

REPORT

ON DISASTER RISK ASSESSMENT IN THE REPUBLIC OF SLOVENIA

1 Introduction

The Report on Disaster Risk Assessment in the Republic of Slovenia is comprised of information on activities regarding the identification of disaster risk in the Republic of Slovenia and of the summary of important elements of disaster risk assessments, in line with the provisions of Article 6(a) of Decision No. 1313/2013/EU of the European Parliament and of the Council of 17th December 2013 on a Union Civil Protection Mechanism (OJ L 347 of 20th December 2013, p. 924) (hereinafter: Decision on a Union Civil Protection Mechanism). The report was prepared by the National Coordination Body for Disaster Risk Assessment within Administration of the Republic of Slovenia for Civil Protection and Disaster Relief by Ministry of Defence.

The Intersectorial Working Group on Disaster Risk Assessment has been familiarised with the report. The report was adopted by means of the Decision that the Government of the Republic of Slovenia adopted together with the National Disaster Risk Assessment.

Natural and other disasters are a constant threat to humanity. Progress and prosperity bring increasing vulnerability into the entire society, and disasters are causing increasing damage and consequences. The European Commission too pays great attention to activities relating to the content and development of disaster risk assessments. At the end of 2010, the European Commission issued guidelines governing the content and concept for assessing and recording risks related to disaster management called "Risk Assessment and Mapping Guidelines for Disaster Management", SEC (2010) 1626 final, of 21st December 2010 (hereinafter: European Commission guidelines), according to which the Member States should make development methods and standards for disaster risk assessments more comparable. The European Commission wanted to encourage Member States to work on these issues more intensively and consistently, using similar methods and standards for disaster risk assessments, despite the different starting points of individual states. The results of disaster risk assessments for individual states would be more comparable that way, which would allow a development of unified overviews of risks of natural and other disasters in the European environment.

The development of disaster risk assessments is based on the Decision on a Union Civil Protection Mechanism, along with some other important documents. The Decision on a Union Civil Protection Mechanism, which has been in force since 1st January 2014, specifies, among other things, the development of disaster risk assessments and the deadlines for reporting to the European Commission in Article 6(a).

1.1 Organisational framework of disaster risk assessments

Disaster risk assessment was transposed in Slovenian legal order and regulated by the Decree implementing the Decision on a Union Civil Protection Mechanism (Official Gazette of the Republic of Slovenia No. 62/14, hereinafter: Decree), adopted in August 2014. In the Decree, the Government of the Republic of Slovenia specified the types and content of disaster risk assessments and the process of developing risk assessments for individual disasters and the National Disaster Risk Assessment. In addition to the subject matter and types of assessments, the Decree specifies institutions and their responsibilities, development processes, methods and techniques that are available for the development of disaster risk assessments, and the method of adopting, supplementing and amending disaster risk assessments, with an emphasis on the integration of content related to climate change.

The Decree specified 12 disasters for which a state-level risk assessment for every specific disaster was produced in 2015, and the development of such assessments was assigned to competent and responsible institutions. An overview of such disasters is shown in the table below.

Table 1: Competency for developing risk assessments for specific disasters

| RISK ASSESSMENTS FOR SPECIFIC DISASTERS | Institution |
|---|--|
| Earthquake | The ministry in charge of the environment |
| Floods | The ministry in charge of the environment |
| Health threats of biological, chemical, environmental or unknown origin | The ministry in charge of health |
| Particularly dangerous animal diseases | The ministry in charge of agriculture |
| Nuclear or radiological disaster | The ministry in charge of the environment |
| Railway accident | The ministry in charge of transport |
| Aircraft accident | The ministry in charge of transport |
| Large wildfires | The ministry in charge of agriculture |
| Terrorism | The ministry in charge of the internal affairs |
| Drought | The ministry in charge of the environment |
| Sleet | The ministry in charge of protection against natural and other disasters |
| Accidents involving dangerous substances | The ministry in charge of the environment |

Risk assessments for individual disasters consist of the following content:

1. Introduction
2. Description of methods and techniques used in drawing up disaster risk assessments

3. Process of disaster risk identification (description of disaster characteristics, risk scenarios)
4. Risk analysis based on risk scenarios (impacts on people, economic and environmental impacts and impacts on cultural heritage, political and social impacts, assessment of the data reliability and the likelihood of risk analyses results)
5. Evaluation of disaster risk (Risk criteria for evaluating impacts of the risk and the likelihood of a disaster, comparison of risk analyses results with these criteria, disaster risk matrices, risk categorisation (geographical risk distribution))
6. Risk assessment summary
7. Conclusion
8. Explanation of terms, acronyms and abbreviations
9. Resources
10. Attachments
11. List of amendments, supplements and updates

Furthermore, any content related to climate change, including the assessment of climate change risks and the action plan on how to adapt to the climate change, is or will have to be included in each of the risk assessments developed for specific disasters, which are directly or indirectly affected by climate change, especially in the analysis and risk evaluation. This subject matter is always coordinated and provided by the ministry in charge of the climate change issues.

The risk assessments for specific disasters may also include proposals for preventive and other measures to prevent or reduce the potential for disasters, proposals for disaster risk management, measures for mitigating the impacts of risk and proposals for measures for a systemic regulation of risk management on the basis of current policies, acts and strategic documents related to such risks and other content, which are set forth by specific regulations associated with risks.

The Decree also specifies the development of the National Disaster Risk Assessment, which represents a summary and synthesis of the content and conclusions of risk assessments for individual disasters, and includes:

1. Introduction
2. Risk criteria for evaluating the impacts of risk and the likelihood of a disaster
3. Summaries and conclusions of risk assessments for specific disasters and comparison of risk analyses results by each disaster as per risk assessments with the risk criteria, including risk matrices for individual disasters
4. Joint disaster risk assessment on the basis of the outcomes of the preceding point, and joint disaster risk matrix included in the National Disaster Risk Assessment
5. Overview of the selected scenarios of individual risks and multi-risk scenarios as well as analyses of these risks
6. Overview of the selected scenarios that define the course of several potential, mutually independent disasters in the same area, as well as analyses of these risks
7. Conclusion
8. Explanation of terms, acronyms and abbreviations
9. Resources
10. Attachments

11. List of amendments, supplements and updates

The content related to climate change, which is coordinated and provided by the ministry in charge for climate change, is or will be included in the National Disaster Risk Assessment.

The first version of the National Disaster Risk Assessment was drawn up in December 2015.

Regarding the development of risk assessments for individual disasters, the Decree specifies active cross-sectorial cooperation, involvement of experts and science, public participation, publicly adopted disaster risk assessments, coordination of certain content parts of disaster risk assessments with neighbouring countries when necessary etc. Such approach is encouraged both by the European Commission guidelines and by the Decision on a Union Civil Protection Mechanism.

The institutions chose different methods and techniques for the development of risk assessments by specific disasters. Most institutions decided to apply methods of good practice and the method of brainstorming as well as the historical method, case studies, the anticipation method, the descriptive method, methods of analysis and synthesis, the comparative method, the theoretical method, the inductive method, the deductive method, multi-criteria analyses, the risk indices technique and the PHA (Preliminary Hazard Analysis) method. The majority of these methods and techniques are in accordance with the ISO 31010 standard, which is also mentioned in the European Commission guidelines.

The institutions cooperated with ministries in the preparation of risk assessments for specific disasters, primarily in the development of risk scenarios and risk analyses. The institutions used the available research, studies and analyses and other expert background documents relating to disasters for the development of risk assessments for specific disasters, and also included some public, expert and scientific institutions in the development of certain assessments. Most institutions also coordinated the content of risk assessments for specific disasters with the public. The participation of the public was generally carried out through a public announcement of draft risk assessments for specific disasters on the relevant ministries' websites, to which the interested public could put forward comments and proposals. Risk assessments for specific disasters and National Disaster Risk Assessment were publicly presented in November 2015 at the Education Centre of Administration of the Republic of Slovenia for Civil Protection and Disaster Relief of the Ministry of Defence, to which primarily expert public and other stakeholders, ministries and local communities were invited.

Disaster risk assessments are published on the websites of the ministries that prepared them.

As risk assessments for specific disasters are drawn up by different ministries, the Decree, which is in line with the European Commission guidelines, also specified the establishment of the National Coordination Body for Disaster Risk Assessment within the Administration of the Republic of Slovenia for Civil Protection and Disaster Relief of the Ministry of Defence. Its tasks are primarily focused on providing coordination, assistance and support to the ministries developing risk assessments for specific disasters or specific content for these assessments, informing the Government of the Republic of Slovenia and the Intersectorial Working Group on

Disaster Risk Assessment on the activities and progress of the development of disaster risk assessments, periodic reporting to the European Commission in accordance with the obligations laid down in the Decision on a Union Civil Protection Mechanism and facilitating coordination for the development of National Disaster Risk Assessment. It was necessary to define the working frameworks and to draw up a number of supporting documents and content before and during the development of risk assessments for specific disasters, which were necessary for the preparation of the content and development of disaster risk assessments; the national coordination body played an important role in this stage.

The Intersectorial Working Group for Disaster Risk Assessment was established at the end of 2014, and includes representatives of all ministries. Its task is to familiarise others with the current development of disaster risk assessments and to provide and coordinate the implementation of planned or required activities related to the development of risk assessments for specific disasters within the ministries.

In 2015, the National Coordination Body for Disaster Risk Assessment informed the Intersectorial Working Group on Disaster Risk Assessment and the Government of the Republic of Slovenia three times on the activities and realisation of the tasks related to the development of disaster risk assessments. The Government of the Republic of Slovenia adopted a number of documents and decrees concerning this subject.

The development of risk assessments for specific disasters was undertaken in 2015 at the same time as the activities for the development of assessments of future climate change (by 2050), activities regarding the consequences of climate change and the development of an action plan of adaptation to climate change were carried out at the Ministry of Environment and Spatial Planning; these activities should be completed in 2016. The results of these documents will have to be considered in relevant disaster risk assessments by the end of 2016. Thus, certain risk assessments for specific disasters as well as the National Disaster Risk Assessment will be amended with such content in 2016. Climate changes are already included in risk assessments for specific disasters and the National Disaster Risk Assessment to some extent. The climate changes in the recent decades were already included in the risk assessments for specific disasters on which climate changes have already had a significant impact (e.g. drought, floods and large wildfires), particularly through risk scenarios which sum up real disasters of the last two or three decades.

After 2015, the amendments and supplements to the Decree will specify further risk assessments for specific disasters, as well as set forth the institutions in charge of their development. Furthermore, previously developed risk assessments for specific disasters should be supplemented every five years, which means that risk assessments for specific disasters prepared in 2015 will be amended or supplemented no later than in 2020. The National Disaster Risk Assessment should be supplemented every three years, i.e. in 2018 for the first time. The main purpose of the supplements will be to include the results of risk assessments for specific disasters which will be developed after 2015, and later they will include supplements to the existing risk assessments for individual disasters, first produced in 2015.

2 Risk criteria for evaluating the impacts of risks and the likelihood of a disaster and disaster risk matrices

2.1 Risk criteria for evaluating the impacts of risks and the likelihood of a disaster

One of the most important tasks which had to be performed before the development of risk assessments for specific disasters was establishing the criteria for the evaluation of impacts of risks and the likelihood of a disaster, which would enable a comparison of the impacts of different disasters and their likelihood or frequency. Impacts of disasters are divided into impacts on people, economic and environmental impacts and impacts on cultural heritage and political and social impacts. The criteria for evaluating the impacts and the likelihood of a disaster were harmonised and adopted in the spring of 2015 at the working meetings of the National Coordination Body for Disaster Risk assessment with the ministries, which developed risk assessments for specific disasters or participated in their development. Since the criteria for evaluating the impacts of risk and likelihood of a disaster are uniform for all risks, it is not only possible to compare the analysis results for several risk scenarios within one risk, but it also allows a comparison of impacts or consequences and the likelihood of a disaster for a specific risk with other risks. The criteria for evaluating the impacts and the likelihood of a disaster are set in five levels, and the corresponding level of impact and likelihood of a disaster is as follows:

- 1 – Very low
- 2 – Low
- 3 – Medium
- 4 – High
- 5 – Very high

2.1.1 Criteria for evaluating the human impacts

The impacts on people depend on the type of risk and include the number of deaths, the number of injured or sick, the number of permanently evacuated, the number of people who live and work in areas impacted by the disaster and other impacts (e.g. the impacts on vulnerable population groups such as children, the elderly and socially disadvantaged). For disasters with potential long-term impacts (such as disasters involving dangerous substances, nuclear or radiological disasters), these impacts can be used to determine or estimate the number of deaths and wounded or sick people over a period of 10 years after the disaster. The criteria for evaluating the impacts of the risk on people are expressed in the number of dead, injured or sick, and permanently evacuated people.

Table 2: Criteria for evaluating the human impacts

| Criteria for evaluating the impacts of the risk on people | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|---------------|
| Number of deaths | Up to 5 | 5–10 | 10–50 | 50-200 | More than 200 |
| Number of deaths (10 years)* | Up to 5 | 5–10 | 10–50 | 50–100 | More than |

| Criteria for evaluating the impacts of the risk on people | 1 | 2 | 3 | 4 | 5 |
|--|----------|----------|----------|----------|----------------|
| | | | | | 100 |
| Number of injured or sick** | Up to 10 | 10–50 | 50–200 | 200–1000 | More than 1000 |
| Number of injured or sick (10 years)* | Up to 10 | 10–50 | 50–200 | 200–500 | More than 500 |
| Number of evacuated people (permanent measure) | Up to 20 | 20–50 | 50–200 | 200–500 | More than 500 |

*For disasters with potential long-term impacts (e.g. up to 10 years), accidents involving dangerous substances, nuclear or radiological disasters, the long-term evaluation for the number of dead, wounded or sick people (10 years) are determined separately and considered as set out above, if necessary.

** The injured or sick people also include people exposed to radiation, contaminated or poisoned.

The number of dead and injured or sick people takes into account potentially dead and injured members of the forces for protection, rescue and assistance in relief interventions, and the number of police officers, soldiers of the Slovenian Armed Forces and intervention teams for various services (emergency medical services, power companies, teams, public utility companies etc.), who died or were injured while carrying out the emergency measures within their competences and the initial rehabilitation activities, but not later than one year after the disaster. To qualify, the risk matrices take into account the value that reaches the highest level of impact in relation to the criteria for evaluating the impacts on people.

2.1.2 Criteria for evaluating the economic and environmental impacts and impacts on cultural heritage

The economic and environmental impacts and impacts on cultural heritage, depending on the type of the risk, may include impacts such as the number, the consequences and the amount of damage to the facilities, the costs of ministries and bodies which carry out their activities in harsh conditions, the scope and amount of damage to agricultural and forest areas, to facilities/areas of cultural heritage, the costs of restrictions on the use of food as well as long-term costs within the food supply chain, the extent and amount of damage to water bodies, the number of damaged or destroyed means of transport and the consequent damage, the number, damage and costs resulting from dead, injured or sick domestic or wild animals and animals that need to be killed or treated, the cost of treatments or medical care of people, damage due to the interruption of economic activities, social and other related costs, the costs of interventions and potential international assistance, the cost of a long-term complete reconstruction (rehabilitation) of facilities and equipment, agricultural and forest areas and facilities/areas of cultural heritage, water bodies, environmental restoration and other environmental damage, and additionally, where appropriate (which is not included in the calculation of the damage and costs), the extent of the impacted area (in square kilometres and percentage of the area of the country), the amount of insurance payments due to the disaster, the reduction in GDP, the decrease in foreign tourist visits and an increase in unemployment due to the disaster.

The criteria for evaluating the economic and environmental impacts and impacts on cultural heritage are reflected in the amount of costs and damage caused by a certain risk. The limit of the risk impact is set at 0.6 % of GDP between the second and third class, out of five. The limit values for other classes are derived from these values. The baseline value is mostly linked to the value of 0.6 % of gross national income (GNI). If the damage due to a certain disaster exceeds 0.6 % of GNI, the country can apply for a grant from the European Union. The values of GNI and GDP are very similar (GNI is only slightly lower) in the Republic of Slovenia, which is why GDP was used in the criteria for evaluating the impacts of the disaster risk. Slovenian GDP in 2014 amounted to approx. EUR 36.2 billion, and the value of 0.6 % of GDP rounded to EUR 220 million.

Table 3: Criteria for evaluating the economic and environmental impacts and impacts on cultural heritage

| 1 | 2 | 3 | 4 | 5 |
|--------------------------|------------------------|------------------------|------------------------|------------------------------|
| up to 0.3 % GDP | 0.3 %–0.6 % GDP | 0.6 %–1.2 % GDP | 1.2 %–2.4 % GDP | more than 2.4 % GDP |
| up to 100 million EUR | 100–220 million EUR | 220–440 million EUR | 440–880 million EUR | more than 880 million EUR |

2.1.3 Criteria for evaluating the political and social impacts

The political and social impacts can, depending on the risk, include categories such as impacts on the functioning of national authorities, impacts of non-functioning of important infrastructure systems on daily life, psychosocial impacts, internal political stability, and the impact on law and order, financial stability and foreign policy stability or international stability. The criteria for evaluating the political and social impacts are predominantly half-qualitative. Unlike the previous two groups of impacts, for which concrete data and numbers were available, this group of impacts focuses more on the evaluation of the order of magnitude of the considered impacts. The final value or the level of political and social impacts is determined by adding together the final values or levels of all groups of political and social impacts, and dividing them by the number of groups of impacts, i.e. generally by 6. The unevaluated groups of political and social impacts are not included in this calculation.

2.1.3.1 Criteria for evaluating the impacts on the functioning of national authorities

The criteria for evaluating the impacts on the functioning of national authorities are shown in tables 4 and 5.

Table 4: The possibility of performing tasks from the competences of national authorities (government, ministries, constituent bodies, administrative units) in the impacted area

| Duration | Limited | Very limited | Impossible |
|-----------------|----------------|---------------------|-------------------|
| up to 2 days | 1 | 1 | 2 |
| up to 7 days | 1 | 1 | 2 |

| Duration | Limited | Very limited | Impossible |
|-------------------|----------------|---------------------|-------------------|
| up to 15 days | 2 | 2 | 3 |
| up to 30 days | 2 | 3 | 4 |
| more than 30 days | 3 | 4 | 5 |

Table 5: The number of people, to which the provision of services is physically or functionally hindered or disturbed by the national authorities

| Number of people | up to 500 | 500–5000 | 5000–50,000 | More than 50,000 |
|-------------------------|------------------|-----------------|--------------------|-------------------------|
| Duration | | | | |
| up to 2 days | 1 | 1 | 1 | 2 |
| up to 7 days | 1 | 2 | 2 | 3 |
| up to 15 days | 2 | 3 | 3 | 4 |
| up to 30 days | 3 | 4 | 4 | 5 |
| more than 30 days | 4 | 5 | 5 | 5 |

The final level or value of the impact on the functioning of the national authorities is determined by dividing the sum of the individual values from tables 4 and 5 with the number of impacts considered. The value may be either a whole or a decimal number.

2.1.3.2 Criteria for evaluating the impacts on the functioning of important infrastructure systems

The criteria for evaluating the impacts on the functioning of important infrastructure systems are shown in tables 6 and 7.

Table 6: Lack of or limited access to safe drinking water, food and energy (electricity, heating, fuel)

| Number of people | up to 500 | 500–5000 | 5000–50,000 | More than 50,000 |
|-------------------------|------------------|-----------------|--------------------|-------------------------|
| Duration | | | | |
| up to 2 days | 1 | 1 | 1 | 2 |
| up to 7 days | 1 | 2 | 2 | 3 |
| up to 15 days | 2 | 3 | 3 | 4 |
| up to 30 days | 3 | 4 | 4 | 5 |
| more than 30 days | 4 | 5 | 5 | 5 |

The impact that causes the greatest consequences and lasts the longest is considered. In the event that more contents have the same level of impact, the impact that impacts the largest number of people is considered. In the event that the same number of people is impacted in two cases, the one that lasts longer is considered.

Table 7: Very limited or no access to the internet and telecommunication systems, arrival to work in educational institutions, public services (access to the media, health services, banking services etc.), public transport, supply or purchase of basic necessities

| Number of people | up to 500 | 500–5000 | 5000–50,000 | More than 50,000 |
|-------------------------|------------------|-----------------|--------------------|-------------------------|
| Duration | | | | |
| up to 2 days | 1 | 1 | 1 | 2 |
| up to 7 days | 1 | 2 | 2 | 3 |

| Number of people | up to 500 | 500–5000 | 5000–50,000 | More than 50,000 |
|-------------------------|------------------|-----------------|--------------------|-------------------------|
| Duration | | | | |
| up to 15 days | 2 | 3 | 3 | 4 |
| up to 30 days | 3 | 4 | 4 | 5 |
| more than 30 days | 4 | 5 | 5 | 5 |

The impact that causes the greatest consequences and lasts the longest is considered. In the event that more contents have the same level of impact, the one that impacts the largest number of people is considered. In the event that the same number of people is impacted in two cases, the one that lasts longer is considered.

The final level or value of the impact on the functioning of important infrastructure systems is determined by dividing the sum of values in the above two tables with the number of impacts considered. The value of this group of impacts may be either a whole or a decimal number.

2.1.3.3 Criteria for the evaluation of psychosocial impacts

The criteria for the evaluation of psychosocial impacts are shown in tables 8, 9 and 10.

Table 8: Number of people in whom the disaster causes an unusual or unwanted behaviour (behavioural reactions), such as avoiding attending school, kindergarten, conscious absence from work, conscious avoidance of public transport, a tendency to relocate, irrational financial operations (mass cash withdrawals etc.), accumulation and appropriating of a stock of basic necessities etc.

| Number of people | up to 500 | 500–5000 | 5000–50,000 | More than 50,000 |
|-------------------------|------------------|-----------------|--------------------|-------------------------|
| Duration | | | | |
| up to 2 days | 1 | 1 | 1 | 2 |
| up to 7 days | 1 | 2 | 2 | 3 |
| up to 15 days | 2 | 3 | 3 | 4 |
| up to 30 days | 3 | 4 | 4 | 5 |
| more than 30 days | 4 | 5 | 5 | 5 |

The impact that causes the greatest consequences and lasts the longest is considered. In the event that more contents have the same level of impact, the one that impacts the largest number of people is considered, and then the one that lasts the longest.

Table 9: Social impacts

| Types of social impacts | Level of impact |
|---|------------------------|
| The impacts of a disaster cannot influence the evaluated content. | Not assessed (NA) |
| Small/insignificant impact. | 1 |
| Poorer population segments find themselves in severe social distress; there is an increase in the number of requests for an emergency financial social assistance. | 2 |
| The consequences of disasters are also felt by the middle-class population, which is reflected in the increased number of applications for emergency financial social assistance. | 3 |
| The consequences of disasters are felt by the majority of the population, which is reflected in a large increase in the number of applications for social assistance. | 4 |

| Types of social impacts | Level of impact |
|--|------------------------|
| The consequences are felt by all residents; this is reflected primarily in new applications for social assistance and reapplications for the allocation of assistance. | 5 |

Table 10: Psychological impacts

| Types of psychological impacts | Level of impact |
|---|------------------------|
| The impacts of a disaster cannot influence the evaluated content. | Not assessed (NA) |
| Small/insignificant impact. | 1 |
| Individual cases of fear are emerging amongst the residents because they do not know the causes and characteristics of the disaster and its consequences. | 2 |
| There is an increase of the phenomenon of fear amongst the residents, especially of a new disaster and its consequences. | 3 |
| There is a climate of fear of survival amongst residents, and the confidence in the competent authorities relating to the response and relief of disaster consequences decreases, while the desire to relocate increases. | 4 |
| Due to the negative events or consequences of a disaster, most people lose confidence in the fact that life in the impacted area could return to a normal state, and the mass migration begins. | 5 |

The final level or value of the psychological impacts is determined by dividing the sum of the values from tables 8, 9 and 10 with the number of impacts considered. The value of this group of impacts may be either a whole or a decimal number.

2.1.3.4 Criteria for evaluating the impacts on internal political stability

Table 11: Impact on internal political stability and law and order

| Types of impacts | Level of impact |
|---|------------------------|
| The impacts of a disaster cannot influence the evaluated content. | Not assessed (NA) |
| Small/insignificant impact. | 1 |
| There are individual cases of public expression of disagreement with the actions taken by the competent institutions, or individual interference of functioning of political institutions (government, parliament etc.), and individual occurrences of hostile campaigns. | 2 |
| There are isolated cases of violations of law and order due to the disaster and the expression of feelings of fear for safety and property; individuals or groups are trying to undermine the internal political situation, and there is a decrease of confidence in the political institutions. | 3 |
| The number of violations of law and order and organised crime also increase, as well as the fear among people; political parties and other stakeholders are trying to undermine internal political stability and obtain political benefits by "imposing" their programmes for improving the conditions, and there is a decrease of confidence in the functioning of | 4 |

| Types of impacts | Level of impact |
|--|------------------------|
| national institutions. | |
| The violations of law and order, including violent demonstrations, are massive, there are a lot more of criminal offences, and internal security of the country is threatened. Internal political stability of the country is undermined, the constitutionally guaranteed fundamental rights and values are threatened and devaluated. | 5 |

2.1.3.5 Criteria for evaluating the impacts on financial stability

The criteria for evaluating the impacts on financial stability are shown in tables 12, 13 and 14.

Table 12: Impact on the solvency of legal entities and natural persons due to the non-functioning of payment services

| Value of downtime | Downtime of settlement of payments <u>lower than 10 % of the planned value of payment services in the period of the disruption</u> | Downtime of settlement of payments <u>between 10 % and 20 % of the planned value of payment services in the period of the disruption</u> | Downtime of settlement of payments <u>between 20 % and 50 % of the planned value of payment services in the period of the disruption</u> | Downtime of settlement of payments <u>between 50 % and 80 % of the planned value of payment services in the period of the disruption</u> | Downtime of settlement of payments <u>greater than 80 % of the planned value of payment services in the period of the disruption</u> |
|---|---|---|---|---|---|
| Duration of downtime | | | | | |
| No impact because the impacts of a disaster cannot influence the evaluated content. | Not assessed (NA) | Not assessed (NA) | Not assessed (NA) | Not assessed (NA) | Not assessed (NA) |
| Disruptions of payment services that last up to 2 hours. | 1 | 1 | 2 | 3 | 3 |
| Disruptions of payment services that last up to 4 hours. | 1 | 2 | 2 | 3 | 4 |
| Disruptions of payment services that last up to 8 hours. | 2 | 3 | 3 | 4 | 4 |
| Disruptions of payment services that last the entire business day or disruptions that are not eliminated by the end of the business day.* | 3 | 4 | 4 | 5 | 5 |
| Disruptions of payment services that last longer than one business day. | 4 | 5 | 5 | 5 | 5 |

* Disruption at the end of the business day, even if they last for a short period of time, can cause a one-day delay of the settlement of payments.

Table 13: Impact on the solvency of legal entities and natural persons due to the shortage of cash

| The number of people affected | Up to 5000 | Up to 50,000 | More than 50,000 |
|--------------------------------------|-------------------|---------------------|-------------------------|
| Duration | | | |
| Up to 2 days | 1 | 2 | 3 |
| 2–7 days | 2 | 3 | 4 |
| more than 7 days | 3 | 4 | 5 |

Legend:

- 1 – No impact or the impact is low.
- 2 – Cash is less accessible to legal entities and natural persons in their place of residence.
- 3 – Cash is accessible to legal entities and natural persons in neighbouring towns.
- 4 – Cash is accessible to legal entities and natural persons in larger cities and individual towns.
- 5 – Cash is not accessible.

Table 14: Changes in GDP growth due to a disaster in the year of the disaster or the next year

| Change in GDP growth | Level of impact |
|--|------------------------|
| No impact; the impacts of the disaster have no influence on the evaluated content/there are no consequences. | Not assessed (NA) |
| 0 to –0.5 percentage points | 1 |
| Up to –1 percentage point | 2 |
| Up to –1.5 percentage point | 3 |
| Up to –2 percentage points | 4 |
| more than –2 percentage points | 5 |

The final level or value of an impact on the financial stability is determined by dividing the sum of the individual values from tables 12, 13 and 14 with the number of impacts considered. The value of this group of impacts may be either a whole or a decimal number.

2.1.3.6 Criteria for evaluating the impacts on foreign political stability or international stability

The criteria for evaluating the impacts on foreign political stability or international stability are shown in table 15.

Table 15: Foreign political (international) impact

| Type of foreign political or international impact | Level of impact |
|--|------------------------|
| The impacts of a disaster cannot influence the evaluated content. | Not assessed (NA) |
| Small/insignificant impact. | 1 |
| No significant direct impact on the international position of the country which would be detected. Individual foreign countries are monitoring the situation in the Republic of Slovenia. | 2 |
| Individual (neighbouring) countries and some regional and international organisations are responding to the event through diplomatic channels by expressing their support or concerns about the situation. | 3 |

| Type of foreign political or international impact | Level of impact |
|---|-----------------|
| <p>Part of the international community (countries, international organisations) is responding to the event by expressing strong support or concerns about the situation.</p> <p>The Republic of Slovenia receives international assistance, especially in equipment and human resources. Despite the international assistance, it is still a stable country.</p> <p>Foreign diplomatic missions and consular posts in the Republic of Slovenia are advising their citizens against travelling to certain areas in the country.</p> | 4 |
| <p>A major part of the international community is intensely responding to the events in the country since the events greatly impact the security of other countries.</p> <p>The Republic of Slovenia is receiving significant international assistance (equipment, money, human resources). The Republic of Slovenia urgently needs assistance to ensure a normal functioning of the entire system.</p> <p>Foreign diplomatic missions and consular posts are advising their citizens against travelling to the Republic of Slovenia and are decreasing or increasing the number of staff at the missions.</p> <p>International events whose main topic is the situation or the conditions in the Republic of Slovenia.</p> | 5 |

2.1.3.7 Final value or level of political and social impacts

The final value or the level of political and social impacts is determined by adding together the final values or levels of all groups of political and social impacts, and dividing them by the number of groups of impacts, i.e. generally by 6. If a group of political and social impacts has not been assessed because the impacts of the disaster do not influence the evaluated content, the group is not included in the final calculation. The impacts associated with the evaluated content which have not been assessed for various reasons are also not included. The final calculated value of political and social impacts can also be a decimal number. In this case, the value is rounded up to a whole number that represents the final level of political and social impacts.

2.1.4 Criteria for evaluating the likelihood of a disaster

The likelihood of a disaster may either be defined numerically, as a percentage, or descriptively, as shown in the following table.

Table 16: Criteria for evaluating the likelihood of a disaster

| 1 | 2 | 3 | 4 | 5 |
|--|---|--|--|---|
| <p>Once in more than 250 years (annual likelihood of up to 0.4 %)</p> <p>Almost no risk (threat)</p> | <p>Once in 100–250 years (annual likelihood of 0.4 %–1 %)</p> <p>Possible, but unlikely risk (threat)</p> | <p>Once in 25–100 years (annual likelihood of 1 %–4 %)</p> <p>Possible risk (threat)</p> | <p>Once in 5–25 years (annual likelihood of 4 %–20 %)</p> <p>General risk (threat)</p> | <p>Once or multiple times in 5 years (annual likelihood above 20 %)</p> <p>Specific and immediate (permanent) risk (threat)</p> |

The narrative explanation is mostly used for disasters that do not have a natural cycle of occurrence and for deliberate acts which are impossible to predict (e.g. terrorism). The periods of time specified in the upper part of the table apply to other disasters.

3 Summary of important elements of the National Disaster Risk Assessment

In addition to the summaries of risk assessments for specific disasters, the National Disaster Risk Assessment includes the synthesis and comparison of all assessed risks in risk assessments for specific disasters, which is based on the unified criteria for evaluating the impacts and the likelihood of a disaster. All risk assessments for specific disasters developed in 2015, i.e. all disasters which are included in the National Disaster Risk Assessment, have been considered.

Disasters included in the National Disaster Risk Assessment vary considerably according to their characteristics and consequences. Some of them last for a short period of time, others are more permanent, or the elimination of their consequences takes a very long time. Some disasters cover a relatively small area, while others affect large areas of the country or even the entire country and beyond. This is why impacts of certain disasters are significantly different. Disasters that cover relatively small areas usually cause minor impacts in comparison to disasters in larger areas; this particularly applies to economic and environmental impacts and impacts on cultural heritage, as well as political and social impacts. Some disasters are quite predictable or we have sufficient experience and knowledge to make predictions and respond appropriately, therefore there are generally fewer victims even when more intense events occur and despite the severity of the phenomenon (e.g. floods). Some disasters, such as earthquakes, cannot be predicted, but appropriate measures can significantly reduce the extent of the consequences, particularly the economic and environmental impacts, impacts on cultural heritage and the impact on people in the event of an earthquake with an intensity of VII or more on the European macroseismic scale (EMS). Some disasters have complex impacts according to the risk scenarios (e.g. nuclear disasters, earthquakes), while others have only certain groups of impacts, for example the impact on people (e.g. terrorism, plane accident, train accident, health threats of biological, chemical, environmental or unknown origin), or certain impacts are insignificant or non-existent (such example is drought, which has a perceptible impact only on the economic and environmental impacts and impacts on cultural heritage, and even then almost exclusively on agricultural land).

For the development of 12 risk assessments for specific disasters, 37 risk scenarios were prepared. Half (six) of risk assessments for specific disasters includes three risk scenarios (risk assessment of an earthquake, drought, particularly dangerous animal disease, accidents involving dangerous substances, large wildfires, sleet), four of them include two risk scenarios (risk assessment of floods, terrorism, aircraft accident and railway accident), and one assessment includes only one risk scenario (risk assessment for health threats of biological, chemical, environmental or unknown origin). In order to assess the risk of a nuclear and radiological disaster, 10 general risk scenarios were prepared altogether. In the risk assessment for particularly dangerous animal diseases, two of the risk scenarios deal with the transition of a disease across national borders (sale and transport of sick animals from distant countries to the Slovenia, disease outbreak in a neighbouring country close to the state border), and this cross-border aspect also applies to one of the real-life risk scenarios of a large wildfires (the fire spreads from Italy to the territory of the Republic of Slovenia). The nuclear disaster at the Krško Nuclear Power Plant, which is defined as a

representative risk scenario of a nuclear disaster, would probably cause consequences even outside the territory of the Republic of Slovenia.

The following table shows the representative risk scenarios for all twelve disasters.

Table 17: Representative risk scenarios

| RISK ASSESSMENTS FOR SPECIFIC DISASTERS | Representative risk scenario |
|---|--|
| Earthquake | Earthquake of intensity VII–VIII on the EMS scale in the central part of the country (Ljubljana) |
| Floods | Floods occurring every 10 to 500 years, based on floods in 1990 and 2012 |
| Health threats of biological, chemical, environmental or unknown origin | Pandemic influenza |
| Particularly dangerous animal diseases | Outbreak of foot-and-mouth disease in the north-eastern part of the country |
| Nuclear or radiological disaster | Disaster at Krško Nuclear Power Plant Disaster involving radioactive sources |
| Train accident | Collision between a passenger and a freight train at Jesenice railway station, August 2011 |
| Aircraft accident | Plane crash in a populated area (Ljubljana) |
| Large wildfires | Fire Šumka–Železna vrata–Trstelj, July 2006 |
| Terrorism | Terrorist attack* |
| Drought | Droughts in 2003 and 2013 |
| Sleet | Sleet in February 2014 |
| Accidents involving dangerous substances | Disaster involving liquefied petroleum gas (LPG) |

* Assessment of the risk of terrorism is classified as internal, so the details on the representative scenario for the risk of terrorism are not published.

All risk scenarios for sleet, large wildfires, two risk scenarios for drought and a representative risk scenario for railway accident summarise real events that happened in the recent decades. The risk scenarios for other disasters (floods, health threats of biological, chemical, environmental or unknown origin particularly dangerous animal diseases, nuclear disaster, radiological disaster, terrorism, aircraft accident, disasters involving dangerous substances, one risk scenario of a train crash and drought) are based on real or potential disasters. Some of the risk scenarios fully consider the real events, and the consequences resulting from the risk analyses are either real (e.g. in two of the risk scenarios for drought), potential (e.g. all three risk scenarios for an earthquake) or real and potential (all risk scenarios for large wildfires, two risk scenarios for sleet, both risk scenarios for floods). Earthquakes deserve a particular mention, especially its representative risk scenario. The real consequences of an earthquake which occurred in the area covered by this risk scenario in 1895 cannot be “transferred” to today’s situation. Some risk scenarios and associated risk analyses are entirely hypothetical (i.e. both risk scenarios for terrorism, all risk scenarios for radiological disaster and nuclear disaster, the risk scenario for a train crash and drought etc.).

The data on the consequences obtained through analyses of representative risk scenarios are summarised in the following three tables.

Table 18: Consequences of representative risk scenarios – human impacts

| Disaster | Number of deaths | Number of injured or sick | Number of permanently evacuated | Level of impacts | Likelihood | Level of risk |
|---|------------------|---------------------------|---------------------------------|------------------|------------|------------------|
| Earthquake | 60 | 600 | 5188 | 5 | 2 | 3 (high) |
| Floods | 20–50 | More than 200 | | 4 | 3 | 4 (very high) |
| Health threats of biological, chemical, environmental or unknown origin | 1850 | 500,000 | 0 | 5 | 3 | 4 (very high) |
| Particularly dangerous animal diseases | / | / | / | / | / | / |
| Nuclear disaster | Up to 1000 | Up to a few thousand | Up to 100,000 | 5 | 1 | 3 (medium) |
| Radiological disaster | Up to 1 | Up to a few | 0 | 1 | 3 | 1 (low) |
| Railway accident | 0 | 33 | 0 | 2 | 4 | 2 (medium) |
| Aircraft accident | 166 | 0 | | 4 | 3 | 4 (very high) |
| Large wildfires | Up to 7 | Up to 40 | 0 | 2 | 5 | 2 (medium) |
| Terrorism | 50 | 300 | 0 | 4 | 3 | 4 (very high) |
| Drought | / | / | / | / | / | / |
| Sleet | 13 | 168 | 0 | 3 | 2 | 3 (high) |
| Accidents involving dangerous substances | Up to 5 | Up to 200 | 0 | 3 | 1 | 2 (medium) |

The bold value is a representative value for impacts on people and the value which is included in the risk matrices for impacts on people.

The worst consequences in terms of on human impacts are likely to be caused by a serious nuclear disaster at the Krško Nuclear Power Plant. The worst impacts would occur in the general vicinity of the power plant – up to 1000 people could die, a number of injured people (or, in this case, primarily exposed to the radioactive radiation) could be several thousand. 40,000–100,000 people would have to be permanently relocated. Consequences of pandemic influenza would also be severe; this is one of the health threats of biological, chemical, environmental or unknown origin. Around 1850 people could die, half a million or more could get sick (maybe even up to 45 % of the population). According to the results, an earthquake in the central part of the country, which would turn a normal situation into chaos in a matter of seconds, could also lead to serious consequences: 60 dead, 600 injured and 5,000 people would have to be permanently relocated. There are a few other disasters where impacts on people might be significant: a plane accident (plane crash on the city), floods and

a terrorist attack. On the other hand, there are some disasters which, according to the representative risk scenario, would not cause any impact on people (drought, particularly dangerous animal diseases). Given the likelihood of a disaster, the most troublesome are large wildfires and a railway accident, and the least troublesome are a nuclear disaster and accidents involving dangerous substances. If we take into account the impacts on people and the likelihood of occurrence, the highest, i.e. very high risk represent the threats of biological, chemical, environmental or unknown origin for the human health (pandemic influenza), aircraft accident and terrorist attack, and disasters such as earthquake, sleet and floods would have a high impact. Less troublesome in this regard are a nuclear disaster, accidents involving dangerous substances, railway accident, large wildfires and radiological disaster.

Table 19: Consequences of representative risk scenarios – economic and environmental impacts and impacts on cultural heritage

| Disaster | Extent of damage and costs in EUR | Level of impacts | Likelihood | Level of risk |
|---|--|-------------------------|-------------------|----------------------|
| Earthquake | 3,024,575,073 | 5 | 2 | 3 (high) |
| Floods | Not accurately assessed | 4 | 3 | 4 (very high) |
| Health threats of biological, chemical, environmental or unknown origin | Not accurately assessed | 2 | 3 | 2 (medium) |
| Particularly dangerous animal diseases | 2,312,760 | 1 | 4 | 1 (low) |
| Nuclear disaster | Not accurately assessed | 5 | 1 | 2 (medium) |
| Radiological disaster | Not accurately assessed | 1 | 3 | 1 (low) |
| Railway accident | 1,577,000 | 1 | 4 | 1 (low) |
| Aircraft accident | 288,926,261 | 3 | 3 | 3 (high) |
| Large wildfires | 1,004,700 | 1 | 5 | 1 (low) |
| Terrorism | 113,154,271 | 2 | 3 | 2 (medium) |
| Drought | 128,400,000 | 2 | 3 | 2 (medium) |
| Sleet | 475,601,800 | 4 | 2 | 3 (high) |
| Accidents involving dangerous substances | Not accurately assessed | 3 | 1 | 2 (medium) |

The economic and environmental impacts and impacts on cultural heritage cover a very broad list of impacts (described under Chapter 2 of this report), which are all uniformly evaluated considering the amount of damage and costs. Given the diversity of the

consequences of specific disasters, the quality and accessibility of the available data and on the basis of the experience with these disasters, the greatest differences between individual risk assessments occur in the quality of data on damage and costs, which represent the economic and environmental impacts and impacts on cultural heritage. Among the assessed disasters, the most significant impact would probably be caused by a nuclear disaster at the Krško Nuclear Power Plant, but because it is difficult to imagine all possible consequences and because they would be so extensive, these impacts have not been accurately evaluated. The earthquake of intensity VII–VIII on the EMS scale in the central part of the country/the area of Ljubljana would cause more than three billion EUR of damage only through damages to residential buildings, while all other impacts have not been taken into account, such as the medical costs of injuries, the cost of relief interventions, rescue and assistance, the economic losses due to the interruption of operation of companies, the damage to infrastructure and other facilities, the cost of social assistance etc., as well as any damage caused by a chain of disasters (fires, explosions etc.), which would also likely occur. In terms of the significance of the impacts of such disasters, these two fall under the highest level of impacts. A relatively large amount of damage and costs was also caused by sleet in February 2014, amounting to almost half a billion EUR, which ranks sleet next to catastrophic flooding, where the damage may be even higher, at the fourth level of the economic and environmental impacts and impacts on cultural heritage. Under the medium level of impacts fall accidents involving dangerous substances (damage and costs have not been accurately assessed) and a plane crash which could cause almost EUR 300 million in damage, mainly due to the loss of the plane. Less significant damage and fewer costs would be caused by a terrorist attack, health threats of biological, chemical, environmental or unknown origin (pandemic influenza) and drought; however, the damage would still amount to over EUR 100 million, and the least damage would be caused by a radiological disaster, a railway accident, particularly dangerous animal diseases or a large wildfires. In some cases, the damage would barely exceed one million EUR; this particularly applies to disasters affecting a small area, for example a large wildfires, or maybe a radiological disaster.

In terms of likelihood or frequency of the assessed disasters, more close attention should be given to certain disasters for which the estimated likelihood is higher, particularly to large wildfires, a railway accident and particularly dangerous animal diseases. Taking into account the significance of economic and environmental impacts and impacts on cultural heritage and the likelihood of a disaster, only floods represent the highest, i.e. very high risk, and only a few disasters are classified as high risk (earthquake, sleet and aircraft accident). Although it is considered to have the most pronounced impacts, the nuclear disaster is classified as a medium level of risk, along with some other disasters, due to its very low likelihood. The lowest, i.e. low level of risk represent radiological disaster, railway accident, particularly dangerous animal diseases, and especially large wildfires. The likelihood of the last three disasters is relatively high; particularly of large wildfires.

Political and social impacts are difficult to evaluate due to their nature. These impacts are explained in the Chapter 2 of this report. Some disasters cause complex political and social impacts, such as nuclear disaster (it would cause hardly conceivable impacts), as well as earthquake, floods and sleet, and some of them cause only a certain group of these impacts. These impacts were not even detected in the analysis of the representative risk scenario for drought.

As evident from the above table, the political and social impacts of disasters are slightly lower than the impacts on people and the economic and environmental impacts and impacts on cultural heritage. The highest values and levels of these impacts were assessed for a nuclear disaster, followed by floods and earthquake. Four disasters were marked with the second level of impact, three with the third and two with the lowest level of impact (low risk).

Table 20: Consequences of representative risk scenarios – political and social impacts

| Disaster | Value of impacts | Level of impacts | Likelihood | Level of risk |
|---|-------------------------|-------------------------|-------------------|----------------------|
| Earthquake | 3.67 | 4 | 2 | 3 (high) |
| Floods | 3.86 | 4 | 3 | 4 (very high) |
| Health threats of biological, chemical, environmental or unknown origin | 3.00 | 3 | 3 | 3 (high) |
| Particularly dangerous animal diseases | 1.58 | 2 | 4 | 2 (medium) |
| Nuclear disaster | Not accurately assessed | 5 | 1 | 2 (medium) |
| Radiological disaster | Not accurately assessed | 1 | 3 | 1 (low) |
| Railway accident | 1.00 | 1 | 4 | 1 (low) |
| Aircraft accident | 1.90 | 2 | 3 | 2 (medium) |
| Large wildfires | 1.58 | 2 | 5 | 2 (medium) |
| Terrorism | 2.16 | 2 | 3 | 2 (medium) |
| Drought | / | / | / | / |
| Sleet | 2.64 | 3 | 2 | 3 (high) |
| Accidents involving dangerous substances | 2.50 | 3 | 2 | 2 (medium) |

In terms of likelihood or frequency of the assessed disasters, more close attention should be given to certain disasters for which the estimated likelihood is higher, particularly to large wildfires, a railway accident and particularly dangerous animal diseases; the political and social impacts of these disasters are not significant. Considering both the significance of the political and social impacts as well as the likelihood of occurrence, the floods represent the highest, i.e. very high risk, a few of the disasters are classified as high risk (earthquake, sleet and the threats of biological, chemical, environmental or unknown origin for human health). Although it probably has the most significant impacts, a nuclear disaster has been placed at the medium level of risk due to its very low likelihood together with five other disasters,

including large wildfires the likelihood of which is one of the highest. Radiological disaster and railway accident represent the lowest, i.e. low level of risk.

The institutions also assessed the reliability of risk scenarios and risk analyses. For this purpose, no quantitative criteria were determined, but each institution assessed the level of reliability of risk scenarios or risk analyses subjectively. In principle, the reliability of risk analyses thus depends primarily on the knowledge of the disasters, veracity and reliability of risk scenarios, the frequency of assessed disasters, as well as on the available scope, adequacy and quality of the data used in the risk analyses. The font colour of each disaster in the risk matrices marks the level of reliability of risk analyses. The institutions assessed six of the representative risk scenarios or corresponding risk analyses as somewhat reliable and six of them as very reliable.

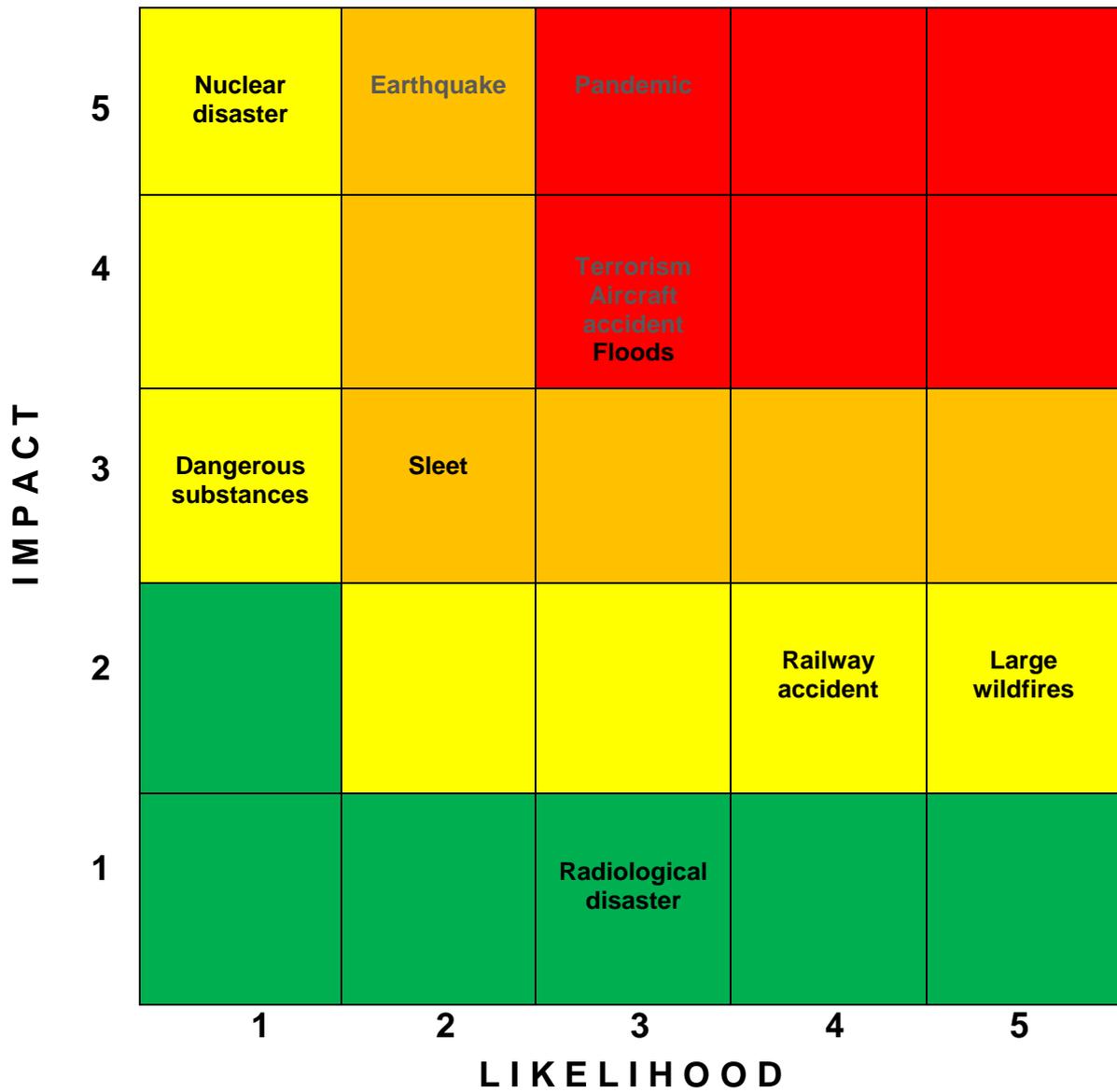
There is a joint table on the next page with the data necessary for establishing the national disaster risk matrices.

All assessed disasters, their disaggregated and aggregated (average) impacts, likelihood and reliability of the corresponding risk analyses are graphically represented in four national disaster risk matrices.

Table 21: Representative risk scenarios – values and levels of impacts, likelihood, risk and reliability

| Disaster | Impacts on people | Economic and environmental impacts and impacts on cultural heritage | Political and social impacts | Average (total) value of all three impacts | Average (total) level of all three impacts | Likelihood | Level of risk | Reliability of risk analysis |
|---|-------------------|---|------------------------------|--|--|------------|---------------|------------------------------|
| Earthquake | 5 | 5 | 4 | 4.33 | 4 | 2 | 3 (high) | Somewhat reliable |
| Floods | 4 | 4 | 4 | 4.00 | 4 | 3 | 4 (very high) | Reliable |
| Health threats of biological, chemical, environmental or unknown origin | 5 | 2 | 3 | 3.33 | 3 | 3 | 3 (high) | Somewhat reliable |
| Particularly dangerous animal diseases | / | 1 | 2 | 1.50 | 2 | 4 | 2 (medium) | Somewhat reliable |
| Nuclear disaster | 5 | 5 | 5 | 5.00 | 5 | 1 | 2 (medium) | Reliable |
| Radiological disaster | 1 | 1 | 1 | 1.00 | 1 | 3 | 1 (low) | Reliable |
| Railway accident | 2 | 1 | 1 | 1.33 | 1 | 4 | 1 (low) | Reliable |
| Aircraft accident | 4 | 3 | 2 | 3.00 | 3 | 3 | 3 (high) | Somewhat reliable |
| Large wildfires | 2 | 1 | 2 | 1.67 | 2 | 5 | 2 (medium) | Reliable |
| Terrorism | 4 | 2 | 2 | 2.67 | 3 | 3 | 3 (high) | Somewhat reliable |
| Drought | / | 2 | / | 2.00 | 2 | 3 | 2 (medium) | Somewhat reliable |
| Sleet | 3 | 4 | 3 | 3.33 | 3 | 2 | 3 (high) | Reliable |
| Accidents involving dangerous substances | 3 | 3 | 3 | 3.00 | 3 | 1 | 2 (medium) | Reliable |

Figure 1: NATIONAL DISASTER RISK MATRIX 2015 – HUMAN IMPACTS

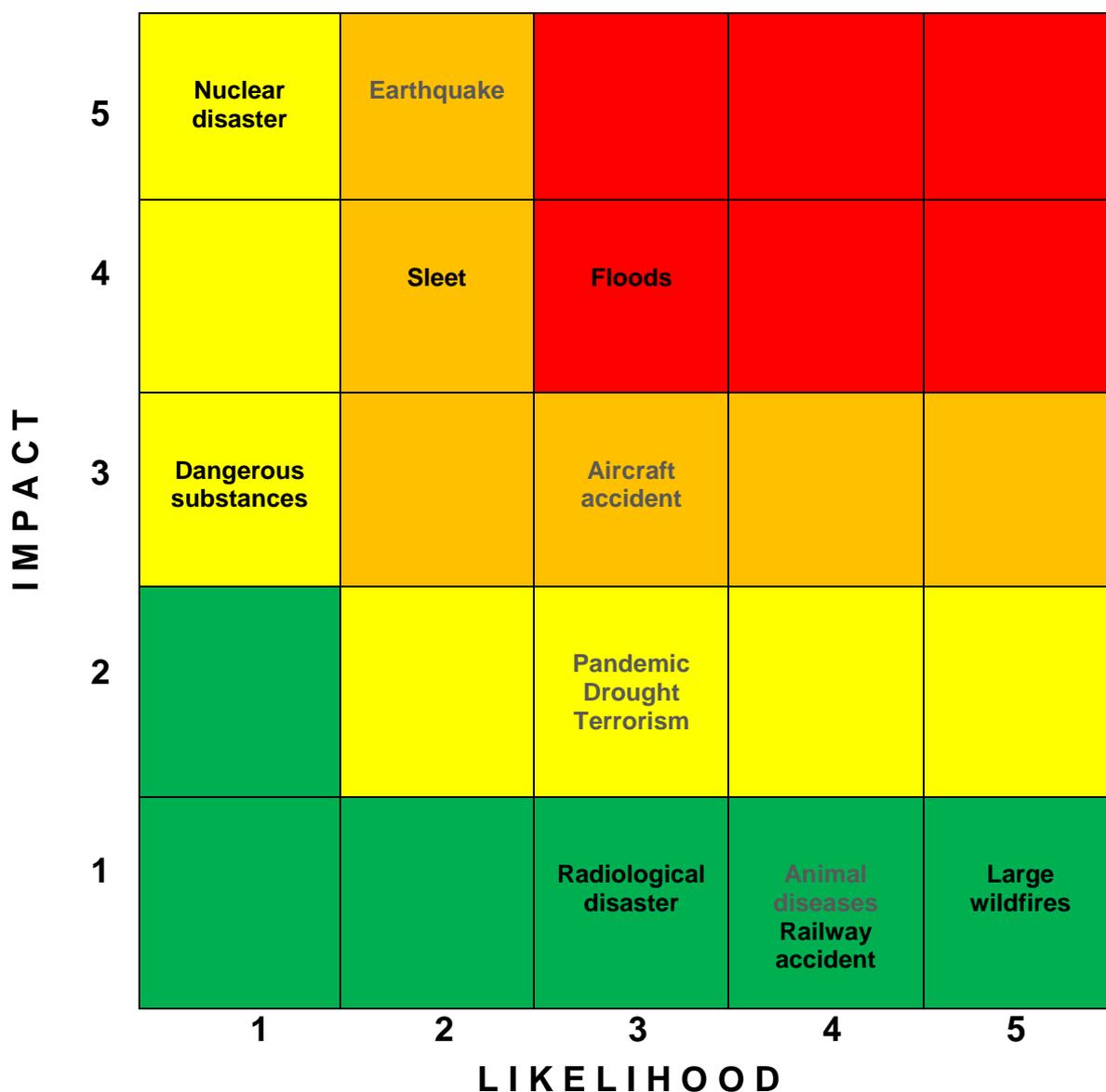


| LEVELS OF IMPACTS AND LIKELIHOOD | |
|----------------------------------|-----------|
| 5 | Very high |
| 4 | High |
| 3 | Medium |
| 2 | Low |
| 1 | Very low |

| LEVELS OF RISK | |
|----------------|-----------|
| | Very high |
| | High |
| | Medium |
| | Low |

| RELIABILITY OF TASK ANALYSES RESULTS | FONT COLOUR IN RISK MATRIX |
|--------------------------------------|----------------------------|
| Reliable | Black |
| Somewhat reliable | Dark grey |
| Unreliable | Light grey |

Figure 2: NATIONAL DISASTER RISK MATRIX 2015 – ECONOMIC AND ENVIRONMENTAL IMPACTS AND IMPACTS ON CULTURAL HERITAGE

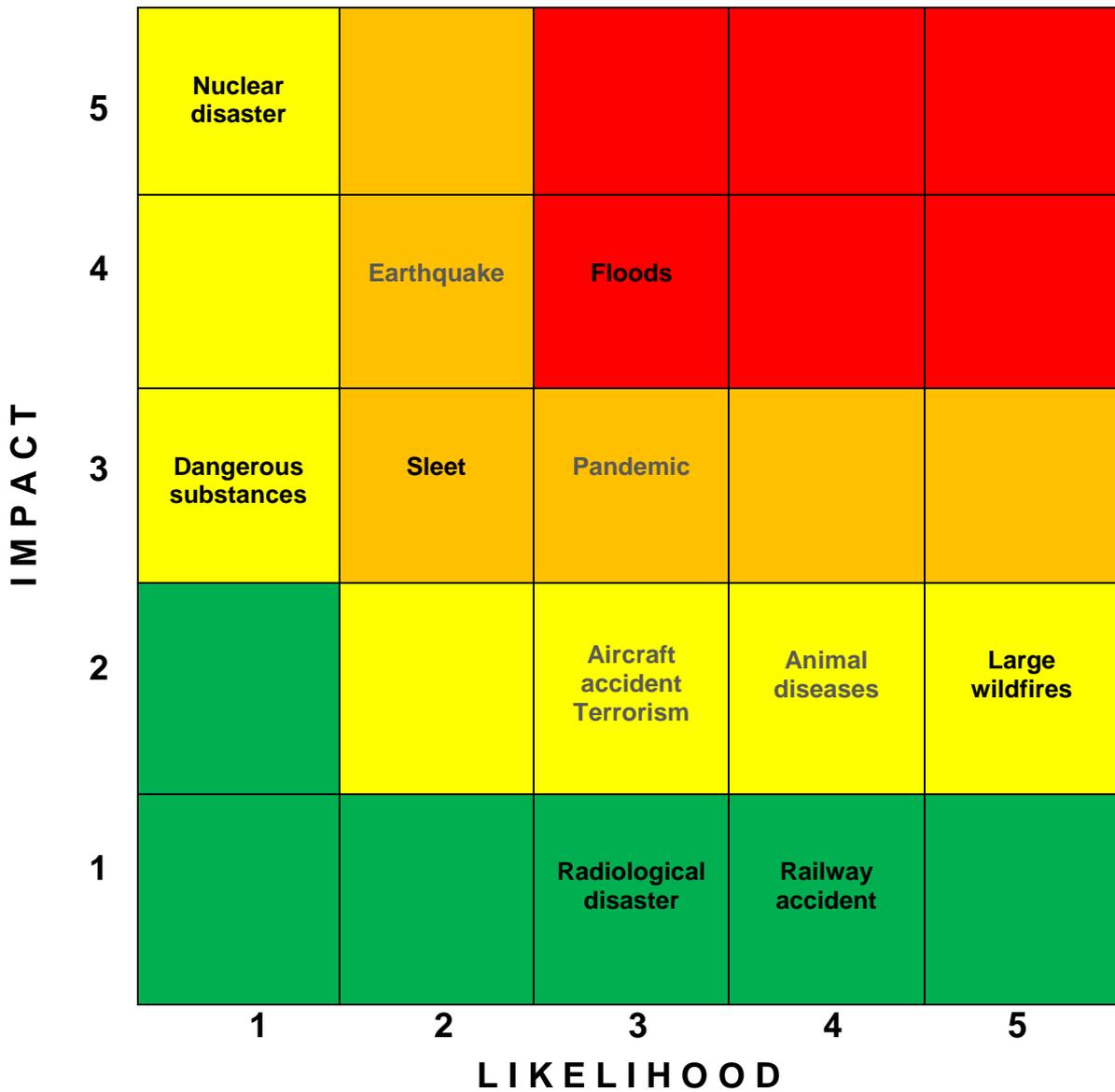


| LEVELS OF IMPACTS AND LIKELIHOOD | |
|----------------------------------|-----------|
| 5 | Very high |
| 4 | High |
| 3 | Medium |
| 2 | Low |
| 1 | Very low |

| LEVELS OF RISK | |
|----------------|-----------|
| | Very high |
| | High |
| | Medium |
| | Low |

| RELIABILITY OF RISK ANALYSES RESULTS | FONT COLOUR IN RISK MATRIX |
|--------------------------------------|----------------------------|
| Reliable | Black |
| Somewhat reliable | Dark grey |
| Unreliable | Light grey |

Figure 3: NATIONAL DISASTER RISK MATRIX 2015 – POLITICAL AND SOCIAL IMPACTS

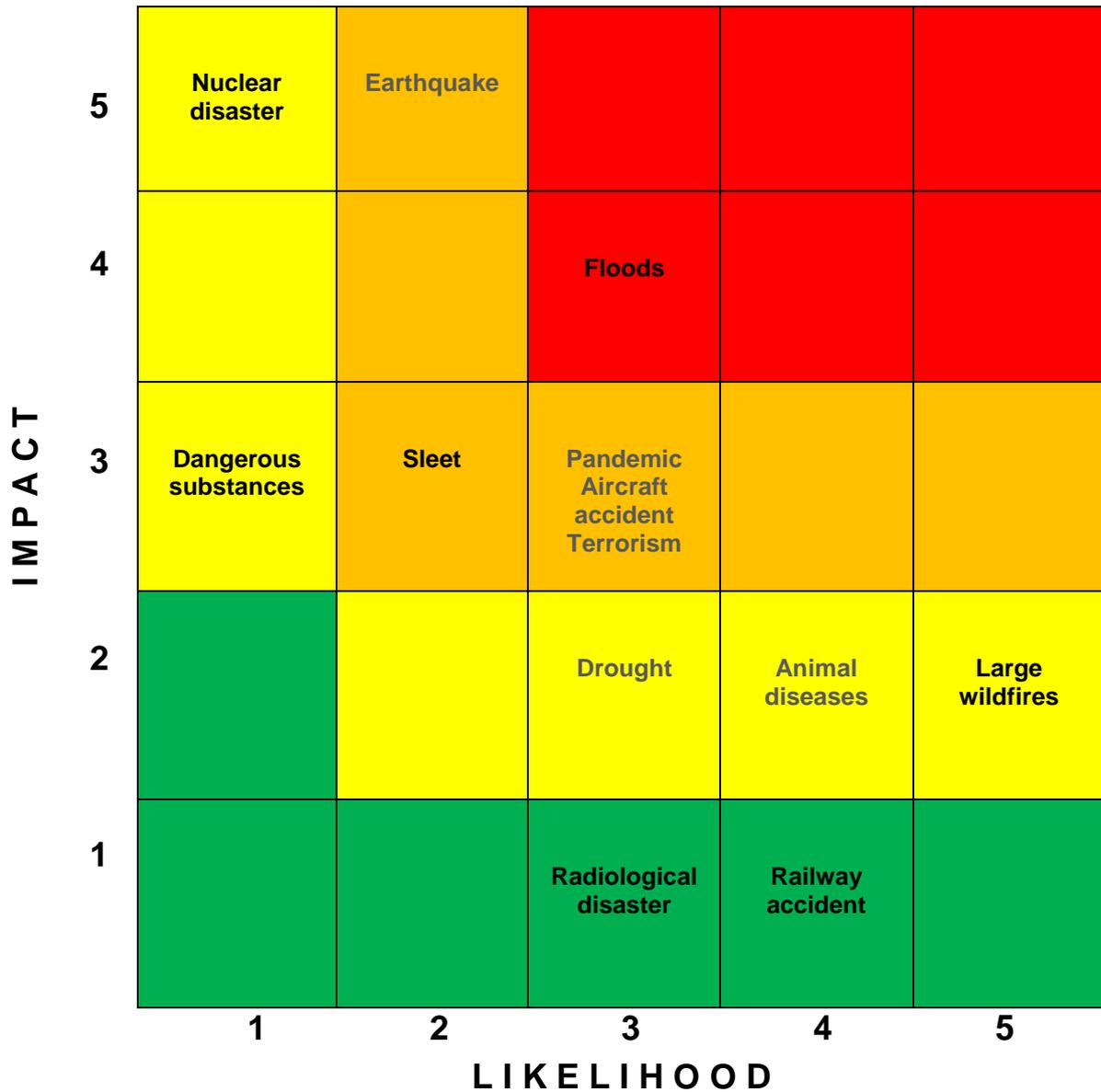


| LEVELS OF IMPACTS AND LIKELIHOOD | |
|----------------------------------|-----------|
| 5 | Very high |
| 4 | High |
| 3 | Medium |
| 2 | Low |
| 1 | Very low |

| LEVELS OF RISK | |
|----------------|-----------|
| | Very high |
| | High |
| | Medium |
| | Low |

| RELIABILITY OF TISK ANALYSES RESULTS | FONT COLOUR IN RISK MATRIX |
|--------------------------------------|----------------------------|
| Reliable | Black |
| Somewhat reliable | Dark grey |
| Unreliable | Light grey |

Figure 4: NATIONAL DISASTER RISK MATRIX 2015 – JOINT OVERVIEW OF IMPACTS



| LEVELS OF IMPACTS AND LIKELIHOOD | |
|----------------------------------|-----------|
| 5 | Very high |
| 4 | High |
| 3 | Medium |
| 2 | Low |
| 1 | Very low |

| LEVELS OF RISK | |
|----------------|-----------|
| | Very high |
| | High |
| | Medium |
| | Low |

| RELIABILITY OF TASK ANALYSES RESULTS | FONT COLOUR IN RISK MATRIX |
|--------------------------------------|----------------------------|
| Reliable | Black |
| Somewhat reliable | Dark grey |
| Unreliable | Light grey |

The disasters are classified according to the significance of the impacts, their likelihood and level of risk in the table below.

Table 22: Disaster classification in relation to risk, value and significance of impacts, and likelihood, taking into account all representative risk scenarios

| Disaster | Impacts on people | Economic and environmental impacts and impacts on cultural heritage | Political and social impacts | Average (total) value of all three impacts | Average (total) level of all three impacts | Likelihood | Level of risk | Reliability of risk analysis |
|---|-------------------|---|------------------------------|--|--|------------|------------------|------------------------------|
| Floods | 4 | 4 | 4 | 4.00 | 4 | 3 | 4 (very high) | Reliable |
| Earthquake | 5 | 5 | 4 | 4.33 | 4 | 2 | 3 (high) | Somewhat reliable |
| Health threats of biological, chemical, environmental or unknown origin | 5 | 2 | 3 | 3.33 | 3 | 3 | 3 (high) | Somewhat reliable |
| Aircraft accident | 4 | 3 | 2 | 3.00 | 3 | 3 | 3 (high) | Somewhat reliable |
| Terrorism | 4 | 2 | 2 | 2.67 | 3 | 3 | 3 (high) | Somewhat reliable |
| Sleet | 3 | 4 | 3 | 3.33 | 3 | 2 | 3 (high) | Reliable |
| Nuclear disaster | 5 | 5 | 5 | 5.00 | 5 | 1 | 2 (medium) | Reliable |
| Accidents involving dangerous substances | 3 | 3 | 3 | 3.00 | 3 | 1 | 2 (medium) | Reliable |
| Large wildfires | 2 | 1 | 2 | 1.67 | 2 | 5 | 2 (medium) | Reliable |
| Particularly dangerous animal diseases | / | 1 | 2 | 1.50 | 2 | 4 | 2 (medium) | Somewhat reliable |
| Drought | / | 2 | / | 2.00 | 2 | 3 | 2 (medium) | Somewhat reliable |
| Railway accident | 2 | 1 | 1 | 1.33 | 1 | 4 | 1 (low) | Reliable |
| Radiological disaster | 1 | 1 | 1 | 1.00 | 1 | 3 | 1 (low) | Reliable |

The national disaster risk matrix representing a joint overview, i.e. an overview of all impacts and likelihoods of all assessed disasters, and the table above show that floods represent the

highest risk in the Republic of Slovenia. The combination of the significance of the impacts and the likelihood of a disaster means that floods have the highest, i.e. very high level of risk, which is represented by the red fields in the risk matrix. Although the impacts are even greater in the event of a nuclear disaster or an earthquake, their likelihood is much lower and, consequently, their level of risk is lower compared to the floods. Conversely, large wildfires have a very high likelihood but less significant impacts and therefore represent a lower threat than floods.

A high risk, represented by the orange fields in the risk matrix, includes disasters such as the threats of biological, chemical, environmental or unknown origin for the human health, an aircraft accident and terrorism. The first two are specific disasters that are difficult to control or predict, and not much can be done in the area of preventive measures and reducing the likelihood and the significance of the impact in the third case (terrorism), since such disasters do not occur in natural cycles.

A medium risk, marked by the yellow fields in the matrix, includes disasters such as a nuclear disaster and accidents involving dangerous substances, mainly due to the significance of the impacts that could be caused by these two disasters. This group also includes drought, particularly dangerous animal diseases and large wildfires. In the last two cases, the greater weight is on the likelihood or frequency of occurrence.

The lowest risk (low) was established for a railway accident and a radiological disaster, although the high likelihood of the first should not be ignored.

4 Conclusion

The Report on Disaster Risk Assessment in the Republic of Slovenia includes important elements of the National Disaster Risk Assessment, in addition to the presentation of a legal, organisational and thematic approach to the development of disaster risk assessments in the Republic of Slovenia.

The first version of the National Disaster Risk Assessment, drawn up in 2015, presents and evaluates the risk for 12 disasters (earthquake, floods, threats of biological, chemical, environmental or unknown origin for the human health, particularly dangerous animal diseases, nuclear or radiological disaster, railway accident, aircraft accident, drought, large wildfires, terrorism, sleet, accidents involving dangerous substances), which was determined by means of risk assessments for specific disasters.

Table 22 and the national disaster risk matrix representing a joint overview, i.e. an overview of all impacts and likelihood of all assessed disasters, show that floods represent the highest risk in the Republic of Slovenia. The combination of the significance of the impacts and the likelihood of a disaster means that floods have the highest, i.e. very high level of risk, which is represented by the red fields in the risk matrix.

A high risk, represented by the orange fields in the risk matrix, includes disasters such as the threats of biological, chemical, environmental or unknown origin for the human health, an aircraft accident and terrorism. The first two are specific disasters that are difficult to control or predict, and not much can be done in the area of preventive measures and reducing the likelihood and the significance of the impact in the case of terrorism, since such disasters do not occur in natural cycles.

The process of the development of risk assessments for specific disasters will not end after 2015, but will be further continued. Certain risk assessments for specific disasters, such as the National Disaster Risk Assessment, will have to be supplemented as early as in 2016 because subject matter related to the future climate change and some other amendments will have to be included. After 2015, further risk assessments for specific disasters will be determined, as well as institutions in charge of their development. The developed risk assessments for specific disasters should be supplemented every five years, which means that the amendments and supplements to the already developed risk assessments for specific disasters will be carried out no later than in 2020. The National Disaster Risk Assessment should be supplemented every three years, i.e. in 2018 for the first time. The main purpose of the supplements will be to include the results of risk assessments for specific disasters which will be developed after 2015, and later they will include supplements to the existing risk assessments for individual disasters, which were first produced in 2015.

The disaster risk assessments can form the basis for activities in several areas, especially for the following:

- Planning risk management for the purposes of prevention and preparedness

- Implementation of appropriate measures for the prevention against risks and preparedness
- Development of threat assessments and relief and rescue plans in case of a disaster
- Development of financial strategies for preventive measures to prevent or reduce the potential for disasters and for relief measures, aid and elimination of the consequences of the disasters (financial basis for disaster risk management)
- Identifying priority investments for reducing the possibility of disasters or their impacts
- Spatial planning
- Public investment planning
- Social protection planning
- Identifying gaps in protection forces and resources for rescue and assistance, and preparing plans for new employment and supplementation of protection forces and resources for rescue and assistance.

During the implementation of activities within the aforementioned areas, the greatest attention should be given, according to the findings, to the disasters with the most significant impacts and the highest likelihood or frequency. This mainly includes disasters with a very high and high risk, such as floods, health threats of biological, chemical, environmental or unknown origin, terrorism, aircraft accident, sleet and earthquake. The focus should also be directed to the disasters which either have a significant impact (when a disaster occurs, it causes serious consequences) or a high likelihood (i.e. the damage occurs more frequently). These include, for example, large wildfires, a railway accident, particularly dangerous animal diseases and nuclear disaster. However, this does not mean that the remaining disasters presented in the National Disaster Risk Assessment and other disasters which are not included in this assessment should be neglected. Activities in the above-mentioned areas should be adapted to each particular disaster in accordance with its characteristics and consequences.