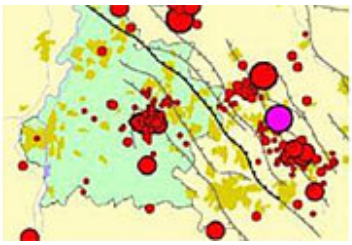
General information on the risk map

What is a risk map?




The risk map is a communication tool. Your local council uses the map to inform you about risks in your environment. The map shows all kinds of different risks, for example accidents involving hazardous substances, earthquakes and floods. A total of twelve different categories of emergencies are shown on the map. The authorities have decided what information is and is not shown.

The authorities also use the risk map when developing policy, for example the construction of a new housing district or industrial estate. The information on the risk map is taken from a national database that contains risk data provided by all local authorities, provincial authorities and the national government. A map viewer is used to show the latest risk data on this website.

Why do we need a risk map?



Past disasters and serious accidents led the authorities to map out the risks that people face in their communities. It became clear that neither the authorities nor the public had enough information about potential disasters and accidents.

After the fireworks disaster in Enschede and the New Year's Eve fire in Volendam, the Dutch cabinet adopted several measures intended to ensure that risks are properly surveyed and that all inhabitants of the Netherlands are fully informed of the risks in their communities and workplaces. One of the tools used to make the public aware of such risks is the risk map.

The purpose of the risk map is to give you up-to-date and complete information on the risks in your environment. Local authorities are required by law to inform their inhabitants about any disasters or serious accidents that they could suffer. The risk map is used to communicate such information. The various local authorities use this website to inform local residents about the steps they have taken, and, moreover, what you should do in the event of a disaster or serious accident.

The risk map will also encourage you to think about how you too can increase the level of safety in your neighbourhood, workplace or community.

What do we see on the risk map?

The risk map shows the following risk situations:

Type of risk / disaster	What is shown on the risk map

Accidents involving hazardous substances	Companies that store, produce or process hazardous substances, transport routes for hazardous substances
Nuclear accidents	Companies that use nuclear materials, transport routes for nuclear materials
Aviation accidents	Airports
Accidents on water	Rivers, canals, lakes and ponds
Traffic accidents on land	Roads and railways
Accidents in tunnels	Tunnels
Collapse of large building	Geological structures
Fire in large building	Large / tall buildings
Mass panic, violation of public order	Events and activities sites
Floods	Flood-prone areas
Natural fires	Fire-prone nature conservation areas

When is a risk shown on the risk map?



A risk is shown when there is a chance that a disaster will occur or if the impact of such a disaster is so great that it will take the coordinated efforts of the emergency services to combat it.

That is why, for example, risks involving hazardous substances have been included. If such substances have the potential to claim multiple victims in the event of an accident, they are placed on the risk map. What you will not find on the risk map are dangerous traffic junctions and unsafe neighbourhoods.
The risk locations are shown on a topographic map so that you can see whether particular streets or buildings are situated within a risk contour. That makes it clear right away whether such buildings include ones with numerous occupants who will require assistance in a disaster situation, for example a hospital or school. In this way, it becomes possible to estimate the impact of a potential disaster or serious accident. Remember, however, that these are just estimates. The precise effects of a disaster can never be forecast accurately in advance.

Who is the risk map for?

The map has been drawn up for the public and for government and other organisations.

The public
The information on the risk map tells people about the risks they face in their neighbourhoods, workplace or community. The risk map has been placed on the Internet and can be consulted by everyone. The information is therefore also available to companies and institutions.

Professionals

The risk map is also an important source of new information for professional organisations, whether or not they are government-related. Municipal, regional and provincial officials can easily find risk-related information on the risk map. They can use that information to help them develop policy, take decisions and implement their policy. For example, the risk map can be used in town & country planning, environmental and location permits, spatial management and safety policy.

The information on the risk map can also help operational services such as the fire service and the

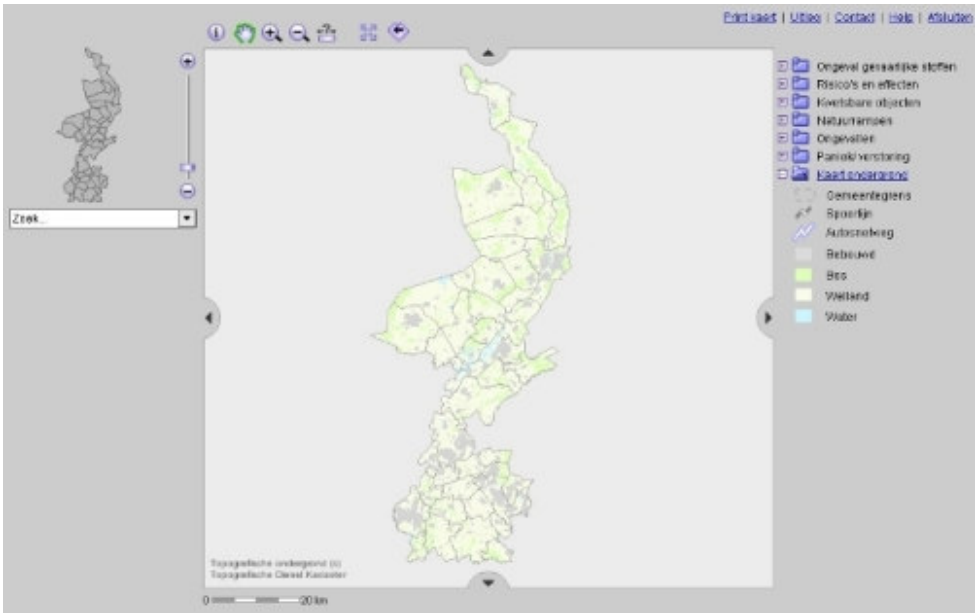
police to prepare for accidents and disasters. They can also use the information to prevent or reduce risk or exposure to such risk.

Who draws up the risk map?

Limburg's Risk Map is produced by the Province of Limburg in collaboration with the local authorities, emergency services, the national government and the water boards.
Every Dutch Province draws up its own risk map and updates it, a duty that is laid down in law. You will find a list of all Dutch risk maps on www.risicokaart.nl. The Provinces develop and update the risk maps in collaboration with local authorities, the Ministry of Housing, Spatial Planning and Environment (Register of Risk Situations Involving Hazardous Substances), the Ministry of the Interior and Kingdom Relations and the operational services (fire service, police and emergency medical services).

How does the risk map work?

The risk map basically consists of a geographical map. It covers the entire province of Limburg and a cross-border strip of land of at least 15 kilometres around the province. That means that it gives you access to data on Limburg and to certain information on its neighbouring provinces of Noord-Brabant and Gelderland. The Belgian and German risks are currently being surveyed for the emergency services. This information will be used to create a Euroregional risk map, that will be finished in late 2007. Because legislation differs from one country to the next, however, it is not yet clear whether the risks surveyed will be shown on the Euroregional risk map in a way that the general public can see.
You can select the area that you would like to study on the map of Limburg, for example your own municipality or community, your neighbourhood, or any other random location in Limburg.



Example of the risc map

Cross-border risks

Risks posed in Belgium and Germany are not shown on the risk map as yet. The plan is to eventually show the risks that could have an impact on the Netherlands in the event of a disaster or major accident. The emergency services are well aware of some of the cross-border risks. The relevant information will be shown on the risk map in future.

A project has been set up in the Meuse-Rhine Euroregion for this purpose. The idea is to draw up a Euroregional risk map. The project is part of a larger, cross-border project known as EMRIC (Meuse-Rhine Euroregion Intervention in the event of a Crisis), the aim of which is to develop a virtual public safety network in the Euroregion.

The purpose of the component project is to put together a digital Euroregional risk map. The map will take the form of a website providing easy access to clear and straightforward information on risks in the Meuse-Rhine Euroregion. The website will not only display map images but also provide factual descriptions of the various risks, such as earthquakes, floods, gas explosions and so forth. The project partners will consult on the precise information to be made available to one another, as well as the level of detail.

The map is primarily intended to assist the emergency services and administrative authorities in their disaster relief efforts. Where legislation in the three countries permits, it may also provide information to which the public and businesses will have access.

The risk map will be based on the same technology and systems used to develop the Netherlands' risk map. Once the map has been constructed, the project partners will enter the necessary data and ensure that it remains up to date and complete. The Euroregional risk map is expected to be completed/available by late 2007.

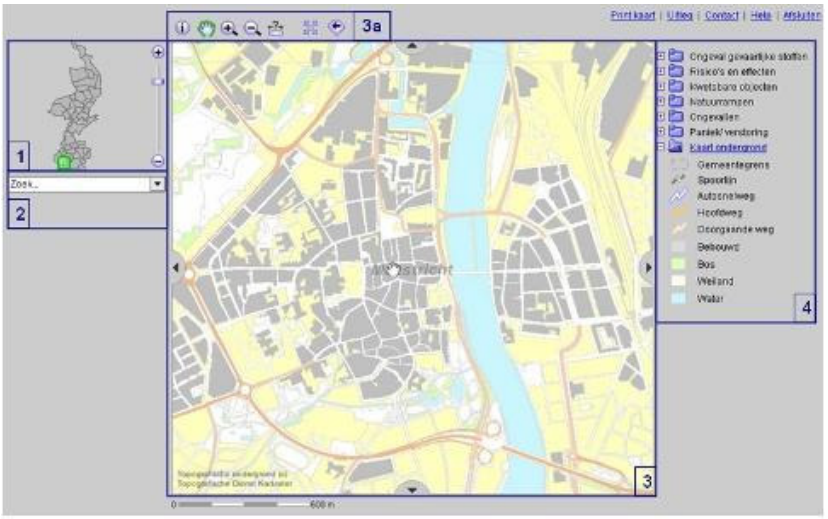
For more information, please contact the Euroregional Risk Map project leader, Mr N. Dolman, at the Province of Limburg (+31 (0)43 389 7020).

How to use the risk map

The risk map is an interactive communication tool that gives you on-line information on high-risk situations in your area. It also shows you what properties and facilities are particularly vulnerable to high-risk situations.
There are a number of different ways to select an area in order to study the relevant risks. Once you have selected an area, you can ask for information on the “sources of risk” there. As soon as you have started up the risk map, click on the Help button for detailed instructions on how to use it.

The screen components

The screen shot below shows the most important components of the screen. An explanation follows.



1 – the general map
The area featured in the map window is shown on the general map inside a square. You can click on the square and drag it to another area, which is then shown in the map window. You can also go directly to a municipality by clicking on it. Besides the general map, you can use the vertical sliding bar to zoom in (for more details) and out (fewer details) in the map window.

2 – the search function
The search function allows you to search for a specific spot on the map, for example a municipality or a particular street. In fact, you can even look up specific companies on the map.

3 – the map window
The map window shows the map itself. What is shown on the map depends on the scale. In other words, if the map displays a large geographical area, you won’t see many details. The more you zoom in, however, the more information the map shows.

3a – the buttons
The buttons are divided into two sets of functions. The first set consists of five buttons that must be activated first by clicking on them with your mouse. Every time you click on the map thereafter, you perform the function associated with the activated button. The button and associated function will remain activated until you select another function. The second set of functions consists of two buttons. When you click on these buttons, you immediately perform the associated function.

4 – the legend
The legend lists everything that you can see in the map window. Some items on the list are hyperlinked. If you select one of these, you will be given an explanation or more detailed information. The standard map setting is to show all the potential risks listed in the legend. If you want information only about one particular category of risk, then you must deselect the other risks.

The risk map has been designed to be as user-friendly as possible. If you find you have questions while using the program, click on the Help button for assistance.

Links and documents

Introtekst

Links

For information on the risk map in general:

- www.risicokaart.nl.nl
- Ministry of the Interior, Disaster Control and Fire Service, via www.rampenbeheersing.nl.
- Association of Netherlands Municipalities, via www.slagenvoorveiligheid.nl
- Association of Provincial Authorities, via www.ipo.nl

For information on the Registration Decision on Risk Situations Involving Hazardous Substances (Register Risicosituaties Gevaarlijke Stoffen, RRGS):

- Ministry of Housing, Spatial Planning and Environment, External Safety, via www.vrom.nl
- National Institute for Public Health and the Environment (RIVM), Centre for External safety and Fireworks, www.rivm.nl

For information on the Risk Communication Manual:

- Ministry of the Interior, Disaster Control and Fire Service, via www.rampenbeheersing.nl

For information on disasters and emergencies in general:

- www.zero-meridean.com

For information on how Enschede local council has surveyed risk-bearing companies:

- www.enschede.nl/risicovanbedrijven/

Documents

Risk map brochure PDF

Risk Inventory Guidelines:

- Section on Hazardous Substances PDF
- Section on Other Disaster Categories PDF

New legislation and regulations

The government has recently introduced a series of new laws intended to make the Netherlands even safer. These are:

-Action points based on Fireworks Disaster Enquiry
-Registration Decree on Risk Situations Involving Hazardous Substances (Registratiebesluit Risicosituaties Gevaarlijke Stoffen)
-Risk map
-External Safety (Establishments) Decree (Besluit Externe Veiligheid Inrichtingen)
-Transport of Hazardous Substances
-Risk atlases

Action points based on Fireworks Disaster Enquiry

Disaster struck the town of Enschede in May of 2000 when a fire at a fireworks company led to a series of major explosions. Twenty-three people were killed, 950 were wounded, 1500 homes and businesses were damaged and 1250 people left homeless. Following various enquiries and reports on the disaster (including the report by the Oosting Committee), the Dutch Cabinet has drawn up the following action points:

- action point 17 resulted in an obligation to register data on high-risk situations involving hazardous substances (Ministry of Housing, Spatial Planning and Environment: Environmental Protection Act and the draft Registration Decree on Risk Situations Involving Hazardous Substances, which elaborates on the register's contents;
- action point 35 obliges local councils to perform a risk inventory (Ministry of the Interior: Disasters and Major Accidents Act and the Act Promoting Quality Disaster Relief (*Wet kwaliteitsbevordering rampenbestrijding* or Wkr));
- action point 36 undertakes to draw up a risk map for use by local councils (Ministry of the Interior);
- action point 37 encourages local councils to inform the public about risks. The Ministry of the Interior and the Association of Netherlands Municipalities (VNG) have together developed a risk communication manual for this purpose.

Registration Decree on Risk Situations Involving Hazardous Substances

The Registration Decree on Risk Situations Involving Hazardous Substances makes it compulsory to register risk situations. A draft version of the Decree is ready, but it has not yet entered into force. The situations concerned are those in which hazardous substances are produced, processed, stored or transported, thereby posing a potential risk to the environment. This information is stored in the Ministry of Housing, Spatial Planning and Environment's Register of Risks.

Risk map

The Provincial authorities draw up and manage the risk maps that have their legal basis in the Registration Decree and the Disasters and Major Accidents Act. The legislation also guarantees that the competent authority will provide the data that is entered into the risk map.

External Safety (Establishments) Decree

The External Safety (Establishments) Decree (Besluit Externe Veiligheid Inrichtingen or BEVI) is a General Order in Council (Algemene Maatregel van Bestuur or AMvB) whose purpose is to limit the risks associated with external safety. The BEVI imposes limiting values that must be applied when

spatial planning permits are issued. The Decree sets out standards for assessing whether a high-risk activity may take place in a certain location, and what may be built in the immediate environment. It also obliges public authorities to provide arguments justifying their decision to accept a risk in the vicinity of a high-risk establishment.
Local and provincial authorities must also take stock of any high-risk companies close to vulnerable properties or facilities (for example hospitals and schools), assess which high-risk companies will be allowed in such locations, and identify when such companies are exempt from complying with the standards. If companies exceed the limiting values, the local and provincial authorities must indicate which measures should be taken to reduce the level of risk.

Transport of Hazardous Substances

In the past, anyone who wanted to start up a company that worked with hazardous substances was issued a permit without the local council investigating the other companies around it. That meant that it was unable to determine whether it was in fact responsible to issue a permit. Fortunately that has changed, even with respect to transport routes for hazardous substances. If regular consignments of hazardous substances (LPG, chorine or ammonia) are transported on particular waterways, railways or roads, it is basically prohibited to build any new homes or businesses in the vicinity. The reverse is also true: the national government will not build any new roads close to existing houses. Such rules ensure that spatial planning, safety and transport are closely interconnected.

Risk atlases

The national authorities are keen to know the risks posed by transport. The provincial authorities have therefore identified such risks in special documents, known as risk atlases. Risk atlases describe situations that pose a threat to areas close to transport routes and local residents.

Floods

The risk map shows areas that could be flooded, specifically if the river Meuse overflows.

The Meuse is a rain-fed river. That means that its discharge depends largely on the amount of precipitation. On average, the Meuse discharges approx. 250m³ of water per second at Maastricht-Borgharen. In the summer, the discharge may decline so much that parts of the river north of Stevensweert can be forded. High discharge levels are common in winter, caused by persistent rain and heavy showers in France and Belgium. The river receives an extra supply of water from its tributaries when snow in the Ardennes melts. The highest discharge levels occurred in 1926, 1993 and 1995 (approximately 3000m³/s at Borgharen).

The flood wave

Water needs time to travel downstream along the river. As a result, water levels do not peak everywhere at once. It moves most rapidly in the steep middle reaches; a flood wave needs only a half day to travel between Namur in Belgium to Maastricht (90km). The fall is much smaller in the lower reaches, and it therefore takes three days for a flood wave to travel between Maastricht and Lith (180km). The broader river valley and gravel pits give the water more room, slowing down the flood wave. Its crest therefore continues to fall on its way to Lith-Hollands Diep.

A flood wave can be gradual or sharp. A flood wave is gradual when precipitation falls over an extended period of time and runs off into the Meuse. A flood wave is sharp when a lot of precipitation falls in a short period of time.
That is why a gradual flood wave causes higher water levels downstream than a sharp one..

Forecasts

In order to forecast the water levels along the Meuse in the Netherlands, we first need to forecast the water level at Borgharen. Based on these forecasts, it is possible for the Limburg division of the Department of Public Works and Water Management to calculate water levels along the entire river in the Netherlands. The forecasts at Borgharen are made by the Institute for Inland Water Management and Waste Water Treatment (RIZA) together with the Limburg division of the Department of Public Works and Water Management. They use a special computer model to produce the forecasts. Because rainwater from the Ardennes reaches Borgharen very quickly, the model is used to calculate the precipitation that has fallen and that is expected to fall.
Twelve-hour forecasts are accurate to within approximately 10cm. If it is possible to make do with less accurate forecasts, the peak water level at Borgharen can be predicted a day in advance.

Flood information

Once the discharge reaches 1500m³/s at Borgharen, the river has reached “alarm levels”. The Department of Public Works commences flood reporting and opens its Information Centre. As the discharge gets closer to the alarm levels, the Department will alert (1000m³/s) and then warn (1250m³/s) the authorities and emergency services. RIZA reports on the situation to the media, and announcements are made on L1 (Radio 1 frequency) and NOS teletext (page 725).
Once the Information Centre has been manned, you can obtain information during and outside office hours by dialling +31 (0)43 329 4400 .
Flood reports are also placed on a special website: www.actuelewaterdata.nl/afvoeren, where you can also check the latest water levels and discharge rates. Another place to check water levels is on page 720 of NOS teletext.

Would you like more information? Then visit www.rijkswaterstaat.nl or www.actuelewaterdata.nl/afvoeren

The Meuse catchment area

The Meuse has its source in the Langres plateau in France, from where it flows west of the Belgian Ardennes into the Netherlands. From its source to the Amer, the Meuse is 900 kilometres in length. Five hundred kilometres are in France, 200 kilometres in Belgium and about 200 in the Netherlands. The Meuse enters the Netherlands at Eijsden and ends at Hollands Diep after merging with the Bergse Maas and Amer rivers. The total catchment area – the region in which precipitation runs off into the Meuse and its tributaries – is about as big as the Netherlands.

The river’s catchment area can be divided roughly into three sections: a French section, a Belgian section and a Dutch section. Each one is unique.

The French section: The boundary of this section is at Chooz. That means that some of the Belgian catchment area is counted as part of the French section, since the Semois ends in France. The French catchment area covers 10,750km². It is elongated and narrow, with a low fall. However, the porous soil absorbs much of the precipitation.

The Belgian section: This section covers the area between Chooz and Eijsden that drains into the Meuse. It encompasses most of the Belgian Ardennes and the Sambre region. It is a wide area of about 10,000km². Because a large number of tributaries and streams fall steeply and because the soil is rocky, the rain is quick to reach the Meuse. Precipitation reaches the Dutch border just a short while after it has fallen.

The Dutch section: This section encompasses the catchment area of the Meuse from Eijsden to Hollands Diep. The Meuse tributaries and the situation of the national border means that the Dutch section also encompasses a small area of Belgium and Germany. The area is approximately 12,250km². It is relatively wide and largely flat. The final stretch of the Meuse is embanked from Mook onwards. A number of retention basins have been constructed in the catchment area of the Roer and its tributaries which help to limit this river’s high-water discharge.