

**Water Safety Plans: Book 3
Risk Assessment of
Contaminant Intrusion into
Water Distribution Systems**

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Risk Assessment of Contaminant Intrusion into Water Distribution Systems

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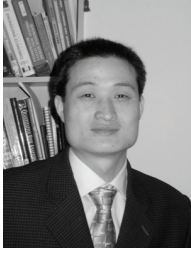
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Who should read this book

This book has been written specifically for practitioners involved in the operation, maintenance and management of piped water distribution systems in urban areas of developing countries. These practitioners include engineers, planners, managers, and water professionals involved in the monitoring, control and rehabilitation of water distribution networks.

The book explains in detail how to evaluate the risk of deterioration of the water distribution network of a water supply system. It begins with the conceptualization of risk evaluation and its three different components (hazard, vulnerability and risk). The book further elaborates on each of these three components, explains the methodologies used to estimate the components, and presents the background to the mathematical models. Finally, the book explains how these components are integrated to form a GIS-based decision support system for risk evaluation. The book is designed to help practitioners understand the concept of risk evaluation and supports the 'Manual' of the IRA-WDS software, a GIS-based decision support system for risk evaluation.

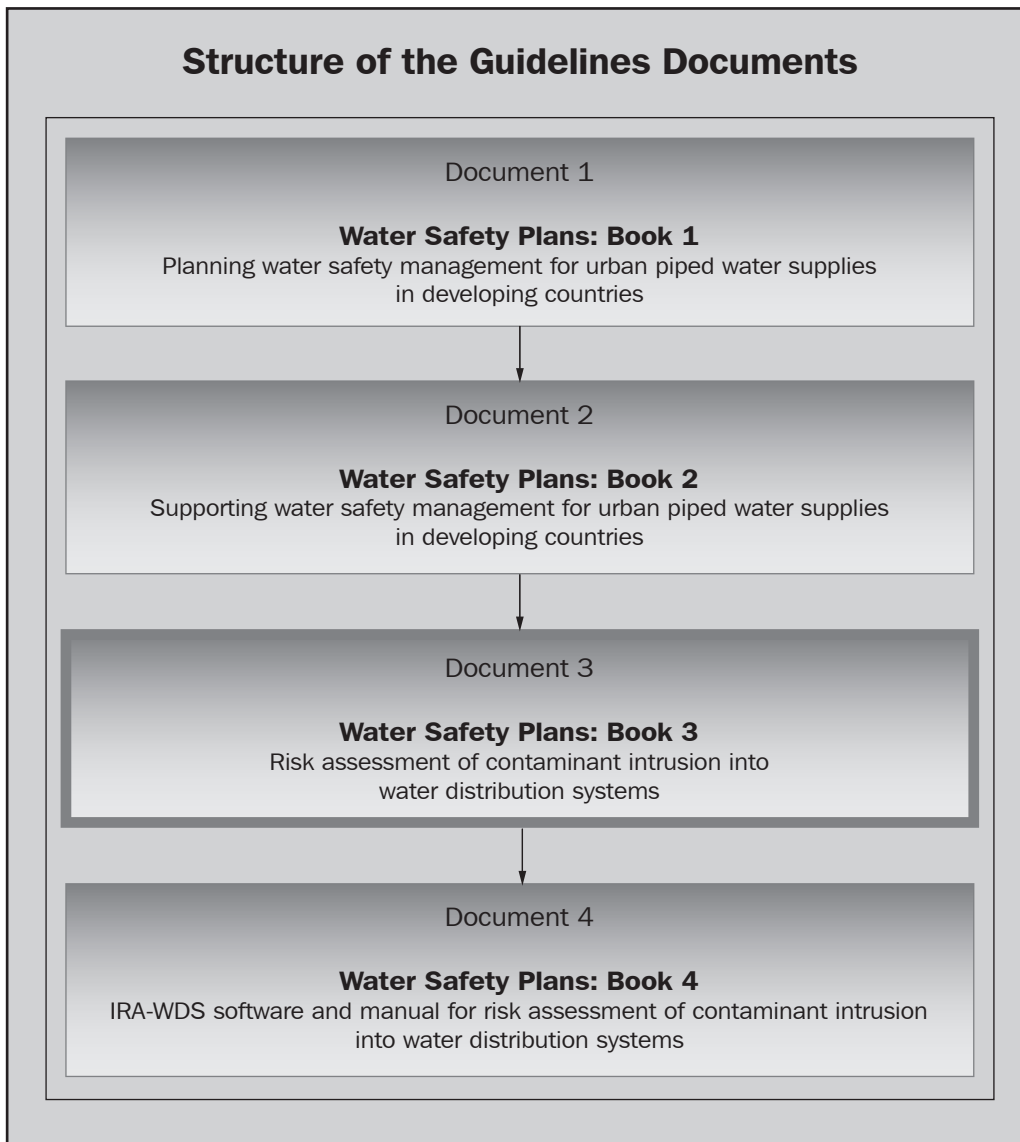
How to use this book

The IRA-WDS software is developed for the evaluation of risk to piped water distribution systems in urban areas of developing countries. The user of this software needs to know about the consideration of different factors, data type and requirement, which may vary from one region to another. The user can understand the concept of evaluation from this book and decide upon the importance of the different factors involved and associated data collection.

It should be noted that combining this book with Book 1 provides the decisionmaker with a valuable tool to assess the overall risk of contaminant intrusion into a water supply system. It is also important to consider this book in relation to Book 2, as it is imperative that the institutions and authorities responsible for water management have the capacity to use and implement IRA-WDS, and also to recognize the importance of developing an integrated approach to water management.

How does this book fit into the overall guidelines?

This book is Document 3 in the guidelines series developed for Project KaR R8029 *Improved Risk Assessment and Management for Piped Urban Water Supplies*. This book presents the background to the mathematical models used in the development of IRA-WDS software. IRA-WDS is a GIS-based software that estimates the risk of contaminant intrusion into water distribution systems from sewers and surface foul water bodies. It should be noted that combining this book with Book 1 provides the decision-maker with a valuable tool for assessing the overall risk of contaminant intrusion into a water supply system. It is also important to consider this book in relation to Book 2, as it is imperative that the institutions and authorities responsible for water management have the capacity to use and implement IRA-WDS, and also to recognize the importance of developing an integrated approach to water management.



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