FLOOD PREPARATIONS AND RESPONSE DURING A FLOOD

PREPARING FOR A FLOOD

GENERAL

1. Floods are unpredictable and destructive.
2. Flooding can happen anywhere, at any time and from a variety of water sources including rivers, creeks, overflowing catchments and due to heavy rainfall.
3. They can cause death and injuries, isolate communities, damage major infrastructure, cut essential services, destroy property and livelihoods.
4. Apart from the physical damage to property, experiencing a flood can be an extremely emotional time. If you are not prepared for the possibility of a flood, recovery can be slow, stressful and costly.
5. A. few hours spent making your home secure, preparing an emergency kit and flood plan can help you to survive the effects of a flood.
6. You need to understand the flood risk to your home, property and possessions.
7. Check your insurance policy to see if you are covered for flood damage.

HOUSING

1. Avoid building in a flood-prone area unless you elevate and reinforce your home.
2. Elevate the furnace, water heater, and electric panel if susceptible to flooding.
3. Install “check valves” in sewer traps to prevent water from backing up into the drains of your home.
4. Seal the walls and vents in your basement with waterproofing compounds to avoid seepage.
5. Put weather protection sealant around basement windows and the base of ground-level doors.
6. Install the drainage for downspouts a sufficient distance from your residence to ensure that water moves away from the building.
7. Consider installing a sump pump and zero reverse flow valves in basement floor drains.
8. Bring outside possessions indoors or tie them down securely. This includes lawn furniture, garbage cans, and other movable objects.

FARM ANIMALS

1. If you have a livestock farm, remember that livestock have a natural "move away instinct" to flash flood waters. They generally seek higher ground if possible. When purchasing or designing your livestock operation, it is important to allow livestock a way to reach high ground in each pasture. Without access, livestock will fight fences and be at a greater risk of drowning. Livestock will initially panic during flash floods. This complicates livestock handling.

2. In floods, in a rural farm setting, sheltering livestock may be the wrong thing to do. Leaving animals unsheltered is preferable because flood waters that inundate a barn could trap animals inside, causing them to drown.

3. If evacuation of the animals is being considered, then evacuation procedures, places, and routes should be planned. Animal evacuation routes must not interfere with human evacuation routes. Alternate routes should be found in case the planned route is not accessible. Places where animals are to be taken should be decided in advance and arrangements made with the owners of these places to accept the animals

IF FLOODING IS IMMINENT

1. Turn off basement furnaces and the outside gas valve.

2. Take special precautions to safeguard electrical, natural gas or propane heating equipment. Consult your hydro or fuel supplier for instructions on how to proceed if required. Do NOT attempt to shut off electricity if any water is present. Water and live electrical wires can be lethal. Leave your home immediately and do not return until authorities indicate it is safe to do so.

3. Move important documents, furniture, electrical appliances, valuables and other belongings to floors above ground level if possible.

4. Remove toxic substances such as pesticides and insecticides from the flood area to prevent pollution.

5. Empty freezers and refrigerators, leaving doors open to avoid damage or loss if they float.

6. In case your home or property needs to be protected with sandbags, see Figures 1 and 2 for the proper sandbagging approach.

7. Monitor your surroundings and your local radio station for flood warnings.

8. Lock your home and take recommended relocation routes for your area

BUILD AN EMERGENCY EVACUATION KIT

1. You may need to survive on your own for several days. Being prepared means having your own **food**, **water** and other **supplies** to last for at least 72 hours.
    - Food that won't spoil such as canned food, energy bars and dried food. (Replace annually)

- Water – two (2) litres of water per person per day. Include small bottles and extra water for pets.
- Two (2) additional litres of water for cooking and cleaning per day.

2. A disaster supplies kit is a collection of basic items your household may need in the event of an emergency.
3. Make sure your emergency kit is stocked with the items on the checklist below. Most of the items are inexpensive and easy to find, and any one of them could save your life.
4. Once you take a look at the basic items, consider what **unique needs** your family might have, such as supplies for **pets**, or **seniors.**
5. To assemble your kit, store items in airtight plastic bags and put your entire disaster supplies kit in one or two easy-to-carry containers such as plastic bins, a duffel bag or backpack.
6. Basic Kit
   - Batteries
   - Manual Can Opener
   - Prescription Medications
   - Non-prescription medications such as pain relievers, anti-diarrhea medication, antacids or laxatives
   - Glasses/Contact lens solution
   - Infant formula, bottles, diapers, wipes, diaper rash cream
   - Pet food and extra water for your pet
   - Leash, Muzzle
   - Cash and/or traveller's cheques
   - Important family documents such as copies of insurance policies, identification and bank account records saved electronically or in a waterproof, portable container.
   - Sleeping bag or warm blanket for each person
   - Complete change of clothing appropriate for your climate and sturdy shoes
   - Household chlorine bleach or water purifying tablets and medicine dropper to disinfect water
   - Fire Extinguisher
   - Dish Soap
   - Matches in a waterproof container
   - Paper and pencil
   - Toiletries – shampoo, soap
   - Wind up or Battery-powered radio and Flashlights
   - Candles, lighter, matches
   - Duct tape
   - Garbage Bags
   - Whistle
   - Flares

- Basic tools such as hammer, pliers, wrench, screwdrivers, work gloves, pocket knife etc.
- Small fuel operated stove and fuel
- Feminine supplies and personal hygiene items
- Mess kits, paper cups, plates, paper towels and plastic utensils
- Books, games, puzzles, cards and other activities for children
- First aid supplies.
- Toilet Paper.
- Sanitizer.

EVACUATION

1. Evacuation is a pre-emptive move to protect life and property.

2. Be prepared to evacuate.
   - Discuss flood plans with your family.
   - Get out of low areas subject to flooding.
   - Identify places to go.
   - If driving, do not drive through flooded roadways.
   - Decide where to meet if you get separated.
   - Make sure every family member has the contact information.
   - Identify alternative travel routes that are not prone to flooding.
   - Plan what to do with your pets.
   - Fill your vehicle's fuel tank.
   - If told to leave, do so quickly and don't forget to take your Emergency Kit.

DURING A FLOOD

If a flood is likely in your area, you should:

- Listen to the radio to find out what areas are affected, what roads are safe, where to go and what to do if the local emergency team asks you to leave your home.
- Be aware that flash flooding can occur. If there is any possibility of that in your area, move immediately to higher ground. Do not wait for instructions to move.
- Keep your emergency kit close at hand.

If you need to evacuate

- Vacate your home when you are advised to do so by local emergency authorities. Ignoring such a warning could jeopardize the safety of your family or those who might eventually have to come to your rescue.
- Take your emergency kit with you.
- Take your Cellular Phone and charger.
- Follow the routes specified by officials. Don't take shortcuts. They could lead you to a blocked or dangerous area.
- Make arrangements for pets.
- Time permitting, leave a note informing others when you left and where you went. If you have a mailbox, leave the note there.

Never cross a flooded area

- If you are on foot, fast water could sweep you away.
- If you are in a car, do not drive through flood waters or underpasses. The water may be deeper than it looks and your car could get stuck or swept away by fast water.
- Avoid crossing bridges if the water is high and flowing quickly.
- If you are caught in fast-rising waters and your car stalls, leave it and save yourself and your passengers.
- Be aware of streams, drainage channels, ditches, and other areas known to flood suddenly. Flash floods can occur in these areas with or without such typical warnings as rain clouds or heavy rain.
- Make sure your vehicle has enough fuel.
- Follow recommended routes. DO NOT sightsee.
- Avoid disaster areas. Your presence might hamper rescue or other emergency operations and put you at further risk.
- Watch for washed out roads, earth slides, and downed trees or power lines.
- Be especially cautious at night, when it is harder to recognize flood dangers.
- If your vehicle stalls, abandon it.

NEVER drive through flooded roadways. STOP! Turn Around Don't Drown.

- The roadbed may be washed out.
- You can lose control of your vehicle in only a few inches of water.
- Your car may float. Vehicles can be swept away by less than 2 feet of water.
- Do not drive around a barricade. Turn around and go another way!

Get to high ground – Climb to safety!

- Get out of low areas that may be subject to flooding.
- Avoid already-flooded areas and do not attempt to cross flowing water.
- Stay away from power lines and electrical wires.

Evacuate immediately, if you think you are at risk or are advised to do so!

- Act quickly. Save yourself, not your belongings.
- Move to a safe area before access is cut off by rising water.
- Families should use only one vehicle to avoid getting separated and reduce traffic jams.
- If directed to a specific location, go there.

Never try to walk or swim through flowing water.

- If flowing water is above your ankles, STOP! Turn around and go another way.
- If it is moving swiftly, water 6 inches deep can knock you off your feet.
- Be aware that people have been swept away wading through flood waters.
- NEVER allow children to play around high water, storm drains, creeks, or rivers.

If someone falls in or is trapped in flood water:

- Do not go after the victim!
- Use a floatation device. If possible throw the victim something to help them float, such as a spare tire, large ball, or foam ice chest.
- Call 911. Call for assistance and give the correct location information.

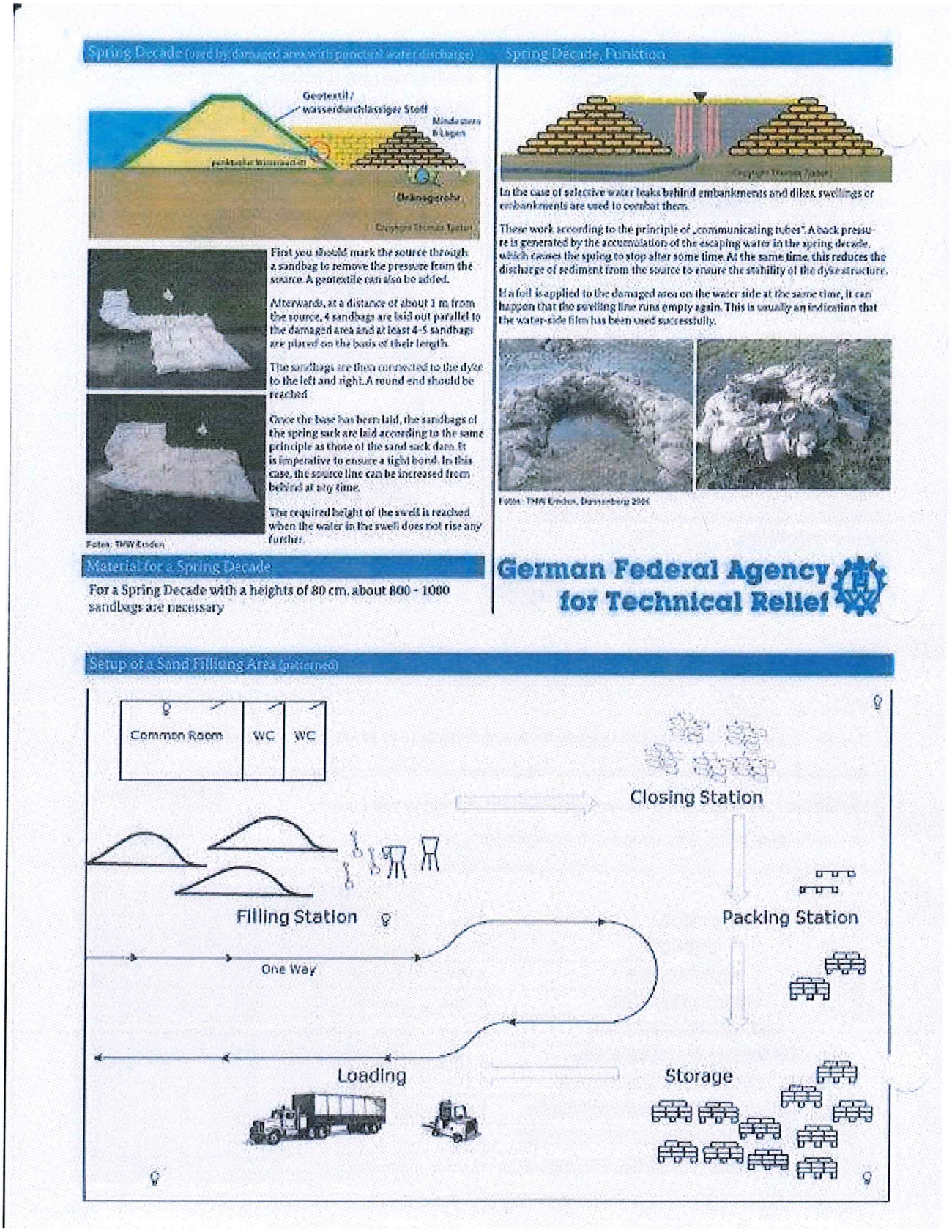
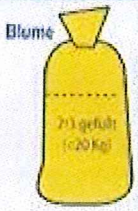


Figure 1: Sandbagging Technique

Sandbags



Weight	approx.	15-20 Kg
Europalette:	"	50-70 Sandbags
1 t respectively:	"	50 Sandbags
Sandbags /m²	"	8 Sandbags
Sandbags /m'	"	80 Sandbags

40-60 sandbags / men / hour
incl. filling, sealing, stapeling

Sandbags (Approx. values - depends Depending on the sand bag type)

Lenghts (m)	Heights (m)	Sand quantity (m³) min-max	Sandbags transvers laid	Sandbags longitudinal
1	0,5	1	30	45
1	1,0	2 - 3	120	160
1	1,5	4 - 6	260	350
1	2,0	7 - 9	450	580
5	0,5	3 - 4	100	220
5	1,0	10 - 13	600	800
5	1,5	21 - 28	1.300	1.750
5	2,0	36 - 48	2.250	2.900
100	0,5	55 - 70	3.200	4.300
100	1,0	160 - 260	11.800	15.800
100	1,5	420 - 560	25.800	34.500
100	2,0	700 - 900	45.000	57.600

The quantity of sandbags and sand varies according to the way in which the sandbags are laid. All information is only a guideline!

A spreadsheet in Excel format for quick calculation is available at www.deichverteidigung.de

German Federal Agency for Technical Relief

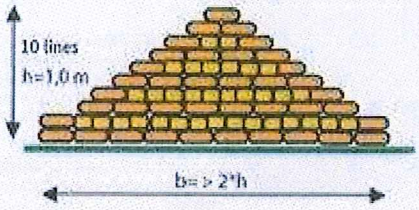
Sandbag-Dam

Sandbag-Dam, normal stability

The number of sandbags for the base usually corresponds to the number of sandbags in the heights.
Sandbag h = sandbags w

Sandbag-Dam, increased stability

Construction with greater dynamics on the dam



The sandbag dam should always be laid in a dense bond so that it is virtually impermeable. The use of film on the water side has also proved its worth.

Sandbag requirements for creating / heightening a dyke (flood protection)

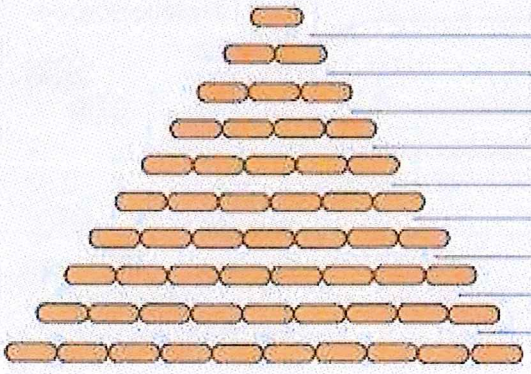
NOTE:

The following quantities are only guidelines and could vary. Rounding to next 100 / 1000 is recommended!

The following calculations are based on sanbags with the dimensions of 70 cm x 30 cm and a 2/3 filling!

The number of sandbags apply, if the sandbags are laid with the bottom facing water.

A transvers laying increases the numbver of sandbags required by a factor of 1.56.



	Protection height	Number of Sandbags at a Length of 10 meters	50 meters	100 meters
1 Line	10 cm	21	107	214
2 Lines	20 cm	64	321	643
3 Lines	30 cm	129	643	1286
4 Lines	40 cm	214	1071	2143
5 Lines	50 cm	321	1607	3214
6 Lines	60 cm	450	2250	4500
7 Lines	70 cm	600	3000	6000
8 Lines	80 cm	771	3857	7714
9 Lines	90 cm	964	4821	9643
10 Lines	100 cm	1179	5893	11786

Figure 2: Number of Sandbags Required