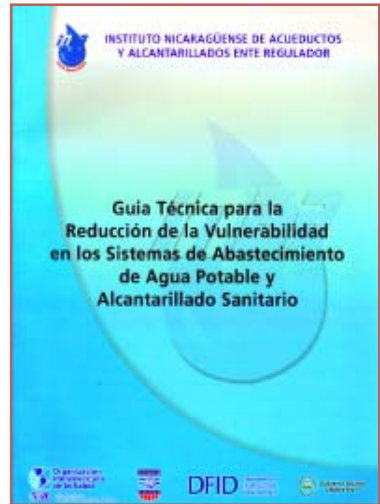
ensure the financial viability of the service provider. It is necessary for insurance companies to have systems for prompt damage assessment and policy payment. The use of insurance should promote and create incentives to incorporate prevention and mitigation measures in the systems covered. Insurance premiums might be reduced in the case of systems that prove to be less vulnerable.

Each disaster shows new vulnerabilities in a system, and the design standards used by the sector in the construction of the water and sanitation systems must be updated on the basis of the lessons learned by operators in these situations. Cooperation among different operators should be facilitated and encouraged; operators can support each other during emergencies and exchange experiences.



The Nicaraguan Institute for Aqueducts and Sewerage Develops Instruments for Risk Reduction

The Nicaraguan Institute for Aqueducts and Sewerage (Instituto Nicaragüense de Acueductos y Alcantarillados—INAA) is the regulatory agency for water and sanitation services in Nicaragua. Following the impact of Hurricane Mitch and the evidence of the fragility of these services, and following 28 vulnerability assessments of the country's water systems, INAA has worked to develop tools to allow operators to reduce the vulnerability of the infrastructure and to be better prepared to respond to emergency situations.



In the past few years, INAA has developed tools for risk management and specifically for vulnerability reduction to be considered in the development of water and sanitation systems in Nicaragua. These include the following:

- Guides for the development of studies on environmental impact of projects for drinking water supply and sewerage.
 - Guidelines on general terms for the development of vulnerability analysis and emergency plans for drinking water supply and sewerage.
 - Technical guidelines for vulnerability reduction in drinking water supply systems and sewerage.
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Service providers

The delivery of water and sanitation services in a given community or population center has an eminently local character. The providers of the services are actors in the normal development of a community's activities. The administration and operation of these services on the part of local government entities (municipalities), private companies, and community organizations (administrative boards in rural areas) means that local response by these same actors, in coordination with municipal government, is fundamental in the first stages of an emergency.

After a disaster, the operators should compile their experiences from the emergency response and rehabilitation and reconstruction phases so that they form part of the institutional knowledge and can be shared and replicated by other operators in a process of information exchange. Within this process, the sector authorities and the scientific and academic institutions are essential in providing the technical and scientific support that give validity to and extend the successful practices that have been compiled, as well as broader distribution of the knowledge that is generated with every disaster.

In view of the responsibility of providing the best possible services to critical facilities during the emergency phase, it is essential for the service providers to know the location and specific needs of facilities such as hospitals and shelters (or facilities that function as shelters). In this way service providers can give priority to serving these facilities and adapt the systems to the extent possible for this purpose.

The work carried out by operators should contribute to local governments in terms of land management (restricting habitation of high-risk areas), environmental protection, and risk reduction. There should be coordination of plans that exist in each of these areas to avoid overlapping and duplicating efforts, or even worse, hindering other projects or causing some type of vulnerability.

Risk Analysis: A New Contribution to Master Plans for Water Supply in Urban Areas

For years, master plans for water supply in major cities have been executed on the basis of studies on service demand, the master plans for urban development, urban planning, or zoning regulations.

In 2003, the Urban Community of Marseilles (France) decided to carry out a study on the safety of



their water supply system, which addresses the safety of goods, persons, and the environment, as well as quality of and continuity of water supply.

This study entails the inventory of hazards and identification and classification of risk according to a predetermined classification. Within the scope of the study different steps of the water supply process were examined, from the source to the installations for users, which included the following:

- Source of supply: Marseilles Canal and wells
- Production: treatment plants for drinking water
- Storage units
- Distribution networks

The cost to carry out this first master plan for drinking water supply is 350 million euros. The project is being conducted by the Urban Community of Marseilles in association with the Water Supply Company of Marseilles, and will take 20 years to complete.

