SYSTEM FOR CALCULATING DISASTER LOSSES (KaZa)

1. Deliverable "Exploring existing solutions and identifying data sources"

Version 1.0

Riga, 2021

This document was prepared on behalf of the State Fire and Rescue Service by "AA Projects" on 25 June 2020, according to the work task about European Commission's Civil protections mechanisms financial instrument project "Study on the creation of a database of losses caused by natural disasters in Latvia (ECHO/SUB/2019/TRACK1/807448, DLD)" the study for the possible establishment of databases on damage caused by disasters (further referred to as KaZa) and preparation of the technical specification for the development and integration of the solution.

DOCUMENTS VESRIONS

Version	Date	Authors	Comments
1.0	*21.01.2021.*	Jānis Avotinš Irina Stepanova Samanta Smirnova Arnis Ļeļs Dita Mukāne Ričards Pinne	Exploring existing solutions and identifying data sources first version

CONTENT

1　Introduction

1.1　Scope of the document

The purpose of the document is to describe the findings during the study according to the following study tasks:

1. Exploring national authorities' information systems with a view to identifying data sets and technical capabilities that could serve as a basis for filling indicators with data at least (DU, Annex 2) within the scope;

2. Examine the available data needed to provide data for reporting on the implementation of the Sendai Framework Programme;

3. Explore the available solutions for pooling and comparing the accounts of damage and damage caused by disasters.

1.2　Terms and abbreviations used

Terms and abbreviations used	Description
KaZa	Disaster damage and damage database
VUGD	State Fire and Rescue Service
ĢIS	Geographical information system
IeM IC	Information Centre of the Ministry of Interior
LVĢMC	Latvian Environment, Geology and Meteorology Centre
LVM	AS "Latvijas valsts meži"
VZD	Land service of a Member State
TNGIIB	Transport Accident and Incident Investigation Bureau
VNR	United Event Register
IS	Information systems
CSDD	Ceļu satiksmes drošības direkcija
NBS	Road Safety Directorate
LĢIA	Latvian Geospatial Information Agency
CSP	Central Bureau for Statistics
PTAC	Consumer Protection Centre
PMLP	Management of Citizenship and Migration Affairs
VVD RDC	State Environmental Service Radiation Safety Centre
DAP	Nature conservation authorities
VARAM	Ministry of Environmental Protection and Regional Development
VVD	State Environmental Service
ZMNĪ	Real estate of the Ministry of Agriculture Ltd.
VMD ĢIS	National Earth Service Geographical Information System
LVM ĢEO	AS "Latvijas valsts meži" developed platform

Terms and abbreviations used	Description
LAD	Rural Support Service
LAD IS	Rural Support Service Information System
VAAD	State Plant Protection Service
VTUA	National Technical Supervisory Agency
CERT.LV	Information Technology Security Incident Prevention Institution
LAA	Latvian Insurers Associations
VARAM KPD	Ministry of Environmental Protection and Regional Development Climate Change Department
LVC	VSIA "Latvijas Valsts Ceļi"
PV	AS "Pasažieru Vilciens"
GPS	Global positioning system
LDZ	AS "Latvijas dzelzceļš"
VDZTI	National Railway Technical Inspectorate
NMPD	Emergency Medical Service
NVD	National Health Service
VMD	State Forest Service
LDC	Agricultural Data Centre
SPKC	Disease prevention and control centre
PVD	Food Veterinary Service
JPOIC	Jelgava Municipal Operational Information Centre

1.3   Progress and methods of study

In accordance with the Civil Protection and Disaster Management Law and Cabinet Order No 476 of 26 August 2020 on the State Civil Protection Plan the study conducted interviews with data holders who store or create data on their own or complement any existing data sets. In addition, the possibilities provided by the open data (data.gov.lv) and the data released by the Central Statistical Bureau were examined. In clarifying the purpose of the study, it was identified that the assessment of the data for the indicators directly defined should be based on an assessment of the situation of potential context data, which could create additional opportunities for users to identify indirect injury amounts or to identify different other, undefined, catastrophic or equivalent effects. The study carried out a study of existing solutions and examined the experience of other countries, Estonia and Sweden. Within the framework of the study, solutions developed within the framework of Latvia were also identified, which accrues to themselves data on catastrophic cases and carries out, according to their sphere of activity, data collection and loss estimates. The study of the solution also identified solutions that could serve as a basis for the development of the KaZa system or for the re-use of components in the KaZa solution.

2   Data Source Study

2.1   Data from departments and bodies under their supervision

2.1.1   Ministry of Defence

According to Cabinet Order No. 476 from 26 August 2020, "On the State Civil Protection Plan", a management function has been assigned to the Ministry of Defence in the following hazards:

- leakage of hazardous chemicals from ships;

- running a ship on a bank;

- Conflict of ships;

- Disaster of passenger ships;

- Air accident with aircraft.

As well as the authority subordinate to the Ministry, the government manages incidents related to IT security.

During the meeting, ministry representatives from the Ministry of Defence Crisis Control Department (AM KVD) and the Ministry of Defence crisis management department's National Cybersecurity Policy Coordination Division (AM KVD NKPKN) could not explain how the cybersecurity incident prevention function is being realized and what data is being accumulated in relation to these incidents. The representatives recommended to refer the matter to the Information Technology Safety Incident Prevention Authority (CERT.lv). Several requests for information related to cybersecurity incidents were sent to both the Information Technology Security Incident Prevention Authority and the Ministry of Defence, but no information was provided.

As part of the agency, such information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.1.1   National Armed Forces

Conclusion 1: At present, the Authority has not responded to a request for information on which the dataset authority is prepared to share such incidents, such as running a ship on a bank or collision of ships or a passenger ship disaster (DK_TN4) and ship leaks of hazardous chemicals (DK_RA3).

Identified:

During the study, the NBS was found to be participating in incidents related to ship releases of hazardous chemicals, bank breakdown, ship collisions, passenger ship

accidents, aircraft accidents, as well as accidents and accidents related to port and marine hydrotechnical structures.

Statement of facts: open data does not identify the required data.

Shortcomings: It is not possible to receive data in the online regime within the scope of the institution.

2.1.1.2 Latvian Geospatial Information Agency

Conclusion 1: The study identified the availability OF A map browser application with the following functionality:

- multilayer screening;
- •the ability to search for data in the context data of the relevant layer;
- the ability to send, print and save the landfill or layer marked on your computer;
- the ability to import a layer from external data sources.

This application would serve as a basis for the KaZa system, supplementing it with other necessary business functionality.

Conclusion 2: The card browser does not have authentication capability. The application base version does not support saving the created layer on the server (if needed, this will be provided).

Conclusion 3: FAMILY is an experience in retrieving Sentinel satellite data on the territory of Latvia, but such activities are not carried out daily. Within the framework of KaZa, this data would be important when operational information on an active disaster should be monitored, thereby identifying the magnitude of the disaster.

Identified:

FAMILY developer card browser V5 contains the following data layers, such as:

• Geography (Global Positioning Network, Nivellum Network Points, Latvian Positioning System, Gravimetry Network, Geomagnetic Network);

• Important objects (Educational establishments, Bridges, Health Institutions, High Height Vertical Objects, Dapes, Brass and Crossroads, Cleaning Equipment, Sources);

• nomenclature of topographical cards;

• Cultural and historical objects;

• Protected nature area;

• Rural Support;

• National forests of Latvia;

• Administrative borders;

• Watch-word database;

• Copernicus Land monitoring services (High resolution layers, Sentinel-2, CORINE and land cover);

• surface models of LIDAR;

• Ortophoto cards;

• Topographical maps;

• Layers from the LatviaFloodMap;

• Interactive maps with flood threats and risk information in both national flood risk areas and other areas.

Figure 1. Example of two-layer threading functionality

Figure 2. Example of drawing objects

Figure 3. Example of displaying the infromment of highlighted objects

Modules to be developed again to meet the needs of KaZa:

- Additional layers of cards;
- Search additional layers of cards
- Save the user schedule to the server.
- Sharing user schedules between authorized users;
- User Questionnaire - Drawing and Calculation tool.

Additional works:

- Collecting 30 + data sources, preparing in the form of layers of cards, maintaining. Periodically successful works – restoring and re-publishing basic cards, orthophotos, etc.

Technical provision in THE MARITIME infrastructure
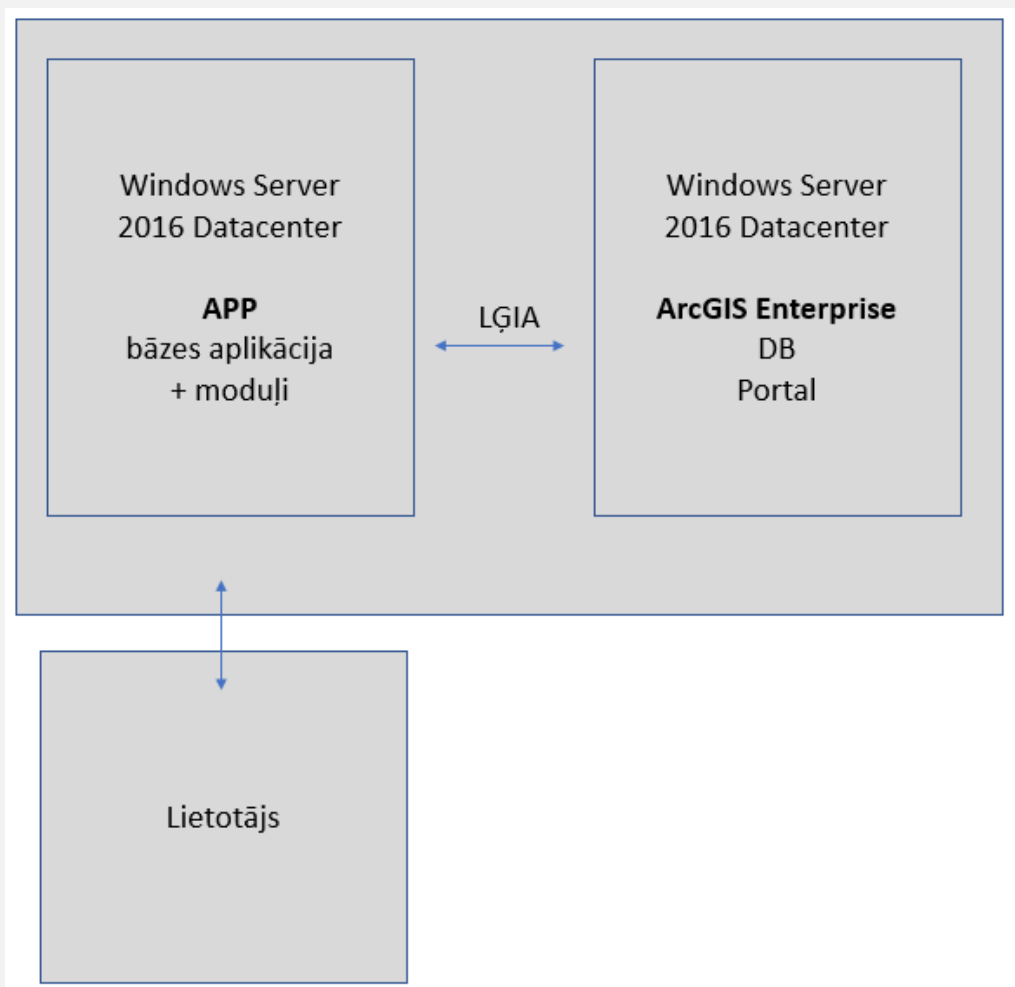
Programmatūras nosaukums	Darbības apraksts
Windows Server 2016 Datacenter	Uzturēšana
Bāzes aplikācija	Uzturēšana
Aplikācijas moduļi	Izstrāde un uzturēšana

Portal for ArcGIS LĢIA rīcībā ir:

It is therefore possible to prepare connections to 50 users for funds that have already been invested. If the number of users who need to provide editing and other rights exceeds 50, additional licenses should be purchased.

Ensuring and developing all of the above in the long term requires:

- Head OF the project in question
- Developers of higher-level GIS part applications – 2 full-time;
- ICT part computer network administrator for developing the Portal for ArcGIS user authorisation and rights solution.

The price list can be found here: http://tap.mk.gov.lv/mk/tap/?pid=40488473

Depending on how the project develops and how much additional service capacity is generated, additional SSD drives are needed.

Fact List:

15 sets of data were identified in open data.

Benefits:

In accordance with the requirements of the INSPIRE Directive, the relevant data and services have been published in the National Unified Geopthal and its Metadata Catalogu https://geometadati.viss.gov.lv/geoportal/catalog/wrapper/ivisgds.page#/

2.1.1.3 Information Technology Security Incident Prevention Body

Conclusion 1: CERT.LV identified data required for cyber attacks (AK_CI3), as well as the possibility of calculating the actual loss of these incidents

Conclusion 2: During the study, the representatives of the CERT.LV have not attended a meeting with the Ministry of Defence and institutions subordinate to the GUGD organiser, nor have they responded to a request for the preparation and provision of information electronically related to data collected from cyber attacks and the possibility of data exchange. It is currently not possible to identify the amount of data required by KaZa and necessary for the exchange of data on integration.

Identified:

Header CERT.LV Tasks:

maintaining and updating information on IT security threats,

to provide support to national authorities in the field of IT security,

provide support for the prevention of IT security incidents to any natural or legal person if the incident involves the IP address of Latvia or. LV domain,

organise informational and educational activities for both public authorities, IT security professionals and other stakeholders.

The CERT.LV website describes more frequent IT security incidents:

Attacks on essential infrastructure - for example, web resources of national interest, important servers that disrupt access to home pages, internet banking, ATMs and other important resources of national organisations. In tackling such a problem, the CERT.LV shall involve and mobilize all the means at its disposal, including cooperation with organisations that care not only about their data but also the common security of the Internet.

Theft of information and intrusion into automatic data processing systems, the characteristics of which correspond to the composition of criminal offences covered by the Criminal Law. CERT.LV helps to investigate the situation, identifying risks, potential losses with the client, and identifying ways in which the villain has slipped into the system.

BOTNET' i - "automated" computers that do what a "master" or assailant puts on. CSIRT teams around the world are looking for new solutions to fight BOTNET networks and, above all, their "masters". CERT.LV has at its disposal a technical framework that opens up a much wider scope for analysis to tackle this phenomenon. *Automated attacks are such attacks*, which, for example, starts a special program on your computer that then helps you access the victim's FTP server data. The purpose of such attacks is to use the relevant FTP servers to later use them for the distribution of malicious programs on the Internet. CERT.LV regularly identifies and neutralises such attacks, as well as warns against the dangers of other organisations in Latvia and helps protect their computer systems. *Targeted attacks on a separate resource* phishing (fake webpages that look identical to the original and are designed to defraud user identification data), hacking and scanning of the server. CERT.LV can help catch the infringer. It is true that there is an important response time to deal with such an incident: the longer the resource will continue to be available, the more likely the data will be stolen and misused. Server hacking is very often identified as a consequence of what has already occurred when some illegal activity has occurred. It is important to save records for all log files, to unlock the server from the network if allowed, and to create an exact hard disk clone, so that you can save complete attack data. "Spam" letters or spam. According to CERT.LV data, spam sent from Latvia is mainly received by Latvian Internet users. A successful fight with "spamers" describes many CSIRT teams in the world. The recognition for combating this disease in Latvia is also due to CERT.LV, which, together with the free e-mail service portal Inbox.lv, has created a so-called "blacklist" of spamers for blocking spammers.

Breakdown of incidents by type of threat:

As from 1 January 2017, we will use the international incident taxonomy (Incident Classification) to provide a more comprehensive overview of Latvia's cyberspace and ensure the international comparability of the data. In future, all incidents recorded and processed in the CERT.LV will be recorded together, broken down by types of hazards (e.g. malware, burglaries, fraud), as well as by types of infections (e.g. Confiker, Zeus, Mirai) and vulnerabilities (e.g. Opendns, Openrdp).

Intrusion Attempts (Intrusion Attempts): attempts to access systems or services without authorisation, using any known (with CVE numbers) vulnerabilities, or by

exploiting hitherto unknown vulnerabilities. Multiple authentication attempts to guess or break passwords.

Information Security (Information Content Security) - Unauthorized access to information and modification of information that occurred when accessing equipment or applications unauthorized or intercepting data transmission.

Information Gathering - targeted search for vulnerabilities of certain services, unauthorised network feeding, use of non-technical means or social engineering (lies, bribery, threats) to obtain information.

Harmful content (Abusive Content) - Sending SPAMa or spam, including advertising services/goods via spam. Pornography is prohibited by law (in conformity with Section 4, Paragraph four of the "Pornography Restriction Act" and Section 166 of the "Criminal Law"). Hate-fuelling content.

Configuration Failure (Vulnerable) - an Internet-connected installation whose configuration does not correspond to good practice and makes the equipment usable for malignant purposes.

Compromised equipment (Intrusions) - unauthorized access to servers, network equipment, IT systems, applications, user accounts that can be deployed remotely, using a known or newly identified vulnerability and local. The plant is also considered compromised when it is incorporated into a network of robots.

Fraud (Fraud) - Using resources for illegal purposes, such as sending fraudulent chain letters for profit purposes. Pretending someone else to lure out user names, passwords, personal data, or financial benefits.

Malicious Code - a code that is included or inserted into the system for malignant purposes. User engagement is usually required to activate the malignant code.

Unavailability of service (Availability) - Access barring attack during which so many requests are sent to the system that their processing is delayed or the system is stopping. These are mainly direct or dispersed access denial attacks (DoS and DDoS), but availability can also be hampered by certain local activities which may be abusive, such as sabotage, or non-malicious ones such as power outages or human error.

Other (Other) - Consultation and other events outside the other categories.

2.1.2 Ministry of Economics

According to Cabinet Order No. 476 from 26 August 2020, "On the State Civil Protection Plan", a management function has been assigned to the Ministry of Economics in the following hazards:

- Emergency in the natural gas supply system;

- Disruptors of dams and other hydrotechnical structures - A cascade of Daugava hydroelectric power plants;

- Disclosure of distribution electricity networks and damage to transmission grids.

A representative of the Ministry of Economy, responded to a request for information from the SIA "AA Projekts" on how incidents are recorded and losses related to hydroelectric power plant hydro-technical building infrastructure accidents, saying that currently the Ministry of Economy does not store such data and does not carry out the calculation of losses.

As part of the agency, such information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.2.1 Central Statistical Bureau

Conclusion 1: As part of the study, it is identified that the CSP carries out an assessment of Latvian residents – by obtaining population data from the Population Register (PMLP), each resident is examined against other 4 registers in order to determine that the individual resident is living directly in Latvia. These data will significantly increase the possibility of identifying and evaluating the number of people actually affected by disasters, as well as being used for a number of purposes for the provision of DATA under THE SENDAI Framework Programme.

Conclusion 2: The data on Latvian residents is available only in the aggregated detail of one square kilometre (population per 1 km2 without personal identification), not by the personal code of the population, which makes it more difficult to use the data for accurate household volume but creates an opportunity to assess it contextually.

The assessment of Latvian residents is carried out once a year and is available for the previous year on 28 May of the current year.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

- Personal code;

- Name of the person;

- The declared address of the person's place of residence;

- The sign is/is not resident in the declarant's address.

Identified:

The Central Statistical Bureau shall be responsible for the organisation of the national statistical work and for the accuracy of the data obtained by compiling the information received from respondents.

The data available in the CSP database will be published in the future of the www.csb.gov.lv/lv/statistika/db, in the Official Statistical Portal (currently an exhibition), as well as some of the data available on the open data portal.

Statement of facts: no required data has been identified in open data. The CSV file format for obtaining this data. The frequency of data acquisition, once a year.

Drawbacks: There is no way to get personified data automatically. Data available with time lag.

2.1.2.2   Patērētāju tiesību aizsardzības centrs

Conclusion 1: As part of the study, it is identified that the Consumer Rights Protection Centre does not keep records in accordance with this project framework.

The only incidents for which PTAC carries out data collection and maintenance are related to the monitoring of dangerous goods and equipment in accordance with the requirements specified by law.

Monitoring of goods and services in relation to price indication shall be carried out.

Identified:

Statement of facts: the data source does not have the data required for the project and does not collect data on datasets of KaZa interest or their derivatives.

2.1.2.3   AS "Latvenergo"

Conclusion 1: AS Latvenergo data is needed to provide data for events related to breakdowns of dams and other hydrotechnical structures (DK_RA10), as well as to ensure the possibility of carrying out an actual injury calculation for damage caused by natural disasters.

Conclusion 2: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

- Object address
- the affected area;
- Start date and time of the incident;
- End date and time of the incident;

- The extent of losses (final act).

Identified:

AS Latvenergo energy production facilities use the Technical Object Management System (TOPS), formed on the IFS platform, which manages both the work to be performed on the sites and their costs. Risk management, including an assessment of potential losses, shall be provided by the Risk Register.

The calculation of losses shall be carried out manually by obtaining information from information systems, but by examining each case on a case-by-case basis and by taking action depending on the specific needs for which the calculation of losses is necessary. Latvenergo Group uses LEC energy standards in its activities (Standard LEC 026 "Investigation and accounting of technological disturbances in energy straits"), which also provides for the determination of economic losses, such as the determination of the amount of electricity not developed and not transferred.

Statement of facts: the open data does not identify the necessary data, and it is therefore necessary to establish integration with the requirement of data in the 1 xmoon, to be determined by the regulatory framework, the right to certain sets required for THE performance OF KaZa.

Drawbacks: there is no automatic loss calculation function.

Advantages: The company has a real-time system with incident data. Each incident is investigated and a final act is drawn up.

2.1.2.4 AS "Sadales tīkls"

Conclusion 1: The data of the AS distribution network is necessary to provide data for events related to the damage to the transmission and distribution electricity networks (DK_RA11), as well as to ensure the possibility of an actual injury calculation for damage caused by natural disasters.

Conclusion 2: The loss calculation is not available for all power supply failures. Loss data is not structured and not related to network damage data.**Conclusion 3:** Nepieciešams paredzēt jaunu normatīvo regulējumu, kas nodrošinās KaZa projektam vismaz šādu datu pieejamību:

- Map of damaged networks (affected area);
- Start date and time of the incident;

- End date and time of the incident;
- Affected customers (total number, incident address, given name, surname or company name, personal identity number or registration number);
- The extent of losses (report act).

Conclusion:

Data related to technological disruptions to electricity supply caused by natural disasters are recorded:

- the management of the network itself is provided by an industrial SCADA system;
- geographical information, visualization, information on network sites, network analysis and identification of damage localisation, calculation of electricity not transferred, as well as recording of all technical disturbances in the network (e.g. indicators SAIDI and SAIFI) provided by the manufacturer'S TRIMBLE Geographical Information System (GIS) DMS/NIS);
- the management of the works to be carried out on the network is provided by the KvikSTEPS system based on the Atlassian JIRA platform.

The network damage is displayed on the Electrical Lock Card (karte.sadalestikls.lv), where the data source is the systems mentioned above.

Losses due to technological disruption of electricity supply caused by natural disasters shall be calculated manually for each individual case in the ST ODE and maintained in the prepared Report Act.

Statement of facts: the open data does not identify any necessary data, so that integration with the geographic information system DMS and the document management system ST HAS TO be established, requiring data 1 xmoon, to be determined by the regulatory framework, the rights to certain sets that are necessary for THE operation OF KaZa.

Drawbacks: there is no automatic loss calculation function.

Advantages: the network damage is displayed on the Electrical Lock Card (karte.sadalestikls.lv), which indicates that the incident data has a geographical attachment.

2.1.2.5   AS "Augstsprieguma tīkls"

Conclusion 1: During the study, it was identified that the AS "High Voltage Network" data was needed to provide data for events related to the damage to the transmission and distribution electricity networks (DK_RA11), as well as to ensure the possibility of an actual injury calculation for damage caused by natural disasters.

Conclusion 2: The response provided by the "High Voltage Network" Ltd has not identified the data structure of the information system as well as data exchange capabilities, so it is not possible to conclude how structured data are available in relation to the damage to the transmission and distribution electricity networks. No geographical mapping shall be used to register events.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa for the project, at least for data collected in the investigation act.

Identified:

The technological interference of the transmission grid shall be recorded in the MS Access database developed by AS "High Voltage Network" ("AST"). The data model is constructed according TO LEK026 (investigation and accounting of technological disorders in energy straits).

After accidents or mass damage to the transmission grid (e.g. after major storms) an investigation is carried out and an investigation act is drawn up. The investigation act shall collect data on direct losses related to the recovery of equipment, human hours consumed to restore normal operation of the electricity grid, as well as electricity not released as a result of accidents or damage. The investigative acts shall be maintained in the AST Document Management Information System.

Statement of facts: No data sets required for the KaZa project were detected in the open data.

Advantages: One of the developments of AST is the development of data analysis and the use of data in operational processes and decision-making of AST. The data on technological interference is intended to be retrieved and regularly restored to the

AST data warehouse. Further, by supplementing data from other sources (such as operational data, fault accounting, etc.) and using Business Intelligence tools, it is intended to develop analytical and visualization of these data, including geospatial analysis solutions. The exchange of energy system incident data with ENTSO-E (European Organisation for Transmission System Operators for Electricity) is also planned, which will create a new information system for this purpose. Data exchange technologies with this system are not yet known.

2.1.2.6   AS "Gaso"

Conclusion 1: AS "Gaso" data are needed to provide data for events related to natural gas leakages (DK _ RA6), as well as to ensure the possibility of an actual injury calculation for damage caused by natural disasters.

Conclusion 2: The company is conducting a loss calculation related to incidents, but the data is not available in a structured way.

Conclusion 3: It is necessary to provide for the new regulatory framework that will ensure the availability of key event data recorded for the KaZa project, as well as the relevance of the loss estimates to these events.

Identified:

As part of the study, it is identified that Gaso does not currently use an information system for recording, storing and collecting data related to gas leakages as a result of economic activities, accidents or disasters, in the event of losses. The data is accumulated in the form of acts and collected in MS Excel. In each case, the address is fixed and the loss is calculated. Natural gas breaks are counted unstructured in an excel file, but plans to build a system in the future.

The company is conducting a loss calculation related to incidents, but the data is not available in a structured way. Losses are calculated according to the methodology developed internally by the company Gaso.

Two information systems are currently being developed, both the Geospatial Information System and the Asset Management System. Both could be used in the future for both data storage and loss estimates. A decision on the base system will be taken in the future. On the other hand, data sharing can be provided with WEB services. THE WSO2 Open Code Hybrid Integration Platform is currently in use.

2.1.2.7 *AS "Conexus Baltic Grid"*

Conclusion 1: Data from the "Conexus Baltic Grid" are needed to provide data for events related to natural gas leakages (DK _ RA6), as well as to ensure the possibility of an actual injury calculation for damage caused by natural disasters.

Conclusion 2: AS "Conexus Baltic Grid" accounts for emergency and related losses, some of them are not available in a structured way.

Conclusion 3: It is necessary to provide for the new regulatory framework that will ensure the availability of key event data registered for the KaZa project (event ID, event date, event site), as well as loss estimates related to these events.

Identified:

The asset management system (APS) GIS module maintains information on all objects. For geographical data, the GIS model of the APS system is used. The GIS module defines the geographical coordinates for each object. Both the LKS-92 and the WGS-84 coordinate system can be used. In the GIS module, additional attributes, which are different, depending on the type of object, are accumulated together with the geographical mapping. Common attributes include, for example, input time, refinement time, modifier, data source, etc.

<u>Registration of emergency situations in Inchualna underground gas storage ("Inchualna PGK"):</u>

The Production Management Service of Inchualna PGK shall maintain a physical emergency recording journal called "Technological equipment damage and note registration journal":

Nr. p. k.	Inchualna Underground Gas Storage
1.	Serial number
2.	Date
3.	Object, machine name, location
4.	Description of the signs or damage (occurrence time)
5.	To which the information and signature of the acceptance for execution have been transferred
6.	Prevention Flag
7.	Exchange Dispatcher Signature

Losses for the environment associated with the gas leak are calculated using Excel files based on known actual amounts in individual communications. The prescribed procedure approved by the Technical Council of the Company and the Technical Council for the calculation of losses shall be used.

Losses on property related to repairs or restoring the capacity of equipment shall be calculated manually according to actual estimates.

Each quarter a calculation of the technological loss of natural gas is carried out according to AS "Conexus Baltic Grid", the "methodology for calculating the technological loss of natural gas in the underground storage of Inchualna" approved at the Board meeting, using Excel files.

Gas Transmission Emergency Log:

In gas transmission, the Dispatch Division shall maintain an emergency recording journal "Dispatch Diary" in an electronic environment - an internally usable information system - DIS-IS.

Nr. p. k.	Gas transmission
1.	Date
2.	Time
3.	Performer
4.	Object
5.	Entry (Event Information and Event Time)
6.	A (Pictures) (key name)
7.	Ž (key name)
8.	Work
9.	Exchange dispatcher
10.	Recording dispatcher
11.	Created by (izveidotājs)
12.	Updated by (aktualizētājs)

Data Set Names: Information System DIS-IS, Dispatch Log Module (Transmission), Paper Form Log (Storage). The list of data attributes is provided by each set.

Environmental losses are calculated based on the gas balance calculations made using THE DIS-IS information system module Balance sheet calculation or using Excel

files based on known actual amounts in individual communications. The prescribed procedure approved by the Technical Council of the Company and the Technical Council for the calculation of losses shall be used.

The losses on property related to the repair are calculated manually according to actual estimates.

Each month an overview of the consumption of natural gas for economic activity and losses of natural gas is prepared following the development of the Company, the "Method for calculating the technological loss of natural gas in the transmission pipeline system", approved at the Board meeting, using Excel files.

Information on events is currently recorded in THE information system IN THE DIS-IS module (Gas Transmission) and all events are scheduled to be registered in the APS system (for both the Transmission and Inchualns PGK events). The APS system uses the "tree" equipment internally to ensure that events are linked to installations, and in addition to the GIS module ensures the availability of geographical coordinates of the equipment, as well as the potential impacts of the environment, surrounding properties and other communications (if available).

In the next 2-3 years, closer exchange of information between the various public systems is planned, by developing the Enterprise Service Bus (Enterprise Service Bus), ensuring faster and more efficient data exchange.

2.1.3 Ministry of Interior

According to Cabinet Order No. 476 from 26 August 2020, "On the State Civil Protection Plan", a management function has been assigned to the Ministry of Interior in such hazards:

- Earthquakes;
- Landslides;
- Fires will build;
- Collapse of structures;
- Public disorder;
- Terrorist acts;
- Internal riots.

As part of the agency, the following information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.3.1 State Fire and Rescue Service

Conclusion 1: VUGD has identified data primarily needed in relation to fires (DK_RA5), building breakdowns (AK_RA4), including other events in which the VUGD participates. The VUGD does not provide for the storage or recording of data related to the actual loss of disaster-related incidents, but should be included as a necessity (at the bottom of which a common methodology for settlements is provided).

Conclusion 2: Outward registration and resource management systems do not link in event cards that, for example, drive multiple machines to one event (in which case multiple cards will be created).

Conclusion 3: VUGD has not provided information on THE IRRVIS data model and data exchange capabilities.

Conclusion 4: There is no uniform methodology for calculating the outward costs of VUGD. In some cases where major events have occurred, an informative report SHALL be prepared within THE framework, which shall indicate the cost of the GUGD for overtime worked by officials, the use of fuel, the costs of technical engagement and repair affected by the event.

Identified:

VUGD used systems for recording outings and events:

IIIS in the Single Register of Events (NPR), in which the VUGD is recording events and maintained by the IEM Information Centre.

External registration and resource management information system (IRRVIS), which records all VUGD outings since 2012. Developer iSoft Solution SIA. There are no data available in the system regarding additional authorities involved in the event (Environment Service, Local Government Police and others).

IRRVIS system base data:

- The date, time of the event;
- Date, time, date of entry;
- The date, time of the localizing;
- Date, time of disposal;

- Total area of fire (k.m);
- Details of victims (including children, VUGD employees, find out);
- Information about hospitalised;
- Information on fatalities (including children, VUGD workers, find out);
- Information on drowned persons;
- Saved information (including children);
- Information on evacuated;
- Distance from the unit (km);
- Impressions during redemptions;
- The floor of the building where the fire occurred;
- Number of floors in the building
- Buildings (number);
- Means of transport (number);
- Animals (number);
- Poultry (number);
- The object is included in the mandatory checklist, the date of the last check;
- An event report;
- Operational information;
- Type of technique (equipment for water work, chemical emergency equipment, CSN equipment, other equipment);
- Notes - manually record additional non-qualified equipment. In addition, files with full technical equipment shall be added. Technical status, department, technical condition;
- The type of event (classifier);
- Subtype of event (classifier);
- Subpart of event type (classifier);
- Responsible department (classifier) a;
- Call number (classifier);
- Type of residence (classifier);
- the city or county of the Republic (classifier);
- the territorial unit of the city or municipality of the Republic (classifier);
- Address (Address register);
- Supervisory area (classifier);
- Specifications services (classifier);

• Fire site (classifier);

• the place of origin of the fire (classifier);

• Product, device (classifier);

• Possible cause of fire (classifier);

• Automatic fire protection equipment (classifier);

• Insurance reports (classifier);

• type of property (classifier);

• Fire level of the building (classifier).

Data on fixed assets of VUGD shall be stored in the Horizon resource management and accounting programme.

Currently, the VUGD does not have a fleet monitoring system, as well as the possibility of tracking or displaying the location of road transport geographically. In the future, the introduction of such a system under the 112 project was planned.

Benefits: The Planner plans to carry out a single event on an electronic map (VEK) on the Single Contact Centre platform, which will reflect basic information on the event as well as on all operational services involved.

It is planned to implement the Resource Tracking Process, which will allow information on material values spent to be collected after each event, to be transmitted to Horizon the estimated costs of departing operational services. No information is currently available or VEK will reflect the total amount of travel.

2.1.3.2   Management of Citizenship and Migration Affairs

Conclusion 1: PMLP data is required to provide detailed information relating to individuals (AP_4.2- AP_4.10) statistics, which are also necessary for a number of purposes FOR THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: During the study, the company has not provided information on the structure and list of attributes of the Population Register and the Register of Natural Persons, indicating that there is no legal basis for the PMLP to be issued before an interim agreement or contract is concluded.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure at least the availability of such data for the KaZa project:

• Personal code;

• Name;

• Last name;

• the declared address of the person's place of residence;

• Age;

• Gender;

• Nationality and type of nationality;

• Nationality;

• Details of the limitation of the capacity of the person or the review of the capacity limitation;

• Status of persons reaching retirement age.

Identified:

As part of the study, it is identified that the Population Register (IS) has been established as a single national population accounting system. In the population register, the data shall be stored in accordance with the "Law of the Register of Natural Persons" (https://likumi.lv/ta/id/296185-Natural-Person-registra-Law), the list of information (data) to be stored shall be available in Section 11 of the Law.

Personal data of the population register

1) personal identity number;

2) name (names);

3) surname;

4) the surname of birth;

5) the historical form of the personal name or family surname and the original form of the other language in the transliteration of the latīņalfabētiskajā, if the person wishes to do so and can certify this form by documentary evidence;

6) the rendition of the alien's personal name in Latvian;

7) the date, country and place of birth;

8) information regarding the time of birth, registration and birth certificate;

9) gender;

10) nationality and type thereof;

11) nationality;

12) the address of the declared place of residence, registered or indicated by the person. The address of the place of residence indicated by the person has an informative nature;

13) information regarding the identification code of the person referred to in Section 4, Paragraph one, Clause 2, "b", "c", "d", "e" or "g" of this Law, which has been entered in a personal identification document;

14) information regarding the identification code assigned to the person referred to in Section 4, Paragraph one, Clause 1 and Paragraph 2, Sub-paragraph "a" of this Law, which is entered in a document issued by the competent authority;

15) information regarding the account of the official electronic address of the person;

16) information regarding a personal identification document;

17) information regarding the residence document received in Latvia - a residence permit, registration certificate or permanent residence certificate;

18) information regarding the state of the family;

19) information regarding marriage;

20) information regarding minors;

21) information regarding the status of a multi-child family;

22) information regarding the father and mother;

23) information regarding the limitation of the capacity of a person or a review of the capacity limitation;

24) information regarding the death of a person;

25) information regarding the permit or prohibition of a person to use the body, tissues and organs thereof after death;

26) information regarding the establishment or termination of out-of-family care or guardianship or the termination, withdrawal or renewal of custody rights;

27) information regarding the guardians, trustees or a foster family of a person;

28) information regarding the child care institution;

29) information regarding the decision regarding the establishment or revocation of adoption;

30) information regarding the status of a politically repressed person or a member of the national resistance movement;

31) information regarding the status of a member of World War II;

32) information regarding a document which certifies a prohibition to issue a personal identification document to a child under 14 years of age or a prohibition to leave the State for a minor child;

33) information regarding a person who has been prohibited from issuing a personal identification document of a child under 14 years of age or removing a minor child from the State.

The types of nationality within the meaning of this Law shall be

1) a citizen;

2) a non-citizen;

3) stateless person;

4) a refugee;

5) alternative status;

6) temporary protection;

7) unspecified.

In the population register, entries are made using both the values of classifiers and the fields of text and notes in a free text format. Classifiers in the Population Register, such as:

• nationality classifier;

• classification of the type of nationality;

• nationality classification;

• the sex classifier;

• address classifier and address attribute classifier;

• national classifier;

• classification of identity documents;

• etc.

PLMP produces statistics on individuals by municipality twice a year and, if necessary, produces statistics by address. There are no geospatial data, use the address register data of the State Land Service.

Under the "Modernisation of Natural Persons Data Services" project of the European Regional Development Fund, the establishment of a register of Natural Persons shall be carried out. Data will be maintained in the register in accordance with the Law on the Register of Natural Persons. The planned deadline for the introduction of the FPR on 28 June 2021.

Statement of facts: The data currently open have not identified the necessary data, but it is planned to transfer these personal status to the NATIONAL regulatory authorities within the framework of the drafting of the National Register of Natural Persons to THE SPAA Data Distribution Platform (DIP). FOR the purposes of public administrations, data and data sets DIP will be prepared and automatically transmitted FOR THE PURPOSES of PUBLIC administrations, the need for which is specified by regulatory enactments for public administrations.

Drawbacks: Information Centre of the Ministry of Interior .

Advantages: An individual specification describing the agreed data retrieval services for each client.

2.1.3.3   Information Centre of the Ministry of Interior

Conclusion 1: As part of the study, it is identified that the Information Centre maintains around 130 information systems which are planning to merge and modernize in the near future.

KaZa requires data relating to a number of events identified in several systems:

IIIS Uniform Event Register (NPR) and IIIS Electronic Event Log (ENŽ) - closely linked systems in which information and information on events in the country (fires, criminal offences, other criminal offences, persons involved and material objects are stored. The amount of information stored in the event register for events registered by police officers, local government police officers and port police officers is specified in the BOM Regulation No 190 from 20 March 2012, Regulations regarding the Procedures for the Registration of Events and the Police Response Time (https://likumi.lv/doc.php?id=245629).

Geographical Information System of the Ministry of Interior - These GIS reflect the information on the system maintained on the IeM IC map, provide a number of services. For more information: (https://www.ic.iem.gov.lv/gis/index.php).

Information on **road accidents** (hereinafter referred to as "CSNg") is first registered in the "Road Police Register" subsystem OF THE IIIS (hereinafter referred to as "CPR"), usually recorded by a paper protocol at the site of the event and then entered into the system, criminal or administrative proceedings may be initiated for the event in question, which are subsequently directed, drastically or APAS, as well as a specific event may remain. without further progress, information from CPR is

directed to the Single Event Register (CPR). Information system (CAIS) for the analysis of road accident and infringement events – using the IHP GIS reflects on the road accident sites map and contains information about the driver, participants, fatalities, injuries, driver status (drunk/not drunk) event legal classification and others. Web Application Address - https://gis.ic.iem.gov.lv/giswebcais/.

The following classifiers are used in the system:

- Type of CSNg;
- Participant type;
- Reasons;
- weather conditions;
- Type of coverage;
- Carriageway condition;
- Road conditions:
- Additional characterization;
- Lighting.

Conclusion 2: The study found that the Ministry of the Interior is delegated a function related to public disorder (AK_CI1), terrorist acts (AK_CI2), internal unrest (AK_CI1). Accordingly, information was requested in which information systems maintain data on these incidents and injury amounts. The answer has not yet been received.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

- The date and time of the event;
- the address or coordinates of the event site;
- The type of event;
- Designation of the site;
- Detailed description of the site;
- the status of the persons involved in the event;
- For natural persons: Name, Last name, Personal Code, Date of birth, Gender, Nationality, State of Health; Signs of death;
- for legal persons: Name, registration number, Legal address;
- Information on the composition of the assignment which has been travelled to the site;

- Vehicle information: Number, Mark, Status;
- Information about material values Object, Type, Status;
- Information on related events.

Identified:

Statement of facts: No necessary data has been identified in the open data, integration with THE NPR (Single Event Register), IEM GIS (Geographical System), (Road Accidents and Violations Information System) and/or CPR (Road Police Register) requiring data 1 xmoon – to be determined by the regulatory framework – rights to specific sets required to operate KaZa.

Shortcomings: A technical solution for data exchange cannot be identified at this time, as the Centre for Information is in the process of merging and developing a number of systems (a phase of systems analysis took place during the meeting).

Advantages:

ArcGIS - the platform, which could also have been used as part of the KaZa solution, will be replaced with the latest version in the near term. The S intends to pool all data from "event" to "court decision" in the system to track each step as digitally as possible.

The 112 programming platform will provide data on all the institutions involved in the event and the resources spent by these authorities.

2.1.4 Ministry of Environmental Protection and Regional Development

According to Cabinet Order No. 476 from 26 August 2020, "On the State Civil Protection Plan", the Ministry of Environmental Protection and Regional Development (CAN) has designated a management function in the following hazards::

- Pali and floods;
- Floods;
- Falls (long rains, thunderstorms) and hail;
- storms (wind gusts), sudden wind gusts;
- tornadoes;
- Strong frost, snow, putter, icing, wet snow;
- Hot heat
- icing;
- leakage of hazardous chemicals at the site;
- accident of radioactive substances at the site;

As part of the agency, such information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.4.1   VARAM National Department for Sustainable Development Planning

Conclusion 1: As part of the study, it has been identified that WE HAVE been accounting in the Regional Aid Instruments Division of the State Department for Sustainable Development since 2006 for the financial resources allocated to local governments from the State budget programme "Emergency Features", for the prevention of various events and for the prevention of damage.

Those data shall contain the following information:

- name of the municipality;
- the purpose of funding;
- the amount of funding allocated;
- number and date of the FM order.

Conclusion 2: Dati uzkrāti nestrukturēta veidā .xlsx failu formāta.

Identified:

Statement of facts: unstructured data records cannot be obtained automatically.

2.1.4.2   VARAM Climate Change Department

Conclusion 1: VARAM KPD no data was identified for the KaZa project.

Identified:

VARAM KPD develop draft legislation and policy planning documents, cooperate with sectoral ministries to ensure the integration of greenhouse gas (GHG) and climate resilient objectives into sectoral policies, contribute to changes in the Latvian economy. COPPER CRD also supervises the functioning of the EU Emissions Trading System in Latvia, coordinates GHG inventory, develops the functioning of climate change financial instruments (including The instrument for the auctioning of climate change financial instrument and the Instrument for the auctioning of emission allowances).

COPPER CRD mainly LVGMC data users.

2.1.4.3   State Environmental Service

Conclusion 1: VVD RDC data is needed to provide data for events related to chemical leakages (AK_RA2) and oil spills (DK_RA8), as well as for the calculation of actual damage to the environment.

Conclusion 2: The Latvian Environment, Geology and Meteorology Centre has not provided information on possible technical solutions for the information systems and database data structures and data exchange referred to above, so it is not possible to determine how structured data are available from these data sources.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of such data from the Environmental Damage Information System and the databases of contaminated and potentially contaminated sites (PPPV) in relation to accidents and losses recorded in these data sources.

Identified:

As part of the study, it is identified that the VVD collects the following data::

Information system for environmental damage ("LVGMC"). Information shall be compiled in accordance with Cabinet Regulation No. 281 of 24 April 2007, Regulations Regarding Preventive and Rehabilitation Measures and Procedures for Assessing Environmental Damage and Calculating the Costs of Preventive, Emergency and Recovery Measures. So far, there are 66 cases of information. These are mainly cases of accident or malfeasance where environmental pollution with different chemicals has occurred or damage to protected species, habitat, etc. The date of the case, place and affected environments (land, water air, habitat), as well as decisions taken by the State Environmental Service are recorded.

Contaminated and potentially contaminated sites (PPPV) database collecting data on the location, type and hazards of contaminated and potentially contaminated sites. Database enforcer LVGMC. The database shall be maintained in accordance with Cabinet Regulation No. 483 of 20 November 2001, Procedures for the Identification and Registration of polluted and potentially polluted sites. Until now, 3586 sites have been registered in the database, 249 of which are contaminated sites. A special site type – Emergency (accident) sites - has been distributed - there are 9 in the database. The list of sites and the map are available on the LVGMC website.

Statement of facts: Open data reveal data on contaminated and potentially contaminated sites (INSPIRE WMS), but the frequency of data recovery will be

"occasional" and there are no data related to incidents and losses, so integration with the Environmental Damage Information System and THE PPPV database (contaminated and potentially contaminated sites) should be established, data 1 xmoon, to be determined by the regulatory framework, rights to certain sets required to operate KaZa.

2.1.4.3.1 Radiation safety centre

Conclusion 1: VVD RDC data is needed to provide data for events related to radiological accidents (AK_RA1) as well as for the calculation of actual environmental damage losses.

Conclusion 2: This authority has data quality problems related to incident and loss accounting. Data not structured: Incident and Loss Data is stored in. xlsx file format and is incomplete because the institution has no actual loss data; gamma dose monitoring data has been analyzed by manual studies of reports. There is no information on the structure and the possibility of integration of the Environmental Damage Information System, as THE DUTCH AUTHORITIES have not sent this information.

Conclusion 3:

It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

   • Information on incidents and losses related to accidents of radioactive substances;

   • Information on incidents and losses related to leakage of chemicals.

   • Gamma dose power monitoring data.

Identified :

As part of the study, the following data are identified as available for VVD RDC:

1) Data regarding operators who perform activities with sources of ionising radiation and the supervision and control of such operators. The data are stored in THE Regulatory Authority Information System established by the International Atomic Energy Agency (IAEA), which is registered as a national information system.

2) Gamma dose power monitoring data. Data shall be stored in the database of the monitoring system (IMS), which summarises gamma dose power measurement data from 20 stationary spectrometric monitoring stations, one mobile spectrometric

monitoring station and two water monitoring stations deployed throughout the territory of Latvia.

3) data on radiometric control at national borders. Measurements, recorded as a message. The Border Guard shall measure the radiation continuously. Radiation measurements are measured using a special equipment that can be installed on the machine. The measurement data has a geographic mapping, and a context measurement file is created after the measurement is finished.

4) Data on incidents and inspections performed in the territory of Latvia, population submissions and activities performed by VVD RDC. Data on radio-metric control, submissions and incidents are stored using the "Names" document management system, TULIP (stored inspection acts), and excel registries.

The information system of the International Atomic Energy Agency (IAEA USIE), in which States enter information on incidents, follow events and their development, request and request information from other countries. The primary objective of the system is to ensure the exchange of information between countries and to maintain a common platform for requesting/providing rapid assistance. International assistance is requested by countries using THE USIE system, completing a pre-prepared form. USIE system users are only VVD RDC and the system is not integrated with national systems because it contains limited availability data.

Statement of facts: No necessary data have been identified in the open data so that information from the Environmental Damage Information System, the information system TULIP, the monitoring system MONA and IMS monitoring systems should be provided, requiring data in 1 xmoon, to be determined by the regulatory framework, the right to certain sets required by KaZa for provision.

Drawbacks: The institution does not have automatic data exchange services available, the information exchange shall take place electronically, with the employees preparing and providing information manually.

Advantages: The measurement data for the mobile gamma spectrometric monitoring system MONA is a geographical attraction. A context measurement file is created at the end of the measurement.

2.1.4.4 Dabas aizsardzības pārvalde

Conclusion 1:

The study identified the maintenance of the "OAK" nature data management system in which data on:

- specially protected nature areas;
- micro-reserves;
- specially protected species and habitats;
- management measures;
- tourism infrastructure in specially protected nature areas;
- reimbursement of restrictions on economic activity in specially protected nature areas and micro-reserves;
- biodiversity monitoring data relevant for nature protection.

For data collection and analysis, ArcGis server, SQL DB, programmed Internet interface ArcGIS portal, other cartographic programs such as ArcMap, ArcPro, Data Integration Platform (FME) allow data from different systems to be integrated.

Conclusion 2: The data exchange is used: Application SDE connection, Web Feature Service (WFS) and Web Map Services (WMS), allows for export from the web browser, technical format of the INSPIRE Directive (https://inspire.ec.europa.eu/inspire-directive/2) or open data. The format for the preparation of data and services of the INSPIRE Directive may be provided for by WMS.

Identified :

Statement of facts: : Open data reveals available data on specially protected nature areas (file IN SHP format), micro-reserves (file IN SHP format) and specially protected species and habitats (file IN SHP format).

Advantages: Public access to the Natural Data Management System "Ozola" is provided free of charge (http://ozols.daba.gov.lv/pub/Life/).

Drawbacks: The publicly available free version of "Ozols" differs with the level of detail and data processing capabilities available.

2.1.4.5 VSIA "Latvijas Vides, ģeoloģijas un meteoroloģijas centrs: (LVĢMC)

Conclusion 1:   THE LĢMC maintains a great deal of KaZa context data needed for the system, which is the basis for creating different contexts (Annex 4 - Availability of LVGMC data).

Conclusion 2: KaZa would require flood threat and flood risk maps developed by the LVGMC.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the data listed in Annex 4 for the KaZa project.

Identified :

As part of the study, it is identified that the LVGMC collects and accumulates data related to environmental monitoring (geology, meteorology, climatology, hydrology events).

1) The LVGMC shall perform hydrometeorological monitoring and is prepared to provide, if necessary, operationally observation information regarding the observed parameters of 31 meteorological and 79 hydrological observation stations with an hourly time step, as well as aggregation for the day/month or other time period.

2) The information system for flood risks, analysing available data in the system, shall consist of maps of the flooding areas.

3) a "database" of daily events containing an overview of the synoptic situation of the current day.

4) data from seismological observation stations in the eastern Baltic.

The following information shall be stored in the Environmental Data Archives:

• surface hydrological information from 1919;

• seaside hydrometeorological information from 1835;

• aerological and agrometeorological information from 1945;

• information on the quality of the environment from 1946, synoptic meteorology materials from 1933;

• meteorological information from 1814 (about Riga – 1795).

Statement of facts

The following data sets detected in open data:

• Flood Risk Card (INSPIRE WMS) with an "occasional" updating frequency, last updated 17.10.2019;

• Environmental Monitoring Station (INSPIRE View) with "irregular" updating frequency, last updating 18.02.202020.

Accordingly, it should be possible to obtain information by requesting data in 1 xmoon, to be defined in the regulatory framework, the right to certain sets necessary for THE operation OF KaZa.

Drawbacks: There is currently no possibility of automatic data exchange with LVGMC information systems. Data can be prepared in. xml,. csv,. shp file formats, or if necessary in another file format on the ftp server.

2.1.5   Ministry of Transport

According to Cabinet Order No. 476 from 26 August 2020 On the State Civil Protection Plan, a management function has been designated by the Ministry of Transport in the following hazards:

- Accidents in the transport infrastructure of the oil pipeline.
- Accidents or accidents in port and sea hydrotechnical engineering.
- Road transport accident.
- Air accident with aircraft.
- Rail transport disaster.

At the meeting of the Ministry of Transport, the representatives mentioned that, in accordance with Commission Delegated Regulation (EU) No 886/2013 supplementing Directive 2010/40/EU of the European Parliament and of the Council, as regards data and procedures, in order to provide users with, if possible, a general minimum level of road safety-related information by 2023. national (national) access point. A national access point is a single point that would allow users to access static route and traffic data and historical traffic data of different modes of transport provided by transport authorities, carriers, infrastructure managers or transport service providers on request in real time on the territory of a given Member State (e.g. traffic data, route data, traffic accidents (multiple methods), as will be recorded). Planned internal and public portal. Following the development of the technical documentation of the portal, an analysis of the available data of the National Access Point should be carried out in order to conclude the data required for the KaZa project.

As part of the agency, such information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.5.1   VAS "Latvijas Valsts Ceļi"

Conclusion 1: LVC data are required in connection with road transport accidents (DK_TN2), as well as the possibility to carry out actual injury calculations for damage caused by natural disasters necessary for the purposes of C and D FOR THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: When describing the location of the event, a linear reference is used (there are coordinates; measures the route from the beginning of the road – is an

important date for measurement because the routes are variable) - a service for which you can ask which km of damage is located (damage coordinates).

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure at least the availability of such data for the KaZa project:

- Coordinates of the event (or affected area);
- the cause;
- The date of the event;
- The length of damaged roads (m);
- Length of destroyed roads (m);
- The extent of losses;
- The affected infrastructure (site name, extent of damage).

Identified :

THE LVC maintains a register of damages caused to the Road, which lists losses incurred IN cases OF CSNG, vandalism or theft.

Under Regulation No 886/2013, a national (national) access point for transport sector information is planned by 2023. A national access point is a single point that would allow users to access static route and traffic data and historical traffic data of different modes of transport provided by transport authorities, carriers, infrastructure managers or transport service providers on request in real time on the territory of a given Member State (e.g. traffic data, route data, traffic accidents (multiple methods), as will be recorded). Planned internal and public portal.

Working with road makers is currently in a manual interface, but is planned to move to a geographical area in the near future. The mobile app will allow you to capture an image of the event site and send it to road makers as a job and get back an estimate.

Statement of facts: 6 datasets were identified in the open data, of which 5 could help the project for data analysis:

- National Road Network - annual renewal frequency; last update - 13.01.2020; National major, regional, local roads, road axes (GDB);
- Road construction work - constant renewal rate; last update - 13.01.2020; Planned, active and technological outages. Roads to be travelled (REST);

• Severe road accidents in the National Road Network 2016-2019 years - daily renewal rate; last updated - 06.10.2020 (16.10.2020); Accidents with victims or fatalities (CSV);

• Road works (End Points of Objects) - constant renewal rate; last update - 06.10.2020; Construction (CSV);

• Restrictions on heavy transport: self-renewal; last update: 20.03.2020; Transport restrictions on heavy transport on national roads (REST).

It is therefore necessary to establish integration with the Road Damage Register by requiring data in the 1 xmoon, to be determined by the regulatory framework, the rights to certain sets necessary for THE performance OF KaZa.

Advantages: plans to release data in the near future in line with the INSPIRE Directive. Used by Esri Arcgis REST Services to disseminate GIS data.

Drawbacks: There are currently problems in transferring data under the INSPIRE Directive (no data required and no data conversion problems).

2.1.5.2   AS "Pasažieru Vilciens"

Conclusion 1: The information system of AS "Latvian Railways" shall be used for recording incidents of PV railways.

Identified :

"Passenger Train" is the only domestic public transport service provider carrying passengers by rail throughout the territory of Latvia. The Road Transport Directorate shall order routes.

The trains are equipped with GPS, so they can be found on the map. Data sharing cannot be ensured at this time because the system is in the development phase.

2.1.5.3   VAS "Latvijas dzelzceļš"

Conclusion 1: LDZ data is required in connection with railway transport disasters (DK_TN3), as well as the possibility to carry out actual injury calculations for damage caused by natural disasters necessary for the purposes of C and D FOR THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: At present, most data is maintained in an unstructured way.

Conclusion 3: It is necessary to provide for a regulatory framework that will ensure at least the availability of such data for the KaZa project:

• Coordinates of the event (or affected area);

• The type of event;

• The date of the event;

• The length of the damaged railways (m);

• Length of destroyed roads (m);

• The extent of losses;

• The number of victims;

• The number of deaths;

• The affected infrastructure (name of the site, extent of damage).

Identified :

LDZ has established A KVC accident tracking system where primary information on accidents is recorded.

The records of the accident investigation, including the calculation of losses, shall be carried out in accordance with 02.06.20202020. The procedures for the classification, investigation and accounting of railway traffic accidents No 334 of Cabinet Regulation No. 50 shall be submitted to the Technical Inspectorate of the State Railway. It shall, on the basis of paragraph 57 of the above provisions, carry out accident records, data analysis and the preparation of common safety indicators in accordance with the Annex to these Regulations.

THE following classifications are used for recording incidents OF LDZ as described in Annex 3 of the annex.

Statement of facts: The open data identified a single railway network (INSPIRE data), the frequency of renewal OCCASIONAL; the latest update – 10.04.2019, which should lead to integration with KVC and/or LDzGIS, REQUIRING data 1 x per month – to be DETERMINED BY the regulatory framework – rights to certain sets that are REQUIRED KaZa for operational purposes. LDZ data relating to incidents shall be provided to the State Railway Technical Inspectorate.

Advantages: LDZ has established a Geographical Information System (LDzGIS). This is intended to be a gradually evolving, universal geospatial information system that will be complemented in the future by the realisation of specific business uses, improving the circulation of geospatial information and promoting its wider use in LDZ business processes.

The system is based on the GIS database and the GIS applications server, which provides geo-spatial data management and application operation, using WEB services and providing geospatial information capabilities:

1. creating WEB apps
2. using GIS data with professional design software (AutoCAD);
3. creating dynamic embedded cards in other IT systems;
4. realizing card-based mobile solutions.

The system is based on THE ESRI ArcGIS standard software platform, which will allow a wide application of the already finished functionality, through configuration and adjustment jobs, as well as integration of development apps and systems for realisation through the application interface interfaces (APIs) included in the ArcGIS platform.

Figure 4. System Conceptual Overview
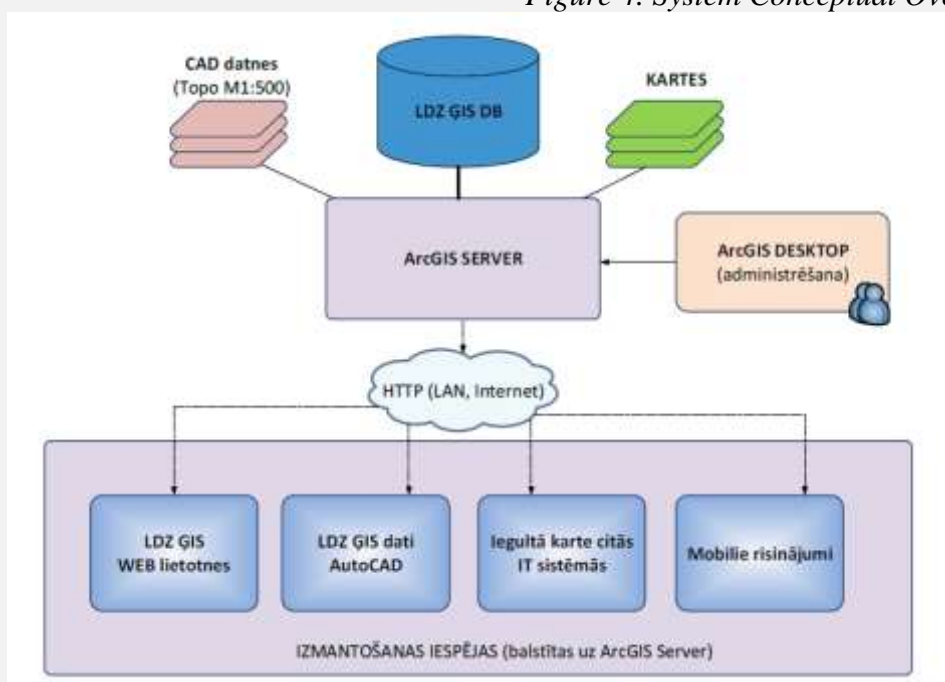
2.1.5.4 *Valsts dzelzceļa tehniskā inspekcija*

Conclusion 1: Data ARE needed in connection with railway transport disasters (DK_TN3), as well as the possibility of carrying out actual injury estimates for damage caused by natural disasters necessary for the purposes of C and D FOR THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: RESPONDED to a request for information to provide an existing information system data model and data collection structure relating to railway transport disasters, that the railway accident recording system is currently in the development phase and that the

Inspectorate cannot provide information on data models due to testing and analysis. The inspection could provide more detailed information at the beginning of 2021.

Identified :

State railway technical inspections shall implement the function of the State administration in the supervision and control of the technical operation of the railway in order to ensure compliance with the requirements of the regulatory enactments regulating the referred to field. THEY shall be responsible for recording and storing statistics and shall collect all information on losses related to railway operations (some data stored for up to 25 years).

The data are derived from the investigation reports and documents submitted by infrastructure carriers, railway carriers, repair workers, etc. The data is structured into the accounting system.

Detailed information on metadata is available at the inspection website (http://www.vdzti.gov.lv/index.php?id=307&sa=458,440,307), including accident statistics available:

• Incident Statistics (32 KB) (2006-2019) in. xlsx file format;

• Monthly breakdown of victims (71 KB) (2004 to September 2020) in. xlsx file format.

Datu pieejamība:

Railway accidents	Every year 15.07 for the previous year
Timelines for victims	Each month in 15.dat for the previous month
Overall safety indicators	30.09 each year for the previous year
Motion safety status analysis	30.09 each year for the previous year

Statement of facts: The open data does not contain a set of identified data, so it is necessary to establish integration with THE CURRENT accounting information system by requiring data in the 1 xmoon, to be determined by the regulatory framework, the right to certain sets that are necessary for THE operation OF KaZa. LDZ data relating to incidents shall be provided to the State Railway Technical Inspectorate. THE data listed in THE LDZ information system related to railway incidents and disasters are backed up.

Drawbacks: At present, the Inspectorate cannot provide detailed information on the technical possibilities for data exchange, as it falls within the competence of the European Union Railway Agency.

2.1.5.5   VAS "Ceļu satiksmes drošības direkcija"

Conclusion 1

The CSDD identified the following data during the study:

The national register of vehicles and drivers, which has access to information on registered vehicles (other than tractor-type) and the qualifications of drivers (training, acquired/lost rights, etc.), as well as information on special vehicles (classification of heavy equipment) that can be used to remove disasters.

These data will be used to provide information on vehicle data and their classification (AP_2.1).

Video recordings from stationary radars are available, and online mode may be able to connect to the radar as needed.

In the case of road accidents, statistics shall be compiled but shall not be analysed and any loss assessment shall be carried out. The function of assessment of road accident losses was taken over by the Ministry of Transport's autotraffic department. Information on the accident, death, serious injuries, loss in terms of money for the death is collected. The information is collected not more frequently than once a year. Data source IeM IC.

Conclusion 2: Video recordings from radar cameras are stored for 1 month and very large amounts of data (up to 100 TB) for areas with intensive traffic movements. Video recording does not occur 24/7, but only during road transport movement, nor does the material obtained be analyzed. Cameras work in static mode.

Conclusion 3:

It is necessary to provide for a new regulatory framework that will provide KaZa for the project, the possibility of requesting video records from stationary radars and the possibility of connecting online to radar cameras, as well as the following information relating to vehicle recording technical data:

registration number of the vehicle;

stamp;

model;

the technical data necessary for the identification of the vehicle and the characteristics of the technical data;

vehicle equipment;

a national roadworthiness review of the vehicle and the values and defects recorded therein, the term of validity of the national roadworthiness test of the vehicle and the withdrawal of that authorisation;

conformity assessment of the vehicle and vehicle conversion.

In relation to the owner, possessor, holder of the vehicle:

- Status (owner, possessor, holder);

- given name, surname or name;

- the personal identity number assigned in the Republic of Latvia and the date of birth (for a person who has not been assigned the personal identity number - date of birth) or registration number;

- the address of the declared place of residence on the date of receipt of the service CSDD.

For a legal person:

- type of commercial activity;

- information on the suspension, renewal, continuation or termination of business.

Identified :

Statement of facts: open data do not identify the necessary data so that integration with the CSDD information system (National Register of Vehicles and Drivers) should be established, requiring data 1 xmoon, to be defined in the regulatory framework, the right to certain sets that are necessary for KaZa operation.

Drawbacks: No current declared place of life or legal address is available in relation to the vehicle holder, requiring the system to validate information against Population and Enterprise registries when displaying data.

Advantages: The Authority provides wide-ranging possibilities for integration in the context of data exchange.

2.1.5.6   Transporta nelaimes gadījumu un incidentu izmeklēšanas birojs

Conclusion 1: THE data required for aviation accidents (DK_TN1), rail transport disasters (DK_TN3), marine casualties (DK_TN4) have been identified and the possibility of calculating the actual damage to the disaster cannot be used because the injury estimates are constructed according to the old guidelines (reports show). approximate amount of losses, not actual losses).

Identified :

TNGIIB is implemented by the State in the field of investigation of aviation accidents and incidents, railway accidents and marine casualties.

THE main objective OF TNGIIB is to conduct a technical investigation of aviation accidents and incidents, railway accidents and marine casualties. The sole aim of the investigation is to prevent aviation accidents and incidents, railway accidents and marine casualties, thereby improving the safety of the air traffic, rail and maritime transport movements.

THE following reports are available on THE website OF TNGIIB:

- Safety reviews (2013-2019);
- TNGIIB Public Reports (2007-2019);
- THE public overview of ANGIIB for 2006;
- Reports on railway accident investigations (2007-2011).

Final railway and aviation reports as well as marine investigation reports are available. All reports are available in. pdf format.

Statement of facts: THE TNGIIB data is not structured and qualitatively, and therefore cannot be used in the KaZa project.

2.1.5.7 "LatRosTrans"

Conclusion 1: The study identified LatRosTrans as one of the data sources related to accidents in the transport infrastructure of the petroleum pipeline (DK_RA8).

Conclusion 2: In a response from LatRosTrans, the data structure of the information system as well as the data exchange options have not been identified, so it is not possible to conclude how structured data are available in connection with oil product leaks.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa at least the following data sets:

- The date of the event;
- location of the event (address, coordinate);
- the cause;
- The extent of the threat:
- name of species, number of individuals damaged, number of individuals destroyed;
- the name of the habitat, the damaged area ha, the destroyed area ha;
- name of water body, contaminated area ha;
- soil type, extent of pollution in m3;
- emergency measures (date of commencement, date of completion);

• reorganisation measures (type, purpose, date of commencement, date of completion)

Identified :

According to Cabinet Regulation No. 281 of 24.04.2007, Regulations regarding Preventive and Recovery Measures and Procedures for Assessment of Environmental Damage and Calculating the Costs of Preventive, Emergency and Recovery Measures, p. 1.6, 49, p. 51 and Annex 5, an undertaking shall prepare a specified amount of information for each oil product leak and submit it to the State Environment. the Environment Service (hereinafter - VVD). The information submitted by the VVD company shall be supplemented and further submitted to the VSIA "Latvian Environment, Geology and Meteorology Centre". Detailed information on spillage of petroleum products (including the geographical coordinates of leakages, the amount of leakages, etc.) is available at the VSIA Latvijas Environment, Geology and Meteorology Centre.

Information on intentional damage to the pipeline (including damage resulting from leakage of petroleum products into the environment) is also entered in the company's internal computer system.

When providing information to the VVD on the oil leakage that occurred, the company shall indicate the address and coordinates of the pipeline km where the leakage occurred in the LKS-92 coordinate system.

The sites for deliberate damage to the pipeline and the farewell created from it are also marked on the Google Earth Pro map.

Losses shall be determined by each business unit within the scope of its activity. Recovery works can take several years and total losses can take a relatively long time to determine (i.e. the means spent on connection prevention + emergency measures + remediation work, etc.).

The material damage caused to an undertaking in the event of intentional damage to the pipeline and subsequent spillage of petroleum products is calculated on the basis of the losses resulting from the costs of repairs to the pipeline, the costs of remediation work, and the value of the oil products withdrawn and/or collected as a result of criminal proceedings. The referred to losses, in accordance with the procedures specified in the Criminal Procedure Law, shall be reported and maintained within the framework of the initiated criminal proceedings at all stages For tracking accidents

and adverse events, the company shall use a computer program developed for that purpose, which records all cases of spillage of petroleum products that have occurred.

<u>Statement of facts:</u> No data sets required for the KaZa project were detected in the open data.

<u>Drawbacks:</u> In accordance with BOM Regulation No 281, Regulations on Preventive and Recovery Measures and Procedures for Assessing Environmental Damage and Calculating the Costs of Preventive, Emergency and Recovery Measures, Information regarding the occurrence of environmental damage or threat of direct damage shall be submitted by the operator to the Service not later than three months after the environmental damage caused or the threat of direct damage caused. If the remediation measures for environmental damage have not yet been fully completed within this period, the operator shall provide information on environmental damage and measures already taken. Further information shall be submitted after the completion of reorganisation measures, but at least once a year. Therefore, information on accidents is taken into account by the State Environmental Service with time lag.

2.1.6   Health ministry

According to Cabinet Order No. 476 from 26 August 2020 On the State Civil Protection Plan, a management function has been designated by the Ministry of Health in the following hazards:

- Epidemias - Influenza Pandemic;
- Non-incidents of biological substances.

The study did not provide a meeting with the Ministry of Health, nor did the institutions subordinate to it (National Health Service and Emergency Medical Service) provide answers to requests for additional information, so it is currently not possible to provide a detailed summary of the data available in the Agency.

As part of the agency, the following information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.6.1 National Health Service

Conclusion 1: NSAs data are needed in relation to epidemics (DK_B1), biological accidents (DK_RA7), data on injured, dead populations, as well as the possibility to

keep an actual record of the resources involved in natural disasters and necessary for Objective A FOR THE provision of data within THE framework of THE SENDAI Framework Programme.

Conclusion 2: During the study, representatives of NSAs have not participated in a meeting with the Ministry of Health and institutions under its authority, nor have they responded to a request for information to be prepared and provided electronically, so it is currently not possible to define precisely the data structure required by KaZa.

Conclusion 3: It is necessary to provide for a regulatory framework that will ensure the availability of at least the following data for the KaZa project:

• Type of substance/allergen (in case of poisoning) or disease caused by epidemics;

• Hazard level;

• affected population (number);

• the distribution of the affected population by age, gender, nationality, nationality, disability/absence;

• Number of dead;

• Number of vaccinated (in the event of an epidemic)).

Identified :

The study at the time identified that the largest data holder was the National Health Service. NSAs should have data from all authorities in the sector as well as from the Centre for Disease Prevention and Control.

During the study, representatives of NSAs indicated that:

• NSAs maintain the National Health System, which contains information on human diseases. What information is stored in the system can be found in the BOM rules 134. More information about human diseases is classified. The basic classification for identifying diseases is SSK-10, the content of which can be consulted on the SPKC website. This is an international file which is quite widespread in Europe.

• Mortality is under the responsibility of the SPCC. The SPKC maintains a database of causes of death. The diseases suffered by the dead are on our side to the same extent as the living ones. We will put the causes of death in E-Health. We can't predict the deadline right now.

• Geographical engagement in the case of a patient is his declared place of life. There are statistics that are compiled (non-identifiable), which are published by https://geolatvija.lv/geo/#/ and https://inspire-geoportal.ec.europa.eu/. in the SPKC through E-Health. This is still ongoing, but will result in information on diseases, disease spreads, regional mortality, age, age, and attachment to the administrative regions during the half-year. There is no data and will not be very operational in the near future as statistics – 2020 will be available at best in 2021.

• The supply of future eHealth architecture is currently at the procurement stage, so let us know about possible changes not earlier than the end of summer. The technologies currently in use vary widely. When we know what data NSAs should provide, we will comment in more detail, but in any case, the data exchange takes place through Oracle Service Bus on the basis of web services.

ALL documents related to the National Health System are available on the portal (https://viss.gov.lv/lv/Eves/Resursi) and could be useful during the development of KaZa:

List of classifiers - List of existing current classifiers.

Description of classifiers - The purpose of the document is to describe the classifiers to be used in the System and their structure.

Classifiers maintained by the integration platform - The document is intended for the parties involved in the implementation of e-health systems projects. The purpose of the document is to specify the classifiers maintained by the Integration Platform ("IP").

eHealth Integration Platform Infrastructure: Authorisation Module. Interface Use Manual - The document describes the Infrastructure Authorization Module for the eHealth Integration Platform (IP), which is a user authentication and authorization component that provides a common user authorization and authentication mechanism, data exchange within the IP environment for central e-health system users and health care institution USERS.

Data structures for eHealth Messaging: Standard - The purpose of the document is to present to healthcare information system developers the semantics and content of HL7 V3 standard reports for their practical use.

Guidelines for the use of the interfaces of the eHealth Integration Platform: Standard - The purpose of the document is to describe the implementation of the selected

messaging specification based on a description of the available specification for HL7 V3.

Statement of facts: The open data does not identify KaZa data sets required for the project, which requires integration with e-Health (National Health System) by requiring data 1 xmoon, to be defined in the regulatory framework, the right to certain sets required TO operate KaZa.

2.1.6.2   Emergency Medical Service

Conclusion 1: THE NMPD has identified the data required for the affected, deceased, evacuated population data related to most recorded incidents and disasters, as well as the possibility to keep an actual record of the resources involved in natural disasters and necessary for Objective A FOR THE provision of data within THE framework of the SENDAI Framework Programme.

Conclusion 2: NMPD to request for information on:

  • DATA sets of systems at THE disposal OF MNPD, data exchange capabilities, incident data entry, classifier lists;

  • data sources of THE MNPD Data Analysis Tools, the reporting sets defined therein;

  • THE NMPD management system and how the call costs are listed;

  • A GPS solution for THE NMPD car park, in which the address is fixed;

it has not responded, so it is currently not possible to identify the amount of data required by KaZa and necessary technology for data exchange.

Conclusion 3: The open data identifies 5 data sets published by the health sector but not usable for KaZa job challenge.

Identified:

Statement of facts

THE NMPD organises and provides pre-hospital NMP in daily and emergency situations throughout Latvia. An essential function OF THE NMPD is the planning of the operation of the disaster medical system in the country and the establishment, maintenance and recovery of national medical devices and medication reserves. In addition, THE NMPD shall coordinate and ensure medical evacuation in the country in the event of disasters.

THE NMPD shall have at its disposal the following information systems:

• Operational Control Center (OVC) – all calls and calls are fixed, audio records are stored. The address classifier from the VZD is used to enter the address. Call details - theme, types, date, etc. Only the data of that service are stored in the system;

• EMI – makes and stores electronic cards for patients. The data links to OVC through the caller's number;

• Data analysis solution - all data from the EMI on the previous day is loaded. Data accumulated from 2014. The system has predefined reports and requires developer engagement to create the new report.

If necessary, data can be retrieved from EMI and OVC systems in the form of xlsx files.

The following data are classified uniformly in the systems: type of diagnosis, injury, location designation and others (no additional information on other classifiers has been sent by NSAs within the scope of the study).

THE NMPD is a cooperation agreement (with the SPCC, NSAs and other authorities), which establishes a monitoring system and transfers THE data annually for the previous year in an encrypted manner, in order to ensure the ability to track one patient by linking data from all hospitals.

The average call cost is calculated by adding the amount of funding allocated against calls made (invoiced once a year, but maybe the financiers do it more frequently). NMPD does not invoice call costs.

Calls are regularly analysed and their intensity against the brigade maintenance point and the number of brigade maintenance points increases in order to ensure the time of arrival of the brigade in the BOM rules.

The study found that the largest data storage holder was the National Health Service, as well as that eHealth systems could help to understand how much NSAs cost per patient. NSAs should have data from all authorities in the industry as well as from the SPKC.

The open data does not identify KaZa data sets required for the project, which requires integration with the EMI information system, requiring data at least 1 x a month, to be determined by the regulatory framework, the right to the data sets required to operate KaZa.

Drawbacks: NMPR systems will not identify all patients. There is also a problem that when you register an event address, each of the authorities involved (in one incident) indicates a different address, so you will not be able to link the same incident data.

2.1.7 Ministry of Agriculture

According to Cabinet Order No. 476 from 26 August 2020, "On the State Civil Protection Plan", a management function has been designated by the Ministry of Agriculture in the following hazards:

- Droughts
- Forest and peat bog fires;
- Epizootics;
- Epiphytotic.

As part of the agency, such information systems were identified during the study, which could provide data that would be valid for the extraction of KaZa indicators or context data.

2.1.7.1 State Forest Service

Conclusion 1: VMD data is required in relation to forest and peat marsh fires (DK_K5), as well as to ensure the possibility of actual injury calculations for damage caused by natural disasters and for Objective C for THE PROVISION of data under THE SENDAI Framework Programme.

Conclusion 2: There is no structured information on the infrastructure affected by the fire and the damage caused.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

- Event ID
- location of the event (coordinates, cadastre designation, landfill);
- Start date and time of the event;
- The date and time of the end of the event;
- Name, owner/legal possessor of the holding;
- Fire area (ha);
- Forest area (ha);
- The extent of losses;
- Affected infrastructure (objekta nosaukums, zaudējumu apmērs).

Identified :

The State Forest Register shall maintain data regarding the forest and the economic activities thereof, for ensuring forest management supervision in specific property. A single GIS technology-based information system was established for the WMD, which serves as a common access point for all information registered by the GMD, in order to register new geospatial data sets and create an environment for the further development of e-services in the GMD GIS.

State register of forest:

- Forest Fund (until 2003) Year);
- MersIS 2003, 2007, 2015;
- VMDGENIC (with 2016);

VMD GIS modules:

- Forest inventory (area) data;
- Economic activity (submissions/receipts/reports);
- Environmental protection facilities;
- Forest fires and fire protection infrastructure;
- Hunting stations, tracking of game animals, hunting permits;
- MRM sources/certificates/suppliers MRM circulation;
- EU support measures;
- Admin of the maximum amount of felling (estimate);
- Update (based on mathematical models following economic activity).

Data from other institutions (type of integration) are available in THE GIS:

- VZD - Real Estate Cadastre (SOAP Service);
- DDA - Protected Nature Areas (ArcSDE);
- FAMILY - Topo and orthophoto background (ftp, WMS);
- ZMNI - The amelioration cadastre (WMS).

THE VDM home page contains a lot of available data, but one part is limited availability information to get it requires justification.

VMD is a GPS mobile application for the following functions and data:

- base data (land units, sections, etc.) and their attributes;
- background data (borders of forewoods, departments and rounds);
- edit measurement data
- download and synchronise data
- working with layers of data.

Statement of facts: The open data does not identify KaZa project needs data sets, so that integration with THE GIS needs to be developed, requiring data in the 1 xmoon, to be determined by the regulatory framework, the rights to certain sets that are necessary for KaZa operation.

Advantages: different types of integration capabilities.

2.1.7.2 Agricultural Data Centre

Conclusion 1: Data from animal registers, herd registers and holding registers maintained by the LDC are necessary to provide detailed information on domestic animals (AP_2.2).

Conclusion 2: It is necessary to provide for a new regulatory framework that will ensure at least the availability of such data for the KaZa project:

Serial number in line	Parameter	Description of the parameter
1	ungkey	ID
2	datums	Date
3	ganp_full	Herd registry number
4	vards	Herd owner name
5	uzvards	Herd owner's last name
6	perskods	Herd owner's Person Code
7	nosaukums	Herd owner Name
8	lurkods	Herd owner's business registration number
9	pvnkods	Herd owner's Business Taxpayer Registration Code
10	aw_kods	Herd owner address code
11	atvk	Herd owner Address ATVK Code
12	address	Herd owner's address
		Name of holding holder
		Surname of the holding holder
		Personal identity number of the holding holder
		Name of holding holder
		Registration number of the holding holding
		Registration code of the tax payer of the holding holder
15	holding_id	Registration number of the holding
16	aw_code	Housing address code
17	h_atvk	Housing address ATVK code
18	location	Address of the holding

		Housing X coordinate
		Housing Y coordinate
19	L	Cattle population
22	A	Total number of sheep
24	K	Total number of goats
26	Z	Total number of horses
27	C	Pig population
28	N_B	Number of bee flocks
29	N_T	Total number of rabbits
30	N_K	Fur animals (excluding rabbits)
31	N_SD	Bucks
32	N_M	Poultry

Identified :

The agricultural data centre shall maintain and administer information on agricultural animals, their herds and holdings (with address and coordinates), breeding, slaughterhouses and grading of carcases, raw milk purchased and processed, milk quality, home (rooms) animals, etc. Maintains data from several institutions subordinate to the Ministry of Agriculture.

The data exchange is currently conducted with LAD, PVD, CSP, etc., using:

• client: server data processing model where the customer is an external interface user (SOAP WEB - Services Protocol, Data Transport - HTTPS Protocol);

• Sending MS Excel/CSV to an electronic e-mail address (automated or manual), delivering to the specified SFTP.

Maintain the following records:

　　　　• the animal register;

　　　　• Ganāmpulku register;

　　　　• a register of holdings;

　　　　• the register of raw milk;

　　　　• Register of feed producers.

If, for example, swine fever has been determined in a particular holding, surveillance zones shall be advertised in the Latvian messenger, the LDC shall make changes to the databases, inform the PVD, LAD and slaughterhouses.

Statement of facts: No data sets are identified in the open data for the KaZa project which requires integration with the animal register, Ganāmpulku register and holding register,

requiring data in 1 xmoon, to be defined in the regulatory framework, the right to certain sets required TO operate KaZa.

2.1.7.3   Rural support service

Conclusion 1: The LAD has identified the data required for agricultural losses (AP_1.5) as well as for the purposes of B and C for THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: There are no actual estimates of losses related to natural disasters and outbreaks of animal infections. The amount of the refund is fixed per unit of the countervailable measure and paid on the basis of the farmer's applications only under the open-ended aid measure in question. Thus, injury data is not accurate and available with time lag.

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa at least the following data sets:

- Find location (address, coordinates);
- Date of event (beginning, end);
- Type of damage (flooding, drought, fire, wind break);
- Type of damaged crops (wheat, rye and others);
- Number of crops to be damaged (ha);
- Insurance (name of insurance company, registration number): yes/no;
- Amount of costs (extent of losses);
- Owner (given name or name, personal identity number or registration number);
- the registration number of the affected herd;
- the species of affected animals;
- The number of animals to be killed.

Identified :

LAD stores information (rural blocks from 2004) on all parcels managed by farmers and geographical crops. Records of losses following floods, fires and drought shall be carried out. The loss is calculated on a constant basis, not on an individual basis. The cost of losses is available on the homepage of the entities (legal person). Personal data is not available in the open data.

Information is available on disasters where the wind has been committed and which have been restored (through fund funds) and on the person performing the work, as well as the

following information on geo-linked fires. Information on fire monitoring towers and the fire-fighting system is available, known which tower, when restored, as well as the performer.

Information on drought-related incidents is available. Available data on insured areas and animals, verified data.

Farmers shall submit data electronically in 99% cases. When authorized, the opportunity to sign up for an event (capturing functionality is provided). The application contains meta data (date, time and geolocation with coordinates).

Additional lines of action of the LAD:

- survey unkempt fields for municipalities;
- non-excise fuel for farmers and fishermen;
- seasonal farm workers for farmers;
- from the following year's natural gas records;
- information on animals and accommodation.

The LAD IS a national information system which aims to ensure the administration of EU funds for rural development of the European Agricultural Fund (EAFRD), the European Agricultural Guarantee Fund (EAGF) and the European Maritime and Fisheries Fund (EMFF) support measures. The LAD IS established under a series of EC Regulations, and its success is one of the main prerequisites for EU aid payments in agriculture, rural business, forestry, fisheries and other sectors.

The system has been implemented in a three-level architecture. Technologically, systems are based primarily on Oracle, Java, Ruby on Rails and Esri technologies. The IACS application works on Oracle AS using Oracle RDBMS linked to the site, using Oracle Discoverer/BI and a separate Oracle database for the data warehouse solution. The IACS application has been developed using a development framework adapted to BC4J.

The project implements the ESRI Technology-Based Geographical Data Preparation, Maintenance and Publishing Solution (Technology: ArcGIS Server, ArcSDE, ArcGIS Desktop ArcEditor, ArcGIS Mobile) and integrated with IACS and EPS. EPS is a public part of the system (e-service system) available to LAD customers for electronic submission of applications (both text and geographic data) and information exchange based on the Ruby on Rails development framework, ArcGis server and Oracle data.

AIX, Oracle, ArcGIS, RISC and Intel servers, IBM data storage facilities.

Each year, the LAD certification audit also checks the compliance of the LAD IS with standard ISO 27001. In 2014, LAD IS acquired by LVS ISO/IEC 27001: 2013 (certified

sphere of activity administration of the European Union and State aid measures). The certificate was extended in 2017 and 2020.

THE technology or technological solutions used BY THE LEC, which the Rural Support Service uses for data exchange:

- VTUA, VZD - SOAP data format XML;

- RESTful service with oauth2 authentication, data format for XML, LAPSEN < > FOX synchronization

- RESTful for reciprocal synchronisation with ZMKITR webserver, data format JSON;

- Customer Portfolio (Lursoft): SOAP, Data Format XML, JSON;

- E-Addresss (VRAA): VRAA DIV Library-Client (SOAP, data format XML);

- Treasury: SOAP, data format XML;

- SID Services: SOAP, data format XML;

- TMDWS Services: SOAP, data format XML;

- EPS Authentication (latvija.lv) - SOAP Service

- LDC - SOAP;

- DUS - SOAP.

Figure 5. LAD IS technical architecture
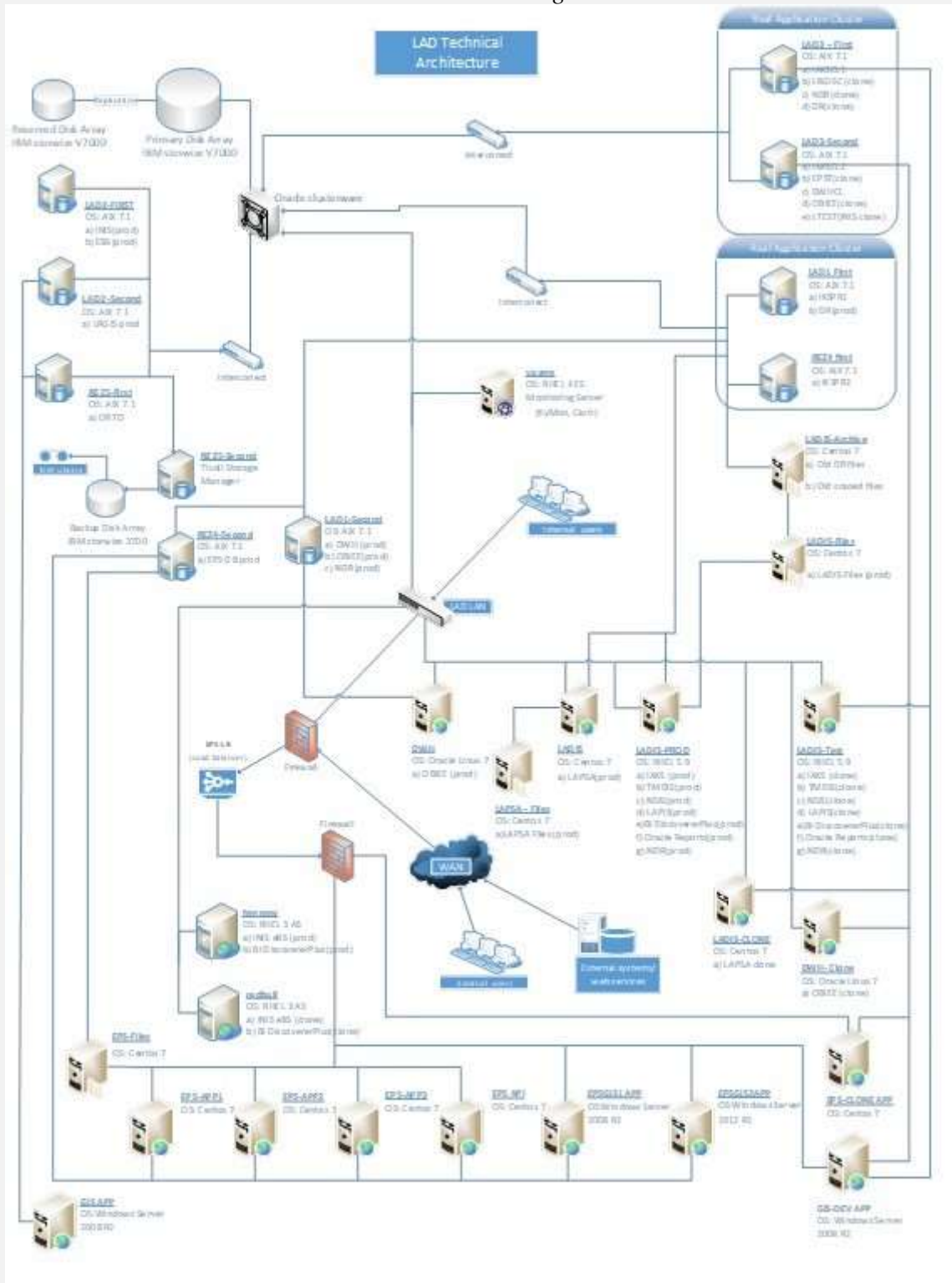
Rural register GIS

Maintain and update rural blocks containing spatial data on eligible agricultural land. All spatial information used in the Service (rural blocks, declared fields, controlled fields,

photographs with coordinate attachments, orthodox images, satellite images, VZD cadastre data, etc.) shall be maintained in the geodatabase of the rural register.

Modules and their functionality:

- the system is built on THE ESRI and Oracle technology base, is a multi-user environment with one central database;

- created a unique field block history storage system enabling the storage of rural block attributes and geographical history information (which block was created from which units were originally merged or divided, etc.). History information on rural blocks, their areas, the quantity of agri-environmental sites, etc. is used to administer LADIS aid payments;

- Internet card application, which enables all LAD employees to search for and view the geographic information of the organisation (including field blocks, cadastre information, orthophoto data, etc.). The geographical information of the rural register is also available to the public (see http://karte.lad.gov.lv/), providing information to all stakeholders on the spatial information used in the management of EU area support for rural blocks, grassland habitats, etc.;

- many additional tools for system administration, data entry, data display control, data quality control, etc.

- the system makes it possible to store large-size continuous screen images and to work with them by providing a rapid rate of data acquisition by creating raster pyramids;

- the common database provides storage facilities for screen images, vector data, data tables;

- the system shall ensure the storage of large-size data above 5 Gb (large-scale orthophoto images, satellite images) in the common database, as well as the storage of one type of data in a single data table;

- containing maps together with the description and coordinates of their coordinate system;

- Maintaining different data collections containing data of a specific type — vector data, 3D data, rastrus), each of which may differ with its own specific coordinate system, projection, as well as the breakdown of physical data into files, disks, databases.

Linking to other subsystems: APDAS, EPS, FKK, SAKS.

Linking to external systems: receiving data in the form of connections from the geographic information systems of the SSD, DAP and VMD. Data from THE FAMILY is received via FTP. Copies of all received data are maintained IN THE database.

OBI - a basic system data analysis tool that ensures that the data analysis does not use the resources of the basic system and that its stability is not affected. Software that allows you to define what and how to analyze and use data from all available information for retrospective and current analysis, as well as model potential development scenarios.

Linking to other subsystems: APDAS, SKO, NSIS, EPS, TMDIS, KLR, FOX, MISS; CPAM, NER, SAKS, VIEW/SCM, DIS (scheduled).

Linking to external systems: none.

MOB app for customers

An application for faster and easier communication between the service and its customers – the ability to view the calendar of key events, payments received, volume of non-excise diesel available, letters received from LAD, information on upcoming farm controls and their results, and to easily photograph the fields (geo-image), the results of investment projects carried out, and to send information to the service.

MOB lietotne inspekciju veikšanai

LAD Mobile Application for carrying out physical control of the Service with the ability to configure control issues for area applications and the ability to photograph control objects (including geo - Images), perform audio recordings.

The Rural Support Service shall use the Sentinel-2 satellite data to map the turf fires. The Sentinel-2 is one of the Copernicus satellite missions of the European Commission Earth exploration programme, which provides high-resolution (10 and 20 m) images free of charge to any lead in 13 spectrum bands, repeating the flight every five days.

For surface fire mapping, the Sentinel-2 L2A atmospheric-corrected data from which the Normalized Burning Index NBR = (B08-B12)/(B08 + B12) is calculated for the close-infrared (NIR) and short-wave infrared (SWIR) bands. To assess the damage of the fire, use the NBR difference for images before and after the fire. In theory, THE areas burned BY NBRBefore-NBRafter are > 0,1, and the higher the difference, the more devastating the fire has been. The areas burned are found by creating a mask with values ABOVE this threshold. According to experience, there are a lot of false signals at 0,1, so more accurate results can be obtained if THE threshold FOR "NBR" is determined by looking at known fire sites for which LAD uses acts received from VUGD.

Additional false signals are provided by cloud shadows and high soil humidity, melting snow. If the impact of the first could be reduced by using data with good cloud masks and their shadow masks, it is difficult to deal with the second, so currently mapping LAD's turf fires is a semi-automatic process. A turf fire mask with a 3-D resolution of 20 m is

obtained, which is transformed into landfills, but then the landfill, starting with the largest, is reviewed by the employee to make sure that there has actually been burning. For this purpose, it is helpful to present the Sentinel-2 scene using bands B12, B11 and B8A, where the areas burned are orange-brown, while an active fire stands out in bright yellow. Draw fire limits more accurately using an infrared image with a resolution of 10 m.

Figure 6. Active turf fire (Sentinel-2 bands 12, 11, 8A)
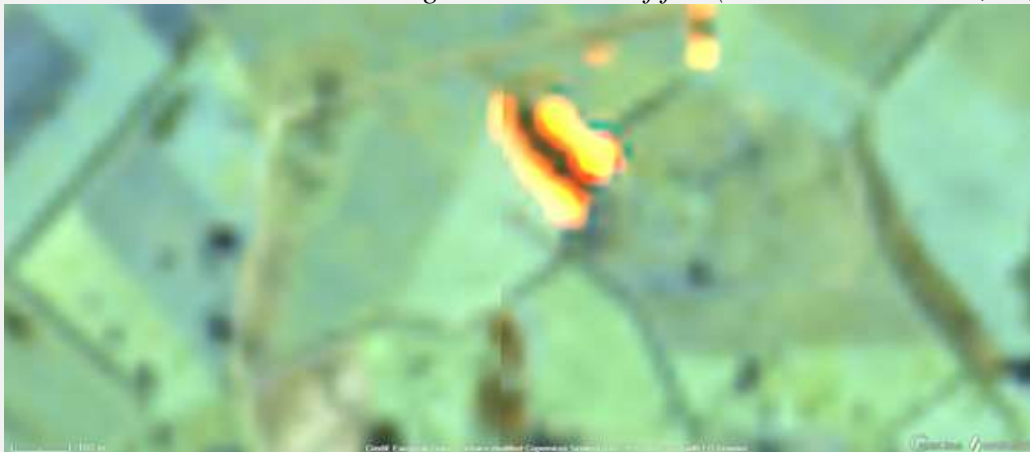
Figure 7. Active turf fire (Sentinel-2 bands 8, 4, 3)
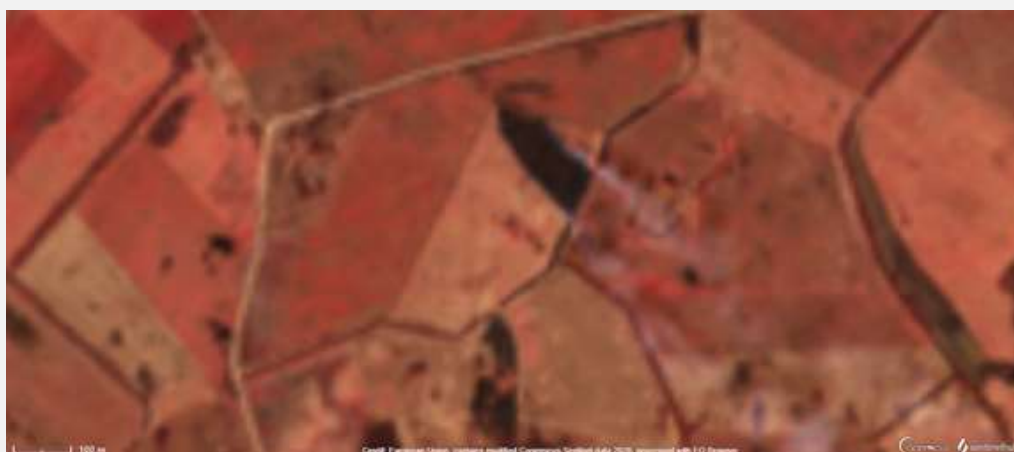
Statement of facts: The open data identified KaZa project required data sets "Beneficiaries of rural support services", where information on compensation for damage caused by nature and or preventive aid was available, but information available only on the recipient's given name, name or registration number and only if the amount of compensation was more than EUR 500.00; the last renewal date is also set at 22.10.2018. It is therefore necessary to develop integration with LAD IS by requiring data in the 1 xmoon, to be defined in the regulatory framework, the right to certain sets necessary for THE performance OF KaZa.

Advantages: Processed satellite data in connection with fires, floods are available. Satellites can collect a wide variety of data that is recognized by color. Satellite data processing algorithm used by LAD can recognize cultures.

2.1.7.4 Pārtikas un veterinārais dienests

Conclusion 1: PVD data are required for epizootic diseases (DK_B2). At present, the institution does not have a single information system for incident recording. The available data is partially structured.

Conclusion 2: Part of the required information is listed in. xlsx file format or reports in. docx file format**.**

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of at least the following data for the KaZa project:

• The location of the event (coordinates, name and address of the holding/establishment);

• Start date and time of the event;

• The date and time of the end of the event;

• Type of substance;

• Hazard level;

• the registration number of the affected herd;

• The owner of the affected herd (given name or name, personal identity number or registration number)

• the species of affected animals;

• number of animals affected;

• The number of animals to be killed;

• the affected area;

• Radius.

Identified :

The main objective of the work of food and veterinary services is safe and safe food for consumers, healthy and properly cared for animals. The State supervision and control of the food chain shall be planned, organised and coordinated by the Food Monitoring Department of the PVD. Veterinary State supervision and control shall be planned, organised and co-ordinated by the Veterinary Monitoring Department of the PVD.

The register of the PVD contains information about all participating in the trade (from a large producer to a small store) and the actual address (less in legal interest). Cases of poisoning - cases of non-compliance are recorded in the register (not structured). The PVD shall exchange data with the SPKC, which collects all data on human effects (e.g. poisoning).

Currently, the PVD accumulates data on all forest pigs investigated by African swine fever (ASF). Data on these incidents are available in reports. Serious cases (African swine fever or avian influenza) should be reported in the EU within 24 hours. Indicate the affected area (3 zones) according to the criteria of the BOM rules.

The results obtained by THE BIOR laboratory of the Scientific Institute for Food Safety, Animal Health and Environment are processed and stored in the GIS database (database holder - Latvian State forests of the VAS).

If problem inspectors are identified, it shall be recorded in the inspection report at the survey and the LDC database (protocols available from 2015-2016) shall be stored. In the future, it is intended to improve the business process and to complete the protocols electronically.

Statement of facts: The open data does not identify KaZa project needs data sets, so that integration with the GIS needs to be developed, requiring data in the 1 xmoon, to be determined by the regulatory framework, the rights to certain sets that are necessary for KaZa operation.

Advantages: In the future, it is intended to complete the business process and to complete the protocols electronically. Part of the accumulated data/slices is available on the PVD interactive map https://pvd.lvm.lv/.

2.1.7.5 VSIA "Zemkopības ministrijas nekustamie īpašumi"

Conclusion 1: THE cadastre data of ZMNI-amelioration shall be necessary to provide the system with information regarding the data related to the State-important water waste, other open water drainage structures (ditches), collectors, drainages, drainage network buildings, protective dams, polder pumping stations, catchment area boundaries and water waste projects.

Identified :

SMEM shall maintain data from a meliorative hydrometric item and an amelioration cadastre.

Meliorative hydrometric item - a fixed-fitted location where systematic observations and measurements of surface water objects and amelioration systems water regime are carried out. The location and equipment of hydrometric items shall be maintained in such a way as to ensure the continuity and reliability of the line of permanent hydrometric observations, the use of justified observations and measurement results in hydrological calculations in the construction and operation of amelioration systems, water holdings, hydrotechnical, transport and other structures, building standards and ensuring environmental protection. All data online is available from 2012.

Data of the amelioration cadastre:

• Historically historical (from the fifties of the last century);

• Based on the content of digitised historical technical documentation archives (notation plans, longitudinal profiles, etc.);

• Recent information – Materials for the commissioning of amelioration structures, inventory, distance survey data (orthophoto, LIDAR, etc.);

• Monitoring data for amelioration structures using mobile devices (smartphones) and mobile technologies;

• Hydrometric items: systematic observations and measurements of the water regime.

Preparation of the digital data of the amelioration cadastre:

• Microstination Geographics software was used at the beginning of the amelioration cadastre;

• Over time, skills and experience have been accumulated on the basis of high investment, experience-rich workers;

• There has been a switch to the software manufacturer'S ESRI software ArcGIS;

• Created a common amelioration cadastre database (ArcGIS SDE + Microsoft SQL Server);

ArcGIS software used:

• Database - ArcGIS SDE;

• for data editing – ArcMap, ArcGIS Pro;

• For the publication of data on the Internet - ArcGIS Server;

• Acquisition and visualization of mobile data – ArcGIS Online Maps, Collector for ArcGIS, Survey123, etc.

Statement of facts: Latvian amelioration cadastre information is publicly available in open data. Possible use of amelioration cadastre WMS service in other systems.

Advantages: EAMORATION Cadastre data is available in both the AS Latvian State Forests information system in the LVM GEO, LITHUANIAN card browser and the State Forest Service information system VMD GIS.

Drawbacks: amelioration cadastre data is not available on mobile devices using ArcGIS Explorer free software.

2.1.7.6   Valsts augu aizsardzības dienests

Conclusion 1: Data required for epifitotics (DK_B3) have been identified IN THE VAAD.

Conclusion 2: THE VAAD accumulated data related to epifitotics did not identify an indicator such as a touched area but information on the area under examination.

Conclusion 3: All received submissions and calculated data are stored in the form of paper and Excel tables for loss. VAAD has not developed a separate system for storing the loss estimates of harmful organisms. This option is also not integrated into THE VAAD KUVIS system.

Conclusion 4: It is necessary to provide for the new regulatory framework that will ensure the availability of the inspection act, test report data and loss estimates for the KaZa project if harmful organisms are identified.

Identified :

Organisms harmful to plants and plant products are animal or plant organisms, viruses, mycoplasms and other pathogens harmful to plants.

In Latvia and the European Union, harmful organisms posing a serious threat to plants and plant products are regulated in accordance with Commission Implementing Regulation (EU) 2019/2072 of 28 November 2019 laying down uniform conditions for the implementation of Regulation (EU) 2016/2031 of the European Parliament and of the Council on protective measures against organisms harmful to plants, repealing the Commission Regulation (EC) No 690/2008 and amending Commission Implementing Regulation (EU) 2018/2019.

Regulated organisms harmful to plants shall be classified:

• Union quarantine organisms: harmful organisms which are not present or present in restricted areas in the European Union and which are actively restricted and which may cause unacceptable economic, environmental or social impacts.

The spread of quarantine organisms is facilitated by the fact that they often have a wide range of host plants and do not have their natural enemies in the new area.

• Protected zone quarantine organisms - harmful organisms occurring in the European Union but not occurring in any of the Member States of the European Union or part thereof designated as a "protected zone" and the unacceptable economic, social or environmental impact of the presence of which would be expressed only in a given protected zone.

• non-carantinic organisms regulated by the Union, harmful organisms which affect the quality of planting material and are widely present in the European Union but are regulated in relation to the particular planting material.

VAAD information on organisms harmful to plants shall be stored in THE National Culture Monitoring Information System developed and maintained BY THE VAAD ("KUVIS"). KUVIS stocks data on all tests performed BY VAAD, including where plant harmful organisms are detected.

For part of the Union, host plants of quarantine organisms are very widespread in Latvia and, if they are detected, there may be significant losses to the state economy and the environment, for example, Xylella fastidiodsa has more than 300 host plants of different species, including leaf trees, while Bursaphelenchus xylophilus host plants are pines. it covers about half of the forest area and is dangerous for Latvia's forestry and economy.

In order to ensure rapid data exchange and efficient storage, several mobile applications have been developed BY THE VAAD for multiple monitoring and checks:

• monitoring in forests for the detection of quarantine organisms in the Union and the Protected Zone. A geographical attachment to the inspection site has been established for this application;

• monitoring of individual processes (e.g. inspections of producers of wood packaging material, inspection of nursery plants).

Data from the application is automatically synchronized with CUVIS.

Tests for which no mobile applications have been developed shall fill in paper-size statements, which shall include the details of the inspection performed, including the

inspection sites and the geographical mapping of the identified harmful organism (GPS coordinates). After performing the test, the basic data for the validation act is entered IN THE KUVIS.

KUVIS data is stored in the following information section:

- sample number,
- Test well No,
- Test Report No.,
- the number of the laboratory identification card,
- region/county of the inspected person,
- the inspected person, the branch,
- type of inspection act, type of inspection/sub-type,
- the plant species/variety to be tested,
- the quantity/area to be checked,
- VAAD inspector,
- year of harvest,
- group of organisms,
- name of the organism,
- a statement of detection,
- a check mark on the status of quarantine,
- a check mark where the body was identified (on-site/laboratory),
- notes the adoption of the decision.

KUVIS's data on the test is linked to records of testing results of THE harmful organism by THE National and Phytosanitary Laboratory testing the samples.

You can select the information separately according to the following KUVIS attribute data:

- Number (Act, Model, TPS or ID cards);
- Date;
- Region/county of the inspection site;
- VAAD inspector;
- Plan position;
- Type of act;
- Test type/sub-type;
- Grow botanical name, variety;
- Type of organism:

• Name of organism:

• Decision adopted;

• It has/has not been detected.

Entry OF a test act CUVIS if no mobile application is used:

• Test act number - automatic VAAD inspector No., AKA, year of administration, inspection No. in order;

• Test date – automatically or manually from the calendar;

• The test was performed automatically;

• Check site – selection of municipalities/parishes following the attached codification system;

• Person inspected – automatically from THE official register of VAAD Professional Operators. If it is not left blank;

• When participating, manually identify the person participating in the test. If there are no fields left blank;

• Regulatory framework: Manually after the attached codification in the system;

• Type of test act – manually marks the appropriate type of act, type/sub-type of test after the attached codification in the system;

• Botanical Name, AKD Variety - Automatic Search, Manual Input After Added Codifiator System;

• SKD Species, Variety — Manual input after attached to the codifier system;

• Category – manual input after attached to the codifier system;

• Price List Position - Manual input after attached to the codifier system;

• Field – Manual

• Origin - automatically Latvia/manually after the attached codification in the system;

• Area – Manually, unit of measure manually after the attached codification in the system;

• Quantity - Manually, unit of measure manually after the attached codification in the system;

• The year of harvest – manual;

• Notes - Manual, free text.

• Date of decision – automatically or manually from the calendar;

• Decision – Manual after the attached list;

• justification for the decision: manual, free text;

• Notes - Manual, free text.

Design of the sample, linking it to the inspection act:

• Test Act No - automatic;

• Test date - automatically;

• Products – automatically;

• Field – automatic;

• The person inspected – automatically;

• Origin - automatically;

• Manual marking for the detection of plant quarantine organisms (if no mobile application is used);

• Manual marking for the detection of (other) organisms;

• On-the-spot analysis – manual, mark;

• Sent to a laboratory - Manual, mark;

• Model No — Manual,

• Sample size – Manual, unit of measure manually after attached sarakis (if no mobile application is used);

• The area from which the sample has been sampled manually (if no mobile application has been used);

• The number of samples taken manually (if no mobile application is used);

• Sample type, manually following the attached list (if no mobile application is used);

• Sample Description – Manual, Free Text;

• location of removal – manual, free text;

• The organism to be tested, manually after the attached codification in the system;

• Remove date - automatically or manually from the calendar;

• Decision: manually after the attached codification in the system;

• Date of decision – automatically or manually from the calendar;

• Notes – manual, free text;

Drawing up an application for laboratory tests, linking it to the examination act:

• Sample type - manually after the attached codifier in the system;

• Model number – automatically;

• Customer - automatic

• Customer name, address, fax - automatically;

• Place of sampling (county) - automatic;

• description of plants, plant products – automatically, possibility to supplement;

• reference to the sampling plan and procedures, manually following the attached codification system;

• Country of origin, manually following the attached codification in the system;

• The exporting country, manually after being added to the codification system;

• Date and time of removal of the sample – automatic, possibility to change;

• Quantity of plants/plant products checked - automatically;

• Area checked – automatically;

• Sample size/quantity - automatically;

• Number of samples — Manual;

• Improving meteorological conditions (precipitation, temperature) – manual, free text;

• Pre-plants (last 2 years) — Manual, free text;

• Chemical treatment (date, chemical, dose) - manual, free text;

• Place of removal of the sample, manually after the codification in the system;

• Failure site – Manual

• The nature of the defect – manually;

• Deployment of damage — Manual

• Failure rate – Manual;

• Soil drainage — Manual;

• Soil type — Manual;

• Indicators to be identified, manually after the codification in the system;

• Test the sample manually after the codifier in the system;

• Sample removed – automatically;

• Date - automatic.

Work on digitisation of laboratory processes is ongoing. Upon receipt by the experts of THE VAAD laboratory, an identification card shall be prepared in the laboratory, which shall be entered in THE KUVIS system, linked to the inspection act:

• Sample Identification No – Manual;

• Date and time of receipt of the sample, manually;

• Sample description - automatically;

• Country of origin, automatically;

• The indicators to be identified have not been selected, test the sample manually by list;

• Type of organism — Manual by list;

• Test organism – Manually listed;

• Analysis methods — Manual by list;

• Result – Manual

• Date – automatically or manually;

• The tests were carried out manually after the list;

• Other specialists – Manual.

<u>Calculation and maintenance of loss of organisms harmful to plants</u>

In order to detect new quarantine organisms as soon as possible, Latvia shall implement each year a multi-annual programme of surveys of harmful organisms co-financed by the European Commission on the basis of Regulation (EU) No 652/2014 of the European Parliament and of the Council of 15 May 2014 laying down rules for the management of expenditure relating to food circulation, animal health health and animal welfare, plant health and plant reproductive material, and amending Council Directives 98/56/EC, 2000/29/EC and 2008/90/EC, (EC) No 178/2002, (EC) No 882/2004 and (EC) No 396/2005 of the European Parliament and of the Council, 2009/128/EC of the European Parliament and of the Council and Regulation (EC) No 1107/2009 of the European Parliament and of the Council, and repealing Council Decisions 66/399/EEC, 76/894/EEC and 2009/470/EC.

Under the above regulation, EU Member States may be granted grants for measures aimed at the destruction and limitation of organisms harmful to plants.

In Latvian legislation, the calculation of losses and compensation for damage caused by organisms harmful to plants is carried out only in the case of the detection of bacterial lights (Erwinia amylovora). Other losses caused by organisms harmful to plants are not calculated and compensated.

The losses caused by Erwinia amylovora are calculated in accordance with the provisions of Cabinet Regulation No. 178 of 24 February 2009, Procedures for Granting Compensation for the Enforcement of Phytosanitary Measures (hereinafter - BOM Regulation No 178).

<u>Statement of facts:</u> The open data does NOT identify KaZa data sets required FOR the project, thus it is necessary TO establish integration with THE KUVIS system, REQUIRING data in 1 xmoon, to be DETERMINED BY the regulatory framework,

the right to certain sets in relation to the epifitotics required by 1SAC. _12_ for operational purposes.

Drawbacks: At present, THE geographic mapping system FOR VAAD data has been developed for only part of the monitoring tests that are automatically synchronised with THE KUVIS system. THE VAAD has also planned to develop an application for other monitoring tests that would allow VAAD inspectors to complete the data on the verification carried out electronically and automatically link the verification to the geographical coordinates and send all the data to THE KUVIS.

Advantages: It is planned TO link the monitoring inspection act to the adopted decision on the application of phytosanitary measures, which has not yet been introduced in THE KUVIS system. This would provide a single platform where you can make good and find decisions on the application of phytosanitary measures.

2.1.7.7 Valsts tehniskā uzraudzības aģentūra

Conclusion 1: THE following data were identified during the study:

National register of tractor-type equipment and drivers who have access to information on registered tractor-type equipment that can be used to remove disasters. These data will be used to provide information related to tractor engineering data and their classification (AP_2.1).

Conclusion 2: The representatives of THE Ministry of Agriculture and the organizer of the VUGD have not participated in the meeting, nor have they responded to a request for information to be prepared and provided electronically, so it is currently not possible to establish the amount of data required by KaZa and the necessary technology for data exchange.

Conclusion 3: It is necessary to provide for a new regulatory framework that will provide KaZa for the project, where necessary, the following information relating to technical records of tractor equipment:

- registration number;
- type;
- stamp;
- model;
- hydraulics;
- technical data;
- equipment;

• Validity of the national roadworthiness test.

In relation to the owner, possessor, holder of the tractor-engineering:

• Status (owner, possessor, holder);

• given name, surname or name;

• the personal identity number assigned in the Republic of Latvia and the date of birth (for a person who has not been assigned the personal identity number - date of birth) or registration number;

• address or registered office of the declared place of residence.

2.1.7.8   AS "Latvijas valsts meži"

Conclusion 1: LVM data is required in relation to forest and peat marsh fires (DK_K5), in relation to the area under management of LVM, as well as to ensure the possibility of calculating actual losses for damage caused by natural disasters and for Objective C FOR THE provision of data under THE SENDAI Framework Programme.

Conclusion 2: The study identified LVM as one of the developers of the Geographical Information System (GIS), which can offer a system that meets the needs of KaZa to adapt and vary system capabilities to the LVM.

Conclusion 3: The actual loss of the LVM in relation to fires is not calculated, since the fire does not necessarily result in losses.

Conclusion 4: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa at least the following data sets:

• The date of the event (beginning and end);

• location of the event (coordinates, landfill);

• The causing of damage;

• Type of damage;

• Damage amounts (ha);

• The extent of the loss.

Identified :

The LVM GEO platform is based on a centralized database containing all the data used, tables, classifiers, etc. database objects needed to operate the system. Users can access the database using the LVM GEO web browser application, the LVM GEO Mobile application, as well as THE ESRI ArcGIS or any of the Open Source GIS

Desktop software (Desktop software is not part of the LVM GEO platform), but the work surface software is not part of the offer.

LVM GEO platforms consist of 4 modules:

The LVM GEO Web, an Internet browser module that allows you to view, search and correct the geospatial information layers or data tables at your company's disposal from the LVM GEO database. The map content section is the most important element of the module, and it is possible to select the data layers or background cards that you want to display, include a card window for working with cards, and table view for editing data. The application provides an opportunity to introduce different user access levels, so that businesses and organizations can both maintain a limited-access geospatial information application for organization purposes at the same time and share selected data sets for any lead.

Functionality:

- viewing and searching geospatial data;
- connecting and unlocking layers;
- creating prints;
- viewing map legends;
- measuring the card,
- performance of tick marks;
- Convert coordinates
- creating bookmarks.

An application for LVM GEO Mobile - Android, iOS and Windows10 operating systems that enables you to navigate naturally through GPS receivers, to connect layers of corporate or organizational access, and to receive job assignments and related geospatial information. The app is based on a pre-prepared cartographic material that can be used both online and download data for offline use. The application supports the receipt of job tasks and related geospatial information sent from the LVM GEO Web browser module, including data needed for land management purposes. Cartographic material, data sets to be sent, and job tasks are tailored to the needs of the company.

Functionality:

- Different online background cards
- downloading the LVM forest card for offline use (on different scales);
- Connecting multiple layers of data (including authorised access card services);

• identifying and following the location;

• locating a location by coordinate in several coordinate systems;

• Copying and sharing coordinates with location;

• Open a location sent by another user on the card;

• opening and reviewing KMZ, KML and GPX files on a map;

• Routing to any location on the map or specific item, job job assignment;

• Identifying objects on the map;

• search of map objects (LVM data, VZD cadastre data, DAP environmental protection sites, LAD field blocks, ZMNI amelioration cadastre objects, forest owner data and enterprise authorised access data);

• Receiving geospatial tasks (e.g. soil preparation, transport work, etc.);

• the addition of geospatial data parcels;

• Add and use automated access card services (such as layers of business) and offline;

• Transport service providers have access to the possibility of opening a cartographic transport task.

LVM GEO Database - contains around 500 layers of data (part of the available data layers of LVM GEO is shown in Annex 1), tables, classifiers, etc. database elements required for normal operation of the system.

LVM GEO Desktop, a digital mapping program that provides data visualization, analysis and integration, data entry and editing, and provides opportunities for creating, editing, searching, mapping, analyzing and publishing geographic information.

LVM GEO system registers:

Incident Register - receive information regarding fires from the VMD (State Forest Service maintains data on all fires (including private forests)) the day following the destruction of the fire (site or landfill, start time and time of liquidation, species composition). Records the damage in the layer (it is possible to see how many and what trees suffered (section)). Information is available only on the territory of LVM.

National road network database (all LV territory, actual data) – continuously bills time from one customer to the next. For each stage, the travel time has been calculated. Width, height, departure time. The "Junior City" card publishing agency is the only institution with a full road network card, but the information is out of date after its publication;

Forest infringement register (by type of infringement) - registered on the card and attached a protocol (registered and integrated with the VIS in the DVSa (its own system).

Statement of facts: KaZa project required data sets in open data:

   • geospatial data of the forest infrastructure of "Latvian State Forests". AS "Latvian State Forests" (LVM) layers of forest roads, large pipelines and bridges, planned forest paths, turning areas, passageways, road equipment, changing points, shp, moats, moats, amelioration systems and renewable amelioration facilities (SHP, DOCX).

   • data of the territorial division of "Latvian State Forests". A "Latvian State Forests" (LVM) dataset of enterprise territorial division units with data on LVM regions and forest compartments (SHP, DOCX).

   • geospatial data of forestry of "Latvian State Forests". The dataset contains layers of geospatial data of AS "Latvian State Forests" (LVM) with relevant data for forestry and forest fire protection, such as: forest trails, mineralised lanes, water-taking sites and fixed forest fires during the period since March 2007 (SHP, DOCX).

   • geospatial data of forest land owners' land units. The layers of geospatial data of land units contain information regarding the ownership, possession or use of several forest lands — Sodra group, Latvijas Finieris mežSIA, the Cadastre units owned, held by AS "Latvian State Forests" (SHP, DOCX).

   • geospatial data of forest lands. Section geospatial data layers contain information regarding the owner OF SEVERAL forest lands - Sodra group, SIA Latvijas Finieris mež, AS Latvijas Valsts mež, SIA Kursa MRU, MOFO forest properties in property, Forest Research Station, MPKS Mesters, SIA Greyton, SIA Laskana mež, SUSAB, SIA Stiga MR, SIA SUNDS. forest plots (SHP, DOCX) in the possession and use of Rostes.

   • geospatial data of forest lands. Several forest owners offer each lead a download of the geospatial data layer of their forest blocks. The forest block is an economic activity unit (SHP, DOCX) delineated with trails or natural borders.

   • geospatial data of the High Lines. AS "Latvian State Forests" offers a layer of free-access high-line vector data in the format of *. shp (SHP, DOCX).

Integration with LVM GEO needs to be developed by requiring data in 1 xmoon, to be defined in the regulatory framework, rights to certain sets of fires required to operate KaZa.

Advantages: LVM GEO customers are provided with facilities or to set up a platform on the customer's available IT infrastructure and to provide the necessary infrastructure maintenance work with their own resources, or to choose the infrastructure provided by LVM with a full range of services, not just system maintenance.

2.1.8 Latvijas Apdrošinātāju asociācija

Conclusion 1: LAA netika identificēti KaZa projektam nepieciešami dati.

Identified:

The LAA does not have structured data on the losses of insurance companies that could be useful in creating a disaster database.

There is only one common data system in Latvia (OCTA). All information on losses of insurers shall be collected through third parties. All the information available to the LAA related to the loss has been published at home in the form of reports (https://www.laa.lv/tirgus-data/). The reports include common injury data, both floods, fires, both sites and households.

There are currently no laws allowing more extensive data collection, nor does KP allow data to be collected for all insurance companies.

The LAA shall, at the request of the national authority, produce specific reports of past periods.

It is necessary to create legislation allowing the collection of total information on losses and to allow insurers to share their data.

In the event that the LAA will be obliged to build a total insurance companies' loss database, it will be formed using the LTAB infrastructure.

2.1.8.1 Assessment of the availability of data from insurance companies

The electronic survey was sent to 8 insurance companies. Answers to the survey were provided by: WHITE AAS, Baltic Insurance Nama AAS, ERGO Insurance SE and Swedbank P & C Insurance AS Latvian branch of Latvia. If P & C Insurance AS Latvian Branch, BTA Baltic Insurance Company AAS, Compensa Vienna Insurance Group ADB Latvian Branch and ADB "Gjensidige" Latvian Branch have not replied.

Chart 1. Risks to be insured

🔵 Zemestrīces	4
🟠 Zemes nogruvumi	3
🟢 Plūdi	4
🔴 Lietusgāzes	3
🟣 Sniega sanesumi	2
🟤 Vētras, viesuļi	4
🩷 Pērkona negaiss	4
⚫ Karstums	2
🟡 Stiprs sals	4
🔵 Sausums	2
🔵 Mežu un kūdras purvu uguns...	2
🟠 Epidēmijas, epizootijas, epifito...	2
🟢 Sabiedriskās nekārtības, terora...	3
🔴 Tehnogēnās katastrofas	2
🟣 Dzelzceļa transporta avārijas v...	2
🟤 Autotransporta transporta avā...	4
🩷 Aviācijas transporta avārijas va...	2
⚫ Other	2
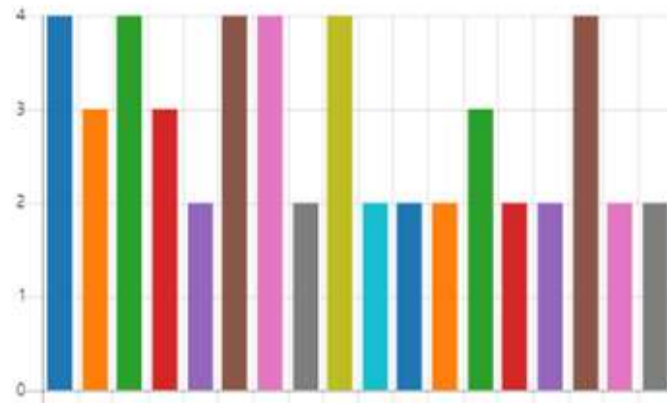
Chart 2. Data accrual period

🔵 2 gadu periodu	0
🟠 5 gadu periodu	1
🟢 10 gadu periodu	1
🔴 Other	2

Chart 3. The registration of incidents is subject to geographical mapping by one of the four companies

🔵 Jā, izmantojam strukturētu adr...	1
🟠 Jā, izmantojam koordinātes un...	0
🟢 Nē, neizmantojam ģeogrāfisk...	3

Chart 4. How quickly losses are calculated when an insurance event occurs

🔵 1 nedēļas laikā pēc pieteikum...	0
🟠 2 nedēļu laikā pēc pieteikuma ...	1
🟢 1 mēneša laikā pēc pieteikum...	0
🔴 Other	3
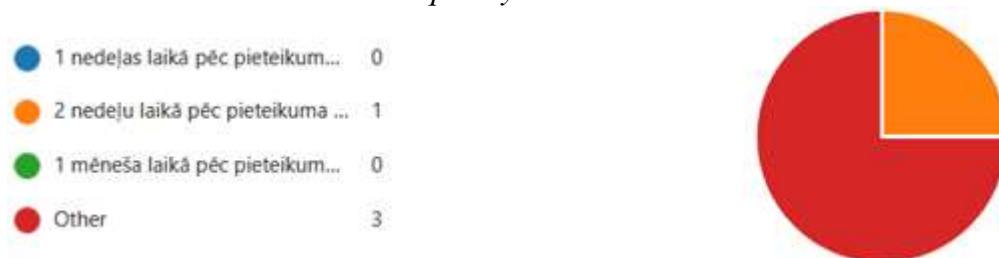
Chart 5. Data exchange technologies

🔵 Datnes	2
🟠 Teksta datu tīmekļa pakalpes	0
🟢 Ģeotelpisko datu tīmekļa paka...	1
🔴 Datu bāzu tiešslēgumi (teksta ...	1
🟣 Other	2

2.1.8.2 AAS "BALTA"

AAS WHITE accounts for around 30% of the total insurance market volume and the data in the existing system is accumulated from 2005;

Volumes AAS WHITE started to insure only a year ago, the specialists informed that the BTA could provide more information on this type of insurance, since this type of insurance is covered for a longer period;

Specialists inform that 65% of individuals do not carry out property insurance, while a higher insured amount is drawn up by legal entities, as insurance is one of the basic rules in cooperation with banks.

During the study, it was identified that the insurance undertaking insured the following risks:

- earthquakes;
- Floods;
- Falls;
- storms, tornadoes;
- Epidemias, Epizootics, Epifitotics, infestations;
- public riots, terror attacks and internal unrest;
- landslides;
- thunderstorm;
- Strong Island;

- Droughts
- Road transport accidents or accidents.

Insurance cases have been recorded in the information system since 2007. When registering an insurance policy or an insurance case in the information system, the classifier of the addresses of the State Land Service shall be used.

The information system uses the same form of an insurance policy for all insurance risks, in which information related to an insurance case is recorded.

The policy input form contains the basic data described below:

In relation to the policy:

- the duration of the policy;
- Type of insured person (classification: legal/physical);
- policyholder (given name, surname/company name, personal code/registration code);
- Insurance facility (classifier: building/property);
- The address of the insurance facility (VZD address classifier).

In the case of insurance:

- The incident address (same as the address of the Insurance Object);
- The occurrence date;
- The date of registration of the incident;
- Description of the incident;
- the cause (classifier);
- sub-assembly (classifier: storms, floods, etc.);
- The victim's facility (building/property);
- Insurance reimbursements paid.

Data exchange options:

- Files
- Geospatial Data Web Services (SOAP, XML)

When you register an incident in the system according to the internal classifier, a standard reserve is added to the loss. The amount of the loss shall be specified after visiting the site of the expert event. In standard cases, the amount of the loss is determined after a week, in flood cases this period is longer.

Losses on buildings and property are calculated separately (in addition, damaged fixed assets are paid to legal persons, for natural persons the property of the population).

AAS WHITE transfers data ELTAB (related to OCTA and KASKO insurance) and some solutions have been created with Latvenergo, TELE2 and other customers.

Representatives of the insurance undertaking stressed that they were prepared to share the data, provided that it is regulated by the regulatory framework for all market participants, in compliance with the REQUIREMENTS OF THE GDPR. Otherwise, if the insurance company's data is available to other market participants who don't share the data themselves, they aren't prepared to share.

AAS WHITE interest data for project KaZa:

Data on losses caused by natural disasters, their geographical location would help to assess risk and adapt insurance conditions depending on the location of the insured facility.

By comparing the amount of the insured losses and the total amount of losses, it is possible to determine what part of the loss is not insured and to take measures to encourage better protection of citizens, entrepreneurs, against losses caused by natural disasters.

Unrelated to the disaster register - provided that a register containing information on flue survey and cleaning performed, electrical resistance measurement, etc. was provided. Meeting the requirements of the fire safety rules of the BOM, this would make it easier to control compliance with these requirements, inform customers, and facilitate compliance with the requirements of the Fire Safety Regulations by means of insurance conditions.

Identified:

It is necessary to provide for a new regulatory framework that will ensure at least the availability of basic insurance policy data for the KaZa project.

2.1.8.3 AAS "Swedbank P&C Insurance AS Latvijas filiāle"

During the study, it was identified that the insurance undertaking insured the following risks:

- earthquakes;
- landslides;

- Floods;

- Falls;

- Snow sands;

- storms, tornadoes;

- thunderstorm;

- Hot heat

- Strong Island;

- Droughts

- Tehnogenic disasters;

- public riots, terror attacks and internal unrest;

- accidents or accidents in road transport;

- Forest and peat bog fires;

- Air transport accidents or accidents;

- Railway accidents or accidents.

The accounting of insurance cases shall take place in the information system for approximately 10 years.

The following data is accumulated in connection with incidents:

- Insurance facility (classifier: building/property/area);

- the address of the insurance facility (manually);

- Constructural material;

- The date and time of the incident;

- the cause (classifier);

- The victim's facility (building/property/area);

- The year of construction/reconstruction of the victim site (building/apartment);

- Insurance reimbursements paid (losses).

Data exchange options:

- Files.

The amount of losses is calculated on the basis of the calculation of the value of renovation for buildings/apartments, repair or replacement property and available within approximately 2 weeks of receipt of the application.

The representatives of the insurance undertaking stressed that they were prepared to share the data (period/time, affected sites/address, timed risk, monetary damages), provided that it is regulated by the regulatory framework for all market participants,

in compliance with the REQUIREMENTS OF THE GDPR. The conditions should be agreed separately.

Data of interest to AAS Swedbank P & C Insurance AS Latvian branch in relation to project KaZa:

- /app of flood-prone areas.

- Incident statistics (e.g. fires, floods, etc.) linked to types of site (size of buildings/structures, material, age).

Identified:

It is necessary to provide for the new regulatory framework that will ensure at least the availability of basic data for insurance incidents for the KaZa project.

2.1.8.4 AAS "Baltijas Apdrošināšanas Nams"

During the study, it was identified that the insurance undertaking insured the following risks:

- Floods;
- earthquakes;
- storms, tornadoes;
- thunderstorm;
- Strong Island;
- accidents or accidents in road transport;
- Fire.

The accounting of insurance cases shall take place in the information system from 2014.

Injury cases are recorded in connection with incidents and the following data is collected:

- The victim object;
- Object Address (Manual)
- The occurrence date;
- Insurance risk;
- cause/drop
- Insurance reimbursements paid.

Data exchange options: Direct database closures (text data, ESRI).

Given that there are different types of losses, each has its own methodologies. Losses shall be calculated by certified experts, builders or persons with appropriate experience and qualifications. The amount of the remuneration shall be determined on the basis of the amount of the loss, from day to month.

Representatives of the insurance company have not indicated or are prepared to share the data.

Data of interest to AAS "Baltic Insurance Nama" in relation to project KaZa:

Detailed statistics and regional data on fires, natural disasters and other events; causes and others that can be taken into account at risk.

Identified:

It is necessary to provide for the new regulatory framework that will ensure at least the availability of basic data for insurance incidents for the KaZa project.

2.1.8.5 ERGO Insurance SE Latvijas filiāle

During the study, it was identified that the insurance undertaking insured the following risks:

- earthquakes;
- Floods;
- Snow sands;
- storms, tornadoes;
- thunderstorm;
- Strong Island;
- landslides;
- Falls;
- Hot heat
- Forest and peat bog fires;
- Epidemias, Epizootics, Epifitotics, infestations;
- public riots, terror attacks and internal unrest;
- Tehnogenic disasters;
- Railway accidents or accidents;
- accidents or accidents in road transport;
- Air transport accidents or accidents;

Fire, explosion, hail, break of the pier/dam.

The accounting of insurance cases shall take place in the information system for approximately 5 years. All cases are recorded in a single system that includes data to determine whether an insurance event has occurred in order to determine the amount of the loss and the recipient of the reimbursement.

The following data is accumulated in connection with incidents:

   • The victim's facility (building, apartment, t/l mark/model, farm animal identification number);

   • address of the site (in an unclassified form or GPS coordinates);

   • The occurrence date;

   • Insurance risk;

   • cause/drop

   • Insurance reimbursements paid.

Data Exchange Opportunities: SOAP/REST web services.

The methods of damages vary. The most commonly applied method is the actual amount of the loss minus the self-risk and other conditions mentioned in the contract. The amount of the remuneration shall be determined within two weeks of receipt of all the necessary documents.

Representatives of the insurance company stressed that they were prepared to share data in compliance with data security issues under the regulatory framework. At the moment, you cannot say the conditions under which you are prepared to share the data, and I would certainly like to use this database in the future.

Data of interest of ERGO Insurance SE Latvian branch in relation to project KaZa:

A map of Latvia (mapings) would be desirable, which would mark places where specific accidents are more frequent. This will allow for a precise localisation where there is a higher probability of loss in the future. The benefits of a more accurate assessment of risks. Benefits for society: better awareness of potential threats.

Identified:

It is necessary to provide for a new regulatory framework that will ensure at least the availability of basic data for insurance incidents for the KaZa project.

2.1.8.6   AAS "BTA Baltic Insurance Company"

AAS "BTA Baltic Insurance Company" offers 18 different types of insurance. Each of the products defines the risks of the insurer - the causes and their limits when the risks arise.

Insurance facilities for legal persons:

- OCTA;
- KASKO;
- Health insurance (visiting doctors, accident data, defined costs);
- accident insurance;
- travel, business travel and travel insurance;
- Commercial property insurance;
- General civil liability insurance;
- Civil liability insurance for the owner of an unmanned aircraft.

Insurance facilities for individuals:

- OCTA;
- KASKO;
- Velopolis;
- accident insurance;
- Travel insurance;
- Housing insurance;
- Civil liability insurance for the owner of an unmanned aircraft.

The BTA information system registers a policy with insurer risks, client data and the data of the insured object. Each case is registered separately, but there are opportunities to link under one unique identifier, multiple applications if there is one major incident.

Each individual case has a cause that is recorded in the system to then consider whether the cause is consistent with the policy.

Changes to system classifiers are not more frequent than every five years. In case of changes, the previous value is immediately attached to the new classifier value.

The BTA system keeps the case for 10 years, currently available for the last 6-7 years.

In each case, the following data is accumulated (a large part of the system's data fields are not filled in at all):

- Customer details (company name/name, surname, legal/declared address, etc.);

• Insured object - Type of installation - Buildings - materials - roof covering and so on In the case of crop insurance, the crop, the area, the list of insured fields;

• the address of the insurance facility (except OCTA, KASKO - owner address (manual, unstructured address in case of a road accident) or field insurance - in an excel document or in a scanned form a list of the insured field blocks) according to the classification of the Land Service (no online connection, no geologation attachment);

• Type of action - NASE catalog;

• The amount of losses paid (no data on actual losses);

• Accident - Free text data on the event, address.

Agro Insurance:

• BTA experts (agronomists) are travelling in person to determine the extent of the damage;

• Before insurance, a field is surveyed: drone images and a viewing protocol (scanned, added to the protocol).

• Information to insurers on fallen animals shall be provided by the farmer himself (data from LAD).

• No structured data is accrued for volume insurance.

Data exchange:

• The only data exchange BTA is with the Latvian bank (guarantee register) – data on the person/company and the amount of the guarantee (ftp server);

• LAD does not require data from BTA, the policy is submitted by the farmers themselves.

BTA ready to explore the possibility of making IT changes and entering data related to an address or field structured, provided that data from the ZM online address classifier is available free of charge.

Identified:

It is necessary to provide for a new regulatory framework that will ensure at least the availability of basic data for insurance incidents for the KaZa project.

2.1.8.7 Latvian Vehicle Insurers Office

Conclusion 1: LTAB data is needed to provide data for events related to road transport accidents (DK_TN2), as well as to ensure the possibility of carrying out actual injury accounts.

Conclusion 2: The LTAB data processing system shall maintain, in a structured way, data on all OCTA policies and all registered CSNg, resulting in someone seeking reimbursement.

Conclusion 3: It is necessary to provide for the new regulatory framework that will provide KaZa for the OCTA project basic policy data and registered basic CSNg information, including the availability of loss data.

Identified :

The following data are available in relation to the OCTA policy:

- insurance contract number;

- date and time of conclusion of the insurance contract;

- date and time of entry into force of the insurance contract;

- the date of expiry of the insurance contract;

- countries in which the insurance contract operates;

- registration number of the vehicle at the time of the conclusion of the insurance contract;

- the chassis/bodywork number of the vehicle;

- make and model of the vehicle;

- the name of the vehicle owner;

- the identity number/registration number of the vehicle owner;

- address of the vehicle owner;

- the name of the vehicle holder;

- the identity number/registration number of the vehicle holder;

- address of the vehicle holder insurer.

The following data are available in relation to CSNg:

- basic CSNg data;

- an application for damages;

- information on decisions taken;

- payment information;

- information on liability breakdowns;

• files with scanned materials or photos/videos.

In the LTAB data processing system, data on registered CSNg is linked to the GPS coordinates followed by the closest address (mail address not VZD address).

For data exchange, with the LTAB data processing system, SW methods are available in XML format using the SOAP protocol.

Statement of facts: The open data does not identify KaZa project needs data sets, so that integration with the LTAB data processing system should be developed, requiring data 1 xmoon, to be defined in the regulatory framework, the right to certain sets that are necessary for KaZa operation.

2.1.9 Jelgava Municipal Operational Information Centre

Conclusion 1: JPOIC identified data related to flows, various events and damage caused by natural disasters to infrastructure.

Conclusion 2: Identified problems with structured loss accounting (in the event of the actual loss level).

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa at least the following data sets:

- location of the event (address, coordinates, landfill);
- Date of event (beginning, end);
- The type of event;
- the number of affected population (personal data);
- The number of people killed (personal data);
- damaged buildings (cadastre number);
- destroyed buildings (cadastre number);
- The infrastructure destroyed (active ID);
- Failure of infrastructure (active ID);
- the affected area;
- Participating resources (institution, resources);
- Amount of losses (estimate).

Identified :

Currently, the city of Jelgava installs 125 cameras and sets up a network of smart sensors that provides for the acquisition of transport traffic data for optimising

transport time, obtaining and analyzing current information from meteorological stations and pumping plants.

Instead OF JPOIC, which feeds all the information relating to the various incidents in Jelgava municipality. All information through different incoming channels (call, e-mail, website, sms) goes to the dispatcher and is processed (directed to the responsible person or authority concerned). An event card with semi-structured background information is created for each event. All events are recorded in the incident log and later, PowerBI can use data for different types of reports.

THE JPOIC website displays an interactive web map of the GIS, which contains information on current events and incidents, road traffic restrictions and a flood map of risks.

Figure 8. Circulation of smart information by Jelgava Municipal Operational Information Centre

2.1.10 State Land Service

Conclusion 1: VZD data is required to provide KaZa system with information on the classification, management form and other required characteristics of buildings and land (AP_1.1).

Conclusion 2: At present, the SSD has not provided an answer on the available data and ways of integrating it, as well as on the conditions for data use..

Conclusion 3: It is necessary to provide for a new regulatory framework that will ensure the availability of KaZa at least the following data sets:

In relation to buildings:

- an active identifier;
- the name of the asset;
- a description of the asset;
- asset value;
- active coordinates and address;
- active classification;
- number of active floors;
- active construction material;
- the year of construction of the asset;
- active status - populated or uninhabited;
- another territorial breakdown;
- the owner (given name, surname or name, personal identity number or registration number);
- Form of management or ownership (e.g. private, municipal, national, NGO, religious organisation).

In the case of parcels:

- an active identifier;
- the name of the asset;
- a description of the asset;
- asset value;
- active coordinates;
- active classification (e.g. use mode and other);
- another territorial breakdown;
- the owner (given name, surname or name, personal identity number or registration number);
- Form of management or ownership (e.g. private, municipal, national, NGO, religious organisation).
- cultural and historical identification of the asset.

Identified :

Information systems of the State Land Service:

• National real estate cadastre IS (beginning of data collection 1993) - register and update data on real estate, land units, buildings, groups of premises, parts of units of land and data describing it, as well as on owners, legal holders, users and tenants. Data available in the system, both geospatial and text data. Technologies used - Oracle database, Oracle special - modified geospatial data. Most commonly used in the system for data exchange – municipalities, LVM and others. You can receive information from the system about floorboards, inventory plans, room group plans, but you do not have detailed information by official secrets.

• The national address register IS (the beginning of the data collection is 1999-2000 g) - records and updates data on address sites (with details up to the group of premises) and administrative areas. The addresses of groups of rooms are also provided, but addresses are not assigned to all groups of building spaces, and work is still ongoing. There is a link to the cadastre register. Data available in the system - both geospatial (to the house, no apartment placement, no street) and text data. Oracle database (stable system, two, small structural changes over 20 years). Freely available for data exchange.

• Impaired areas ARE (beginning of data collection in 2016) – recording and updating data on encumbered areas and their borders, as well as on objects (natural formations, constructions or other artificial formations for which the protection zone is established by law) which may cause a technogenic disaster. Data available in the system - both geospatial data (GIS ESRI ArGIS, Oracle database) and attribute information, but no input data. Plans to make the data public. The data exchange is currently available for a very narrow circle.

• A central database of high-detailed topographic information (TOPO 500 data) compiles high-detail topographic information in the form of files. Data available in the system - geospatial data. No classical GIS data (possibility of getting coordinates), draws cards. Data exchange - Distribution network, Latvenergo. Once a week, municipalities transfer the data and publish them on their portal. The ArcGIS portal is programmed specifically.

Data exchange options for the SSD:

• files;

• text data web services (e-service);

• geospatial data web services (SOAP, XML);

• direct database closures (text data, ESRI);

• VZD Data Publishing and e-Services Portal (kadastrs.lv).

Amount of data to be transferred free of charge to the Authority for the performance of the functions and tasks specified in the external regulatory enactments:

1. Text data of the cadastre information system:

1.1. the standardised blocks of Cadastre information with the web service.

More detailed information is available on the website www.vzd.gov.lv → Services → Information services → web services → Cadastre information blocks web service. On the other hand, information on the composition of the information blocks of the Cadastre information system and the data of the Cadastre information system included therein is available on the www.vzd.gov.lv → For us → Scope → Cadastre Information System → The composition of the Cadastre information blocks.

1.2. the text data of the State Real Estate Cadastre Information System for State and Local Government authorities located in the https://viss.gov.lv/ portal of the State Information System integrator, which the VUGD already uses in accordance with the determinations of the Interreoral Agreement of 22 December 2017.

2. Spatial data of the cadastre information system (cadastre card):

2.1. with WFS web services.

More detailed information is available on the website www.vzd.gov.lv → Services → Information services → Web services → Cadastre Card WFS Service (a description of the layers is available in https://vzd.gov.lv/files/datu_apjoms-2.pdf).

2.2. with Arc Spatial Data Exchange replication (ensuring data copying).

More detailed information is available on the website www.vzd.gov.lv → Services → Information services → Other services → Receiving Cadastre spatial data using Arc Spatial Data Exchange replication. Specification in the "NIVKIS_ArcSpatialDataExchange_replikacija" file;

2.3. with WMS web services.

More detailed information is available on the website www.vzd.gov.lv → Services → Information service → web services → Cadastre card and administrative boundary data WMS service.

2.4. IN THE DGN file format, which is placed on the Service FTP server. According to Sub-paragraph 34.2.3. of the Cabinet Regulations of 24 July 2018, a solution for the receipt of such data may be used if the Cadastre information

system data cannot be obtained with the data issuance solutions specified in Sub-paragraphs 34.2.1. and 34.2.2. i.e. the above-mentioned data issuance solutions 2.2 to 2.3. Specification in the "NIVKIS_DGN" file.

3. National address register text details:

3.1. with a CSV file format on an FTP server, specification in the "VARIS_CSV" file.

3.2. with the "GetAddressObjectData" web service in XML format; (see page VARIS_WS_info_materials file)

Similarly, the text data of the State Address Register shall be available in the "Addressing Control" component of the State Information Systems integrator under the responsibility of the State Regional Development Agency, which ensures the search of addresses and the presentation of results in your information system. More detailed information is available in https://viss.gov.lv/lv/Informacijai/koplietosanas-services (No 10).

4. National address register spatial data:

4.1. with the WMS web service - the data of the State address register and administrative borders.

More detailed information is available on the website www.vzd.gov.lv → Services → Information service → web services → National address register and administrative boundary data WMS service.

4.2. with ArcGIS Service - the data of the State address register and administrative borders.

More detailed information is available on the website www.vzd.gov.lv → Services → Information service → web services → Address register and administrative borders ArcGis Server service.

4.3. with THE WFS web service - Administrative boundary data for the whole territory of the Republic of Latvia.

More detailed information is available on the website www.vzd.gov.lv → Services → Information services → Webservices → Administrative Borders WFS Service.

4.4. with Arc Spatial Data Exchange replication (data copying shall be ensured). Specification in the VARIS_ArcSpatialDataExchange file.

The WMS service of the central database of high-detailed topographic information shall be available only for the fee, applying Section 30 of the Annex to Cabinet

Regulation No. 787 of 22 December 2015, "List of State Land Service Fee Services and Payment Procedures".

More detailed information is available on the website www.vzd.gov.lv → Services → Information service → High detailed topographic information → Website services → High detailed topography information WMS service.

As regards the receipt of information on sites and encumbering areas from the Improved Areas Information System, the NCD informs that work is currently underway on data-issuing solutions, including the introduction of e-services in the product environment, to ensure that information is issued from the Improved Areas Information System. It is planned that data collection solutions for sites and bottlenecks registered in the Troubled Areas Information System will be available at the earliest by the end of 2020.

In order to obtain the data maintained by the SSD, the Authority should specify the purpose and the regulatory justification for the use of the data, as well as the way in which the Authority has the electoral data to be obtained. In addition, it is explained that, depending on the purpose for which the data is intended to be used, the SMD lays down the conditions for the use of the data:

1. the end user shall be authorised to use the data only for his or her own purposes without the right to use it for the supply of services or to transfer it to a third party;

2. The service provider shall be authorised to use the data for its own purposes and to include it in the services provided, but without the right to transfer the dataset to a third party.

On the other hand, the data use permit is issued by the VZD:

1. in the form of a license (if you want to receive the data once);

2. by entering into a contract or interdepartmental agreement (if you want to receive the data regularly or if you need to lay down specific rules for access to data, payment terms or cooperation arrangements).

Statement of facts: The open data does not identify KaZa project needs data sets, so that integration with VZD information systems needs to be developed, requiring data 1 xmoon, to be defined in the regulatory framework, the right to certain sets required TO operate KaZa.

2.1.11 Treasury

Identified

The study identified at the time that Ministries and other central government institutions, including local governments, provide the Treasury with consolidated monthly, quarterly and annual accounts, codifying their expenditure in accordance with the provisions of BOM 1031 on the classification of budget expenditure according to economic categories.

It was currently concluded that:

• Code 6254 lists: Social assistance benefits paid out from local government budget funds in cash, which are granted without assessing the income of a person, if it is in a situation where the family (person) is unable to meet basic needs due to a disaster or other circumstances independent of family (person).

• Code 6323 lists: Social assistance benefits in kind granted from the resources of the local government budget, which are granted without assessing the income of the person, if it is in a situation where the family (person) is unable to meet basic needs due to a disaster or other circumstances independent from the family (person).

The GFRS could therefore be presented with additional disaster injury data.

Statement of facts: The open data does not identify KaZa project needs datasets, so that integration with the Treasury's information system should be established, requiring data 1 xmoon, to be determined in the regulatory framework, the right to certain sets that are necessary to ensure KaZa operation.

Proposal: Change the classification of budget expenditure by dividing expenditure into a separate code according to the type of disaster (KaZa classifier).

2.2 Data collection for the implementation of the Sendai Framework Programme

2.2.1 Introduction

THE SENDAI Disaster Risk Reduction Framework Programme was the first major development programme after 2015, which points to concrete actions by Member States to contribute to a significant reduction in disaster risk and damage in the areas of people, businesses, communities and countries, livelihoods and health, economic, physical, social, cultural and environmental value.

It recognises that the State plays a key role in disaster risk mitigation, but responsibility must be shared with other stakeholders, including the local government, the private sector and other stakeholders.

It was adopted in 2015 and is the first major agreement in the development programme with seven objectives and four operational priorities.

Four operational priorities:

Priority 1. Understanding disaster risk.

Priority 2. Strengthen disaster risk management to manage disaster risk.

Priority 3. Invest in disaster risk reduction to boost recovery capacity.

Priority 4. Improving disaster preparedness in order to respond more effectively to them and "return in a better way" in recovery, rehabilitation and reconstruction.

Seven objectives:

a) Significantly reduce global disaster mortality by 2030 in order to reduce average mortality by 100 000 worldwide compared to the 2005-2015 period.

b) substantially reduce the global number of people affected by 2030 to reduce the global average by 100 000 worldwide compared to the 2005-2015 period.

c) Reduce direct catastrophe economic losses in relation to global gross domestic product (GDP) by 2030.

d) substantially reduce the damage caused by disasters to critical infrastructure and the disruption of basic services, including health and education institutions, by developing their disaster resilience capacity by 2030.

e) Increase significantly the number of countries with national and local disaster risk mitigation strategies by 2020.

f) substantially improve international cooperation with developing countries by providing adequate and sustainable support to complement national measures to implement the Sendai Framework Programme by 2030.

g) substantially increasing the availability of all types of risk early warning systems to citizens by 2030, as well as disaster risk information and its assessment.

THE SENDAI Framework Programme for Disaster Risk Reduction sets out a set of 38 indicators or indicators to assess overall progress in disaster risk reduction. Indicators or indicators will measure national and overall progress towards the global goals of the Sendai Framework Programme and identify global trends in risk and loss reduction. It is important that countries can also set additional national targets, as well as indicators or indicators to complement the evaluation of the monitoring of the Sendai Framework Programme. An online monitoring tool has been set up for monitoring the Sendai Framework Programme to store and collect disaster loss data to collect the necessary global targets. (reference to this information in   https://www.preventionweb.net/sendai-framework/sendai-framework-monitor//   and https://sendaimonitor.undrr.org/).

The United Nations Office for Disaster Risk Reduction (UNDRR) has been tasked with supporting THE deployment, follow-up and review of THE SENDAI programme.

The document below summarises data needed for SENDAI's framework programme.

2.2.2   Objective A

Significantly reduce global mortality by 2030, by reducing average mortality per 100,000 global populations between 2020 and 2030 compared to 2005-2015.

2.2.2.1   Indicator A-1

Number of deaths caused by disasters and missing per 100,000 inhabitants.

Composite indicator:

$$A_1 = \frac{A_{2a} + A_{3a}}{\text{Iedzīvotāju skaits}} \times 100000$$

, where

A_1: Number of deaths and missing persons caused by disasters per 100 000

A_{2a}: Number of deaths caused by disasters

A_{3a}: Number of missing people connected to disasters

Population: running population

Given that the above formula is derived from:

$$A_2 = \frac{A_{2a}}{\text{Iedzīvotāju skaits}} \times 100000$$

$$A_3 = \frac{A_{3a}}{\text{Iedzīvotāju skaits}} \times 100000$$

$$A_1 = A_2 + A_3$$

2.2.2.2   Indicator A-2

The number of deaths caused by disasters per 100,000 inhabitants.

Obligatory requirements:

Data to be collected for each disaster A-2a Number of deaths caused by disasters.

Preferred division:

Preferred division:

Peril

Geography (Administrative Unit)

Sex

Age

Disability

Income

Ienākumi

Metadata

Additional demographic and socio-economic parameters are needed

Population: National population per reporting year. The national indicator would be calculated using the national population. The global indicator is the total population of all reported countries.

2.2.2.3 Indicator A-3

The number of persons missing due to disasters per 100,000 inhabitants.

Minimum requirements:

Data to be collected for each disaster

A^3 - a Number of deaths caused by disasters

Preferred division:

Peril

Geography (Administrative Unit)

Sex

Age

Disability

Income

Metadata

Additional demographic and socio-economic parameters are needed

Population: see A-2

2.2.3 Objective B

Significantly reduce the global number of people affected by 2030 by reducing the global average of 100,000 worldwide population between 2020 and 2030 compared to 2005-2015.

2.2.3.1 Indicator B-1

The number of people directly affected in disasters per 100,000 inhabitants.

Combined ratio:

$$B_1 = \frac{sum(B_1 \ldots B_5)}{\text{Iedzīvotāju skaits}} \times 100000$$

Additional demographic and socio-economic parameters are needed.

Population: National population in reporting year.

2.2.3.2 Indicator B-2

Number of injured or sick people in disasters.

Minimum requirements:

Data to be collected for each disaster

B-2: Number of people injured or injured in a disaster

Preferred division:

Peril

Geography (Administrative Unit)

Sex

Age

Disability

Income

2.2.3.3 Indicator B-3

Number of people whose damaged dwellings are attributable to disasters.

Minimum requirements:

Data to be collected for each disaster

B-3: The number of people whose damaged housing is linked to disasters.

B-3a: Number of homes/homes damaged by disasters

The indicator B-3 can be measured directly and measured using the national methodology or on the basis of B-3a.

B_3 = **Number of damaged dwellings/houses * Number of average occupiers**

or

$B_3 = B_{3a}$ *** Number of average occupiers**

, where

$$Vid\bar{e}jo\ iem\bar{\imath}tnieku\ skaits = \frac{Iedz\bar{\imath}vot\bar{a}ju\ skaits}{M\bar{a}jsaimniec\bar{\imath}bu\ skaits}$$

Preferred division:

Peril

Geography (Administrative Unit)

If creator B-3a is used to assess the indicator:

Sex

Age

Disability

Income

Metadata

Additional demographic and socio-economic parameters are needed

Population: National population and number of households in the country or average number of people per household in the reporting year.

The national indicator would be calculated using national data.

2.2.3.4   Indicator B-4

Number of people whose destroyed dwellings are attributable to disasters.

Minimum requirements:

Data to be collected for each disaster

B-4 Number of people whose destroyed housing is linked to disasters

B-4a: Number of homes/homes destroyed due to disasters

Indicator B-4 can be measured directly and measured using national methodologies or based on B-4a.

B_4 = Number of dwellings destroyed * Number of average occupiers

Thus,

$B_4 = B_{4a}$ * Number of average occupiers

, where

$$\text{Vid\={e}jo iem\={i}tnieku skaits} = \frac{\text{Iedz\={i}vot\={a}ju skaits}}{\text{M\={a}jsaimniec\={i}bu skaits}}$$

Preferred division:

Apdraudējums

Peril

Geography (Administrative Unit)

If creator B-3a is used to assess the indicator:

Sex

Age

Disability

Income

Metadata

Additional demographic and socio-economic parameters are needed: see B-3

2.2.3.5　Indicator B-5

The number of people whose livelihoods declined due to disasters.

Minimum requirements:

Data to be collected for each disaster

B-5: The number of people whose livelihood has been impaired or destroyed is attributable to disaster

The indicator B-5 can be measured directly and measured using the national methodologies or using the methodologies recommended in these guidelines:

- C-2Ca hectares of crops damaged or destroyed by disasters (to be used for the production of statistics on affected workers).
- C-2La Catastrophobia for livestock losses (to be used to create statistics on the number of workers affected).
- C-3a Number of productive asset sites (e.g. production, trade, services, etc.) due to damaged or destroyed disasters (to be used to create statistics on affected workers for all types of equipment).

Preferred division:

Peril

Geography (Administrative Unit)

If the methodology recommended in the instructions is used to assess the indicator:

Sex

Age

Disability

Income

Additional demographic and socio-economic parameters are needed

Population: national population and number of households, or average number of people per household per year of reporting.

If countries have a national methodology for measuring indicator B-5, the indicator may be:

entered from the methodology. If no methodologies or measurements are available, B-5 will be calculated using a number of relationships, such as the number of workers per hectare, the number of workers per herd, the average number of employees per company and the industrial site.

B_{5a} = **Number of crops hectares affected * Average number of workers per hectare**

B_{5b} = **Herd losses * Average number of workers per herd**

B_{5c} = **Sum of affected production assets and infrastructure facilities * Average number of workers per site**

Data needed will be collected for purpose C, s

$B_{5a} = C2C_a$ * **Average number of workers per hectare**

$B_{5b} = C2L_a$ * **Average number of workers per herd**

$B_{5c} = C3_b$ * **Average number of workers per production asset + C5b * Average number of workers per infrastructure facility**

Which is abbreviated in form shall be:

$$B_{5c} = \sum_{i=1}^{n} C3_{bi} * Str\bar{a}dnieki_i + \sum_{i=1}^{n} C5_{bi} * Str\bar{a}dnieki_i$$

, where i=1

 n = types of production assets and infrastructure declared in metadata

2.2.4   Objective C

Reduce the direct economic losses of disasters to global gross domestic product (GDP) by 2030.

2.2.4.1   Indicator C-1

Direct economic losses related to disasters relative to gross domestic product.

Combined ratio.

$$C_1 = \frac{(C_2 + C_3 + C_4 + C_5 + C_6)}{Iek\check{s}zemes\ kopprodukts}$$

Additional demographic and socio-economic parameters not required

GDP: gross domestic product of geographic units for which data were collected in the year of the disaster.

2.2.4.2 Indicator C-2

Direct agricultural losses related to disasters

$$C_2 = C2C + C2L + C2FO + C2A + C2FI$$

Minimum requirements:

Data to be collected for each disaster.

If an accurate economic assessment of direct losses is available (in line with the disaster risk mitigation programme), indicators C-2, C2-C, C2-L, C2-Fo, C2-Fi and C2-Ia can be submitted from it.

• C-2: Direct agricultural losses related to the disaster

• C-2C: loss of crops damaged or destroyed by disasters

• C-2L: Ganāmpulku losses in disasters

• C-2Fo: damage to forests damaged or destroyed by disasters

• C-2A: Losses in affected aquaculture production

• C-2Fi: Losses in the affected fisheries sector

• C-2Ia: Losses of damaged/destroyed capital goods (machines and equipment) in all the sub-sectors mentioned above. The fishing sector should include vessels.

• C-2Ib: Value of pre-viewing stock (stored raw materials such as seed, fertiliser, feed, feed, feed, feed, etc., as well as products such as cereals, livestock products, fish, logs, etc.).

Methods for calculating indicators C2-C, C2-L, C2-Fo, C2-Fi and C2-Ia:

C-2C = losses of annual crop stocks + losses of multiannual crop stocks + annual crop losses + perennial crop losses + losses of reversed assets (total and partial)

C-2L = loss of stocks + loss of livestock production + costs of replacing and/or repairing livestock assets (total and partial)

C-2FO = losses in forestry stocks + loss of forestry production + loss of forestry assets (total and partial)

C-2A = loss of aquaculture stocks + loss of aquaculture production + loss of aquaculture assets (total and partial)

C-2FI = loss of fisheries stocks + loss of fishery production + loss of fisheries assets (total and partial)

The following physical damage indicators will be required, which will be accepted instead of the corresponding estimated economic losses.

• C-2Ca: number of hectares of crops damaged or destroyed by disasters

• C-2La: number of animals lost due to disasters

• C-2Foa: number of hectares of forests affected/destroyed

• C-2Aa: number of hectares affected in the aquaculture production area

• C-2Fia: number of hectares of the affected fishing area

• C-2Iaa: number of damaged/destroyed production assets (machines and equipment) associated with all agricultural sub-sectors. The fishing sector should include vessels.

Given that for sub-indicators C-2Ia and C-2Iaa damaged/destroyed machines and equipment which are clearly productive assets, the following annotation is applied and data collection will have to follow the same model, definitions and methods: productive assets should be allocated to economic sectors, including services, in accordance with the standard international classification. Countries must report on those sectors of the economy that are relevant to their economies.

Losses in agricultural productive assets will be reported in C-2 and may not be backed up by C-3. The classification and associated metadata mechanism will allow them to be distinguished.

To be included on the basis of the United Nations report A/71/644:

    • C-2la, C-2La a: this sub-index should include losses for beekeeping

Definition of metadata that describes assets and infrastructure elements

For each type of production assets reported, metadata must include:

• Code

• Description of active type

• Group or economic sector/activity ISIC or adopted FAO/UNISDR classification

• Units of Measure (m2, meter, hectare, km, tonne, etc.)

• Unit value [series 2005 … 2030]

•% of the additional value for equipment, furniture, materials, article (if applicable)

•% of value added for related physical infrastructure (if applicable)

• Average number of employees per facility or infrastructure unit

Given that most of the metadata definition and input will take place only once when setting up the data collection process, excluding the annual unit value of choice.

Preferred division:

• ALL: at risk

• ALL: by geography (administrative unit)

• ALL: completely destroyed (lost, dead, destroyed) or damaged (affected)

• C-2C: by type of cultivated culture in affected areas

• C-2L: by type of livestock

• C-2Fo: by forest type

• C-2A: by type of aquaculture activity in affected areas

• C-2Fi: by type of fishing activity in affected areas

• C-2I: by sector (crop, herd, forest, aquaculture, fishery) by type of damaged machinery and objects

• Formula (or method description) for calculating economic value

2.2.4.3 Indicator C-3

Direct economic losses on all other production assets damaged or destroyed by the disaster.

If an exact economic assessment of direct losses is not available, the recommended methodology should be used which proposes to convert the value of physical injury into economic value using replacement costs to determine direct economic losses.

Method 1 for calculating losses on direct production assets - Assets affected reports.

Applicable if the data collection does not distinguish between damaged and destroyed persons. The calculation of the economic loss equation due to the affected (damaged or destroyed) production assets is as follows:

$$C_3 = C_{3a} * \text{vidējais aktīvu lielums} * \text{būvniecības izmaksas par kvadrātmetru} * \text{aprīkojuma koeficients} * \text{infrastruktūras koeficients} * \text{ietekmēto koefificients}$$

, where

C_{3a} is the number of each type of production asset or damaged or destroyed

The average asset flame is the size defined in the metadata, describing the type of asset. For only one type of asset, it may be:

- Average size in the country of this type of manufacturing asset.
- Median or type of the size of this type of manufacturing asset in the country.
- Value of sizes determined by expert criteria when developing a small and conservative production asset for this type.

Construction costs per square meter are the average national value of construction costs per square meter.

The equipment ratio is the calculated value (expressed as a percentage of the value of the stored equipment and products (including raw materials and finished products).

The infrastructure ratio is the calculated value (expressed as a percentage) of the value of an asset in related connections to the utilities infrastructure.

The affected factor is calculated as the average loss ratio (as a percentage) of all production assets, including all damaged/destroyed production assets.

Method 2 for calculating losses on direct production assets - separate reports for damaged and destroyed assets.

The equation for the economic losses caused by the affected (damaged or destroyed) production assets is calculated as follows:

$$
\begin{aligned}
C_3 = (C_{3b} \ast \ & \text{vidējais aktīvu lielums} \ast \text{būvniecības izmaksas par kvadrātmetru} \\
& \ast \text{aprīkojuma koeficients} \ast \text{infrastruktūras koeficients} \\
& \ast \text{bojāto koefificients}) + (C_{3c} \ast \text{vidējais aktīvu lielums} \\
& \ast \text{būvniecības izmaksas par kvadrātmetru} \ast \text{aprīkojuma koeficients} \\
& \ast \text{infrastruktūras koeficients})
\end{aligned}
$$

, where

- C_{3b} is the number of damaged production assets of each type

- C_{3c} is the number of destroyed production assets of each type

- *The injury factor is the average loss ratio expressed as a percentage of the total value of assets, recommended 25% (same as the housing sector)*
- All other variables shall comply with the specified method 1.

Annotation from United States Organization Report A/71/644:

Production assets should be distributed across the economic sectors, including services by international classification. Countries would report against these economic issues sectors of economic importance.

Minimum requirements:

Data to be collected for each disaster

For each of the types of funds affected by the disaster:

• C-3: Direct economic losses on all damaged or destroyed production assets in connection with the disaster

• C-3a: number of production assets of each type - damaged or destroyed

or

• C-3b: Number of damaged manufacturing assets of each type

• C-3c: number of destroyed production assets of each type

Preferred division:

• At risk

• by geography (administrative units)

• by type of influence (damaged/destroyed). This should be reflected in metadata.

• By object size (small/medium/large). This must be reflected in metadata.

2.2.4.4 Indicator C-4

Direct economic losses in the housing sector related to disasters.

If an exact economic assessment of direct losses in the housing sector is not available, the recommended methodology should be used, which proposes to convert the value of physical injury into economic value using replacement costs to control direct economic losses.

Main equation calculation:

$$C_4 = C_{4a} + C_{4b}$$

, where

C_{4a} **-** economic value of damage to homes damaged by disasters

C_{4b} **-** economic value of damage to homes destroyed in disasters

In turn,

$$C_{4a} = boj\bar{a}to\ m\bar{a}ju\ skaits * vid\bar{e}jais\ lielums \\ * b\bar{u}vniec\bar{\i}bas\ izmaksas\ par\ kvadr\bar{a}tmetru * apr\bar{\i}kojuma\ koeficients \\ * infrastrukt\bar{u}ras\ koeficients * ietekm\bar{e}to\ koefificients$$

where,

• medium size, construction costs per square metre, equipment ratio and infrastructure ratio have the same definitions as C3.

• a damage ratio (average damage) of 25% of the cost of a fully destroyed house is applied.

Minimum requirements:

Data to be collected for each disaster

• C-4: Extended direct economic losses in the housing sector to disasters.

• C-4a: number of homes affected by disasters

• C-4b: number of homes destroyed by disasters

Preferred division:

• at risk

• by geography (administrative unit)

Optional countries wishing to obtain more accurate estimates:

• Criteria such as home size (small/medium/large) and/or

• Criteria such as rural/urban and/or

• Criteria such as material (wood, cardboard, wall, etc.)

Additional demographic and socio-economic parameters are needed

• Average: average estimated home size in the country (or for each home class if declared in metadata)

• Unit value: [Each year 2005 … 2030]

2.2.4.5 *Indicator C-5*

Direct economic losses of damaged or destroyed critical infrastructure caused by disasters.

Annotation from United States Organization Report A/71/644:

Production assets should be distributed across the economic sectors, including services by international classification. Countries would report against these economic issues sectors of economic importance.

It is recommended that C-5 be calculated on the basis of indicators comprising the same critical infrastructure units and equipment considered as target D, in particular for indicators D-2, D-3 and D-4.

$$C_5 = D_2, D_3, D_4 \ rad\bar{\imath}t\bar{a}ju \ kopsumma$$

, where

D_2 - number of destroyed or damaged health establishments caused by disasters.

D_3 - number of educational establishments destroyed or damaged by disasters.

C_4 - number of units and facilities of critical infrastructure caused by other disasters.

The set of critical infrastructures that Member States are allowed to report is very extensive. Please refer to the technical guidelines for Objective D which provide complete information on the proposed classification of critical infrastructure. It should be noted that, in terms of methodology, it is almost impossible to provide guidance for all types of infrastructure to assess direct losses.

These guidelines will provide only two methodological approaches for the assessment of economic losses developed BY ANDDR and the scientific community, which generally cover the following general types of elements.

• Critical infrastructure consisting of buildings (e.g. health and educational establishments) or assimilated to productive assets. Loss marked C5 [buildings].
• Roads and highways and, in general, linear structures, the costs of which can be assessed on the basis of the length of the affected element (e.g. damaged road metres) and a stable fixed price per unit length (costs per linear metre). Loss marked C5 [linear].
• For other critical infrastructure elements NOT belonging to any of these groups, Member States are requested to ensure the appropriate rehabilitation or reconstruction costs, depending on the level of damage. Loss marked C5 [other].

Therefore, the Indicators look as follows:

$$C_5 = C_{5(ēkas)} + C_{5(lineārs)} + C_{5(cits)}$$

Direct loss of critical infrastructure - critical infrastructures consisting of buildings (e.g. health and educational establishments)

1. method - data not broken (no difference from damaged/destroyed

$$C_{5(ēkas)} = ietekmēto\ objektu\ skaits * vidējais\ objektu\ lielums * būvniecības\ izmaksas\ par\ vienību * aprīkojuma\ koeficients * infrastruktūras\ koeficients * ietekmēto\ koefificients$$

, where

$C_{5(ēkas)}$ - economic losses from the affected infrastructure, both damaged and destroyed.

Method 2 - data broken down to damaged and destroyed

$$C_{5a(ēkas)} = bojāto\ objektu\ skaits * vidējais\ objektu\ lielums * būvniecības\ izmaksas\ par\ vienību * infrastruktūras\ koeficients * ietekmēto\ koefificients$$

$$C_{5b(ēkas)} = iznīcināto\ objektu\ skaits * vidējais\ objektu\ lielums * būvniecības\ izmaksas\ par\ vienību * infrastruktūras\ koeficients * ietekmēto\ koefificients$$

, where

- $C_{5a(ēkas)}$ - economic losses from damaged infrastructure.

- $C_{5b(ēkas)}$ - economic losses from destroyed infrastructure.

- Other variables are defined as an indicator C-3.

Direct loss of critical infrastructure - critical infrastructures consisting of linear elements (e.g. roads)

Method 1 - data not broken (no difference from damaged/destroyed

$$C_{5(lineārs)} = ietekmēto\ elementu\ garums * atjaunošanas\ izmaksas\ par\ vienības\ garumu$$

, where

$C_{5(linear)}$ - economic losses from the affected linear infrastructure, both damaged and destroyed.

Method 2 - data broken down to damaged and destroyed

$$C_{5a(lineārs)} = bojāto\ elementu\ garums * atjaunošanas\ izmaksas\ par\ vienības\ garumu$$

$$C_{5b(lineārs)} = bojāto\ elementu\ garums * rekonstrukcijas\ izmaksas\ par\ vienības\ garumu$$

, where

- $C_{5a(lineārs)}$ - economic losses from damaged infrastructure.

- $C_{5b(lineārs)}$ - economic losses from destroyed infrastructure.

Minimum requirements:

Data to be collected for each disaster

For each of the types of infrastructure declared in metadata affected by the disaster:

• C-5: Direct economic damage caused by damaged or destroyed critical infrastructure caused by disasters.

• C-5a: type of asset (code)

• C-5b: number of damaged/destroyed units or number of these infrastructure assets

Preferred division:

• by type of influence (damaged/destroyed)

• By the size of the object (small/medium/large or criteria such as a tarred road, unasperated road, highway)

2.2.4.6 Indicator C-6

Direct economic losses to cultural heritage damaged or destroyed by disasters.

Data to be collected for each disaster:

Minimum requirements:

• Economic value of losses of C6a damaged or destroyed real estate assets

• Economic value of losses of cultural heritage damaged by C6b

• The economic value of losses of movable cultural heritage destroyed or wholly lost by C6c.

• Number of cultural heritage property buildings, monuments and fixed infrastructures damaged by C6d disasters

• Number of buildings, monuments and fixed infrastructures of cultural heritage destroyed by C6e disasters

• C6f is the number of movable cultural heritage assets (e.g. artworks) damaged

• Number of movable cultural heritage assets destroyed by C6g

2.2.5 Objective D

Significantly reduce disaster damage to critical infrastructure and basic services by 2030, including health and educational establishments, as well as developing their recovery capacity.

UNISDR recommendations:

- Indicators D-1 to D-4 should be calculated on the basis of the same data and the same critical infrastructure units and equipment taken into account for indicators C-3 and C-5.

- Indicators D-4 and C-5 data should be described using the same metadata. The metadata format is also common to C-3 and D-8.

2.2.5.1 Indicator D-1

Disaster related damage to critical infrastructure

D-1 = Critical Infrastructure Damage Index = number/population of damaged infrastructure units and facilities * 100,000

2.2.5.2   Indicator D-2

Number of health facilities destroyed or damaged by disasters.

Minimum requirements:

Data to be compiled for each disaster (related to C-5):

D-2   Number   of   health   facilities   destroyed   or   damaged   by   disasters

Preferred divisions prasības (tāpat kā C-5):

Peril

Geography (Administrative Unit)

Impact level (damaged/destroyed)

Object size (small/medium/large). If Member States wish to report more detailed losses, broken down by asset size and type, they should use the metadata mechanism specified in indicator C-5 to declare this breakdown.

2.2.5.3   Indicator D-3

Number of educational establishments destroyed or damaged by disasters.

Minimum requirements:

Data to be compiled for each disaster (related to C-5):

D-3 Number of educational establishments destroyed or damaged by disasters

Vēlamais sadalījums (tāds pats kā C-5):

Peril

Geography (Administrative Unit)

Impact level (damaged/destroyed)

Object size (small/medium/large). If Member States wish to report more detailed losses by breaking down data by asset size and type, they should use the metadata mechanism specified for indicator C-5 to indicate this breakdown.

2.2.5.4   Indicator D-4

Number of other units and installations of critical infrastructures destroyed or damaged by disasters.

This Indicatordales (or should be shared) with data and metadata with indicator C-5.

Minimum requirements:

Data to be compiled for each disaster (related to C-5) and for each type of infrastructure affected by the disaster:

• C-5a: type of asset (code)

• C-5b: number of units or facilities damaged/destroyed infrastructure assets

• C-5c: Measurement of damage to network units (in units of measurement such as meters or kilometres)

For each type of productive asset reported:

• Code

• Description

• Group or economic sector/activity in ISIC or assumed classification

• Units of Measure (M2, Mt, Hex, Km, etc.)

• Value of measured unit (2005 … 2030)

•% of the value of equipment, furniture, materials, articles

•% of the value of the related physical infrastructure

Preferred division:

Peril

Geography (Administrative Unit)

Impact level (damaged/destroyed)

Size of object (small/medium/large or criteria such as no paving, one paved, highway)

2.2.5.5 Indicator D-5

Number of disruption to basic services caused by disasters.

D-5 = Service Disorder Index = Number of Disorders/Population * 100,000

Metadata:

Additional demographic and socio-economic parameters are needed

Population:

The national population in the reporting year.

2.2.5.6 Indicator D-6

Number   of   outages   of   educational   services   related   to   disasters.

<u>*Minimum requirements:*</u>

Data to be compiled for each disaster (related to D-3)

D-6 Number of outages of educational services caused by disasters.

<u>*Preferred division:*</u>

Peril

Geography (Administrative Unit)

Interrupted means one or this combination:

• Disaster service was partially or completely interrupted one or more times

• Service quality level deteriorated

• Service coverage was reduced

• Failure/destruction of service infrastructure

2.2.5.7 Indicator D-7

Number of health outages related to disasters.

<u>*Minimum requirements:*</u>

Data to be compiled for each disaster (related to D-2)

D-7 Number of health service breaks caused by disasters.

<u>*Preferred division:*</u>

Peril

Geography (Administrative Unit)

<u>Interrupted means one or this combination:</u>

• Disaster service was partially or completely interrupted one or more times

• Service quality level deteriorated

• Service coverage was reduced

• Failure/destruction of service infrastructure

2.2.5.8 Indicator D-8

Number of breaks in other basic services related to disasters.

A decision on the elements of basic services to be included in the calculation will be left to the Member States and described in the metadata.

Minimum requirements:

Data to be collected for each disaster

• For each of the types of services declared in the disaster metadata:

• D-8a: type of asset (code)

• D-8b: Service impaired Yes/No

Metadata

For each type of productive property reported:

• Code

• Description

• Group or economic sector/activity in ISIC or assumed classification

Services for which we recommend collecting data:

Impaired water services (related to D-4)

Poor sewer services (related to D-4)

Degraded transport services (related to D-4)

Government services were disrupted (related to D-4)

Energy and energy services were disrupted (related to D-4)

Emergency services were disrupted (related to D-4)

Communication/ICT services were disrupted (related to D-4)

Solid waste services were disrupted (related to D-4)

Preferred division:

Peril

Geography (Administrative Unit)

Interrupted means one or this combination:

• Disaster service was partially or completely interrupted one or more times

• Service quality level deteriorated

• Service coverage was reduced

2.2.6   Objective E

Significantly increase the number of countries with national and local disaster risk reduction strategies by 2020.

2.2.6.1   Indicator E-1

Number of countries adopting and implementing national disaster threat reduction strategies under the Sendai disaster risk mitigation Framework Programme 2015-2030.

The Member State should assess the level of implementation of each key element and enter all information on the Sendai Framework Monitor website. The ten main elements are proposed to be measured equally by allocating 10% (or 0,1) to each element.

• Comprehensive implementation (full score): 1,0,

• Essential implementation, additional progress is needed: 0,75,

• Medium implementation, neither comprehensive nor relevant: 0.50,

• Limited implementation: 0.25,

• If there is no introduction or no existence, there will be 0.

Sub-indicators:

• Defined targets and measures to reduce existing risks

• Defined targets and measures to prevent hazards from occurring

• Defined objectives and measures to strengthen economic, social, health and environmental recovery capacity

• Defined frames, targets, and indicators

• Priority 1 is subject to recommendations and suggestions

• Priority 2 is subject to recommendations and suggestions

• Priority 3 is subject to recommendations and suggestions

• Priority 4 includes recommendations and suggestions

• Development and Combating Poverty Plans and Policies are integrated at all levels, and in particular with the UN Sustainable Development Goals

• Promote coherence, integration and compliance with climate change adaptation and mitigation plans and the Paris Agreement

Through the "Custom Indicators" online monitoring system, countries will be able to monitor the development of each of these elements through sub-indicators, which could contribute to a more detailed and systematic assessment of progress in each area.

2.2.6.2   Indicator E-2

Percentage of municipalities adopting and implementing local disaster risk reduction strategies in line with national strategies

It is proposed that Member States count the number of municipalities that adopt and implement local disaster risk reduction strategies in line with the national strategy, expressed as a percentage of the total number of municipalities in the country.

This indicator is determined by local authorities, given that local public authorities are responsible for developing strategies for reducing the risk of local disasters.
It is recommended that countries report on the progress made at the lowest level of government mandated for disaster risk reduction, as the Sendai system contributes to the adoption and implementation of local disaster risk reduction strategies by every local authority.

Each Member State will calculate the ratio of the number of municipalities to local disaster risk reduction strategies in line with national strategies and the total number of municipalities.

2.2.7   Objective F

Significantly improve international cooperation in developing countries by 2030, with appropriate and sustainable support to complement their national actions to implement this system.

2.2.7.1   Indicator F-1

Total Official International Support (Official Development Assistance (ODA) plus Other Official Flows (OOF)) for National Disaster Risk Reduction Activities.

Minimālā breakdown:

Donor

Recipient

Preferred division:

Type of finance

Type of international aid

Sub-sector

Groups of countries (global, regional/sub-regional)

2.2.7.2   Indicator F-2

Total official international support (official development assistance (ODA) plus other official flows (OOF)) for national disaster risk reduction activities provided by multilateral agencies.

Minimum breakdown:

Donor

Beneficiary

Multilateral body

Preferred division:

Type of financing

Type of international support

Sub-sector

2.2.7.3   Indicator F-3

Total official international support (official development assistance (ODA) plus other official flows (OOF)) for national disaster risk mitigation activities provided by multilateral agencies.

Minimum breakdown:

Donor

Recipient

Multilateral body

Preferred division:

Type of finance

Type of international aid

Sub-sector

2.2.7.4   Indicator F-4

Total official international aid (official development aid (ODA) plus other official flows (OOF)) for the transfer and exchange of technology related to disaster risk reduction

Minimum breakdown:

Donor

Recipient

Preferred division:

Type of finance

Type of international aid

Sub-sector

Groups of countries (global, regional/sub-regional)

2.2.7.5   Indicator F-5

Number of international, regional and bilateral programmes and initiatives on transfer and exchange of science, technology and innovation in disaster risk mitigation in developing countries.

Minimum breakdown:

Programm/ initiative

Developing partner country

Preferred division:

Type of programme/initiative

2.2.7.6   Indicator F-6

Total official international aid (official development aid (ODA) plus other official flows (OOF)) for disaster risk mitigation capacity building.

Minimum breakdown:

Donor

Recipient

Preferred division:

Type of finance

Type of international aid

Sub-sector

Groups of countries (global, regional/sub-regional)

2.2.7.7 Indicator F-7

The number of international, regional and bilateral programmes and initiatives related to disaster risk mitigation capacity building in developing countries.

Minimum breakdown:
Programm/initiative
Developing partner country

Preferred division:
Type of programm/initiative

2.2.7.8 Indicator F-8

Number of developing countries supporting international, regional and bilateral initiatives to strengthen statistical capacity related to disaster risk mitigation.

Minimum breakdown:
Recipient

Preferred division:
Donor
Type of international aid

2.2.8 Objective G

Significantly increase people's access to multi-disaster early warning systems and disaster risk assessment information by 2030.

2.2.8.1 Indicator G-1

Number of countries with multi-disaster early warning systems.

$$\textbf{G-1 = (G-2 + G-3 + G-4 + G-5) / 4}$$

,where G-1 is a composite indicator calculated as an index using indicators G-2 to G-5. The calculation methodology G-1 is as follows: for each country means the calculation of the arithmetic mean of the four score points, where each country determines the value of the indicators from 0 to 1 for each of the four indicators G-2 to G-5.

- Comprehensive implementation (full score): 1,0,
- Essential implementation, additional progress is needed: 0,75,
- Average implementation: 0.50
- Limited implementation: 0.25,
- If there is no introduction or no existence: 0.

2.2.8.2   Indicator G-2

Number of countries with multi-hazard monitoring and forecasting systems.

Minimum requirements:

G-2a Monitoring and Forecasting System Existing Indicator (1/0) calculated for each hazard type

Weight per hazard type (0,00 to 1,00)

Preferred division:

Data for each hazard type

G-2b Overall assessment of the quality of monitoring and forecasting systems at 5 levels from 0 to 1

4 element points (G-2c monitoring, G-2d forecasting, G-2e reports and G-2f process)

Division:

Both the minimum and the preferred data sets should be broken down by type of risk.

Additional data:

See recommendations and examples for calculating hazard weight based on estimated or historical impacts, or on expert criteria, or on national priorities and targets.

2.2.8.3   Indicator G-3

Number of people per 100,000 who are subject to early warning information through local authorities or national notification mechanisms.

Minimum requirements:

G-3a Number of people subject to early warning information through local authorities or national distribution mechanisms

Division:

Information dissemination mechanism (media, local).

Additional data:

National population

2.2.8.4   Indicator G-4

Percentage of local governments that have an early warning plan.

Minimum requirements:

G-4a Number of local authorities with an early warning plan

Preferred division:

Data for each municipality

G-4b Total quality rating of local plan at 5 levels from 0 to 1

Number of points from 3 elements of plan (G-4c preparedness, G-4d understanding and G-4e evaluation)

Division:

Municipality

Additional data:

Total number of municipalities

2.2.8.5   Indicator G-5

The number of countries available, comprehensible, usable and relevant information relating to disaster risks and its assessment available to citizens at national and local level.

Minimum requirements:

G-5a The number of points on available, comprehensible, usable and relevant information relating to disaster risks and their assessment available to citizens at national and local level (1/0) shall be calculated for each type of risk.

Preferred division:

Data for each hazard type

G-5b Quality indicator of risk information and assessment from 0 to 1.

The methodology used to perform the best risk assessment will vary according to the type of hazard and take into account the following elements:

I. It should be based on the largest possible scientific approach (ideally if possible);

II. the result of the national consultation, is joint, coordinated and used by national authorities;

III. with clear responsibility for decision-making, planning and storage of data and information.

The Member State should assess each sub-indicator for each hazard type and allocate an increase rate of 0 to 1 (0.0.25, 0.50, 0.75, 1). In turn, sub-index I will have 1 or 0 (binary). It is recommended that these sub-indicators be weighted equally, in the above case 1/3 for each, so that the score will be calculated on the arithmetic average of each hazard.

$$valsts\ rezult\bar{a}ts = (pieejam\bar{\imath}bas\ nov\bar{e}rt\bar{e}jums)_i$$
$$* \sum_{i=1}^{n} \sum_{i=1}^{3} punktu\ skaits_{ij} / 3 * ietekme_i / \sum_{1}^{n} ietekme_i$$

where,

score: number of sub-index j points (= 1.2, 3) for each hazard type i (= 1,.., n)

for impacts: the risk i impact weight calculated on the basis of impacts and coatings or determined by each country;

N: Number of types of risk

Recommended splitting:

Type of hazard

Municipality

2.2.8.6 Indicator G-6

The proportion of the population at risk of disasters, for which preventive evacuation is provided according to early warning.

Minimum requirements:

Hazard events

Preferred division:

Municipality (local administrative unit)

Member States that can do this are invited to provide information on the number of people evacuated.

Hazard events

3   Collection of foreign disaster and loss accounting solutions

3.1   Estonian solution

3.1.1   Identified as part of the study

- The Estonian Firefighting Service has developed in its infrastructure a data warehouse that provides the current fire-fighting operation, in relation to the country's internal event set, which is only related to the occurrence of fires, the storage and display of their data in the business intelligence tool.

- The data users are the Emergency Response Centre, the Rescue Board, the Police and Border Guard Board, the Public Safety Academy and the Ministry of Interior.

- Technology used:
  - WebFOCUS - charging business intelligence software for data visualization and processing
  - Pentaho Data Integration – Used to organize the adaptation of data received by downloads and data sources for data storage purposes
  - Infrastructure available for Technology - 6VM (18 vcpu/40GB (RAM)/1TB)

- The solution is maintained daily by 2 FTE specialists with the following roles:
  - Analite - Performs regular analysis and performance of datasets for individual tasks and gathers data users for events other than standard users of standard functionality
  - Analyst/Developer: Performing more sophisticated data set processing tasks, delivering analytical capabilities to users using the WEBFOCUS environment to the end user, where pre-prepared reports on datasets in the data warehouse can be received.

- The solution currently provides a single DashBoard with a geographical display of events on the map. The dashboard includes data on deaths in fires, fires and other failures for the past 3 years. The solution also provides access to a variety of predefined data sets, which are depicted in how tables without any intershare capabilities — reflect only facts about a dataset using configurable filter capabilities. Access to different catalogs can be limited through user rights management. If the user is authorized to view detailed data, all numbers will be displayed as hyperlinks.

- Screenshot for an example of the dashboard.

Figure 9. Example of dashboards

- Reporting tree example:

Figure 1. report tree
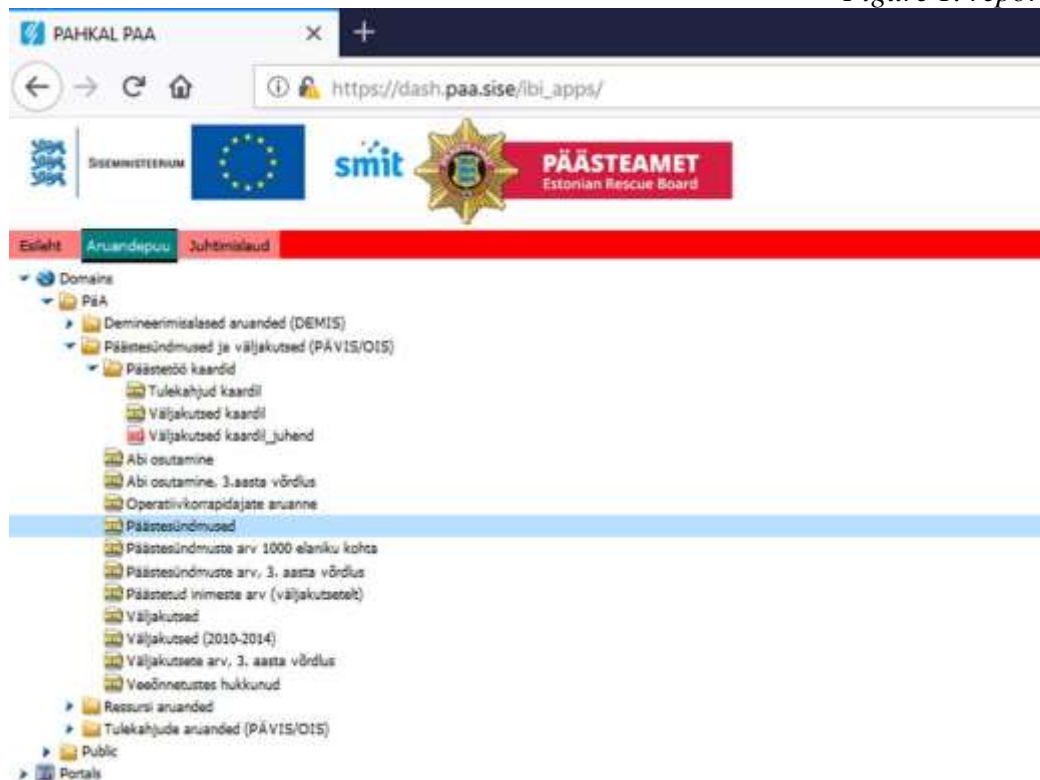
- Principles for filtering:

Figure 11. Principles for using filtering
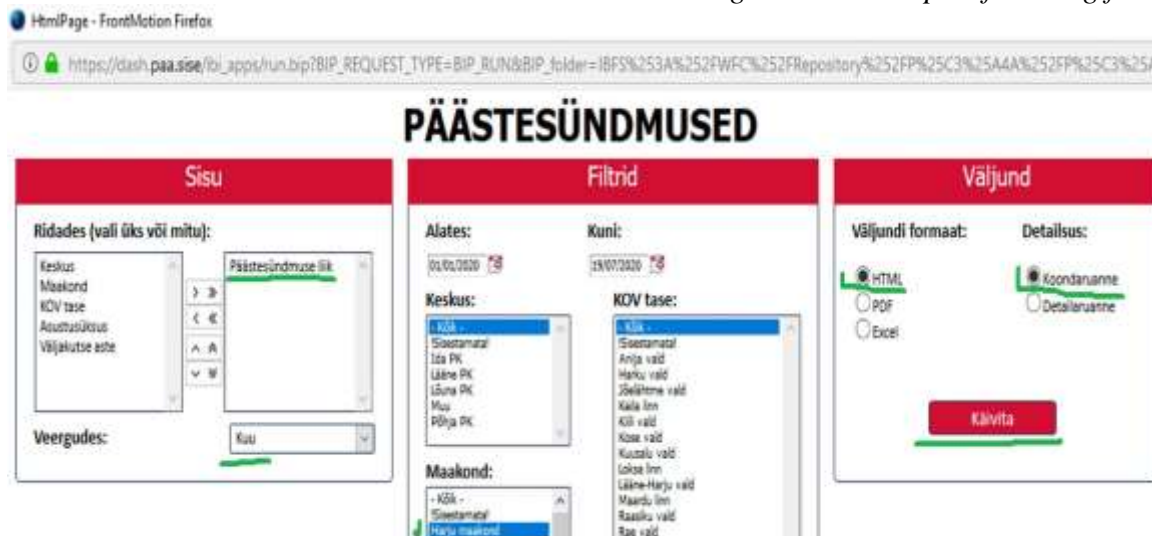
- Example of report result:

Figure 2.Report examples

PÄÄSTESÜNDMUSED

Aruanne genereeritud: 20/07/2020
Periood: 01/01/2020 kuni 19/07/2020
Maakond: Harju maakond

Päästesündmuse liik	Jaanuar	Veebruar	Märts	Aprill	Mai	Juuni	Juuli	Kokku
Abitus seisundis inimene	32	33	37	20	38	35	26	221
Abitus seisundis loom/lind	21	15	28	28	73	111	53	329
Bioloogiline reostumine	0	0	1	0	0	2	0	3
Demineerimisalased väljakutsed	19	9	22	52	59	35	27	223
Gaasiline reostumine	22	25	14	18	14	16	9	118
Keemiline reostumine	6	3	3	2	0	4	1	19
Liiklusõnnetus	40	44	24	37	37	50	20	252
Muud	1	1	1	2	6	1	2	14
Naftasaadustega reostumine	10	8	9	9	22	21	16	95
Ohu likvideerimine	46	90	24	30	36	54	78	358
Radioaktiivne reostumine	1	0	0	0	0	0	0	1
Raudteeõnnetus	1	0	0	0	0	1	0	2
Tulekahju	125	52	154	210	213	180	55	989
Tulekahju oht hoones	34	31	25	28	30	41	25	214
Varing	0	1	0	0	0	0	1	2
Õnnetus veekogul	0	8	4	1	7	10	6	36
	358	320	346	437	535	561	319	2876

Allikas: Päästeamet, PÄHKAL(PÄVIS,OIS)

- Users included in the solution and roles assigned to them are defined and maintained
  manually and are not linked to the software of skin user management.

- The data is originally loaded from the source systems into the PostgreSQL database, from which the data storage infrastructure is further included.

- Display on a card. Some basic features include cluster and interactive tools that are activated within the review. The tools provide an opportunity to analyse different weather conditions (wind speed and direction) and their relationship with consequences (accident calls) in order to introduce different working methods (redeployment of resources). Additional context data on fire departments is displayed.

- Searches

  - Example display of a Geographical Report

Figure 3. Geographical reports visualization

- The data is updated every night. Reports on data quality are automatically created.

- Part of the operational data is transferred to the web portal and is made public

3.1.2 The strengths/weaknesses of the Estonian national disaster data storage solution

Strengths:

1. Technologies used - The solution is basically open, since only open technologies have been used in the development process and only WEB BI display is a charging tool that was selected compared to Tableau and is cheaper;

2. Administrative process: 2 tasks of the FTE are maintained to ensure the functioning of the solution, roles and responsibilities are clearly shared, resulting in uniform and targeted data work.

3. Data Spotlight - The solution is automated and provides daily data downloads from operational information systems

4. Users use the system in their daily work to assess the results of previous days.

Weaknesses:

1. The Graphic Display Side (WEB Portal) is hard to use and does not have effective capabilities to improve the performance of the existing visual display.

2. Very few data sources have been used, it cannot be verified whether the system would ensure such performance at a higher number of data sources;

3. Not integrated user management;

4. Low level of detail of the GIS;

5. Limited context data and, consequently, not many ways to re-use data in day-to-day work

3.1.3   KaZa considerations to be used in the project /Conclusion :

1. The main value of the data warehouse is the data and their historical size. The data warehouse should be constructed on the basis of Estonia's example, making the most of the EXISTING data capabilities under IemIC and collecting data on daily activities, so that knowledge based on historical data sets can be developed during disaster loss calculations and the data contained in the calculations are duly substantiated. KaZa The data warehouse will be based on the use for the performance and analysis of disaster loss calculations, but the scope of its capabilities will be expandable because the data spotlight ensures the use of the data warehouse for operational work.

2. Use of technology. The example of Estonia clearly highlights the benefits of using open technologies, but also shows that the system has not developed significantly during its lifecycle, and it should now be assessed how Estonia's business needs are only partly relevant. In part, this Conclusion is linked to the choice of technology, partly to the lack of administrative resources (2 PLE), which keeps the system in the spotlight, since the division of roles does not entail an obligation to continuously improve this product, which in the long term results in product stagnation.

3. The solution as a whole does not provide a good basis for analysing disaster data and creating potential costs thesis, as the aggregated data is small and access cannot be interlinked through an interactive and visualizable set of tools. The solution is not capable of combining the different analytical approaches, although visualising it all in a single interface, leads to difficulties for the analysers, as appropriate. Dashboards are a good way to find out what is up to date and to conclude in the day-to-day work any relationship based on the experience and

interpretation of rank-and-file business users, but a universal dashboard does not give you a quick view of the data and no developments have been made in this solution that might take a deeper look into the data (drill-down), e.g. there is no chance of this dashboard successfully use on mobile devices because the technology is not responsive.

3.2   Swedish solution

3.2.1   Identified during the study

- Collection of Swedish disaster data takes place within SENDAI and data is collected only for SENDAI reporting purposes;
- The process is designed as a set of separate analytical activities, resulting in data retrieval from different registers;
- The Swedish aid system is fragmented across municipalities and each unit of the hotline accumulates and provides data according to its technological capabilities and maturity. Each institution shall draw up reports on its scope and compile the data of the other responsible authority and report TO SENDAI;
- A single system is currently planned to be implemented, focusing mainly on statistics and SENDAI framework reports;
- All data collection is based on manual data aggregation work;
- There is no process for collecting and recording loss data.

3.2.2   The strengths/weaknesses of the Swedish national disaster data storage solution

Strengths:

- Collect data for SENDAI framework.

Weaknesses:

- No single data storage system solution and data is collected manually;
- A fragmented information environment between local-scale management units;

3.2.3   KaZa project considerations/Conclusion

1. In the KaZa project, there is nothing to be used from the Swedish example because there is currently no indication of the existence of a single data warehouse and clearly shows the result of a fragmented management model where it is not possible to obtain data so that qualitative data can be analysed, due to their different data collection and classification approaches.

3.3   International disaster database EM-DAT

3.3.1   Identified as part of the study

EM-DAT is the International Emergency Event Database developed in 1988 by the Centre for Research on the Epidemiology of Disasters (CRED) with the initial support of the World Health Organisation (WHO) and the Belgian Government.

The database's main Objectivenenosecure provides an objective basis for assessing vulnerability and rational decision-making in disaster cases. IN addition to providing information on the impact of disasters on humans, EM-DAT provides information on economic loss estimates and international aid investments related to disasters.

EM-DAT contains basic data on the causes and effects of more than 22 000 mass disasters worldwide from 1900 to today.

3.3.2   Data sources and list of attributes

3.3.2.1   *Base data of the disaster event*

Disaster Number: A unique 8-digit disaster number is generated for each disaster event. "DisN °" includes a year (4 digits) and a serial number (4 digits) unique for each disaster (i.e. Cunami 2004 = DisN ° 2004-0659).

Disaster group: two major disaster groups distributed: natural disasters and technological disasters. There is a third group called "Computed Disaster," which includes some large hunger situations where drought was not a major causation factor. For the classification of disasters, see Table 1.

Disaster sub-group: Natural disaster category is divided into 6 sub-groups: biological, geophysical, climatological, hydrological, meteorological and off-earth disasters.

Type of disaster: The main type of disaster is identified for each event. This field is automatically associated with the disaster subgroup and disaster group. Two or more disasters may be involved (in cases where one type of disaster causes another type of disaster). The primary type (or cause) of disaster is first recorded, followed by the secondary fields Linked Disaster 1 and 2.

Sub-type of disaster: Breakdown related to the type of disaster.

Sub-disaster type

Tabula 1. EM-DAT izmantota katastrofu klasifikācija

Disaster Group	Disaster Subgroup	Definition	Disaster Main Type	Disaster Sub-Type	Disaster Sub-Sub-Type
Natural	Geophysical	A hazard originating from solid earth. This term is used interchangeably with the term geological hazard.	Earthquake	Ground movement	
			Earthquake	Tsunami	
			Mass Movement (dry)	Rock fall	
			Mass Movement (dry)	Landslide	
			Volcanic activity	Ash fall	
			Volcanic activity	Lahar	
			Volcanic activity	Pyroclastic flow	
			Volcanic activity	Lava flow	
	Meteorological	A hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that last from minutes to days.	Extreme Temperature	Cold wave	
			Extreme Temperature	Heat wave	
			Extreme Temperature	Severe winter conditions	Snow/ice
			Extreme Temperature	Severe winter conditions	Frost/freeze

			Fog		
			Storm	Extra-tropical storm	
				Tropical storm	
				Convective Storm	Derecho
					Hail
					Lightning/thunderstorm
					Rain
					Tornado
					Sand/dust storm
					Winter storm/blizzard
					Storm/surge
					Wind
					Severe storm
	Hydrological		Flood	Coastal flood	

					Riverine flood	
					Flash flood	
		A hazard caused by the occurrence, movement, and distribution of surface and subsurface freshwater and saltwater.			Ice jam flood	
			Landslide		Avalanche (snow, debris, mudflow, rockfall)	
			Wave action		Rogue wave	
					Seiche	
	Climatological	A hazard caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multi-decadal climate variability.	Drought			
			Glacial Lake Outburst			
			Wildfire		Forest Fire	
					Land fire: Brush, bush, Pasture	
	Biological	A hazard caused by the exposure to living	Epidemic		Viral Disease	
					Bacterial Disease	

		organisms and their toxic substances (e.g. venom, mold) or vector-borne diseases that they may carry. Examples are venomous wildlife and insects, poisonous plants, and mosquitoes carrying disease-causing agents such as parasites, bacteria, or viruses (e.g. malaria).		Parasitic Disease	
				Fungal Disease	
				Prion Disease	
			Insect infestation	Grasshopper	
				Locust	
			Animal Accident		
	Extraterrestrial	A hazard caused by asteroids, meteoroids, and comets as they pass near-earth, enter the Earth's atmosphere, and/or strike the Earth, and by changes in interplanetary conditions that effect the Earth's	Impact	Airburst	
			Space weather	Energetic particles	
				Geomagnetic storm	
				Shockwave	

		magnetosphere, ionosphere, and thermosphere.			
Technological	Industrial accident		Chemical spill		
			Collapse		
			Explosion		
			Fire		
			Gas leak		
			Poisoning		
			Radiation		
			Oil spill		
			Other		
	Transport accident		Air		
			Road		
			Rail		

		Water		
Miscelleanous accident		Collapse		
		Explosion		
		Fire		
		Other		

Entry criterion: Reason for recording a disaster event EM-DAT. For an event to be entered in the database, at least one of the following criteria must be met:

- deaths: deaths of 10 or more people;
- affected: 100 or more people have been injured/injured/homeless;
- Declaration/international appeal: State declaration on the state of emergency and/or appeal for international assistance.

In the absence of figures, some secondary criteria are also taken into account, such as "A major disaster/A significant loss (i.e. "the worst disasters in a decade" and/or "This was the disaster that the country had the most serious losses").

Title of event: Any disaster-related specification enabling it to be identified

Glide number: global identification number

DFO/GVP/USGS: This field is used to link THE EMDAT disaster with other databases.

3.3.2.2   National data

3.3.2.2.1   Geographical information

State - State in which the disaster occurred or had occurred

ISO code - The international standardization organisation assigns a three-letter code to each country

Region: region to which the country belongs.

The continent - the continent that owns the country.

River basin - name of river basins of the affected area

Epicenter - Information on the location of the quake's epicenter.

Latitude - North-South Coordinates; when available

Longitude - Eastern - Western coordinates; when available

Location - Geographical detail (e.g. city, village, department, province, state or district name).

3.3.2.2.2   Time information

Starting date/month/year - date of disaster.

End date/month/year - date when disaster ends.

Local time - local time when the disaster occurred.

3.3.2.2.3   Physical peculiarities

Origin - causing disaster

Related disasters 1 and 2 - secondary and/or associated effects or consequences for the primary event

Disaster size scale and value - "intensity" of a specific disaster

- earthquake: Richter scale

- Floods: Km ² (covered area);

- Duration: Km ² (covered area);

- insect infestations: Km ² (covered area);

- extreme temperature: ° C (minimum or maximum value);

- Epidemies: number of vaccinated;

- wildfire: Km2 (covered area);

- Vetra: km/h (wind speed);

- Radiation: Curie (Ci)

- Chemicals leakage: m ³.

3.3.2.2.4 Status

Aid contribution - the total amount of the investment for immediate rescue operations granted to the State.

OFDA Response (The Office of U.S. Foreign Disaster Assistance) - whether OR not OFDA responded to the disaster.

The request for international assistance and the date of the request for international assistance - or the country concerned - had requested international assistance and the date on which it occurred.

The disaster statement and the date - or the state of emergency and the date it happened.

3.3.2.3 Information data source

Type and name of source - the database is compiled from a variety of sources, including the United Nations, national and non-governmental agencies, insurance companies, research institutes and press agencies (see Table 2).

Tabula 2. EM-DAT main sources to be used (not complete)

Source type	Sources Information	Disaster coverage
United Nations	OCHA	Natural disasters
	IRIN	Natural and technological disasters (Africa)
	WFP	Drought/Famine
	WMO	Natural disasters
	WHO/OMS	Epidemics

	FAO	Drought/Famine
National Governments	National Governments	Natural and technological disasters
US Governments	FEMA	Natural disasters (America)
	NOAA	Natural disasters
	OFDA	Natural and technological disasters
	USGS	Earthquakes
	Smithsonian	Volcanoes
	DFO	Floods, slides and windstorms
	CDC	Epidemics
IFRC	IFRC	Natural and technological disasters
Inter-Governmental Organizations	World Bank	Major natural disasters
ReInsurance Companies	SwissRe	Natural and technological disasters
	MünichRe	Natural disasters
Press	AFP	Natural and technological disasters

Report Date - Last Report Date of Source

Confidence indicator (1/5) c - To ensure the quality of the data, a confidence indicator has been established where 1 - very low and 5 - very high.

3.3.3 Criteria for recording events

THE EM-DAT database shall record events that meet at least one of the following:

- 10 or more dead;
- 100 or more affected;
- a state of emergency has been declared;
- request international assistance

3.3.4   Database structure and architecture

THE STRUCTURE of THE EM-DAT database is based on events associated with the event properties table. an 1.sh diagram is an example of how AN EM-DAT database architecture is created

.Schema 1. EM-DAT databse sytucture shema
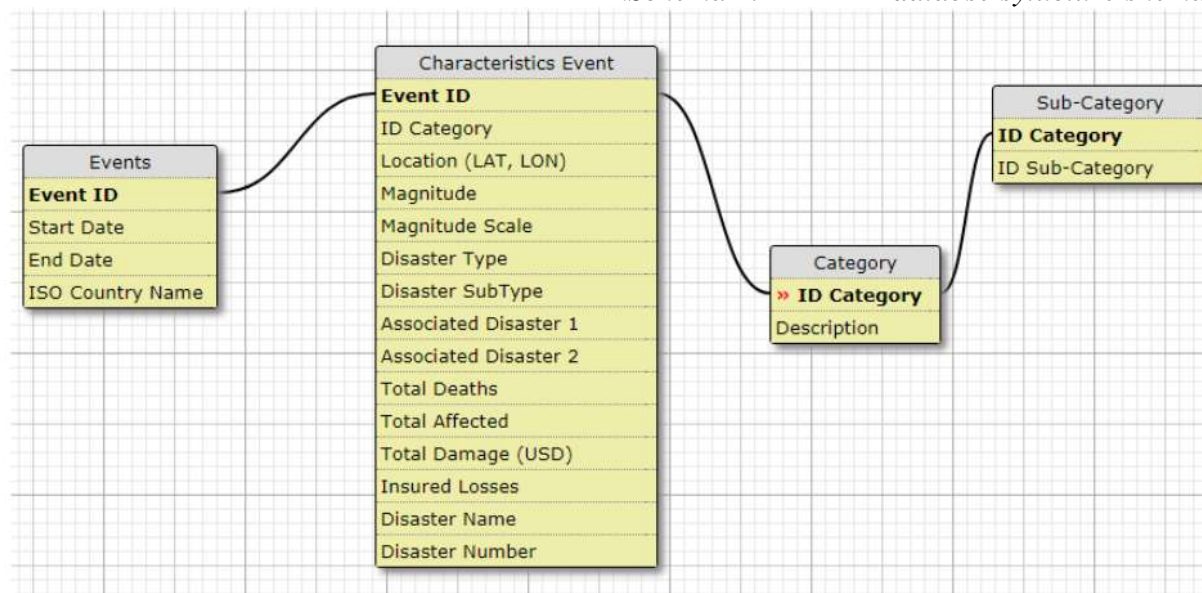
3.3.5   Loss indicators and their calculation according to data sources

3.3.5.1   Human loss indicators

Dead - the number of people who lost their lives because of the event.

Missing - the number of people whose whereabouts have not been known since the disaster and who are considered dead, based on official data.

Total dead - dead + missing.

Injured people suffering from physical injuries, injuries or diseases requiring immediate medical treatment directly as a result of the disaster.

Those affected - people who need immediate help in emergency situations.

Homeless people - the number of people whose house has been destroyed or severely damaged.

Total affected - Total amount of injured, affected and homeless.

3.3.5.2   Economic loss indicators

Total estimated losses (in thousands At the current value of US dollars) - the total value of losses consisting of all, directly and indirectly related to disaster, expenses and economic losses. The information can be broken down by sector: Social, Infrastructure, Production, Environment and others (if available).

Reconstruction expenses (in thousands U.S. dollar at present value) - Cost of replacing lost assets. Reconstruction costs differ from total losses as they must take into account the current costs of construction or purchase of goods, as well as additional costs related to prevention and mitigation measures to reduce the damage caused by future disasters.

Loss of insurers (in thousands In the current value of US dollars) - Economic losses covered by insurance companies.

3.3.5.3 Infrastructure loss indicators

Infrastructure damaged or destroyed by disaster, in absolute values or percentages:

- Houses (number);
- Bridges (number);
- Trade/Business (number);
- Roads (km);
- rails (km);
- Education (number of schools);
- Health (number of health centres/hospitals);
- Forest (ha);
- Agricultural land/crops (ha).

3.3.5.4 Impact on sectors

Different sectors affected by the disaster (classifier):

- Animals;
- Industry;
- Electrical;
- Water supply/sewer;
- Communication;
- Cultural infrastructure;
- Transport;
- Other.

3.3.6   GIS data layers

For each disaster, a shapefile (GIS format) is created on the basis of the selected GAUL2015 codes, representing the affected administrative regions in the polygon form (defined as the disaster "imprint").

3.3.7   KaZa considerations to be used in the project/Conclusion:

1. An incident-oriented approach should be used within KaZa, but the data model is not applicable because the level of data classification is very low.

3.4   Slovenian loss database

3.4.1   Identified durring the study

In 2003, the Republic of Slovenia has developed a detailed methodology for the determination, assessment and documentation of losses at national, regional and local level, managed by the Civil Protection and Disaster Prevention Administration as the competent authority under the Law on Conservation against Natural and Other Disaster. On the basis of experience and regular amendments, the methodology for damage assessment is continuously improved.

The assessment of losses is a national instrument used by the Government of the Republic of Slovenia to assess the damage caused by the disaster and to determine whether there are conditions for involving the State in disaster prevention. Based on aggregated data, the government approves a final assessment of the damage to prepare a recovery plan.

The main users are the Ministry of Finance, the Ministry of Agriculture and Environment, the Ministry of Infrastructure and Territory Planning, the Ministry of Economic Development and Technology, the Tax Administration of the Republic of Slovenia, the Statistical Office of the Republic of Slovenia, Slovenia and the European Solidarity Fund.

Reports of losses, together with studies on the legal, economic, social, psychological and other aspects of disasters, are also used for forensic and risk modelling purposes. Past events can better model the future for research organisations and institutes at national level.

The Agriculture Institute is developing drought-forecasting model algorithms using crop-damaging data due to drought. The Ministry of Agriculture and Environment uses LOSS estimates to implement agricultural policy and to prepare new policies (for example, the selection of more suitable crops for cultivation in light soils). Local governments use data for the preparation of local government spatial plans, while the State uses them in the establishment of national spatial plans. The system helps to accelerate the preparation of programmes to

address the effects of natural disasters and, at the same time, helps to accelerate the cost of State aid to victims.

The disaster loss database is not publicly available mainly because it involves external registers (e.g. property register) and contains sentient information.

3.4.2   Data sourecs and atribute list

One of THE AJDA data sources for agricultural products and property damage assessment forms:

1. - Assessment of damage to agricultural land

2. - Assessment of damage to agricultural products

3. - Assessment of damaged buildings

4. - Assessment of partly damaged buildings

5. - Assessment of damage to civil engineering structures

6. - Assessment of damage to animals

7. - Protocol on the assessment of damage to fixed assets and working assets

8. - Protocol on the assessment of income losses following a natural disaster

For the purposes of the assessment of losses, data from different registers are used, such as:

1. Agricultural register

• Data on injured persons (Graphic units of agricultural land)

• Spatial data

2. Records of the measuring and mapping authority

• Register of 3-D units

• Earth cadastre

• Open data on buildings and building parts

• Cadastre of Economic Public Infrastructure

3. Register of the Agency for Legal Enterprises and Related Services

• Legal personal data

Image 4. AJDA conceptual shema
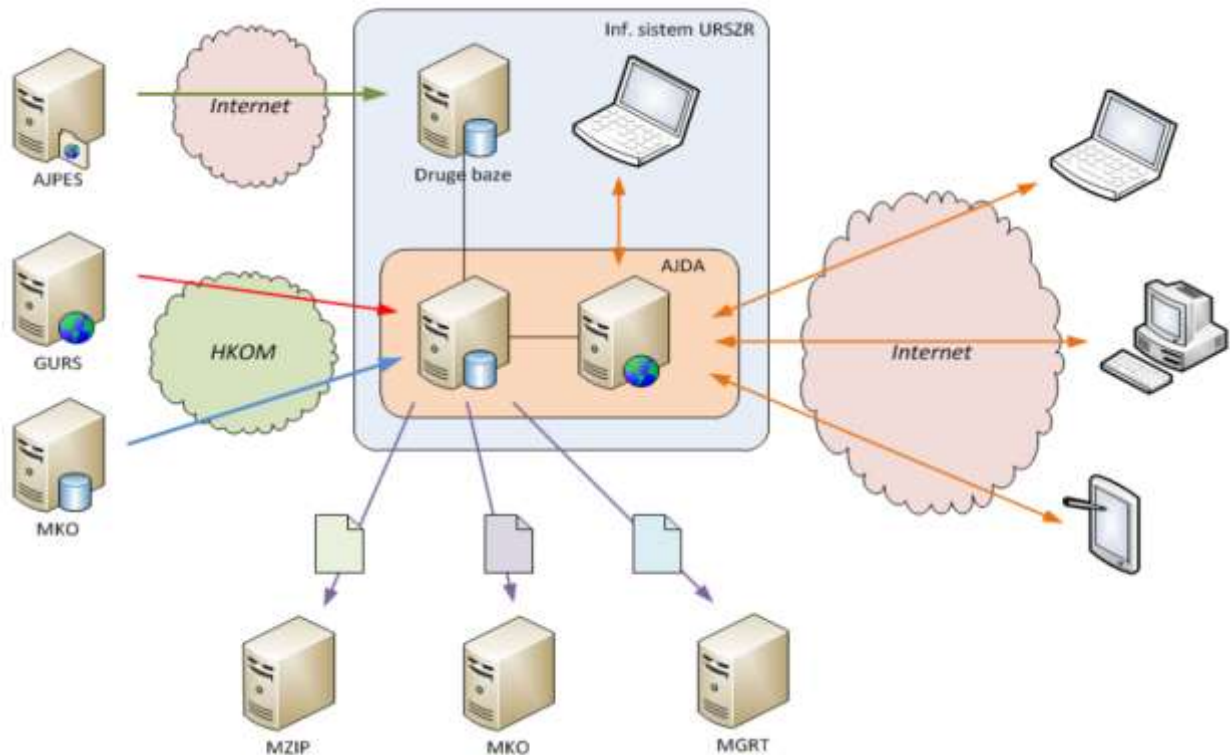
The database shall maintain fault assessment information for the following hazards:

- natural disasters: earthquakes, floods, landslides or avalanches, large snow, strong wind, ice or wet snow, frost, drought, storms, hail, forest fires.
- other disasters - industrial incidents, major road traffic incidents, railway incidents, airplane incidents, incidents with tourists.

Incident Attributes

General characteristics:

- location;
- the type of damaged object;
- ownership;
- type of disaster;
- time;
- the damage group;
- intended use and operation.

Technical specifications:

- a description of the situation;

- description of the damaged object;

- method of administration;

- age;

- technical data.

3.4.3 Conditions for recording events

In the Republic of Slovenia, the main principle for involving national disaster relief:

- that the calculation of direct losses of property or agriculture exceeds 0.03 per cent of the planned revenue of the State budget;

- that the amount of funds allocated for the reconstruction of property under the Law (ZOPNN), the funds allocated for the payment of the amount of insurance, as well as the funds allocated for the reconstruction of the State and local governments budget, must not exceed the funds needed for the reconstruction of property;

- that the amount of funds intended for economic activities to eliminate the effects of disasters on property and the monitoring of the use of these resources does not represent an advantage for competitors and thus does not threaten the market for goods or services;

- that the amount of funds allocated to eliminate the effects of disasters in agriculture under the legislation, the funds allocated as payment of the amount of insurance, and the funds allocated from national and local budgets, such as direct payments to agriculture to prevent the effects of natural disasters, do not exceed the losses on the market value of agricultural production.

3.4.4 Database structure

The structure of the Slovenian database is based on an active, non-threaded incident as mainly constructed disaster and loss databases. An incident can be associated with one or more assets, depending on how many assets the incident affected.

Fault groups include land, objects, fixed assets (movable property and stocks, agricultural production, multiannual plantations), cultural values and loss of revenue on the holding. The database is collected from external sources of information and regularly updated during the year. In view of this structure, a compensation report can be established very quickly in the event of an incident, as all necessary up-to-date information is already linked to the incident. When an incident occurs, victims must complete some forms (depending on the risk) and then provide an estimate of costs and affected assets.

3.4.5 Loss indicators and their calculation according to data sources

The fault assessment system operates at local (211 municipalities), regional (13 regional commissions) and national level (1 national commission).

The Civil Protection and Disaster Prevention Administration, the Slovenian Local Government Association and the main Slovenian Local Government Associations in their assessment of losses. However, the following organisations are also involved in optimizing the data: the Slovenian Environment Agency (ARSO), the Agricultural Markets and Rural Development Agency (ARSKTRP), the Agricultural Land and Forests Fund, the Agricultural and Forestry Chamber of the Republic of Slovenia, the Slovenian Agricultural Institute, the Water Institute of the Republic of Slovenia, Faculty (Biotechnical Faculty, and Civil and faculty of geodetic engineering), Statistical Office OF the Republic of Slovenia (Surs), Slovenian Institute for Heritage Protection, Slovenian Forest Institute, Eko Fund (National Environment Fund of Slovenia, successor to the Environmental Fund of the Republic of Slovenia), Marriage and Mapping Authority of the Republic of Slovenia, Tax Administration, Insurance Companies, etc.

As a general rule, the damage assessment shall be prepared within two months of the disaster and agriculture before harvest, or at the latest within one month after harvest.

Damage is defined as a result of a disaster resulting in a reduction in the amount and quality of real estate and movable property, the market and the useful value for the time, type, form, scale and intensity of the disaster, as well as the loss of income as a result of a disaster.

A group of losses may combine several instances of damage occurring within 72 hours for the same reason and having the same or similar characteristics. But in exceptional cases, such as a mass outbreak of plant pests and animal diseases, the damage group will combine several cases of damage resulting from the same or equivalent cause over the longer term.

According to this methodology, damage is identified and evaluated for the following fault groups:

1. Land

    1.1. Forests;

    1.2. Agricultural land;

    1.3. Land for construction.

2. Equipment:

    2.1. Buildings (residential and non-residential);

    2.2. Civil engineering structures:

        2.2.1. Transport infrastructure facilities (roads, railways, bridges, etc.);

2.2.2. Water and waste water distribution pipelines;

2.2.3. Water equipment and other similar facilities;

2.2.4. Electric power lines and telecommunications network.

3. Fixed assets and current assets:

   3.1. Fixed assets - real estate and stocks;

   3.2. Current agricultural production;

   3.3. Perennial plantings.

4. Cultural property:

   4.1. Cultural and religious buildings, memorials, museums and other similar buildings;

   4.2. Real estate (arts and other similar works).

5. Loss of revenue on the holding;

6. Others.

The damage is divided into two categories:

- primary damage consisting of the main and additional costs of full recovery of the damaged object, as well as repair and replacement costs of the damaged part or component. Primary damage shall also include the costs of cleaning and/or releasing damage to the site, demolition of damaged or unfit parts and the required costs of launching;

- secondary damage consisting of protective, rescue and rescue costs (emergency protection or preventive measures) related to the protection and/or rescue of persons, animals and other damaged objects. Secondary damage includes protective works such as protective dampers, ditches, supporting structures, pumping, additional fertilizers and other similar measures. Secondary damage also includes the costs of protective measures (temporary displacement, temporary accommodation, vaccination and others) which provide basic living conditions, the costs of testing and simulation of models, improving damage assessment and other activities to assess damage.

The data fields for loss indicators are defined in conjunction with a standardized estimate of economic losses, based on a continuously updated price list.

3.4.6 ĢIS data layer

The information system includes a graphical part (part of the geographic information system).

3.4.7   KaZa considerations to be used in the project /Conclusion :

1. The methodology used to identify disaster data should also be partly used for the collection of additional data by KaZa;

2. Semi-usable data model for data storage in the data warehouse.

Attachments

1. attachment "Latvijas Valsts mežu ģeogrāfiskās datu kopas"

Data pool name	Priority
Protected species (plots)	2
Turning area	2
Waste	1
Location of deposits	2
Former Military Objects	2
Other protected objects	2
Nature protection zone	2
Natural trails	1
Dam	1
Core areas specially protected by the DAP	1
Zoning of DAP specially protected areas	1
DAP tree plantations	2
DAP micro-reserves	2
Dolomite deposits	2
Rail	1
Existing 110 kV protection zone	2
Existing 110 kV axis	2
Ditch	1
Trench flow directions	1
Hydroline	2
Insect distribution	1
Clearings	1
Change location	1
Specially protected nature areas	2
Janis Sta Road Network	2
JS Lakes	2
JS Rivers	2

Cadastre structures	2
Cadastre in blocks	2
Communication points	2
Peat deposits	1
Peat harvesting sites	1
Peat development fields LVM areas	2
Peat processing plants	1
Location of LVGMC deposits	2
LVGMC Counter deposits	2
LVGMC Dispute deposits	2
LVM railway crossings	1
Forest roads and natural carriageways	1
Forest compartment information	1
Forest Fire Water Recycling Areas	1
Other forest fire prevention measures	1
TACT Road Accessibility Layer	1
Bridge	1
Description of water abstraction sites	1
Watercourse	1
Deposits of mineral resources of national importance	2
Border points for mineral deposits of national importance	2
Regulated water gutters of national importance	1
Water gutters of national importance	1
Surface areas of water gutters of national importance	1
Water catchment areas of national importance	1
Surface water discharge site	1
VZD Address Points	1
ZMNI Dams	2

ZMNI Dam pickets	2
ZMNI Cannula	2
ZMNI Cannula Collectors	2
ZMNI Drenu sistēma	2
ZMNI Polder Pump Plants	1
ZMNI Polder Territories	1

Event	Event group	Event subgroup	Event type	Parameters from work task	Designated authorities	Data structure
NP_1 ID number						
NP_2 Name					VUGD	Will be created at KaZa development
NP_3 GLIDE number					VUGD	Will be created at KaZa development
NP_4 Start date					VUGD	Will be created at KaZa development
NP_5 End date					VUGD	Will be created at KaZa development
NP_6 Lenght					VUGD	Will be created at KaZa development
NP_7 Event category					VUGD	Will be created at KaZa development
NP_8 reason					manually	Will be created at KaZa development
	DK Natural disasters					
		DK geophysical				
			DK_G1 Earthquakes			
				DK_G1.1 magnitus	LVĢMC	Data source defined
				DK_G1.2 intensity	LVĢMC	Data source defined
				DK_G1.3 depth	LVĢMC	Data source defined
				DK_G1.4 affected population	PMLP	Data source defined
				DK_G1.5 affected area	LVĢMC	Data source defined

				locale (width, length)	VUGD	Will be created at KaZa development
				radius	VUGD	Will be created at KaZa development
			DK_G2 landslides			
				DK_G2.1 soil type	LVĢMC	Data source defined
				DK_G2.2 landslide/avalanche speed	LVĢMC	Data source defined
				DK_G2.3 snow/landslide depth	LVĢMC	Data source defined
				DK_G2.4 affected population	PMLP	Data source defined
				DK_G2.5 affected area	LVĢMC	Will be created at KaZa development
		DK_H hydrological			VARAM	
			DK_H1 flood			
				DK_H1.1 type of flooding	LVĢMC	Data source defined
				DK_H1.2 flooded area/affected area	LVĢMC	Data source defined
				DK_H1.3 affected infrastructure	State, VZD	Data source defined
				DK_H1.4 pluviometry	LVĢMC	Data source defined

				DK_H1.5 duration of rainfall (rain/rainfall)	LVĢMC	Data source defined
				DK_H1.6 water level	LVĢMC	Data source defined
				DK_H1.7 affected population	PMLP	Data source defined
		DK_M meteorological				
			DK_M1 rainfall	n/a		
				DK_M1.1 pluviometry	LVĢMC	Data source defined
				DK_M1.2 duration of rainfall (rain/rainfall)	LVĢMC	Data source defined
				DK_M1.3 water level	LVĢMC	Data source defined
				DK_M1.4 affected population	PMLP	Data source defined
				DK_M1.5 affected area	LVĢMC	Data source defined
				DK_M1.6 affected infrastructure	VZD	Data source defined
			DK_M2 hail			
				DK_M2.1 hail grain diameter	LVĢMC	Data source defined
				DK_M2.2 affected population	PMLP	Data source defined
				DK_M2.3 affected area	VZD	Data source defined

				DK_M2.4 affected infrastructure	VZD	Data source defined
			DK_M3 For strong snow and puffiness			
				DK_M3.1 snow intensity	LVĢMC	Data source defined
				DK_M3.2 rise of snow blanket	LVĢMC	Data source defined
				DK_M3.3 affected population	PMLP	Data source defined
				DK_M3.4 affected area	LVĢMC	Data source defined
				DK_M3.5 affected infrastructure	VZD	Data source defined
			DK_M4 storms			
				DK_M4.1 maximum windspeed	LVĢMC	Data source defined
				DK_M4.2 direction	LVĢMC	Data source defined
				DK_M4. 3 or at least a category (on the Beaufort scale) after damage if there is no adequate instrumental observation data	LVĢMC	Data source defined

				DK_M2.4 affected population	LVĢMC	Data source defined
				DK_M4.5 affected area	LVĢMC	Data source defined
				DK_M4.6 affected infrastructure	VZD	Data source defined
			DK_M5 thunderstorm			
				DK_M5.1 thunderstorm intensity (lightning discharge) instrument observation data	LVĢMC	Data source defined
				DK_M5.2 affected population	PMLP	Data source defined
				DK_M5.3 affected area	LVĢMC	Data source defined
				DK_M5.4 affected infrastructure	VZD	Data source defined
		DK_K climatelogical				
			DK_K1 strong frost		VARAM	Data source defined
				DK_K1.1 temperature minimum	LVĢMC	Data source defined
				DK_K1.2 dienu skaits	LVĢMC	Data source defined

				DK_K1.3 affected population	PMLP	Data source defined
				DK_K1.4 affected area	LVĢMC	Data source defined
				DK_K1.5 affected infrastructure	VZD	Data source defined
			DK_K2 heat		VARAM	
				DK_K2.1 temperature peak	LVĢMC	Data source defined
				DK_K2.2 number of days	LVĢMC	Data source defined
				DK_K2.3 affected population	PMLP	Data source defined
				DK_K2.4 infrastructure	VZD	Data source defined
				DK_K2.5 affected area	LVĢMC	Data source defined
			DK_K3 For icing and wet snow sediment		VARAM	
				DK_K3.1 intensity of precipitation (including freezing)	LVĢMC	Data source defined
				DK_K3.2 air temperature	LVĢMC	Data source defined

				DK_K3.3 affected population	PMLP	Data source defined
				DK_K3.4 affected area	LVĢMC, state	Data source defined
				DK_K3.5 affected infrastructure	VZD	Data source defined
			DK_K4 drought		ZM	
				DK_K4.1 SPI	LVĢMC	Data source defined
				DK_K4.2 number of days since last fall (drought duration)	LVĢMC	Data source defined
				DK_K4.3 affected area	LAD, LVĢMC	Data source defined
				DK_K4.4 affected infrastructure	LAD, VZD	Data source defined
			DK_K5 forest and peat bog fires		ZM	
				DK_K5.1 wind direction	LVĢMC	Data source defined
				DK_K5.2 proximity of populated areas		Data source defined
				DK_K5.3 affected population	PMLP	Data source defined
				DK_K5.4 affected area	VMD, LVM	Data source defined

				DK_K5.5 affected infrastructure	VMD, VZD	Data source defined
		DK_B biological				
			DK_B1 epidemics		VM	
				DK_B1.1 type of substances/allergens	NVD	Data source defined
				DK_B1.3 hazard level	NVD	Data source defined
				DK_B1.4 Wind directive	LVĢMC	Data source defined
				DK_B1.5 wind velocity	LVĢMC	Data source defined
				DK_B1.6 affected population	PMLP	Data source defined
				DK_B1.7 affected area	NVD	Data source defined
				DK_B1.8 evacuation area	NVD	Data source defined
				radius	NVD, PVD, VAAD	Data source defined
				number of vaccinated	NVD	Data source defined
			DK_B2 epizootic		ZM	
				DK_B2.1 type of substances/allergens	PVD	Data source defined
				DK_B2.2	PVD	Data source defined

				hazard level		
				DK_B2.3 herd registration number affected Wind directive	PVD	Data source defined
				DK_B2.4 animal species affected	PVD	Data source defined
				DK_B2.5 number of animals affected	PVD	Data source defined
				DK_B2.6 affected population	SPKC	Data source defined
				DK_B2.7 affected area	PVD	Data source defined
				DK_B2.8 evacuation area	State, VP	Data source defined
				DK_B2.9 radius	PVD	Data source defined
			DK_B3 epifitotia (insect infestations)			
				DK_B3.1 type and name of organism	VAAD	Data source defined
				DK_B3.2 plant botanical name, variety	VAAD	Data source defined
				DK_B3.3 quarantine status	VAAD	Data source defined
				DK_B3.4 affected area	VAAD	Data source defined

				DK_B3.5 affected population	PMLP	Data source defined
				DK_B3.6 evacuation area	State, VP	Data source defined
		cosmic	DK_O drop-off of meteorites, geomagnetic storms			
				DK_O1.1 magnetic Disorders Level	No information	No information
				DK_O1.2 location of a meteorite impact	No information	No information
				DK_O1.3 solar radiation level	No information	No information
				DK_O1.4 cosmic radiation level	No information	No information
				DK_O1.5 affected population	No information	No information
				DK_O1.6 affected area	No information	No information
	AK Anthropogenic disasters					
		AK_RA				

		industrial emergency			
			AK_RA1 Radiological emergency	VARAM	
				AK_RA1.1 disaster scale (INES scale)	VVV RDC	Data source defined
				AK_RA1.2 radiation leakage	VVV RDC	Data source defined
				AK_RA1.3 affected population	PMLP	Data source defined
				AK_RA1.4 affected area	VVV RDC	Data source defined
				AK_RA1.5 evacuation area	State, VP	Data source defined
				AK_RA1.6 type of leakage of radioactive material	VVV RDC	Data source defined
			AK_RA2 Chemical leakage	VARAM	
				AK_RA2.1 type of substance	VVV RDC	Data source defined

				AK_RA2.2 type of leakage of the substance	VVV RDC	Data source defined
				AK_RA2.3 affected population	PMLP	Data source defined
				AK_RA2.4 affected area	VVV RDC	Data source defined
				AK_RA2.5 evacuation area	Sate, VP	Data source defined
			AK_RA3 Ship leakage of hazardous chemicals		AM	
				AK_RA3.1 type of substance	NBS	Data source defined
				AK_RA3.2 type of leakage of the substance	NBS	Data source defined
				AK_RA3.3 affected area	NBS	Data source defined
			AK_AR4 Collapse of the building		BVKB, VUGD, VI, State	Data source defined
				AK_RA4.1 type of construction	VUGD	Data source defined

				AK_RA4.2 affected population	PMLP	Data source defined
			AK_AR5 Fire		IeM VUGD	Data source defined
				AK_RA5.1 affected infrastructure	VZD	Data source defined
				AK_RA5.2 affected area	VUGD	Data source defined
				AK_RA5.3 affected population	PMLP	Data source defined
			DK_RA6 Natural gas leak		AS Conexus Baltic Grid", AS "Gaso", EM (AS Latvijas gāze)	
				DK_RA6.1 affected infrastructure	AS Conexus Baltic Grid", AS "Gaso", AS Latvijas gāze	Data source defined
				DK_RA6.2 affeceted area	AS Conexus Baltic Grid", AS "Gaso", AS Latvijas gāze	Data source defined
				DK_RA6.3 affected population	PMLP	Data source defined

			DK_RA7 Biological accidents		VM	
				DK_RA7.1 type of substance	SPKC, NMPD	Data source defined
				DK_RA7.3 hazzard level	SPKC, NMPD	Data source defined
				DK_RA7.4 wind direction	LVĢMC	Data source defined
				DK_RA7.5 wind speed	LVĢMC	Data source defined
				DK_RA7.6 affected population	PMLP	Data source defined
				DK_RA7.7 affected area	SPKC, NMPD	Data source defined
			DK_RA8 Naftas noplūde		SM	
				DK_RA8.1 affected infrastucture	VUGD, VVD	Data source defined
				DK_RA8.2 affected area	VUGD, VVD	Data source defined
				DK_RA8.3 affected population	PMLP	Data source defined
			DK_RA9 Incidents and		AM	

			accidents of ports and marine hydrotechnical buildings			
				DK_RA9.1 affected infrastucture	AM, VUGD	Data source defined
				DK_RA9.2 affected area	AM, VUGD	Data source defined
				DK_RA9.3 affected population	PMLP	Data source defined
			DK_RA10 Ruptures of dams and other hydrotechnical structures		AS "Latvenergo"	
				DK_RA10.1 affected infrastucture	AS "Latvenergo"	Data source defined
				DK_RA10.2 affected area	AS "Latvenergo"	Data source defined
				DK_RA10.3 affected population	PMLP	Data source defined
			DK_RA11 Damage to transmission and distribution		AS "Augstsprieguma tīkls", AS "Sadales tīkls"	

			electricity networks			
				DK_RA11.1 affected infrastucture	AS "Augstsprieguma tīkls", AS "Sadales tīkls"	Data source defined
				DK_RA11.2 affected area	AS "Augstsprieguma tīkls", AS "Sadales tīkls"	Data source defined
				DK_RA11.3 affected population	PMLP	Data source defined
		DK_TN transport accident				
			DK_TN1 aviation accident		VRS ARCC, AM, SM	
				DK_TN1.1 affected infrastucture	AM, SM	Data source defined
				DK_TN1.2 affected area	AM, SM	Data source defined
				DK_TN1.3 affected population	PMLP	Data source defined

			DK_TN2 Autotransporta avārija		SM	
				DK_TN2.1 affected infrastucture	IeM IC, LVC	Data source defined
				DK_TN2.2 affected area	IeM IC, LVC	Data source defined
				DK_TN2.3 affected population	IeM IC	Data source defined
			DK_TN3 Railway accident/disaster		VAS "Latvijas dzelzceļš", SM	
				DK_TN3.1 affected infrastucture	VAS "Latvijas dzelzceļš"	Data source defined
				DK_TN3.2 affected area	VAS "Latvijas dzelzceļš"	Data source defined
				DK_TN3.3 affected population	VAS "Latvijas dzelzceļš"	Data source defined
				DK_TN2.4 type of incident	VAS "Latvijas dzelzceļš"	Data source defined
			DK_TN4 Sea accident	DK_TN4 Running a ship on a bank, collision of ships, disaster of passenger ship	AM	

				DK_TN4.1 type of incident	NBS	Data source defined
				DK_TN4.2 affected area	NBS	Data source defined
				DK_TN4.3 affected population	NBS	Data source defined
		AK_CI Man caused				
			AK_CI1 Social riots, Internal riots		IeM, VP, VDD	Data source defined
				AK_CI1.1 affected infrastucture	VZD	Data source defined
				AK_CI1.3 type of attack	Pašvaldība, VP	Data source defined
				AK_CI1.5 affeceted area	Pašvaldība, VP	Data source defined
				AK_CI1.6 evacuation area	Pašvaldība, VP	Data source defined
			AK_CI2 terrorist attack		IeM, VDD, VP	
				AK_CI2.1 type of infrastructure affected	VZD	Data source defined
				AK_CI2.2 attack object	Pašvaldība, VP	Data source defined

				AK_CI2.3 affected area	Pašvaldība, VP	Data source defined
				AK_CI2.4 evacuation area	Pašvaldība, VP	Data source defined
			AK_CI3 cyber-attack		AM	
				AK_CI3.1 type of infrastructure affected	CERT	Data source defined
				AK_CI3.2 data loss/corruption	CERT	Data source defined
				AK_CI3.3 attack object	CERT	Data source defined
				AK_CI3.4 hardware/equipment losses	CERT	Data source defined
region				KaZa functionality	VUGD	Will be created at KaZa development
address				KaZa functionality	VUGD	Will be created at KaZa development
coordinates				KaZa functionality	VUGD	Will be created at KaZa development
losses				KaZa functionality	VUGD	Will be created at KaZa development
	costs of removing effects			KaZa functionality	VUGD	Will be created at KaZa development
		resources involved		KaZa functionality	VUGD	Will be created at KaZa development
			establishment	KaZa functionality	VUGD	Will be created at KaZa development
			personnel	KaZa functionality	VUGD	Will be created at KaZa development

			finance	KaZa functionality	VUGD	Will be created at KaZa development
			technology	KaZa functionality	VUGD	Will be created at KaZa development
			materials	KaZa functionality	VUGD	Will be created at KaZa development
			international aid	KaZa functionality	VUGD	Will be created at KaZa development
	active disorders			KaZa functionality	VUGD	Will be created at KaZa development
	compensation paid					
		country				
		insurance companies		KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			BALTA	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			BTA	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			Ergo	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			If	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			BAN	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			Gjensedige	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
			Compensa	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development

			Seesam	KaZa functionality	Apdrošināšanas sabiedrības	Will be created at KaZa development
	persons					
		affected		KaZa functionality	VUGD	Will be created at KaZa development
			Age group	KaZa functionality	PMLP	Will be created at KaZa development
			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			status	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
		moved		KaZa functionality	VUGD	Will be created at KaZa development
			age category	KaZa functionality	PMLP	Will be created at KaZa development
			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			status	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
		evakuētas		KaZa functionality	VUGD	Will be created at KaZa development
			age category	KaZa functionality	PMLP	Will be created at KaZa development
			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			statuss	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
		injured		KaZa functionality	VUGD	Will be created at KaZa development
			age category	KaZa functionality	PMLP	Will be created at KaZa development

			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			status	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
		missing		KaZa functionality	VUGD	Will be created at KaZa development
			age category	KaZa functionality	PMLP	Will be created at KaZa development
			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			status	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
		dead		KaZa functionality	SPKC	Will be created at KaZa development
			age category	KaZa functionality	PMLP	Will be created at KaZa development
			sex	KaZa functionality	PMLP	Will be created at KaZa development
			nationality	KaZa functionality	PMLP	Will be created at KaZa development
			status	KaZa functionality	PMLP	Will be created at KaZa development
			impairment	KaZa functionality	PMLP	Will be created at KaZa development
	buildings					Will be created at KaZa development
		cadastre number			VZD	Will be created at KaZa development
		address			VZD	Will be created at KaZa development
		group of rooms			VZD	Will be created at KaZa development
		building floors			VZD	Will be created at KaZa development
		construction material			VZD	Will be created at KaZa development

		year of construction			VZD	Will be created at KaZa development
		inhabited or uninhabited			VZD	Will be created at KaZa development
		belonging			VZD	Will be created at KaZa development
			private		VZD	Will be created at KaZa development
			Country		VZD	Will be created at KaZa development
			municipalities		VZD	Will be created at KaZa development
			NVO		VZD	Will be created at KaZa development
			religious organisation		VZD	Will be created at KaZa development
		Owner			VZD	Will be created at KaZa development
			Name, surname			Will be created at KaZa development
		worth			VZD	Will be created at KaZa development
		flaw		KaZa functionality	VUGD	Will be created at KaZa development
		replacement cost		KaZa functionality	VUGD	Will be created at KaZa development
		economic creators		KaZa functionality	VUGD	Will be created at KaZa development
			type of business	KaZa functionality	VUGD	Will be created at KaZa development
			number of employees	KaZa functionality	VUGD	Will be created at KaZa development
		environmental creators		KaZa functionality	VUGD	Will be created at KaZa development

			source or type of pollution	KaZa functionality	VUGD	Will be created at KaZa development
			nature or water areas to be protected, including micro-reserves	KaZa functionality	VUGD	Will be created at KaZa development
			water resources	KaZa functionality	VUGD	Will be created at KaZa development
		cultural and historical creators		KaZa functionality	VUGD	Will be created at KaZa development
			cultural values	KaZa functionality	VUGD	Will be created at KaZa development
			historical values	KaZa functionality	VUGD	Will be created at KaZa development
			global cultural or heritage sites	KaZa functionality	VUGD	Will be created at KaZa development
		insured			Insurance companies	Will be created at KaZa development
			yes	name		Will be created at KaZa development
			no			Will be created at KaZa development
	transportation					Will be created at KaZa development
		number plate of the vehicle			CSDD	Will be created at KaZa development
		classification			CSDD	Will be created at KaZa development
		owner			CSDD	Will be created at KaZa development

			Name, surname		CSDD	Will be created at KaZa development
			Personal code		CSDD	Will be created at KaZa development
			address of declared place of residence		CSDD	Will be created at KaZa development
		technical inspection			CSDD	Will be created at KaZa development
		abrasion			VUGD	Will be created at KaZa development
		replacement cost			VUGD	Will be created at KaZa development
	domestic animals					
		number of the person's herd			LDC	Data source defined
		holding number			LDC	Data source defined
		animal species			LDC	Data source defined
		animal ID			LDC	Data source defined
		count			LDC	Data source defined
	land					
		flooded fields (ha)			LVĢMC	Data source defined
		type of damaged crop plants			LAD	Data source defined
			wheat			

			rye			
			other			
		damaged crop plant ha			LAD	Data source defined
		replacement cost			VUGD	Will be created at KaZa development
		landlord			VUGD	Will be created at KaZa development
	roads					
		car roads		tarred/unasphalted	LVC	
			length of damaged roads km		LVC	Data source defined
			address		LVC	Data source defined
			coordinates		LVC	Data source defined
			replacement cost		LVC	Data source defined
			damaged Inscripture		LVC	Data source defined
			address		LVC	Data source defined
			coordinates		LVC	Data source defined
			replacement cost		LVC	Data source defined
		railways	length of damaged roads km		LDZ	Data source defined
			picket		LDZ	Data source defined

			coordinates		LDZ	Data source defined
			replacement cost		LDZ	Data source defined
			damaged Inscripture		LDZ	Data source defined
			picket		LDZ	Data source defined
			coordinates		LDZ	Data source defined
			replacement cost		LDZ	Data source defined
	preventive measures					
		at operational level		KaZa functionality	VUGD	Will be created at KaZa development
			prepared warning	KaZa functionality	VUGD	Will be created at KaZa development
			notification of the population	KaZa functionality	VUGD	Will be created at KaZa development
			"puteņa" announcement of tickets	KaZa functionality	VUGD	Will be created at KaZa development
			call for citizens not to go to work/school	KaZa functionality	VUGD	Will be created at KaZa development
			timely closed roads	KaZa functionality	VUGD	Will be created at KaZa development
			canceled measure	KaZa functionality	VUGD	Will be created at KaZa development
			other	KaZa functionality	VUGD	Will be created at KaZa development

		at strategic level		KaZa functionality	VUGD	Will be created at KaZa development
			mown last grass	KaZa functionality	VUGD	Will be created at KaZa development
			purged piercings and nostrils	KaZa functionality	VUGD	Will be created at KaZa development
			anti-flooding measures implemented	KaZa functionality	VUGD	Will be created at KaZa development
			by constructing a protective damb	KaZa functionality	VUGD	Will be created at KaZa development

Types of railway accident		
Major railway accident		
A serious accident (an undesirable or unexpected sudden event involving at least one vehicle in motion with a speed exceeding 0 km/h or a specific series of events with at least one of the following consequences: 1. at least one person (hereinafter - person) has died in a serious accident or has died within 30 days after such, except in the case where the person has deliberately acted with the intention to cause personal injury to himself and therefore death has occurred (hereinafter - suicide); 2. personal injury caused to the person which has caused the person to be	train collision:	with the vehicle, if one part of the train collides with the front of another train or vehicle (moving or stationary), from the rear or from the side;
		an obstacle to the structure gauge, if a part of the train and objects, whether fixed or temporarily located on or near the track (excluding an obstacle to a railway crossing or transition), including a collision with contact line elements;
	derailment of a train if at least one train wheel departs from the rail head;	
	railway crossing or crossing accident (excluding crossing between platforms and crossings intended solely for railway personnel): an accident involving at least one vehicle and a person using a railway crossing or crossing railway track by any means of transport or legs (hereinafter referred to as a crossing user), or one; or	an incident on an adjustable railway crossing where the protection or warnings of crossing users are manually applied;
		an incident on an adjustable railway crossing where crossing users are alerted by means of devices enabling the vehicle when it approaches the crossing (automatic warning of the crossing user);

hospitalized for more than 24 hours, except where the person has knowingly acted with an intention to cause personal injury and therefore has suffered serious bodily injury (hereinafter - suicide attempt); 3. serious damage to rolling stock, track or other equipment or damage to the environment of EUR 150 000 or more; 4. Train traffic at the railway stage concerned is interrupted by six	a number of vehicles or objects crossing a crossing or crossing which are temporarily on or near the track, if lost by a vehicle crossing a railway crossing or transition, taking into account the following breakdown of railway crossings:	an incident on an adjustable railway crossing where crossing users are warned and protected by means of devices enabled by the vehicle when approaching the crossing (automatic protection and warning of the user of the crossing);
		an incident on an adjustable railway crossing with the protection of the railway system where crossing users are protected by means of devices (signals or a protection system) allowing the vehicle to continue to move only if the railway crossing level has full protection on the side of the user and the crossing is not busy (automatic protection of the railway system);
		an incident on a non-regulated railway crossing fitted with road signs only and without any warning or protective devices being switched on;
		an accident on a pedestrian transition which is not on a single surface with a railway crossing. Pedestrian crossings located on a single surface

		with a railway crossing shall be considered to be part of a railway crossing. The crossing between railways is also considered to be part of the crossing, which is a continuation of the roadside;
	an accident with a person involving a rolling stock on the movement, an accident in which one or more persons have been hit by a railway vehicle, an object attached to it or detached from it, or in which the person has fallen out of the vehicle or, when in the vehicle, was struck with an unfixed object (excluding suicide or suicide attempt);	
	a fire or explosion in a vehicle (including its cargo), which stands out during its movement from the station of departure to the terminal station (including parking time at the station of departure, terminal station or intermediate stations), as well as during vehicle manoeuvres;	
	another serious accident which has caused the harmful consequences referred to in Paragraph 9 of these Regulations.	
Traffic safety infringement	derailment of the vehicle;	
	vehicle collision with:	other vehicles;
		elements of railway infrastructure facilities, loading or unloading facilities or objects which threaten the safety of railway traffic;
	unauthorised acceptance of the train on a busy road;	
	unauthorised transmission of the train to a busy railway stage;	
	the acceptance or dispatch of a train on an unprepared or incorrectly prepared route, including the dispatch or	

	acceptance of an electric rolling stock, if the route or part thereof is not equipped with a contact line or has no voltage;	
	passing a forbidding signal when any part of the vehicle makes unauthorised movement by passing a dangerous place determined by:	the forbidding signal of the field equipment or the signal of the on-board unit of the suitably equipped traction vehicle;
		regulatory enactments regarding the technical operation of railways provide for an oral or written authorisation with which the end of movement of the vehicle (place) has been notified;
		control post (excluding deadlock);
		hand signal or non-automatic signal;
	passing a forbidding signal when any part of the train makes unauthorised movement without passing a dangerous place, provided that:	an override of an order to stop is detected in cases where the train security system is not in operation;
		movement occurs after the end of a secure movement permit issued by a train safety system;
	non-track delimitation of the workplace;	
	crossing if the vehicle is on it;	
	driving the vehicle behind a parking track control post, traffic lights or isolated seals;	

	fractures or cracks of parts of the vehicle in service which present a risk of derailment or collision or damage which is the reason for further cessation of movement of the vehicle:	fracture of the wheel (wheel centre or bandage) during the operation of the rolling stock;
		wheel axle (wheelset axis, wheelset axis neck) fracture during rolling stock operation;
		breakage of the trolley frame, the overlay beam or the rupture of the vehicle's carrying structure;
	the transmission of a train where the end-of-the-line taps have been closed between the vehicles;	
	breaking of the train hitch self-coupling or coupling;	
	switching of the switch;	
	a dangerous failure of the alarm system due to which the indication of the field or on-board display of the alarm system is not as restrictive as expected;	
	damage to the train traction means which makes it impossible to complete the entire route to the destination and requires assistance for the departure of the train to the final destination;	
	uncoupling of the vehicle from the train for heating or other technical reasons;	
	switching the permitting signal of the station to the forbidding signal and passing the forbidding signal due to switching;	
	loss of goods from the vehicle while driving, endangering the safety of railway traffic;	
	failure to comply with the rules on loading of goods which threaten the safety of railway traffic and which requires the uncoupling of a wagon;	
	unexpected track failure due to which train movement must be stopped or the speed	a track fracture by breaking the track into at least two pieces or by detaching from

	of movement limited to 15 km/h, if the cause of the damage is:	the track a piece of metal which has caused a defect in the rolling surface over a length of 50 mm and a depth of 10 mm;
		track bodywork defect (e.g. discards, deposition) related to track continuity and geometry.
Incident		speeding, train stops outside the platform, unauthorised starting of the passenger train with open doors, vehicle failures or failures (including buckling), crossing defects, damage to railway infrastructure, damage to energy supply equipment or failure, unsafe or unbalanced loading of cargo, failure of vehicle location detection equipment, fire of fixed equipment

4. attachment "LVĢMC datu pieejamība"

Event subgroup	Event type	Parametri	Datu pieejamība
geophysical	DK_G1 earthquakes	DK_G1.1 magnitus	is
		DK_G1.2 intensity	is
		DK_G1.3 depth	is
		DK_G1.5 affected area	is
	DK_G2 landslides	DK_G2.1 soil type augsnes veids	Currently, no information on landslides or their risk areas is available. It is necessary to carry out mapping of modern geological processes, using long-term exploration methods and field studies, identifying geological risk zones, as well as developing methodologies for future monitoring of risk zones and risk development scenarios, depending on the factors affected.
		DK_G2.2 landslide/avalanche speed	Is not
		DK_G2.3 snow/landslide depth	Is not
		DK_G2.5 affected area	Is not

hidroloģiskās	DK_H1 plūdi un pali	DK_H1.2 flooded area/affected area	partially
		DK_H1.4 pluviometry	Is
		DK_H1.5 duration of rainfall (rain/rainfall)	Is
		DK_H1.6 water level	Is
meteoroloģiskās	DK_M1 rainfall	DK_M1.1 pluviometry	Is
		DK_M1.2 duration of rainfall (rain/rainfall)	Is
		DK_M1.3 water level	Is
		DK_M1.5 affected area	partially
	DK_M2 hail grain	DK_M2.1 hail grain diameter	No (no longer observed after network automation)
		DK_M2.3 affected area	partially
	DK_M3 strong snow and puffiness	DK_M3.1 snow intensity	Is
		DK_M3.2 rise of snow blanket	partially
		DK_M3.4 affected area	partially
	DK_M4 Storms, tornado, sudden wind gusts	DK_M4.1 maksimālais vēja ātrums	Is
		DK_M4.2 virziens	Is
		DK_M4.5 affected area	partially

	DK_M5 thunderstorm	DK_M5.1 thunderstorm intensity (lightning discharge)	Is
		DK_M5.3 affected area	partially
clichological	DK_K1 strong frost	DK_K1.1 temperature minimum	Is
		DK_K1.2 number of days	Is
		DK_K1.4 affected area	partially
	DK_K2 heat	DK_K2.1 temperature peak	Is
		DK_K2.2 day count	Is
		DK_K2.4 affected area	partially
	DK_K3 icing and wet snow sediment	DK_K3.1 intensity of precipitation (including freezing)	Is
		DK_K3.2 air temperature	Is
		DK_K3.4 affected area	partially
	DK_K4 drought	DK_K4.1 SPI	Partial (not hourly data, but values are calculated from a specific sliding period (e.g. month, quarter))
		DK_K4.2 number of days since last fall (drought duration)	Is not

		DK_K4.3 affected area	partially
	DK_K5 forest and peat bog fires	DK_K5.1 wind direction	Is
biological	DK_B1 epidemics	DK_B1.4 wind direction	Is
		DK_B1.5 wind direction	Is
	DK_B3 epidemics	DK_B3.4 wind direction	Is
		DK_B3.5 wind direction	Is