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EAST AFRICAN STANDARD

Security of drinking water supply — Guidelines for risk and crisis management — Part 1: Crisis management

EAST AFRICAN COMMUNITY

First Edition 2010

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in East Africa. It is envisaged that through harmonized standardization, trade barriers which are encountered when goods and services are exchanged within the Community will be removed.

In order to meet the above objectives, the EAC Partner States have enacted an East African Standardization, Quality Assurance, Metrology and Test Act, 2006 (EAC SQMT Act, 2006) to make provisions for ensuring standardization, quality assurance, metrology and testing of products produced or originating in a third country and traded in the Community in order to facilitate industrial development and trade as well as helping to protect the health and safety of society and the environment in the Community.

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East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

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Introduction

In the preparation of this East African Standard, the following source was consulted extensively:

BS EN 15975-1, *Security of drinking water supply — Guidelines for risk and crisis management — Part 1: Crisis management*

Assistance derived from this source and others inadvertently not mentioned is hereby acknowledged.

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Part 1: Crisis management

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Cross-references

The British Standards which implement International or European publications referred to in this draft may be found via the British Standards Online Service on the BSI web site http://www.bsigroup.com.

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Introduction

This draft standard is based on European discussions in which the UK has taken an active part. Your comments on this draft are welcome and will assist in the preparation of the consequent British Standard. Comment is particularly welcome on national, legislative or similar deviations that may be necessary.

Even if this draft standard is not approved by the UK, if it receives the necessary support in Europe, the UK will be obliged to publish the official English Language text unchanged as a British Standard and to withdraw any conflicting standard.

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	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '... so that the mains connector to which no connection ...	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 15975-1

July 2009

ICS 13.060.20

English Version

Security of drinking water supply - Guidelines for risk and crisis management - Part 1: Crisis management

Sécurité de l'alimentation en eau potable - Lignes directrices pour la gestion de risque et de crise - Partie 1 : Gestion de crise

Sicherheit der Trinkwasserversorgung - Leitlinien für das Risiko- und Krisenmanagement - Teil 1: Krisenmanagement

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 164.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Ref. No. prEN 15975-1:2009: E

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Foreword

This document (prEN 15975-1:2009) has been prepared by Technical Committee CEN/TC 164 "Water supply", the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

The second part of guidelines for risk and crisis management will describe risk assessment procedures to ensure a stable and secure drinking water supply.

Introduction

National legislation may impose definitions that differ from the ones defined in this standard. In this case the necessary adaptations should be made in the application of this standard.

This guideline has been developed by Working Group 15 “Security of Drinking Water” of CEN/TC 164 “Water Supply”. This guideline describes the fundamentals of crisis management, including relevant recommendations for drinking water suppliers, and offers examples drawn from disaster and crisis management organisations within the relevant contributing national authorities.

Drinking water suppliers should have at their disposal high-performance equipment, sufficiently qualified staff and well functioning quality assurance measures. Alternatively, they should subcontract service provision to qualified experts and monitor the performance of the relevant services by those experts. Furthermore, they should be organised in such a way as to ensure those services are provided in a safe, reliable, environmentally friendly and economical manner under normal supply conditions. A risk management system designed to meet all these requirements and focused on the individual water supply processes (catchment area, water catchment, water treatment, water storage, water transport and distribution) leads to success. An effective and efficient risk management system supports any crisis management process developed in a separate document.

Extremely rarely however, certain situations occur that drinking water suppliers may not be able to control without significant third-party assistance and the involvement of the relevant authorities. These situations are difficult to forecast and, therefore, impossible to make detailed provisions for. They are characterised by an absence of, or the presence of ambiguous, information and a high risk with severe potential consequences. Its high degree of complexity due to the involvement and interaction of different players and its high degree of intrinsic dynamics make it difficult to control. All persons involved suffer from a high degree of pressure regarding decision-making, time and justification requirements while having at their disposal only a limited number of resources at the same time. Internal and external communications may work either not at all or only unsatisfactorily.

In such crisis situations, appropriate decisions need to be taken that consider all relevant conditions. These guidelines have been especially adapted by CEN for exactly that purpose in relation to the supply of drinking water.

The objectives of these guidelines are to enable the drinking water supplier to take action in the event of a crisis in order to ensure the continued supply of water to the greatest possible extent and to restore normal operating conditions as quickly as possible. The management tools required to achieve these objectives are explained below.

Across Europe there are many different ways to organise drinking water supply. The responsibility for crisis management may differ depending on legislation and organisational structures. In this document the term "drinking water supplier" is used to reflect all the different organisational structures. Member States may chose to specify these structures in more detail.

1 Scope

This European standard describes the good practice principles of corporate drinking water supply management in the event of a crisis, including preparatory and follow-up measures.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Council Directive 98 (83) EC of 3 November 1998 on the quality of water for human consumption [1]

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
crisis
event or situation with the potential to affect a drinking water supplier requiring more than the usual means of operation and/or organisational structures to respond to an emergency

3.2
crisis management
special kind of organisational capability designed to guide a drinking water supplier through a crisis, outside the organisation of normal operations

NOTE Such capability also includes the organisation of preparatory and follow-up structural and process activities.

3.3
disaster
situation where widespread human, material, economic or environmental losses have occurred which exceeded the ability of the affected organisation, community or society to cope using its own resources

3.4
emergency
sudden, urgent, usually unexpected incident or circumstance which is highly likely to or will cause grave damage to persons or assets or considerably impair the supply of drinking water and which requires immediate action frequently involving the relevant authorities (e.g. police, public health officials, and local authorities)

3.5
incident
deviation from normal operating conditions

NOTE An incident is characterised by its cause, the extent and the consequences of the deviation.

3.6
hazard
potential biological, chemical, physical or radiological impairment of the water supply system

NOTE Each organisation should determine the maximum credible hazard (the 'Design Basis Hazard'); it plans to have a capability to respond to. By definition it is therefore tolerant that its crisis management response to events or circumstances exceeding the Design Basis Hazard may be inadequate.

3.7
normal operation
general term describing all water supply-related operating conditions and processes which can be controlled by the normal means of operation and/or organisation structures selected by the supplier

3.8
risk (of hazard)
likelihood of a hazard's occurrence and the impact on the drinking water supply system

3.9
residual risk
tolerated and/or unknown risks posed by hazards

4 Fundamentals of corporate-crisis management

4.1 Establishing the context

4.1.1 Legal basis in the event of crises

In the event of a crisis, a fundamental aim of the operation of water supply systems should be to remain compliant with the national regulations that apply in normal circumstances.

In the presence of a public health hazard, the responsible national health offices are entitled to conduct investigations on the basis of national regulations based on the European Drinking Water Directive [1] to avert the danger. If rapid and/or coordinated action is required, the national police and public order authorities may have special rights to intervene in order to avert danger or to improve effectiveness of response.

Beyond that, special regulations stipulating additional requirements and empowering the state to intervene apply in the event of disaster or war.

Some Member States governments may have defined levels of threat which may influence the response of the drinking water supplier.

4.1.2 Cooperation between water utilities and the relevant authorities in the event of a crisis

The interaction between a drinking water supplier and the relevant authorities should be guided by the regulations applying to normal operating conditions until the relevant authorities declare a crisis/disaster. This applies even if the drinking water supplier has already itself declared a state of crisis and alerted the corporate crisis management team.

As soon as the competent authority establishes a state of crisis/disaster, the drinking water supplier and the authority in question should get organised jointly in accordance with the pertinent statutes and/or regulations.

Like all other corporate crisis management measures, the above-mentioned activities should be prepared well in advance of a crisis. This ensures that in the event of a crisis all concerned already know each other and are mutually informed about each other's structures and processes as well as about the means and channels of communication. A request for cooperation may be initiated either by the authorities or by the drinking water supplier.

The early integration of crisis management team members/technical consultants from drinking water suppliers into the authorities' crisis management system is intended to

— exchange necessary information at an early point in time,

— provide the authorities with expert knowledge, and

— enable the drinking water supplier to influence decisions and measures to avert or mitigate hazards in acute situations.

At a national level, this guideline might be combined with background information about the organisation or specific resources of the national crisis management arrangements from a government perspective.

The drinking water supplier should create the prerequisites for the integration of drinking water supplier employees as crisis management team members/technical consultants from drinking water suppliers into the crisis management team of the authorities and, consequently, their involvement in the crisis management processes of the competent authorities as shown in Figure 1. This integration can be implemented either by telephone or by dispatching liaison officers. If the drinking water supplier dispatches a suitable employee to the administrative committee, exchange of information with this employee should be ensured.

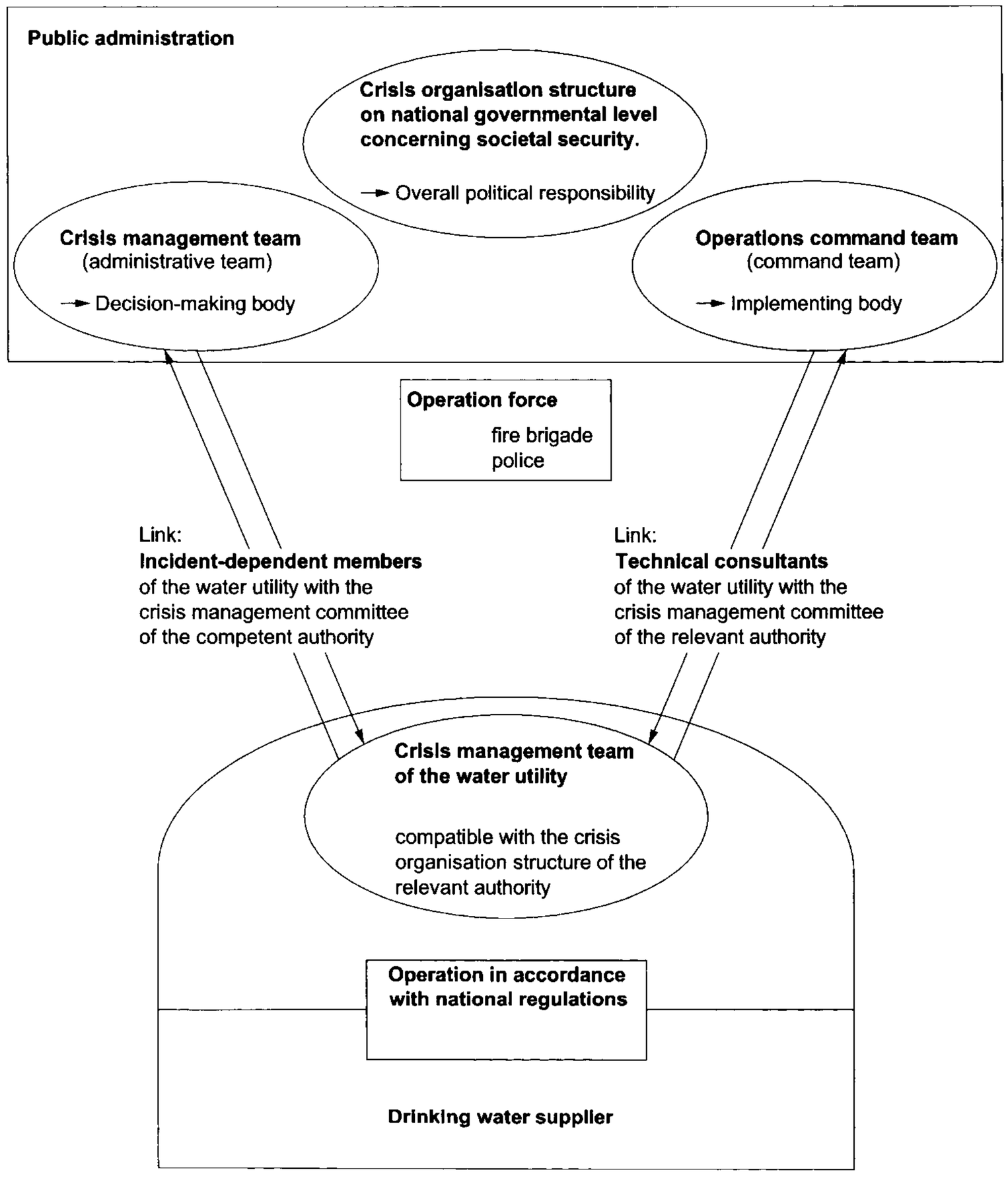


Figure 1 — Example of a cooperation structure of the crisis organisations of water utilities and the competent authorities

4.1.3 Regulatory, contractual, and environmental aspects

The drinking water supplier should know and respect all national regulations concerning crisis/catastrophe situations.

The drinking water supplier should prove if there is a need for making provision for additional dependable contractual support. If applicable, a crisis management system may be organised jointly with third-party suppliers; multi-segment organisations may also outsource it to a suitable organisation unit, always unambiguously assigning all responsibilities.

The drinking water supplier should always respect the local environmental situation.

4.1.4 Consideration of size and structure of a drinking water supplier

The general conditions prevailing at a drinking water supplier's (e. g. company size, potential leeway for action regarding logistics in the event of a crisis) should be considered when designing the organisation and staff structures as well as the infrastructure for a corporate crisis management capability.

It is recommended that for very small local suppliers it should be ensured that they can rely on the support of other competent official organisation units in the event of a crisis.

The creation and maintenance of a corporate crisis management system should proceed along the following lines:

— gather information about the local organisation of the crisis management system of the local authorities;

— adapt the principles identified in 4.5 relating to the structure and workflow of corporate crisis management system to match the supplier's own organisation structure;

— define the planned extent of cooperation with the local authorities in the event of a crisis;

— practise crisis exercises and/or participation in disaster relief exercises, and evaluate and, if necessary, adapt the crisis management system from lessons learned.

4.1.5 Link to risk assessment

Economical, technical or hygienic risks exist at all water utilities and should be suitably managed. Risk management is used for systematically dealing with the risks. A standardised method for risk management enables managers to look at the whole range of risks at water utilities (caused by natural endangering, technical failure, natural disaster or malicious threats) on a comparable basis with each other. With a risk-based and process-oriented approach the management risks at the drinking water supplier can be systematically determined, evaluated and controlled. Risk management is part of the proper management.

However, a residual level of a residual risk will usually remain (unless the hazard is terminated). This is because it is impractical and not feasible to treat, terminate or transfer all sources of hazard. In addition those controls upon which reliance is placed to control hazards may fail. For these reasons a crisis management system is needed. Crisis management is a management system with a special structure and process organisation especially designed for the exceptional case of crisis. Examples of this kind of special organisation are evident in the general structure of military staffs, and are also found in the police, fire brigade and other emergency protection authorities, security and relief organisations. A well planned and organised crisis management system enables the drinking water supplier to deal with all types of crisis successfully.

4.2 Definition of objectives

Primary goal of drinking water suppliers should be to handle a crisis situation potentially affecting drinking water supply in an organised way focussing on the ongoing provision of drinking water in accordance with established statutes and/or regulations.

Therefore drinking water suppliers should

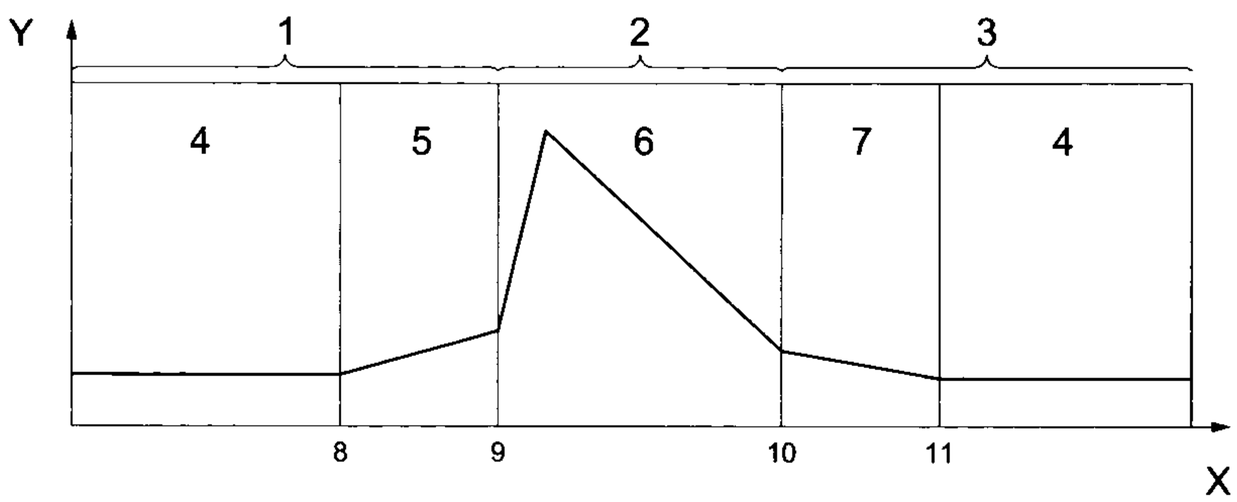
— define their objectives based on the national laws, regulations and permits, and

— develop an individual crisis management plan on the basis of these guidelines.

4.3 Phases and elements of crisis management

Corporate crisis management is a process that can be subdivided into the following phases and elements (see also Figure 2):

— Preparatory crisis management:	- routine operations: including, among other things, structural preparation and training
	- Phase I: transition from corporate incident management to crisis management and preparation for crisis operations (preparation of operations)
— Operative crisis management:	- Phase II: marked by declaring a state of crisis and convening the crisis management team; comprises intensely pursued corporate crisis control activities. This phase terminates when the end of a crisis is declared and the crisis management team stands down.
— Follow-up crisis management:	- Phase III: A progressive resumption of normal operations takes place (this may may include a continuation of the incident below the trigger level for a crisis)
	- Normal operations: includes, among other things, a de-briefing of and follow-up on what has been learned, preparation for future crises, additional training etc.



Key

X Time
Y Activity

1 Preparatory crises management
2 Operative crises management
3 Follow-up crises management
4 Routine operations
5 Phase I
6 Phase II
7 Phase III
8 Ascertaining the fault
9 Declaring a state of crisis
10 Declaring the end of a crisis
11 Changeover to routine operations

Figure 2 — Corporate activities over the course of a crisis

In addition to the conventional precautionary measures designed to control incidents, successful crisis management requires a special structure and workflow organisation that help take action quickly and appropriately on the basis of lean decision-making processes.

4.4 Structural organisation

4.4.1 General

During a crisis, quick planning and the speedy procurement of information are key tasks which a drinking water supplier may be unable to accomplish to the necessary extent within normal organisation structures.

This being so, a lean organisation structure (crisis management team) preferably geared around the crisis management structures of the relevant national, county or local authorities is most expedient. This, however, may have an impact on the decision-making structures and, consequently, the management of the drinking water supplier.

4.4.2 Tasks and structure of the crisis management team

The creation of a crisis management team presupposes a clear and unambiguous definition of tasks (team functions). These tasks essentially comprise

— the ascertainment and assessment of the situation,

— decision-making and the implementation of decisions,

— supervision and control of the implementation,

— documentation,

— internal and external communication, and

— the continued supply of material to deployed forces.

In addition to the scope of these tasks, the structure and equipment (staff, rooms, technical equipment) of the crisis management team should be determined by both the size and the number of sectors in which the supplier is active as well as by local peculiarities, if applicable.

The crisis management team should consist of a team leader and of other members who are in charge of the above-mentioned tasks. The unambiguous assignment and definition of these special tasks is absolutely indispensable. The team members responsible for the technical units assigned to them should report to the team leader about research results and/or any measures taken in their respective fields. Crisis management team members may play different roles within the team– but it is essential that everyone is clear what role they are performing at any one time. The team may be supported by experts, if necessary.

4.5 Process organisation

4.5.1 General

The process organisation defines - on the basis of the structural organisation - the proper sequence of operations required to perform all tasks and activities.

The following basic elements of structured decision-making processes may be adopted if the sequence of operations is based on the management processes of task force organisations.

A schematic overview of the work of a crisis management team is given in Figure 3.

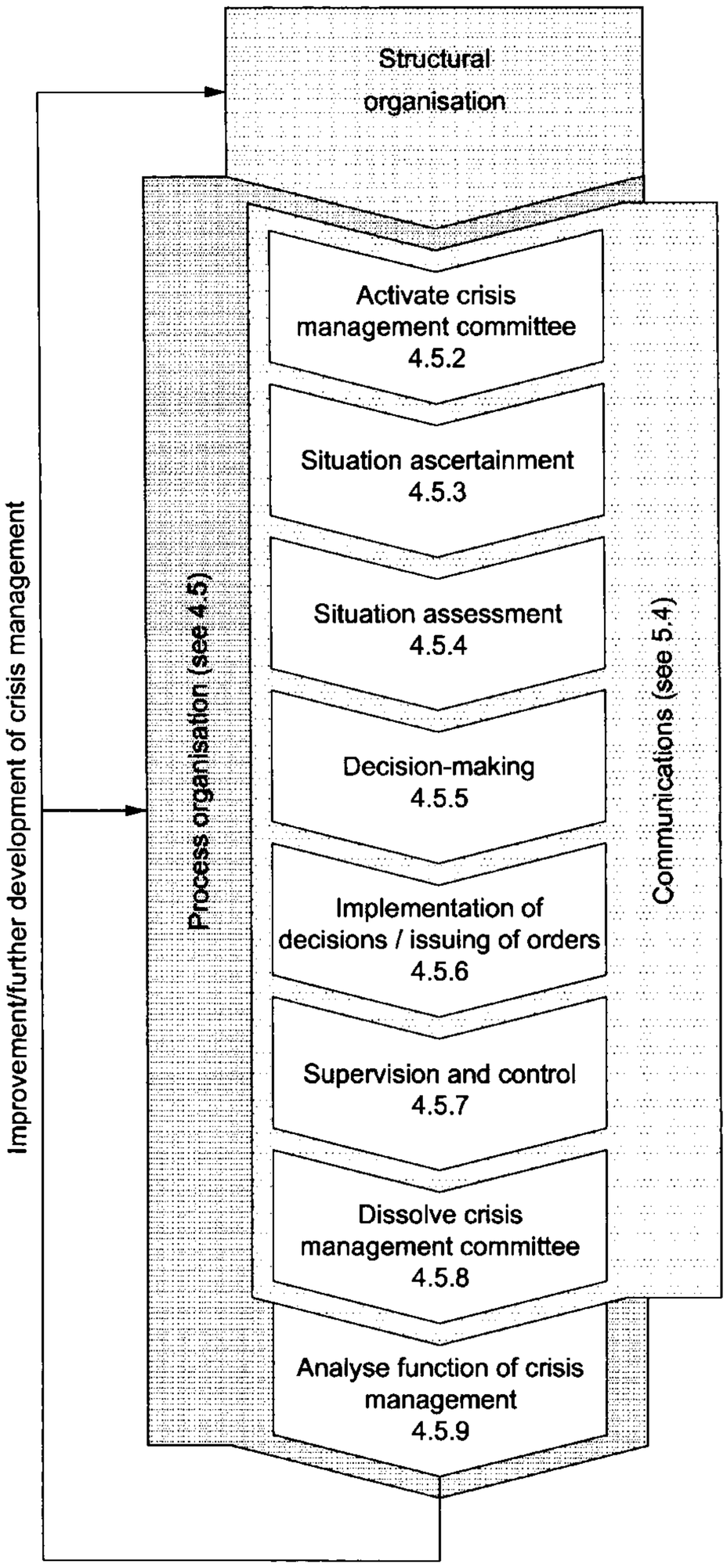


Figure 3 — Schematic workflow of a crisis management team

4.5.2 Activating the crisis management team

The following steps should be organised in such a way as to enable the crisis management team to take action as soon as possible . It should be recognised that knowledge and information will be incomplete and that the position will continue to evolve and change rapidly.

— Decision for the crisis management team to convene
Clause 4 describes some typical reasons for convening the crisis management team. This should constitute the basis for deciding which drinking water supplier representative is authorised to convene the crisis management team.

— Convening the crisis management team
The process ruling the convening of the crisis management team should be defined. This process determines which drinking water supplier representatives will inform whom in which manner.

— Transfer of decision-making competences to the crisis management team
The transfer of decision-making competences following the constitution of the crisis management team from normal corporate to crisis organisation structures (e. g. from the head of fault management to the head of the crisis management team) should be unambiguously defined.

4.5.3 Situation ascertainment

In principle, the first thing to do is to ascertain the situation as precisely as possible as this creates the basis for the sensible assessment, planning, carrying out of actions and purposeful monitoring of the implementation. The ascertainment of a situation always rests on existing available information, such as, for instance, messages, information and personal findings.

4.5.4 Situation assessment

The assessment of the situation is the most important aspect by far with regard to all subsequent process steps and decisions. The assessment process generally includes the findings from risk analyses:

— hazard and damage situation;

— situation of own forces (company, sub-organisations, etc.);

— weighing of ways to cope with/de-escalate the situation;

— determination of general conditions for crisis-control activities.

Each crisis management team member should assess the situation for the area of duty assigned to him/her and submit to the responsible individual (in general, the head of the crisis management team) a report about the specific problems in the form of a state-of-the-situation address, and present possible solutions. In this context, it is important also to point out solution alternatives that exceed the usual corporate decision-making latitude, including measures already envisaged within the risk management framework.

4.5.5 Decision-making

After discussing the situation assessments with the members of the crisis management team, the team leader will decide on the next steps, which are based on the following principles:

— Take decisions swiftly rapidly yet based on the best information available.

— Do act, not react – take and retain the initiative.

— Create leeway for action by generating backup resources (e. g., extra staff) or alternatives – pursue alternative options simultaneously, if possible.

— Use limited resources purposefully and where optimally suited for the job.

All decisions should be recorded in writing; the basis for reaching of each decision should also be documented. All records and communications should use measured language and avoid speculating on the potential cause of the crisis where this is not relevant to decision making.

NOTE Any documentation produced may be used during subsequent external investigations.

4.5.6 Implementation of decisions and issuing instructions

The team leader should issue the necessary instructions on the basis of the decisions taken. Instructions should be

— issued in a clear and unambiguous manner,

— structured understandably,

— of such nature that they can be carried out, and

— mandatory.

4.5.7 Supervision and control

The execution of instructions should be supervised and controlled in instructions to ensure that orders are carried out properly.

4.5.8 Termination of work of the crisis management team

The responsibilities and processes applying to the proper termination of corporate crisis management should be defined unambiguously.

4.5.9 Analysis of the course of crisis and further development of the crisis management system

An analysis of the suitability and workability of all corporate and operational crisis management structures and regulations should be performed when returning to normal operating conditions at the latest. All findings from the analysis shall be incorporated into the crisis management system.

5 Preparedness for crisis

5.1 Hazards triggering a drinking water crisis

A crisis typically occurs very rarely and is difficult to make provisions for due to its unpredictable nature; it is characterised by an absence of, or the presence of ambiguous information and a high risk with severe potential consequences. Its high degree of complexity due to the involvement and interaction of different players and its high degree of intrinsic dynamics make it difficult to control. All persons involved suffer from a high degree of pressure regarding decision-making, time and justification requirements while having at their disposal only a limited number of resources at the same time. Internal and external communications may work either not at all or only unsatisfactorily.

Under routine operating conditions, the drinking water supplier's existing structure and work flow organisation is generally fit enough to control incidents efficiently and effectively. However, escalating incidents, coinciding incidents or a series and interaction of unfavourable circumstances may render a situation uncontrollable by the resources at hand, thus causing a crisis.

Other incidents that may trigger a crisis are the following:

— A crisis may be "imported from outside" into the drinking water supplier. The trigger is the convening of the crisis management team(s) of the authorities in the presence of an acute or potential danger to society, which includes continuing effective and efficient operation of the public water supply.

— Incidents that can usually be controlled by the normal means of operation may escalate and turn into a crisis if, after the involvement of the general public, the subjective hazard perception of the public determines the course of action. Such a situation may arise e.g. due to communications deficits.

— A crisis may also be triggered by, for instance, a natural disaster, large-scale contamination, failure of technical equipment or by criminal or terrorist acts or acts of war or pandemic. Depending on the judgement of the operations managers of the drinking water supplier, a crisis may either immediately or in the near future entail negative consequences for the public water supply and may not be controllable with in-house resources.

5.2 Structural and process organisation

It is indispensable to nominate persons who will take, implement and document decisions. It may be desirable to nominate several persons to fulfil a role. This should ensure the availability of a designated decision-maker at all times. Care should also be taken to ensure the continual availability of all means of communication as well as of the fundamental documents and tools that are indispensable for crisis control.

Rules governing the organisation of the sequence of operations and the interaction of the various functions and tasks should be defined and apply throughout the organisation.

The creation of a crisis management team presupposes a clear and unambiguous definition of tasks (team functions). Such tasks essentially comprise:

— the ascertainment and assessment of the situation;

— decision-making and the implementation of decisions(command);

— monitoring and control of the implementation(control);

— documentation;

— internal and external communication, and

— continued supply of material to deployed forces.

In addition to the scope of these tasks, the structure and equipment (staff, rooms, technical equipment) of the crisis management team should be determined by both the size and the number of the sectors in which the supplier is active as well as by local peculiarities, if applicable.

The crisis management team should consist of a team leader and of other members who are in charge of the above-mentioned tasks. The unambiguous assignment and definition of these special tasks is absolutely key. The team member responsible for the area assigned to him/her should report to the crisis management team leader about research results and/or any measures taken in the respective field.

5.3 Crisis management control room equipment

Annex A provides information on potential equipment of a crisis management control room.

5.4 Communications and information flows

5.4.1 Internal communication

Secure internal corporate communication constitutes one of the most important pillars of crisis management. All information and messages should be forwarded as directly as possible to the crisis management team, while the orders issued by the crisis management team should reach the task forces as quickly as possible. This may require an appropriate (tele-)communications infrastructure and the pertinent tools as well as rules governing the proper use of these means.

5.4.2 External communication

In the event of a crisis, external communication is a decisive factor as many situations turn into a crisis only after public (the media's) interest has been stirred.

Clear rules and regulations regarding communication during a crisis with the public and the media should therefore exist that should include the following aspects, always mindful of potential legal consequences:

— a communications strategy (what will be reported to whom and in how much detail?);

— an official mouthpiece (who is exclusively authorised to issue public statements, if applicable?);

— technical and organisational communications infrastructure.

In this context, it makes sense to prepare in advance the wording of important corporate statements that will require only little modification before reaching their target groups in special situations.

5.5 Telecommunications equipment, granting of privilege

Telecommunications technology should be paid special attention in order to ensure reliable internal and external communications. In principle, a back-up level (e.g. corporate radio) should exist in the event of a primary system's failure.

On the basis of possible national regulations, water utilities generally have the opportunity to apply for the granting of privilege regarding both land-line and mobile phone connections. First of all, a confirmation of privilege is proposed, which can be obtained from the relevant national authorities.

5.6 Databases

The drinking water supplier should decide what drinking water supplier internal data may be relevant for proper leadership through crisis.

In addition, the drinking water supplier should decide what external databases are relevant and ensure the access to these databases and their subsequent updating.

5.7 Qualification

Water utilities should have at their disposal high-performance equipment, sufficiently qualified staff and well functioning quality assurance measures or, alternatively, subcontract qualified experts and monitor the execution of the relevant services. Furthermore, they should be organised in such a way as to ensure their safe, reliable, environmentally friendly and economical operation under normal supply conditions. An adequate qualified drinking water supplier for normal daily business is the necessary basis for handling crisis situation in drinking water supply in a proper way.

For further recommendation on qualification of personnel see Annex B.

5.8 Exercises

The continued existence of a functioning crisis management system relies upon regular exercises. These exercises may should be planned and carried out regularly at appropriate levels.

The proceeding and the results of the exercises should be evaluated and the findings incorporated into the crisis management system.

5.9 Documentation

All stipulations and regulations concerning the crisis management structure and process organisation should be documented unambiguously and passed on to the respective employees for their information.

In the event of a crisis, the alerting of the crisis management team as well as its work, i.e. all incoming information and messages, coordination with the authorities and/or the authorities' crisis management team, as well as its decisions and resolutions including the reasons for same and the orders issued to the task forces should be documented for later reference. This can be done by using either templates or a so-called "task force operations log".

6 Coordinated response to crisis

The activating of the crisis management team and the activities of the utilities should run in accordance with 4.5.

7 Recovery from crisis

Recovery comprises all activities necessary to return to normal operation of the water supply system.

To increase the opportunity for a successful recovery, the following aspects should be considered:

— determination of the characteristics of the contaminated/interrupted site/system;

— establishing the recovery goals (including intermediate goals);

— analysis of recovery alternatives;

— recovery planning;

— restoration of the water supply system;

— verification of water quantity and quality.

Recovery actions can be taken simultaneously at the whole infrastructure or only at sections of it, in accordance with the decisions made by the crisis management team after a situation assessment has been carried out. At all, it is of essential importance that the recovery actions are started and completed as rapidly as possible in order to minimize the impact and the duration of the crisis.

8 Lessons learned

An analysis of the suitability and workability of the corporate crisis management structure should be performed when returning to normal operating conditions. All approved findings from the analysis should be incorporated into the crisis management system.

Annex A
(informative)

Selection and equipment of a typical crisis management control room

A.1 Room infrastructure

— located in a safe corner of the area of operation, if possible;

— centrally located;

— within immediate reach of the members/functions of the crisis management team;

— enough parking lots in the immediate vicinity;

— sufficiently dimensioned, separate conference room (without telephones) for meetings;

— smaller conference rooms for working groups for the coordination of details;

— sufficiently dimensioned working room (to accommodate the crisis management team and the supporting functions);

— vision screens over the windows, if and when required;

— retreats nearby (for resting and eating/drinking);

— dimming facilities for presentations.

A.2 Technical infrastructure

— PC workstations with internet access, e-mail functions and external storage media for data transport (CD-ROM, external hard drives, USB sticks);

— telephones with head sets;

— dedicated lines to contact important companies and authorities, if applicable;

— enough fax machines and/or fax servers on PCs;

— scanner (for scanning documents, photos, etc.);

— access to in-house camera system;

— access to in-house information systems;

— access to company radio installations;

— visualisation equipment (e.g. silk screen, digital projector, flip chart, whiteboard);

— enough TV sets, radios and video units (to track, analyse and record camera images and reports);

— copying machine;

— power supply-independent analogue telephones;

— emergency power supply.

A.3 Miscellaneous

— form sheets, minutes sheets;

— agenda regarding meetings to discuss the situation;

— list of delegates;

— lists of telephone numbers/contact and availability data;

— crisis management team seating arrangement;

— up-to-date plans and pictures of the institution;

— office equipment;

— name tags showing the function designations of members and functions of the crisis management team;

— function-related marking of workplaces and seats in the conference room;

— access control to the crisis management team room.

Annex B
(informative)

Recommendation on qualification of personnel

Water utilities should have at their disposal high-performance equipment, sufficiently qualified staff and well functioning quality assurance measures or, alternatively, subcontract qualified experts and monitor the execution of the relevant services. Furthermore, they should be organised in such a way as to ensure their safe, reliable, environmentally friendly and economical operation under normal supply conditions. An adequate qualified drinking water supplier for normal daily business is the necessary basis for handling crisis situation in drinking water supply in a proper way.

Especially for crisis situation high qualified personnel is of special importance. Water utilities should have

— at least one technical executive officer responsible for the technical duties and fields of the drinking water supplier within the scope of the guideline at hand. This technical executive officer should possess the necessary technical knowledge and overview about the broad field of water supply, a corresponding sufficient educating and insider experience,

— technically specified personnel with the necessary training, experience and knowledge of legal and official provisions, accident preparatory regulations as well as generally recognised technical rules required to perform its technical tasks.

For keeping the high staff qualification technical personnel should advance their training by means of advanced and further training measures in the field of the technical tasks they have to perform.