


<p>Water distribution WSP</p>	<p style="text-align: center;">Intermittent supplies and water quality risks</p> <p style="text-align: center;"><i>Management/technical guidance</i></p>	 <p>B O N E T W O R K</p> <p><small>...A global network of water suppliers committed to providing good safe drinking water...</small></p>
<p>Information derived from:</p> <ul style="list-style-type: none"> ○ Feedback from water suppliers 	<p>Related tools:</p> <ul style="list-style-type: none"> ○ Asset management ○ Network design & modelling ○ Backsiphonage into the distribution network ○ Ingress of contaminants in to the network ○ Distribution network repair procedures ○ Financing and charging ○ Role of Governments and regulatory authorities 	
<p>Important Notes to users:</p> <p><i>This document provides information to support improved management of piped drinking water quality by water utilities and other stakeholders. It cannot however be definitive and users must ensure that they assess local factors and particularly take account of any national or regional legislative requirements before use. Where necessary this may also need close collaboration with others. The priority to be given to implementing controls to manage identified water quality risks will depend on a proper prioritisation process by each water supplier.</i></p>		
<p>Summary</p> <p>Significant numbers of consumers in developing countries across the world only receive piped water supplies on an intermittent basis. The reasons for this vary but particularly include severe water shortage, poor water infrastructure and inadequate financing/cost recovery. The cycle of regular pressurisation/ depressurisation causes significant water quality risks from ingress of contaminants, particularly if the sewerage infrastructure is also in poor condition. In such situations consumers typically have to adopt various coping strategies including increased household water storage facilities which in itself can lead to increased risks of water contamination. This is a complex issue with a range of much broader policy implications but this document highlights the water quality risks from such practice and ways that they might be addressed.</p>		
<p>Detailed information</p> <p>For the long-term mitigation and management of water quality risks associated with intermittent supplies it is strongly recommended to shift to so-called 24/7 supply (or continuous supply). However such a shift will normally need to be part of a broader discussion on water policy, financing and social issues and will thus require strong commitment from relevant institutions such as national / regional governments as well as senior utility managers. However, in the short-term where intermittent supplies are prevalent, there are a number of water quality risks that need to be understood and managed as far as is practicable.</p> <p>Water quality risks</p> <p>There are a number of major risks from intermittent supplies:</p> <ul style="list-style-type: none"> ○ <i>Ingress of contaminants</i> As set out in other tools (ingress, backsiphonage, unauthorised access), when water distribution networks become depressurised there is a much enhanced risk of contaminants entering water mains. This risk is increased significantly if sources of contamination such as sewerage infrastructure, waste disposal facilities and industrial premises are also in poor condition. Risks particularly relate to microbiological contamination and water borne disease but other forms of chemical contamination could also occur. ○ <i>Stagnation within the network</i> When the network is depressurised there will still be water left in the system for periods of perhaps 24 hours or more. The quality of this water will degrade through microbial and chemical reaction causing sediments, poor taste and often increased risk of failing other health related 		

water quality criteria. When the pressure is restored this stagnant water may flush into consumers premises

- *Contamination within households*

Because of the intermittent supplies, consumers will develop a range of practical coping methods. These could include collecting water from standpipes/street water sellers, increased household water storage and/or digging of shallow wells. Particularly in poor households the construction, condition and maintenance of these facilities could be very inadequate thus leading to further significantly enhanced risk of water contamination.

Risk mitigation measures

In the longer term provision of a fully pumped continuous water supply will not only benefit water quality but also enhance social and other aspects. However, as set out above this is likely to require potentially significant resources and possible institutional change. These issues are covered in sections of this toolbox dealing with:

- Financing and charging
- Support of government and regulatory agencies
- Organisational capability

In the short term risks can be minimised to some extent though measures identified in other tools, particularly:

- Ingress of contaminants to the network
- Unauthorised access to the network
- Backsiphonage into the network
- Distribution network repair procedures
- Microbial regrowth and network disinfection

Household supplies are outside the scope of this toolbox but much useful information can be found in the WHO publications referenced below.

Reference for further detailed information:

- Relevant case studies
- WHO guidance on household water treatment and safe storage ([Click here](#))

Typical resources needed:

The resources necessary to address intermittent supply issues is likely to be significant and thus will probably require involvement of a number of key stake stakeholders at a senior level.

Document creation:

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