Manual on how to deal with the consequences of floods

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Part 1

Measures to be taken in the event of floods

Measures to be taken in the event of floods

The measures are listed in order of importance. If it concerns an extensive measure, the measure is stated with further explanations that can be skipped if the list is merely used as a checklist. The measures are listed in such a way that this list can be used as a plan of action for the people concerned.

Guidelines to the people

Preparations to be made in case of imminent flooding

1. Gas supply and power

In case of imminent flooding, the gas supply and power must be shut off completely.

Therefore it is recommended that the gas tap and the main power switch be turned off in every house, irrespective of the measures taken by the electricity company.

2. Heating appliances

All heating appliances must be turned off and the supply to those heaters (whether they run on gas, oil or electricity) must be physically interrupted. If that is impossible, the appliances must be turned off. A physical interruption implies that all appliances are disconnected from the supply pipes or flue pipes and that all taps are turned off. That will prevent floodwater from backing up in heaters and/or pipes.

3. Emergency box

It is recommended to have an emergency box at hand, containing at least the following items :

- A battery-powered pocket torch
- Charged reserve batteries
- Warm clothes to wear outside, rubber boots and gloves (you will need those upon re-entering your home after the flood)
- Essential medication.
  This is the medication which one of your family members must take on a regular basis. Emergency crews can provide any other medication, if necessary. If one of your family members is on a maintenance treatment, it is recommended to take a list which mentions the way in which the medication is to be taken.
- Toiletries
- Care products for children (pampers, tissues, bottles, comforter, toy, …)

- Identity card of every family member, also children. If your children have no identity card, take another document with which you can prove their identity.
- Personal documents and important documents you might keep at home.
- You can also take a camera with a flash on batteries and a video camera. They may come in handy if you want to take pictures or make a film for the insurance company when you return to your home.

4. Hazardous products

Medication and hazardous products must be stored in a safe place in order not to harm the environment and the area around your own house.

5. Protection of household goods

Electrical appliances, personal belongings and pieces of furniture can be placed on the upper floors if there is enough time.

Nonhermetically sealed food, medication, cosmetics, … can also be put on the upper floors. If they get wet, it is advisable to throw everything away (this is discussed in detail under 'Clean-up measures')

6. Drains

Block off all drains, preferably with a piece of wood, to prevent them from opening due to the pressure in the sewers during the flood.

7. Well water

Shut off the connection to the well. Disconnect if possible to prevent potentially contaminated well water from flowing into the drinking-water pipes.

8. You can protect your home with sandbags in agreement with the local authorities of your home town. They can demand assistance from the Civil Defence Services and the Ministry of Defence.

Part 2

Things to pay attention to and what to do in case of evacuation

Things to pay attention to and what to do in case of evacuation

An evacuation is always a stressful event. If the preparations go smoothly and if some kind of action map can be distributed, this will only increase the efficiency of all the persons and means used. It will also make the search for missing persons more efficient.

Guidelines to the people

Things to pay attention to and what to do in case of evacuation

1. **When you are asked to leave your home, we recommend that you act on this advice.**

Please bear in mind that an evacuation at a later point in time might be much more difficult, if it is still possible at all.

It is the task of the local authorities to maintain public order, if necessary with the assistance from police officers and employees from the Ministry of Defence.

2. **Do not forget your emergency box** (see part 1). Check one last time that you have all your documents, money, medication and personal belongings with you.

3. **Make sure you follow the advised route** if there is no one to accompany you.

A different route might cut you off from all help and unnecessarily delay the evacuation, also for other people.

4. **Present yourself with your identity certificate to a registration service.**

This service will be organized either by your municipality or by Red Cross volunteer workers. You can recognize the latter by the inscription 'DSI' (Urgent Social Intervention) on their Red Cross uniforms.

5. **Do not drive on flooded roads**. You can never be sure how high the water is. If the water is too high, you could get engine trouble.

Part 3

Measures to be taken when people go back to their homes

Material cleaning method

Measures to be taken when people go back to their homes

Material cleaning method

The text that follows can be used as an action plan for the people. It may be distributed as soon as the administrative authorities allow people to re-enter their homes.

At present, people's identity is registered only when they arrive at a crisis centre and when they leave there.

It might be advisable and/or feasible to set up a local registration procedure of all persons going back to their homes.

The advantage of such a registration is that we get an overview of all persons returning to their homes.

If there are problems in a specific home, we will know immediately if the occupants have returned there or not.

The local authorities could also give people a first checklist of everything that has to be done when they start to clean up. Certain products such as javel water could be put at the people's disposal.

Municipal employees could register all persons who are allowed to return to their homes. This can easily be done in an efficient manner.

Elements that could be important in setting up such a registration procedure :

- The municipal authorities must know the identity of the occupants of every vacated house.
  Therefore there must be a list with the potential number of domiciled and evacuated persons.
  In today's computer era a programme can be written in advance, which will enable us to print the most up-to-date list when necessary.
- For every single person we must keep a list - if possible -, indicating the relief centre this person has gone to. Such a relief centre can be :
  - a hospital
  - another medical centre (rest home, …)
  - a relief centre in this person's home town
  - a relief centre in a different town

- the home of relatives or friends
- unknown

- In addition to the registration of addresses, also the following information could be registered :
  - number of people who were evacuated
  - first place of evacuation
  - was the house sealed

  Such a registration must be very simple. Registration forms must be ready at the time of the emergency in order not to lose time with the registration and in order not to delay the evacuation unnecessarily.

  Depending on the seriousness of the emergency, it may be decided not to proceed to such a registration.

  Nevertheless, it is advisable to proceed to a well-organized registration so that the necessary information is available when the situation suddenly gets worse. A good registration can help to avoid unpleasant surprises.
- All information about registrations must be kept by one single organization (e.g. the municipal authorities or the Red Cross DSI team).
- People cannot return to their homes without having obtained prior permission. All persons returning to their homes must be registered.
  That means that all municipal authorities will have to set up a special service where people can have themselves registered when they return to their homes before the end of the contingency plan.
  After the end of the contingency plan there is no reason to continue the registration of persons returning to their homes because at that time there is no danger any more.

Guidelines to the people

Measures to be taken when people go back to their homes

Material cleaning method

1. Precautions to be taken before going back home

1.1. Nobody is allowed to go back home without having obtained prior permission from the authorities.

1.2. Things people should definitely take with them :

- Enough food and drink. As long as the contrary has not been proved (see below), it must be assumed that all food and drink at home have become unfit for consumption.
- Battery-powered camera with flashlight and/or video camera if you have one. That way you can establish proof for the insurance company or the disaster relief fund. This proof must be established prior to the start of the works but after it has been established that it is safe to enter the building and to take pictures.
- Stationery and writing materials
- Boots, working clothes and gloves
- All kinds of cleaning materials, soap and javel water
- Medication if you are on a maintenance treatment
- A battery-powered torch
- Useful telephone numbers and addresses
- A mobile with charged batteries, if you have one
- Bags to fill with all kinds of materials, if necessary
- A portable radio on batteries, if necessary

1.3. Take care of your own safety

- Beware of stress. Cleaning up after a flood is heavy work that has to be done under stressful circumstances. Take enough rest and make sure that you have enough food and drink.
- Remember that not everything can be done at once. Plan your work carefully and be realistic.
- Regularly wash your hands with soap.
- Pregnant women, small children and persons who are seriously ill are not allowed to return home as long as the most important clean-up works are not finished. Medical services in a recently flooded area are not as good as in areas that were not affected by floods.
- Make sure that there is always somebody who knows that you have returned to your home.

2. Precautions to be taken before entering the home and first superficial check.

2.1. Enter your home only when there is enough daylight outside.

2.2. Before going in, make sure that all appliances running on batteries are switched ON to perform a first check. That way sparks can be prevented inside your home.

2.3. If you are not alone, have someone stand guard outside while you make a first superficial check. The person on guard can get help if necessary.

2.4. If the water level inside the house is more than 5 cm high, make sure that you wear rubber boots to avoid electrocution. In that case it is also advisable to wear gloves.

2.5. If the floor is under water, take extra care not to step on a piece of glass or metal lying in the water.

2.6. This is what you should do during a first superficial check :

- Turn off the gas tap if this was not done prior to the evacuation.
  If there is a smell of gas or a gas leak, open all doors and windows, leave the house immediately and contact the gas company.
- Turn off the main power switch if this was not done prior to the evacuation.
  If the meter was under water, do not turn on the current without having notified the electricity company.
  If the main power switch was on and the meter was under water, keep away from electrical installations. Notify the electricity company immediately.
- If you think there might be a fire, you must leave the house immediately and notify the fire brigade.

2.7. If there were hazardous products inside the house, you should bear in mind that they may no longer be in their original place. Take the precautions recommended by the manufacturer.
If you do not know these precautions, contact the seller or the anti-poison centre
(070-245.245).

2.8. Immediately notify the fire brigade if you find hazardous products on your premises that do not belong to you. Do not attempt to examine them.

2.9. Immediately notify the fire brigade if your oil or gas tank is no longer in its original place.

If it is a large gas tank, stay away from it until the firemen declare that everything is safe. Sparks could cause the tank to explode.

3. Main services.

3.1. *Gas*

Important : The responsibility of the distribution network operator is limited to the installations of the gas grid up to and including the measuring group at the customer's.
The rest is considered as part of the indoor installation and falls under the responsibility of the customer and his electrician.

3.1.1. General principle

Always take care of your own safety. Do not take any risks.
Notify the gas company if you have any doubts.

3.1.2. Before putting the installation into operation again

Immediately notify the gas company if you detect a smell of gas.
The house must be aired but may not be entered.

3.1.3. Putting the installation into operation

Make sure that all gas taps in the house are turned off before turning on the main switch again.

If an appliance running on gas, e.g. a gas cooker or a boiler, does not react immediately when it is turned on again, turn off the appliance and immediately notify the gas company.
There may be water in the pipes. When the water dries up, gas may come out of the pipes.

3.2. Power and electrical appliances

3.2.1. Introduction

Electrical appliances can be subdivided into 3 main categories :

- installations from before 1960
- installations from between 1960 and 1981
- installations from after 1981

We give the main rules for each of those installations.

3.2.2. General advice

1. General principle

Always take care of your own safety. Do not take any risks. Contact the electricity company if you have any doubts, no matter how insignificant they may seem.

2. The meter was under water

If the electricity meter was under water, do not turn on the current. Notify the electricity company.
It may be live. That could give rise to a potentially dangerous situation.
Do not touch the meter. It is the property of the electricity company who is responsible for a good operation.

3. It goes without saying that there must be a good earthing system

If your home does not have a good earthing system, you are advised to contact the electricity company before going in.

4. When can the installation be switched on again?

The current may not be turned on until the house has been thoroughly cleaned and everything is dry again. It is the only way to reduce the risk of electric shocks to a minimum.

3.2.3. Putting installations from before 1960 back into operation

These installations may still be insulated with jute. Water makes jute insulations useless and might cause a short circuit. In principle, the current may be turned on only in the presence of a qualified electrician.

3.2.4. Putting installations from between 1960 and 1981 back into operation

1. If the pipes have been under water, the cover of the socket or switch must be removed to make the water in the pipes flow away.
   Everything should be dried thoroughly, preferably and if possible with a hair drier.

   It is important to dry thoroughly since in those days the law did not prescribe that the safety of earth leakage circuit breakers had to be guaranteed. If an earth leakage circuit breaker has been installed, you can follow the procedure for houses containing an installation that was approved after 1981.
2. Turn off all fuses before turning on the current.
   Make sure that you disconnect all plugs from the power points.
3. Do not turn on the current unless the fuses of the various circuits are off.
4. Turn on the fuses one by one. If a fuse blows, you know that there is a problem with that particular circuit. In that case you should leave this cable fuse off, but the rest of the electrical installation can be used. Be sure to contact a specialist.
5. Now you can put the plugs of the appliances into the sockets one by one. If the fuse blows, there is a problem with the appliance in question. Dry this appliance with a hair drier. Wait one day to put the plug back in. If the earth leakage circuit breaker blows again, the appliance must be left to dry for 1 week. Then you can give it another try. If the earth leakage circuit breaker blows this time too, the appliance is irrevocably broken and will have to be disposed of or repaired.

3.2.5. Putting installations from after 1981 back into operation

All electrical installations that were approved after 1981 must be equipped with an earth leakage circuit breaker. In that case the owner of the electrical installation can perform a first check.

This is the simplest way to proceed :

1. If the pipes have been under water, the cover of the socket or switch must be removed to make the water in the pipes flow away. Everything should be dried thoroughly, preferably and if possible with a hair drier.
2. Turn off all fuses before turning on the current.

3. Do not turn on the current unless the fuses of the various circuits are off. If the earth leakage circuit breaker does not blow, there is no problem with the fuse box.
4. Turn on the fuses one by one. If the earth leakage circuit breaker blows, you know that there is a problem with that particular circuit.
5. Testing the appliances : switch on all electrical appliances one by one. If the earth leakage circuit breaker blows, it means that one of the appliances is broken. That appliance should be dried with a hair drier first. Wait one day to put the plug back in. If the earth leakage circuit breaker does not blow, everything is OK. If the earth leakage circuit breaker does blow, the appliance should be left to dry for 1 week. Then you can give it another try. If the earth leakage circuit breaker blows this time too, the appliance is irrevocably broken and will have to be disposed of or repaired.
6. If there is a problem with an electric cable, this cable fuse should be left off but the rest of the electrical installation can be used. Be sure to contact a specialist.

3.2.6. Some points of particular interest

1. TV and computer : before turning them on, you'd be well-advised to ask the seller if it is safe to do this. You could get an electric shock when you turn your TV or computer back on.
2. The exterior of all machines should be thoroughly cleaned with a mixture of javel water (1 part) and tap water (9 parts). They should be dried carefully to protect them against rust. Use potable water unless it is not available. It goes without saying that also the interior of the washing machine, the tumble drier and the dishwasher must be cleaned with this mixture.

3.3. Heating

3.3.1. Central heating

A strict separation between the water for the central heating system and the mains water is ideal. Make sure that the pipe between the water mains and the central heating is temporarily removed.

3.3.2. Central heating boiler

1. Gas

If you have a gas or power boiler, make sure that it is turned off.

2. Oil

If you have an oil boiler, make sure that all valves connected to the boiler are shut off.

It is obligatory to have your boiler cleaned by a qualified person.
Local addresses can be found in the telephone directory.

Confidential information

3.3.3. Heating on electricity

Follow the guidelines for heating on electricity.

3.3.4. Other heating systems (coal, alternative energy sources, …)

Before turning on the heating, contact the supplier of your heating system and ask him about cleaning instructions and safety precautions.

3.3.5. Chimney

It is extremely important to have your chimney checked and cleaned to avoid CO intoxication.

3.4. Telephone

All cables that have been under water must be re-laid. You should not use the phone if the phone and/or the socket have been under water.

As a rule the municipal authorities inform the telephone companies if there has been a flooding.

Contact the fault-clearing service of your telephone company if your phone was under water.

3.5. Water

3.5.1. Persons connected to the drinking-water supply network

In case of floods, the Flemish Water Supply Company keeps close track of the situation and informs the authorities (both the federal authorities and the Communities) if there are problems in certain areas.

3.5.2. Drinking-water from privately-owned wells

1. General principle

You are advised against using water from a well, for whatever purpose, as long as this well has not been checked by the Flemish Environmental Company. There is a real chance of infection or intoxication.

IMPORTANT : It does not suffice to boil your well water to make it potable again.

2. Water distribution to the people

Operating from the governor's crisis centre, the Civil Defence Services may distribute bags of potable water to the residents of each municipality. The Civil Defence Services have a stock of 1-litre bags of potable water. In most municipalities potable water may also be distributed by the fire brigade. Persons who are not connected to the drinking-water supply network can come to the crisis centre and collect bags of potable water.

The modalities for the water distribution must be laid down by the local authorities.

The residents must be informed clearly how the drinking-water will be distributed or where it can be collected.

It is important that bags of potable water are distributed only to persons who have no drinking-water. In principle every municipality should have a list of all residents who had their well tested. The local authorities should also have a list of all places where potable water is or isn't available.

*3. **Authorization to reuse well water after the flood***

1. Before the well water can be tested, the well and pipes must be cleaned and disinfected. The procedure is obtainable from the Flemish Community.

Addresses of the 'Health Inspection Services of the Flemish Community' :

Antwerpen

Copernicuslaan 1, 2018 Antwerpen

Tel : 03-224 62 04

Fax : 03-224 62 01

Flemish Brabant

Brouwersstraat 1 bus 4; 3000 Leuven

Tel : 016-29 38 58

Fax : 016-29 37 69

Limburg

Gouverneur Roppesingel 25, 3500 Hasselt

Tel : 011-26 42 42

Fax : 011-26 42 52

East Flanders

Elf Julistraat 45, 9000 Gent

Tel: 09-244 83 60

Fax : 09-244 83 70

West Flanders

Spanjaardstraat 15, 8000 Brugge

Tel : 050-44 50 70

Fax : 050-34 28 69

2. After this cleaning operation, the well water has to be tested before it can be used as drinking-water again. Without this test the well water may not even be used for sprinkling the garden or for other purposes in the home.

3. You can apply for such a test to :

- the health inspection services for families that cannot be connected to the drinking-water supply network : application through the local authorities. Use the standard form GI/VMM.

- in all other cases, apply for the test to a private laboratory

Problem of drinking-water that might be contaminated

Confidential information

3.6. Generators

The normal energy supply (gas, electricity, …) may be interrupted after floods. For that reason it is important that the various crisis centres have a list of companies that can supply generators.

At the time of supply of these generators, a priority list of persons, institutions and/or businesses will have to be drawn up. For instance, it seems logical that hospitals and crisis centres take priority over private persons who need a generator to clean their homes.

It is extremely important to follow the instructions for use of the generators in order to avoid CO intoxication.

3.7. Sewerage

The sewer system may not be used if the water level is too high. The authorities have to bear this in mind before they authorize people to return to their homes.

If you suspect that your septic tank is damaged, do not undertake any action in view of the risk of infection. The best thing you can do is contact the seller or manufacturer.

If you want to have someone examine whether there is water seeping from the septic tank to the drinking-water from a nearby well, you had better contact the health inspector of the Flemish Community (list : see above under ‘drinking-water’).

4. Cleaning

4.1. First steps in the cleaning process

4.1.1.There is still water in the house

If there is still water in the house, we recommend that you pour 2 litres of javel water into the stagnated water for a first disinfection.

Have the fire brigade pump out your house. If you want to do the pumping yourself, do not put your own safety at risk :

- Make sure that the electric pump or plunger pump is safe to work with and that it is duly installed.
- If you use a pump with exhaust, be careful not to expose yourself to CO intoxication. Make sure that the room is sufficiently aired.
- Be careful not to irritate your airways when working with javel water. Good ventilation is essential.

If you pump out the house yourself, please bear in mind that this should be done in stages to avoid cracks caused by the pressure of the groundwater.

4.1.2. Start of the clean-up

1. General principle

The dirt inside the house can be cleared away to a large extent if you use a high-pressure cleaner (physical cleaning). It is recommended to use a high-pressure cleaner before you start to disinfect the house with a javel water solution.

Do the dirty work (clear away the dirt from the flood) before you start to clean with a javel water solution.

Open all windows and doors to air the rooms (breathing problems caused by the javel water !) and to dry everything. Always use clean water for rinsing.

Since javel water is a disinfectant, it is recommended to use this product for the cleaning.

The javel water must be diluted 10 times (1:10 dilution). In other words: 1 part of javel water must be mixed with 9 parts of tap water. For instance: add a 1-litre bottle of javel water to 9 litres of clean water.

Make sure that all hidden corners are cleaned thoroughly.

The instructions for power supply systems stipulate that the cover plates of sockets must be removed to make the water backed up in the pipes flow away.

In theory, it is best to empty the room completely.

Sort out the things that have to be disposed of.

Put everything you want to save or clean in a later stage in a dry place.

It is important to put everything in a dry place after the cleaning.

Tips

- Use disposable materials in the first cleaning stage. These materials may not be reused as they are very difficult to clean.
- Carefully read the instructions of the cleaning products before use. Do not use cleaning products indoors if they are meant to be used outdoors. They might release noxious fumes indoors and make you feel nauseous.
- Do not mix various chemical cleaning products. There is always a risk of unexpected chemical reactions.
- Do not attempt to clean everything at once. Clean room by room. Use different sets of cleaning things : one set for the dirty work (e.g. the cleaning with javel water) and another set for the cleaning with clean water.
- Always work from the bottom to the top.

- Everything that can be carried outside should be cleaned outdoors
- Scrub off everything carefully.

4.1.3. Cleaning of floors

1. Tile floors

Tile floors must be cleaned with a javel water solution.

2. Wooden floors

Wooden floors must dry slowly to prevent cracks in the wood. Specialized firms could accelerate the drying process.

3. Other types of fixed floors that may be scrubbed

Other types of floor covering that may normally be scrubbed are to be cleaned with a javel water solution. If you have any doubts, do not hesitate to contact the company where you bought your floor covering.

4. Fabric floor coverings (carpet, fitted carpet, …)

Removable floor coverings must be removed.

Nonremovable floor coverings must be dried as soon as possible to avoid fungus growth.

They must be cleaned thoroughly with a special shampoo, hovered and dried again. This procedure will have to be repeated at least 2 or 3 times.

If you have any doubts – which is very likely -, you are advised to remove and dispose of your floor covering. In-depth cleaning is usually impossible and therefore the risk of fungus growth cannot be entirely eliminated.

Floor coverings that may be scrubbed may also be cleaned with a javel water solution. It is advisable to do the cleaning outdoors to avoid extra moisture indoors.

We advise you to contact a specialist for the cleaning of all other floor covering materials.

4.1.4. Cleaning of walls

The walls must be cleaned above the floodmark too in view of the fact that the moisture could give rise to problems.

Wallpaper still sticking to the walls must be soaked off if it hasn't come loose already. Especially vinyl paper will prevent the wall from drying.

In case of plasterboard walls or wood panelled walls, the plasterboard or the wood panelling must be removed up to a height of ± 50 cm above the floodmark in order to prevent them from rotting. When possible, the interior side of the walls must be dried thoroughly to avoid further problems when the walls are treated.

Remove damp or wet insulation materials. There is not only the fact that they will stay wet for many months and will therefore become useless as insulation materials; they may also be a source of permanent smells and fungus growth, with all nasty consequences in the long term.

Plasterwork cannot be repaired and new plasterboard cannot be installed, papered and painted until the walls are completely dry. That could take several months.

Note : wooden panelling must dry slowly. Otherwise cracks might form in the wood. Wait until the panelling is completely dry before nailing down the panelling that has come loose.

Confidential information intended for the crisis centre

The foundations are very important for the construction of a building. That is why it is extremely difficult to give general guidelines. Architects and constructors are self-employed, which makes it very difficult to obtain objective information. Also the Order of Architects acts as an organized pressure group.

I think that the provincial authorities ought to reach a consensus with the various municipalities to have the municipal architect and/or the architect working for the municipality make a first inspection of the flooded houses and buildings, and to pay attention to the following points:

1. Does the plasterwork have to be removed, and if so, to what height?
2. Is it possible to keep the floor covering, does it have to removed and cleaned, or should it be disposed of?
3. Is it possible to clean the floor?
4. Is it possible to clean the walls, or do special precautionary measures have to be taken?
5. Is it possible to clean the staircase or do special precautionary measures have to be taken? Is it allowed to use the staircase?
6. If the water level reached the first floor, is it safe to go up to the first floor? Same questions elsewhere.

It goes without saying that such measures should be in line with the insurance contracts of the various municipalities. These persons must be protected in order to avoid claims for damages on account of the fact that only a rough – albeit inherent - inspection was carried out.

It might be considered to requisition these persons so that they are covered by the insurance system for natural disasters, if there is any.

4.1.5. Cleaning of flooded cellars

1. Why

Many cellars have been under water. In many cases this water is polluted by all kinds of products, e.g. oil from emptied tanks.

If nothing is done about this situation, fungi may start to grow on walls and cause rot. That is why a thorough cleaning of these cellars and houses is so important.

If there is still water in the cellar, you'd be well advised to have the fire brigade pump out the cellar. Apart from the hazardous products in the water, there is also a risk that the pressure of the groundwater causes the walls to crack if the water is pumped out too fast. Once there is water in the cellar, it will not cause further damage if it is pumped away slowly.

2. How

You can have a specialized firm clean your cellar, or you can do it yourself.

The first thing that has to be done is remove the mud. It is best to do this while the mud is still moist.

If you do the cleaning yourself, you can use javel water (1 part of javel water and 9 parts of clean water). Use a firm brush to apply this mixture to the walls. Rinse off.

If there are still oil residues in the cellar, they will have to be removed by the Civil Defence Services (see below).

3. Precautionary measures during the cleaning operation

Make sure that the room is well aired while you are cleaning it. The fumes released by the cleaning products might make you feel nauseous. It is advised to have 2 persons do the cleaning : 1 does the actual cleaning; the other one stays outside and checks at regular intervals if the person who is doing the cleaning still feels OK.

If a person starts to feel bad, take him/her to a well aired room and call the general practitioner on duty.

Any damage to the cellar must be inspected by an expert.

4.1.6. Heating oil in the cellar or the soil

1. General principle

Heating oil, a mixture of water and heating oil, or soil contaminated with oil must be considered as hazardous waste and must therefore be removed in a specific manner.

In principle, you should contact a specialized firm to have these products removed. Normally this will be done by the fire brigade or by the Civil Defence Services

2. Heating oil mixed with water

If the heating oil has been mixed with a large quantity of water, the firemen can first install a pump beneath the floating layer of oil and pump away the water. When only the heating oil remains, it can easily be removed.

3. Removal of heating oil

When heating oil is almost the only substance left, the Civil Defence Services will see to its removal.

Heating oil can be removed either with detergents or with absorbents.

Please bear in mind that they are hazardous products with regard to which special precautionary measures have to be observed.

The Civil Defence Services must always be mobilized through a crisis centre in order not to affect the efficiency of the relief efforts.

4. Heating oil that has seeped into the soil

If an oil tank has been emptied or has been leaking into the soil, this soil will have to be treated by the Civil Defence Services. Then the soil will have to be excavated. If the soil is treated first, the amount of soil to be excavated can significantly be reduced.

4.2. Specific issues

4.2.1. Problem of contaminated food

1. Situation

Many cellars are used as storerooms. Hence it is likely that they contain large quantities of food and/or drink. What foodstuffs may still be used?

2. General principle

- Throw the product away if you have any doubts

  In case of floods it is always possible that germs have settled on the food or the packing.

- Relabel the products

  Labels remain a source of possible infection after floods. That is why we recommend to remove the old label, to clean the packing and to stick a new label on the product (e.g. a stick-on label), indicating the content and the use-by date.

3. Nonhermetically packed food and/or drink

Nonhermetically packed food and/or drink should not be consumed but thrown away.

It concerns :

1. unpacked food
2. food that has not been packed in a watertight packing
3. foods subject to infection once they have been opened (the seal cannot be cleaned or removed without problems when opening it).

Examples of nonhermetically packed food :

- stored vegetables and fruit
- food packed in paper and cardboard
- food sealed with paraffin and without any hermetic seal, e.g. a lid (like home-made jam)

4. Food and/or drinks already opened

are unfit for consumption.

5. Hermetically packed food and/or drink

Cans

The cans may be washed with a mixture of javel water and tap water (1 part of javel water and 9 parts of tap water). Dry thoroughly after washing.

Javel water contains salt. If the cans are not dried carefully, they might start to rust.

Food packed in plastic and vacuum-packed food

Wash with a cloth drenched in the mixture of javel water/tap water and dry carefully.

Drinks in bottles sealed with a plastic screw cap or a crown cap

Same procedure : wash and dry the bottles carefully, especially around the cap, to avoid any risk of infection when the bottle is opened and its content is poured into a glass.

Drinks in bottles sealed with a cork

It is best not to bring the cork in contact with the javel water. The cork will dry of its own accord.

Wash the neck of the bottle before uncorking it, but do not use javel water. There is a risk that the taste of the drink has changed if the bottle was in the water.

Food stored in the freezer and/or the refrigerator

Freezer

All frozen food that was left at room temperature for more than 2 hours has to be thrown away. The food also has to be thrown away if your freezer was under water.

In principle it should be no problem if your freezer is without power for a couple of hours

(± 4 hours).

Once again, we draw your attention to the fact that water makes food defrost more rapidly and that the food becomes unfit for consumption.

Only keep the food if it is still frozen, if your freezer has not been under water and if it hasn't been without power for more than 4 hours.

Refrigerator

All the food stored in your refrigerator has to be thrown away if your refrigerator has been without power and/or if it has been under water.

Note

1. If you want to be sure that it is safe to consume the food, every packed food article has to be cleaned separately.
2. If there is no label on the product any more, you'd better throw it away (risk of exceeding the use-by date or of confusing edible with inedible products).
3. If you have any doubts, throw the product away !

*6. **Warehouses***

The same principle applies for the cleaning of warehouses : spray off with a high-pressure cleaner first, then clean with a mixture consisting of 10% javel water and 90% tap water (see above).

It is extremely important that also the shelves, cupboards and racks, refrigerators and freezers are thoroughly cleaned and disinfected.

7. Garden

- Products that are grown underground, e.g. potatoes.

  Is it safe to use those products or should they be thrown away? Is there a term after which it is safe to grow these products again?

- Products that did not come in contact with the water, but the plant of which was in the water, e.g. apples.

  Is it safe to use those products or should they be thrown away? Is there a term after which it is safe to grow those products again?

- Products that were in the water, e.g. flooded leek plants.

  Is there a term after which it is safe to grow those products again?

(source : Mr Temmerman, Food Inspection Agency (telephone number: 17-09-1998 & subsequent note EW29891/L10/GT of 18 September 1998) The text has been submitted to Mr. Temmerman for evaluation.

4.2.2. Kitchenware

1. Washable kitchenware

Everything must be boiled in water for about 10 minutes to avoid any risk of infection. It is even better to clean everything thoroughly before disinfecting it.

If you have a dishwasher that is still operative, put your kitchenware in the dishwasher and wash up everything at 65°. If you let your dishwasher run the whole programme, your kitchenware will be disinfected too.

If you wish to disinfect your washable kitchenware, you can opt for one of the following possibilities (and propose them to your manufacturer) :

- Javel water (1:10 dilution: add 1 litre of javel water to 9 litres of tap water). This mixture can be used without problems to disinfect glassware, stoneware, plastic kitchenware, porcelain and enamelware. Silverware and metal objects might discolour.
- Boiling water
- Isopropyl alcohol

2. Non-washable kitchenware

You'd better throw away all disposable goods immediately.

It is also recommended to throw away wooden products and rubber teats. It is very difficult to disinfect wooden products thoroughly.

Since babies are very sensitive to infections, you'd better not take any risks.

Baby bottles can be boiled.

Follow the instructions for electrical appliances (see above).

Remember that it is important to disinfect thoroughly all parts that are in contact with food. In principle these parts should be washed like washable kitchenware, or they should be disinfected in another way.

Your manufacturer will be able to tell you the best way to disinfect your appliances. You may be advised to use a different disinfectant, depending on the material used.

If you wish to disinfect your non-washable kitchenware, you can opt for one of the following possibilities (and propose them to your manufacturer) :

- javel water (1:10 dilution)
- boiling water

- isopropyl alcohol

*3. **Kitchen cupboards***

Every cupboard that contains food must be disinfected thoroughly. If you touch non-disinfected cupboards while you are preparing food, this could be a source of infection.

Like all other furniture, the cupboards must be disinfected with a 1:10 dilution of javel water.

4.2.3. Bathroom and medication

*1. **Bathroom***

Cosmetics and toiletries

All cosmetics and toiletries that were under water and that cannot be disinfected or non-hermetically sealed products should be thrown away. Make sure to put them out of reach of small children.

Washable toiletries

In principle, all washable toiletries should be submerged in boiling water for about 10 minutes.

It is also possible to wash them with a 1:10 dilution of javel water.

Contact the manufacturer if the products are not resistant to those disinfectants. Ask him what would be the best way to disinfect the products.

If you are not sure what's in a certain packing, you'd better throw it away.

*2. **Medication***

All medication that has been under water must be returned to the pharmacist. NEVER TAKE MEDICATION THAT HAS BEEN UNDER WATER.

4.2.4. Furniture

Also wooden furniture must be disinfected and scrubbed with a dilution of javel water. Massive wooden furniture can usually be reused unless the wood has swollen with damp.

Instead of a dilution of javel water, you could also use turpentine or a special dilution of alcohol for wood.

Normally it is not possible to reuse chipboard, unless it was only slightly damaged.

For upholstered seats and furniture, you will first have to find out if they may be washed or not. In principle they may be cleaned, but usually it is cheaper to get rid of them and to buy new furniture.

Furniture made from other materials, e.g. metal, also has to be disinfected and scrubbed. In principle you can use a dilution of javel water for this.

When you fear that your furniture might discolour if you clean it with a dilution of javel water, we recommend that you contact your seller.

4.2.5. Problem of wet clothes

1. Principle

Households

Clothes should be washed at a minimum temperature of 40° and dried well.

It is advisable to wash the clothes twice.

Institutions / Hospitals

Clothes should be washed at a temperature of 60° degrees for 30 minutes for full disinfection.

2. Remark

The National Health Council advised in 1995 to keep only clothes washed at a minimum temperature of 60° degrees for at least 30 minutes.

The purpose of this directive is to ensure a thermal disinfection of bedclothes in hospitals. It particularly prevents the spread of multiresistent bacteria.

This measure has to be taken if the laundry might be used by various persons or if it is washed and/or stored jointly.

If it concerns personal clothing (from your own household), be aware of the risk of Leptospira infection.

This germ does not survive in well-washed and well-dried clothes.

Moreover you cannot get infected through clothes. Hence the clothes may simply be washed. No extra treatment is needed.

3. Method

1. Select the clothes according to the required washing programme (dry cleaning, laundry that needs boiling,…)
2. Make sure that the clothes are free of mud (they have to be rinsed or brushed) before you put them into the washing machine. This dirt could clog up your washing machine.
3. If possible, it is advisable to let the clothes soak in water with washing-powder for one night. Wring out carefully before washing.
4. If there is no risk for your laundry, you could add some javel water to the rinse water as disinfectant.

4. Bedclothes

All bedclothes should be given the same treatment as ordinary clothes. Wash them at least twice at a minimum temperature of 40°.

If quilts may be washed at a temperature of 60°, you can wash them at home. Otherwise you will have to take them to the dry cleaner's.

Mattresses have to be disposed of if they got wet. They cannot be dried sufficiently.

Problems with wet clothes : confidential information

4.2.6. Waste and collection of hazardous waste

In view of the exceptional situation after floods, the following measures have been taken to protect the environment from incorrectly dumped hazardous waste.

1. ***Hazardous waste***

1. The local waste company must guarantee that small quantities of chemical waste (e.g. heating oil, petrol, white spirit, paint…) can be taken to container parks by way of exception.

2. Large quantities of hazardous waste (e.g. more than 200 litres of petrol) must be collected by the Civil Defence Services after they were notified by the local crisis centre.
   Let me remind you that this may take a couple of days, depending on the extent of the disaster and the activities of the Civil Defence Services.
3. Agreements must be made about extra collections of sorted refuse, if necessary.
   The responsible company must guarantee that there will be extra collections of sorted waste. Agreements to that effect should be made directly between the responsible company and the municipality in question.

*2. **Waste sorted according to normal standards***

Contaminated glass

The glass may be thrown into the container provided that it is empty.

Contaminated PMD waste (plastic bottles and flasks, metal packagings, drink cartons)

You may put it in the PMD bags, but the waste must be sorted carefully. In other words: bottles and cans must be empty.

KGA (small dangerous litter)

Needs to be sorted further. The appropriate modalities have been discussed already.

Use of containers

Containers in public places may continue to be used.

Problem : waste – collection of hazardous waste

Confidential information : intended only for the crisis cell of the government and for the provincial governors

4.2.7. Books, diskettes and important documents

General advice : turn off the heating to inhibit the growth of mildew on paper

1. Industrial keeping of books and documents

The best method (used by the industry) is to freeze books and documents at a temperature of –30° to -40°. Ideally this is done at a central place to avoid transport with cold storage trucks. Books may be frozen at a temperature of –18° (ordinary freezer) if there are no other freezers available.

2. Keeping of books and documents

If it concerns valuable books and documents, it is advisable to contact a specialized firm. In the meantime you can freeze all your books and documents yourself.

If the documents and books are air-dried, you'd be well advised to use filter paper to prevent the documents from sticking together.

You can also use (dry) paper towels, unprinted newsprint, kitchen roll or toilet paper...

*3. **Photos***

It is best to throw your photos away if you still have undamaged negatives.

If you don't, the dirt has to be removed from the photos with clean water. Spread them out on a sheet of absorbent paper (do not place the photos on top of each other) with the emulsion turned upwards.

*4. **Film***

A copy is always cheaper than trying to restore the original. These films have to be cleaned by specialized firms.

*5. **Computer tapes***

Have to be cleaned by specialized firms.

*6. **Audiotapes and videotapes***

If the temperature is higher than 11°C, the tapes are likely to be irrevocably damaged.

The tapes have to be cleaned in clean water, at a temperature between 0 and 11°C.

Since the tapes have to be unwound and then rewound again, this must be done by a specialized firm if you wish to preserve your tapes.

*7. **Diskettes***

The data will almost always be lost.

If you wish to recuperate the data, you'd be well advised to contact a specialist who can read such diskettes.

For additional information, we refer to the chapter titled calamities in the next publication:
ROMBAUTS, Wouter.
Conservering van archieven. Inleiding tot de problematiek (Conservation of archives. Introduction to specific problems).
Algemeen Rijksarchief en Rijksarchief in de Provinciën, Miscellanea Archivistica Manuale 22, Brussels 1997, 323 p.

4.2.8. Toys and children's things

Extra attention must be paid to toys, coloured pencils and all other things with which children regularly come in contact.

Children often put things into their mouths. This could lead to serious infections.

Bear in mind that small children cannot return home until after the first major cleaning operation. This measure is imposed to reduce the risk of infection to a minimum.

*1. **Toys***

Ideally, toys are boiled or cleaned with a dilution of javel water. Throw the toys away in case of doubt.

Plush animals and washable items must be left to soak. Then they should be washed twice (e.g. clothes that have become wet).

For children, however, it is advisable to keep only plush animals that can be washed at a temperature higher than 40°C and preferably higher than 60°C.

*2. **Furniture***

The same rules apply for children's furniture as for any other type of furniture.

In other words: the furniture needs to be scrubbed and disinfected with a 1:10 dilution of javel water.

This will be no problem for metal furniture, but it will be for wooden furniture.

As a rule, it is impossible to clean up a wooden playpen because the wood itself has been contaminated. If you do choose to clean it up, you will have to clean thoroughly and preferably twice.

Part 4

Policy

Elements that could be important in dealing with the consequences of a flood.

Problem of contamination of the surface water

The only potential problem is a Leptospira infection, which is spread by rat droppings. No other problems are reported if the outside temperature drops to below 15°C. In that case there is no reason to distribute antibiotics systematically.

Preventive actions

No preventive measures can be taken. It is impossible to give protective clothing to everyone.

Other measures

The incubation period of Leptospira is 2 to 20 days. A brochure will be distributed to general practitioners and hospitals.

Note : confidential information that may not be dispersed

Leptospira infections

Introduction

The duration of floods can cause a number of problems, for instance national health problems.

The most important problem is a potential Leptospira infection.

Leptospira is a zoonose with an extensive reservoir of mammals. The germ enters the body through damaged skin or mucous membranes. Water is an ideal means of transport. The germ spreads through the bloodstream and affects the whole body. It may also be isolated in liquor.

Clinical information

The disease occurs in 2 forms, the anicteric and the icteric form.

Anicteric form

The incubation period is 2 to 20 days, though usually it is 1 to 2 weeks. The first stage, with symptoms of septicemia, takes 4 to 7 days. Typical symptoms are acute fever, headache and sore muscles, nausea, vomiting and pain in the abdomen. Conjunctival vessel injection occurs frequently. Other indications are maculopapular rash and lymphadenopathy. Hepatosplenomegalia occurs in less than one third of all cases.

The second stage, the immune stage, starts after an asymptomatic period of 1 to 3 days. Antibodies can be found, and aseptic meningitis may occur. This stage takes 4 to 30 days. Traces of Leptospira can now be found in the patient's urine. Uveitis, iritis, iridocyclitis and chorioretinitis may occur as well.

Icteric form (Weil's disease), 5 to 10 % of all cases

Clinical symptoms may vary, but typical symptoms of the icteric form of the disease are damage to the liver, the kidneys and the heart, as well as vascular dysfunction.
The icteric form may occur as a biphasic disease (with a first septicemic phase as in the anicteric form, followed by the icteric phase) or as a progressive disease.

Jaundice (sometimes with an orange tint) occurs approximately after 7 days. Oliguria and anuria may occur from day 4. An increased bleeding tendency may occur in the form of petechiae or of gastrointestinal bleedings.

Diagnosis

Blood tests show an increased sedimentation rate and a neutrophilia. The level of bilirubin can be as high as 80 mg/dl. There is a slight increase of transaminases. This combination is typical.
Red and white blood cells and cylinders can be found in the urine sediment.

The diagnosis can be made through serological tests (possibly culture tests or PCR*) or directly through microscopic analysis. In Belgium, serological tests are carried out solely at the Institute of Tropical Medicine in Antwerpen.

Treatment

Preventive measures cannot be taken in this case. It is no longer possible to avoid contact with water that may be contaminated.

Amoxicillin (4 x 500 mg/day) and doxycycline (2 x 100 mg/day) during 7 days are the recommended treatment for mild cases. Treatment is preferably started within 5 days of occurrence of the first symptoms. Serious cases must be treated in hospital. Parental administration of penicillin or ampicillin is recommended in addition to

careful monitoring of the vital parameters. Doxycycline may be used prophylactically (dosage of 200 mg once a week) in high-risk situations.

Reference

Bharti AR, et al. Leptospirosis: a zoonotic disease of global importance.
Lancet Infect Dis 2003; 3: 757 – 771

Levett PN. Leptospirosis
Clin Microbiol Rev 2001; 14: 296 - 326

* Making a diagnosis through PCR is not yet possible in Belgium.

Problem of evacuation of a rest home or a hospital

We should have a clear picture of the number of available beds in hospitals and institutions at any time so that evacuations of hospitals and/or institutions can take place smoothly and efficiently.

People can be evacuated to various places :

1. Hospitals. Attached you will find an example of a registration form to be filled in by hospitals. This list was drawn up on the basis of data provided by Prof. Corne, AZ VUB.

   There are 2 essentially different options:

   1. beds that are immediately available and that may or may not be split up according to the patients' sex, and for which the hospital staff is responsible
   2. beds that could be made available, but for which the hospital or institution that has to be evacuated sends its own staff along with the evacuated persons.

2. Boarding schools. The personnel may be school personnel (if they are requisitioned by the governor) or people from the Red Cross.

3. Public Centres for Social Welfare. Municipal authorities should be able to give an overview of institutions receiving municipal support where elderly people, among others, can get help. Municipal authorities should also have a good idea of how many extra persons are needed.

1. Other institutions like homes. It is important to know whether the old people who are evacuated are covered by the same Social Security System.

Problems with dead bodies

Dead animals can be a source of odour nuisance and particularly of infections. At present Rendac is the only firm that collects and processes dead animals.

RENDAC

Fabriekstraat 2

9740 Denderleeuw

Tel : General number : 053-64 02 11 (7.00 a.m. – 6.30 p.m. & Saturday mornings 7.00 a.m.-12.00 noon)

after-hours number : 053-64 02 34 (answering machine)

Fax : 053-64 03 60

The firm has to collect the dead animals within 2 working days.

Rules to be observed for collecting dead animals

Information that must always be provided:

- full name of the caller
- Exact loading place
- What exactly has to be loaded (what type of dead animals)

Mode of collection of dead animals

The firm collects the dead bodies with a truck and crane. In view of the risk of infection caused by other dead animals in the truck's container, the trucks are **not** allowed to drive onto the premises of the owner. In other words: the truck has to stay in the road.

Rules to be followed

- Cover the dead animal with a piece of canvas. It helps to reduce the odour nuisance and it offers a certain protection against infection.
- Dead animals must be put at the edge of the premises. If the crane cannot reach the dead animal, the truck cannot take it away .
- Clearly state if it concerns dead animals that are in a state of decomposition.

- Ask to take the list of priorities into account.

Even if Rendac has been notified, problems may continue to exist. In certain cases 2 working days is just not fast enough.

If problems continue to exist in spite of all these measures, you can contact the provincial crisis centre which may take further action.

Confidential information that may not be dispersed

Measuring the level and speed of the rising water

Measuring systems are not always enough to determine the level of the water. They lose their usefulness in case of floods since high water is the maximum detectable level.

The most reliable system is to use simple sounding rods with scale marking. Appoint one person to read the water level from the sounding rods at regular intervals. If the water rises fast, the level must be read at shorter intervals. Regular intervals are

absolutely necessary: they guarantee a standardized calculation of the speed of the rising water.

This is a cheap method which is not labour-intensive. Do not forget that the crisis centre will have called in personnel already. It is easy to call in local personnel in case of imminent flooding.

Mapping the flooded areas.

Employment of manpower