Contingency management in The Netherlands

securing an essential service against today's risks

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12 May 2011

Outline

- What is contingency management
- Why managing risks?
- Managing risks for Dutch water supply
- Contingency plan outline
- Future challenges

What is contingency management?

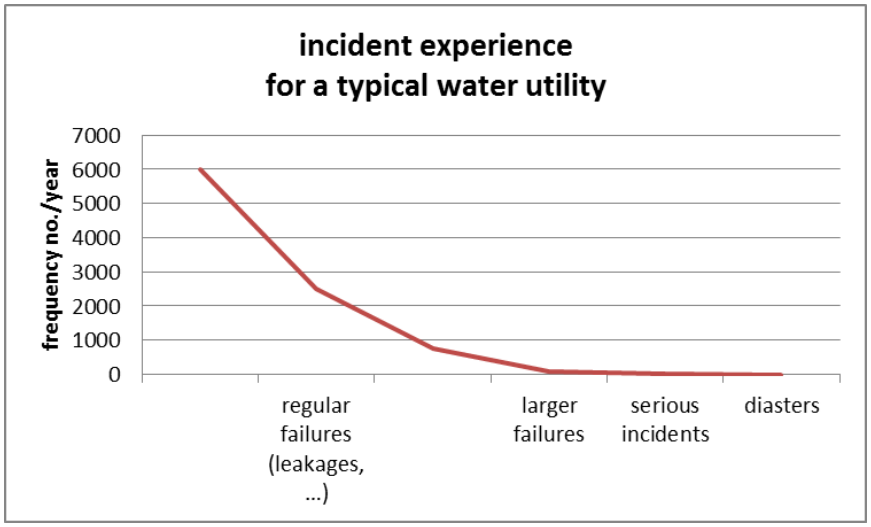
- set of measures an organisation takes to secure continuity of the service, ranging from risk identification until emergency response
  - integral, coherent framework
  - all hazards (risks)
  - regular- and disturbed situation
  - present and future situation
  - quantity as well as quality

Why managing risks?

- today's society vulnerable for failures of central services
  - densely populated urban areas
  - vulnerable customers such as hospitals, elderly homes
  - economy: no water – no business, no food, no energy,…

Why managing risks?

- vulnerability paradox - the more reliable the service:
  - the less society knows how to deal with interruptions
  - the less utility staff knows how to manage incidents



Why managing risks?

- high expectations of stakeholders (customers, government)
- reputational risk
- it can happen to all of us…

Managing risks for Dutch water supply

- cholera epidemics 19th century – start of central water supply in The Netherlands
- Amsterdam, Rotterdam, The Hague,…
- early 20th century - expanding rural service
- development of water quality standards
- flipside of central supply: major interruptions or bad quality seriously affect public health and economy

Managing risks for Dutch water supply

- WO II : Rotterdam bombardment → construction of 250 emergency wells
- 1950's: Cold War → mandatory preventive measures for water supply
  - protective measures for staff and buildings
  - shelters, first aid posts
  - emergency power >10 days
  - fire- and recovery teams
  - spare parts

Managing risks for Dutch water supply

- government investments in shelters for the public, medical supplies and emergency water supply equipment

Managing risks for Dutch water supply

Major incident 1953

- severe flooding in Province of Zeeland due to extreme weather, causing interrupted water supply
- response:
  - evacuation
  - shipment of fresh water to affected area
  - no structural measures for securing water supply

Managing risks for Dutch water supply

Major incident 1963

- brackish water in Rotterdam water supply due to extreme weather
- response:
  - non-prepared distribution of fresh water
  - structural measure: decision to move to another water source

Na de zoutinvasie van januari 1963 stonden de Rotterdammers in de rij om zoet water te bemachtigen

Managing risks for Dutch water supply

late 1980's

- debate on "strategic water resources" for securing the service

1990's

- sector actions
  - guideline for reliability
  - guideline for emergency water supply
  - concept of utility contingency plan to link risk management actions
  - Millennium bug preparations (ICT, power supply)

Managing risks for Dutch water supply

post 9/11

- national committee for security measures in water supply
  - water utilities turned out to vulnerable even to burglars, vandalism, etc.
  - adaptation of RAM-W and development of common set of security measures
  - specific sector measures related to threat alert levels
  - authorisation to use governmental emergency communication system

Managing risks for Dutch water supply

2000's

- managing risks top of mind
- restructuring incident response (Regional Emergency Response Authorities)
- elaboration of utility contingency plans
- emergency response drills
- sector guidelines on contingency management in new Drinking Water Act

Contingency plan outline

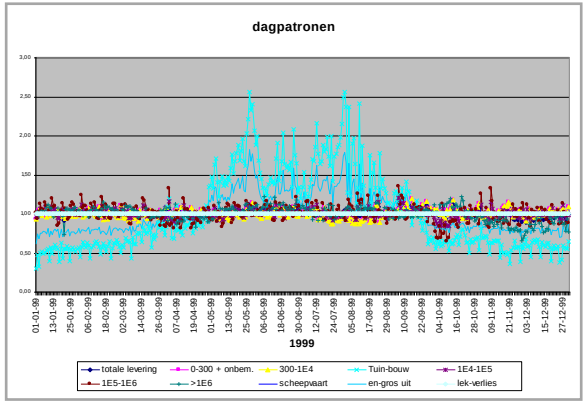
Plan objectives:

- to provide integral framework for managing risks that can affect supply
- to show compliance with regulations (accountability, transparency)

Contingency plan outline

Content:

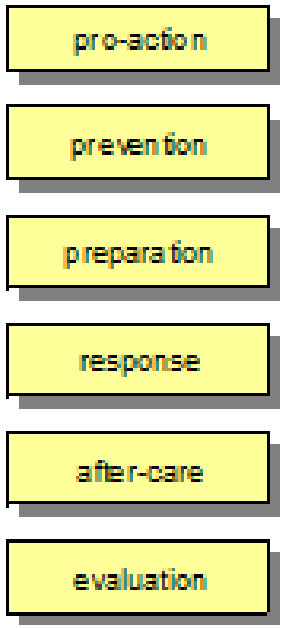
1. Non-disturbed situation (regular supply)
   - show compliance with pressure standards for expected maximum (summer) demand
   - demand forecast
   - capacity planning



Contingency plan outline

2. Disturbed situation

- risk identification- and analysis (all hazards: all internal- and external risks that may affect operations and supply)
- prevention: risk mitigating measures such as spare parts, aid agreement with contractors, compliance with reliability guideline, security measures etc.
- preparation: incident response plan (alarm procedures, decision procedures, measures), training & drills



Future challenges

- coordination with emergency response partners
- pooling of equipment and staff
- mitigating risk of cyber attacks (process automation)
- incident registration & evaluation

Future challenges

- constant attention for
  - new risks
  - investing in mitigating measures
  - emergency response training & drills