

SYSTEM FOR ASSESMENT, MONITORING AND PREVENTIVE RESOURCE MANAGEMENT OF NATURAL RISKS

RkFMEA

RkFMEA is a method for risk assessment and risk management in general and risk from natural hazards in particular, and for the countermeasures and resources for risk mitigation and their effective planning and management. The method is also used for managing the maintenance and control of the equipment for the protection against natural hazards. RkFMEA is based on the bottom up management method and it is intended for the basic administrative and management units, which are responsible for risk basic data collection, disaster damage estimates and protection zone estimates, and the formulation of the countermeasures for preventive risk management. RkFMEA offers an interactive and simplified approach and language that are easy to understand and simple to use even by non specialists. RkFMEA deals with the management of risk and the resources for prevention against future events before an emergency or a disaster occurs, and only provides information for crisis management without being involved in the crisis management itself. The data collected and estimated with RkFMEA is used in the evaluation and planning of investments in measures and facilities for protection against disasters, monitoring of their implementation and effect.

The main objective of RkFMEA is preventive risk management and effective countermeasure planning and monitoring of the effect, based on bottom up approach to risk assessment of both the risk, and its consequences, its area and impact, the existing counter measures and their effect and future measures and the effective way to choose a particular measure or plan a consequence of measures in case of multiple ones.

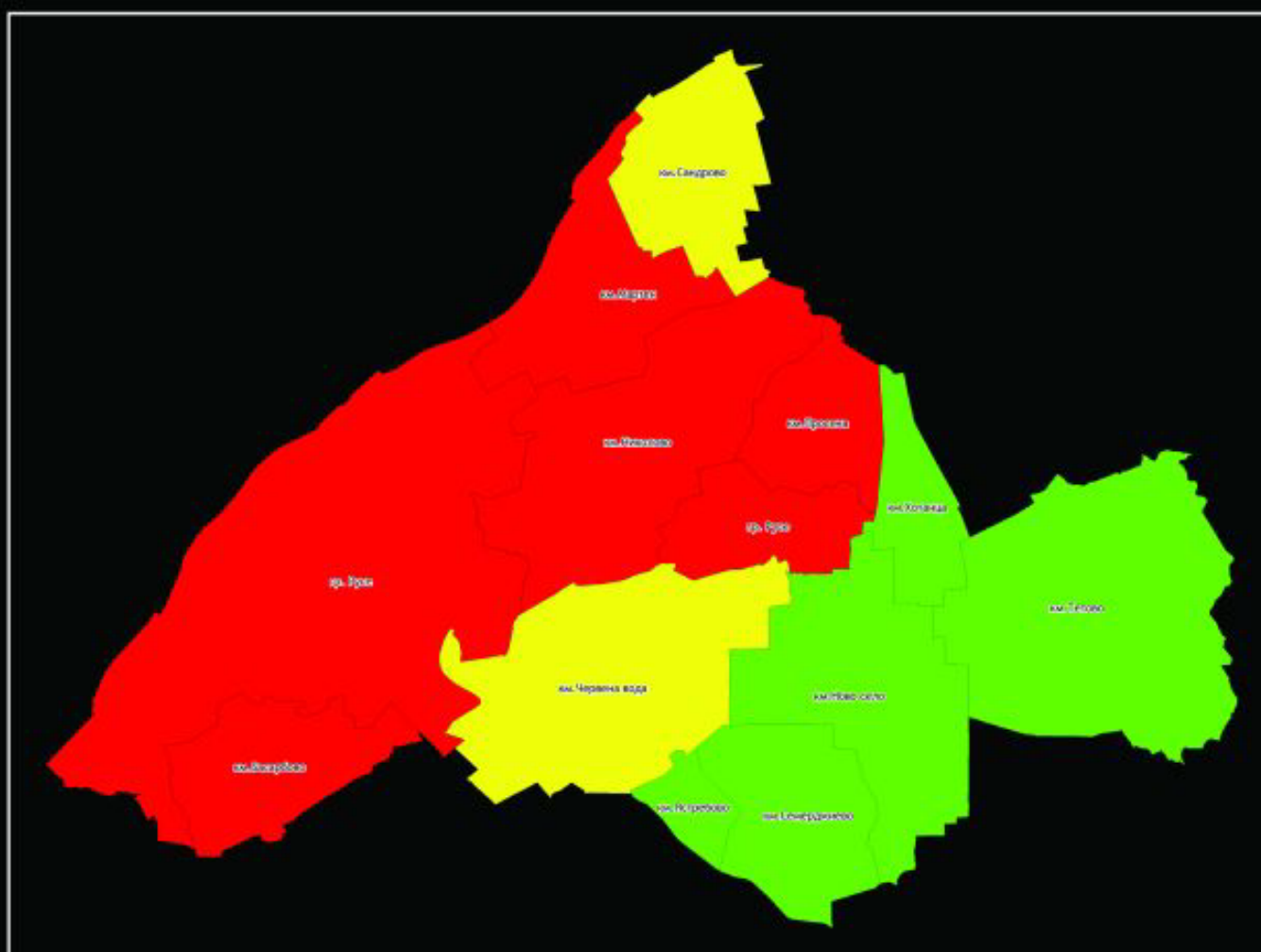
The key elements for the risk assessment are based on FMEA (Failure Mode Effects Analysis) methodology and the application developed for the management of risk and preventive measures RkFMEA. Risks are measured by four parameters: vulnerability (R), probability (P), the effect of effect existing counter measure or control (action) (N), whereby these three parameters provide an overall risk factor RPN, according to the FMEA standard. The (F) parameter of RkFMEA is an indicator of the effectiveness or urgency of a proposed new measure or a series of measures for prevention and control. The four parameters therefore provide the complex risk factor. Separately, for natural risk management in populated areas a factor of social vulnerability is calculated as a function of the above parameters, the age dependence and the gross domestic product of the community area or municipality. All risk parameters are rated in a scale of 1 to 10, with 1 as the most favourable and 10, the least favourable, and are selected from tables adjusted to the respective risk cause and risk nature.

For management purposes the results of the RkFMEA are presented also by GIS, giving maps on communities level (LAU2 level) and integrated on next levels, if desired, for the different risks levels, effectiveness of investment in risk countermeasures, tendency of risks and integrated risk and other applications, related to risk management. Risk levels are shown in three colours - Red, Yellow and Green - for high, moderate and negligible levels or change of risk.

RiskMan

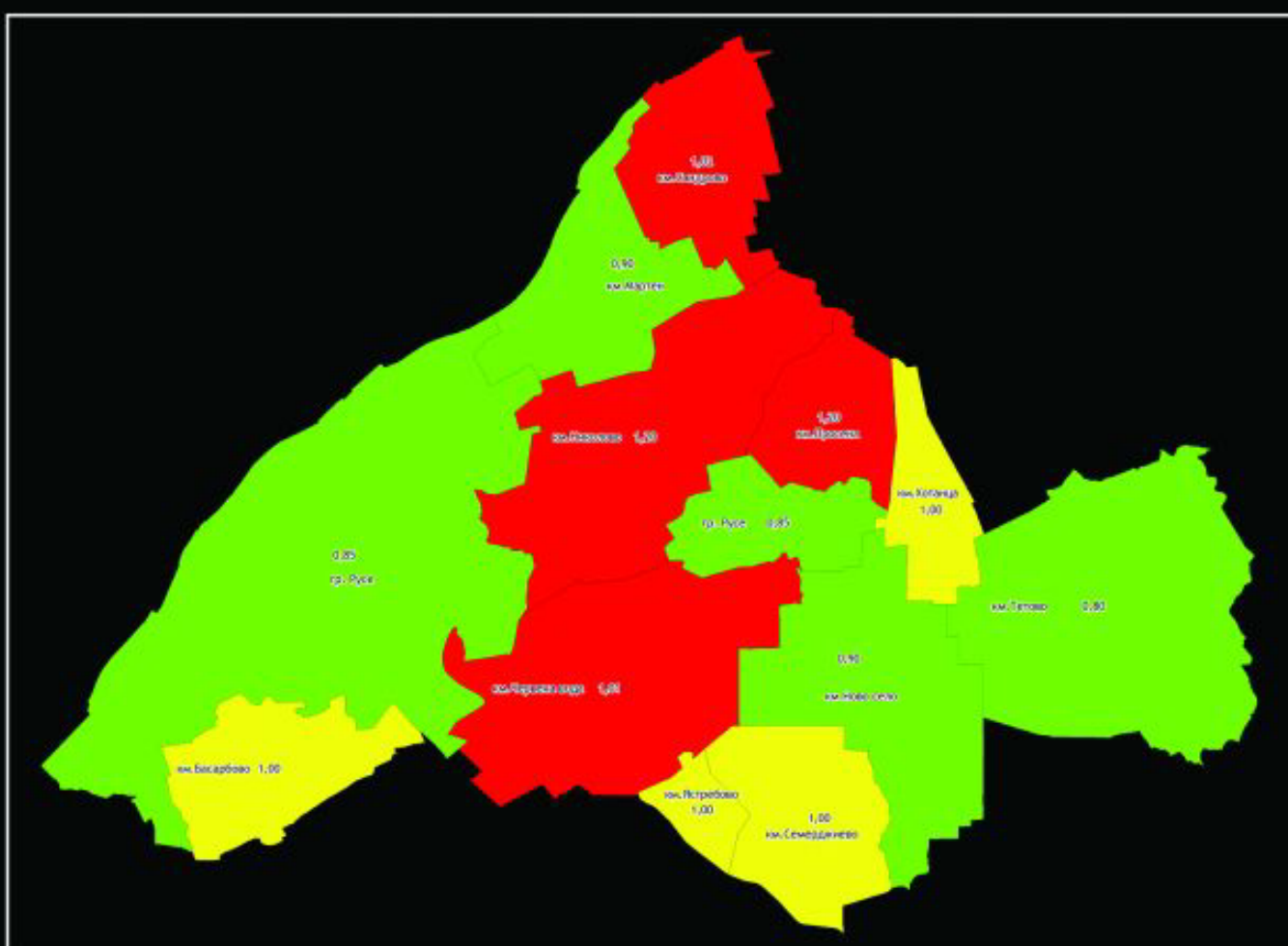
RiskMan is a multi-user web-based system with different access levels enabling registration, data collection, visualization, and use of data and analyses provided through the RkFMEA method for risk assessment, monitoring and preventive resource management of risk. The system has been designed as a client-server application accessible to end users by means of Microsoft's Internet browser. To enable portability, RiskMan was developed using PHP and JavaScript, under Windows XP operating system. The product was tested on Apache servers. MySQL database is used for data storage and access. The software technologies and applications used in RiskMan enable the easy migration of the system to other platforms. The access to the RiskMan system provides an opportunity for data entry, supervising and correcting data at the LAU2 and the level of municipality. Four different user roles have been defined with authorised access in the system, e.g. system administrator, administrator of municipality, operator in community and visitor, each with their own fixed rights. While a visitor can only review the data input for all municipalities, communities, risks and technical facilities, the operator in the respective community can, in addition to this, enter and edit data about the community he/she has been assigned with, and data about both risks and technical facilities. The creation and administration of operators in communities is performed by the administrator in the respective municipality, who in his/her turn is governed by the system administrator.

Municipality of Rousse - Flood Risk

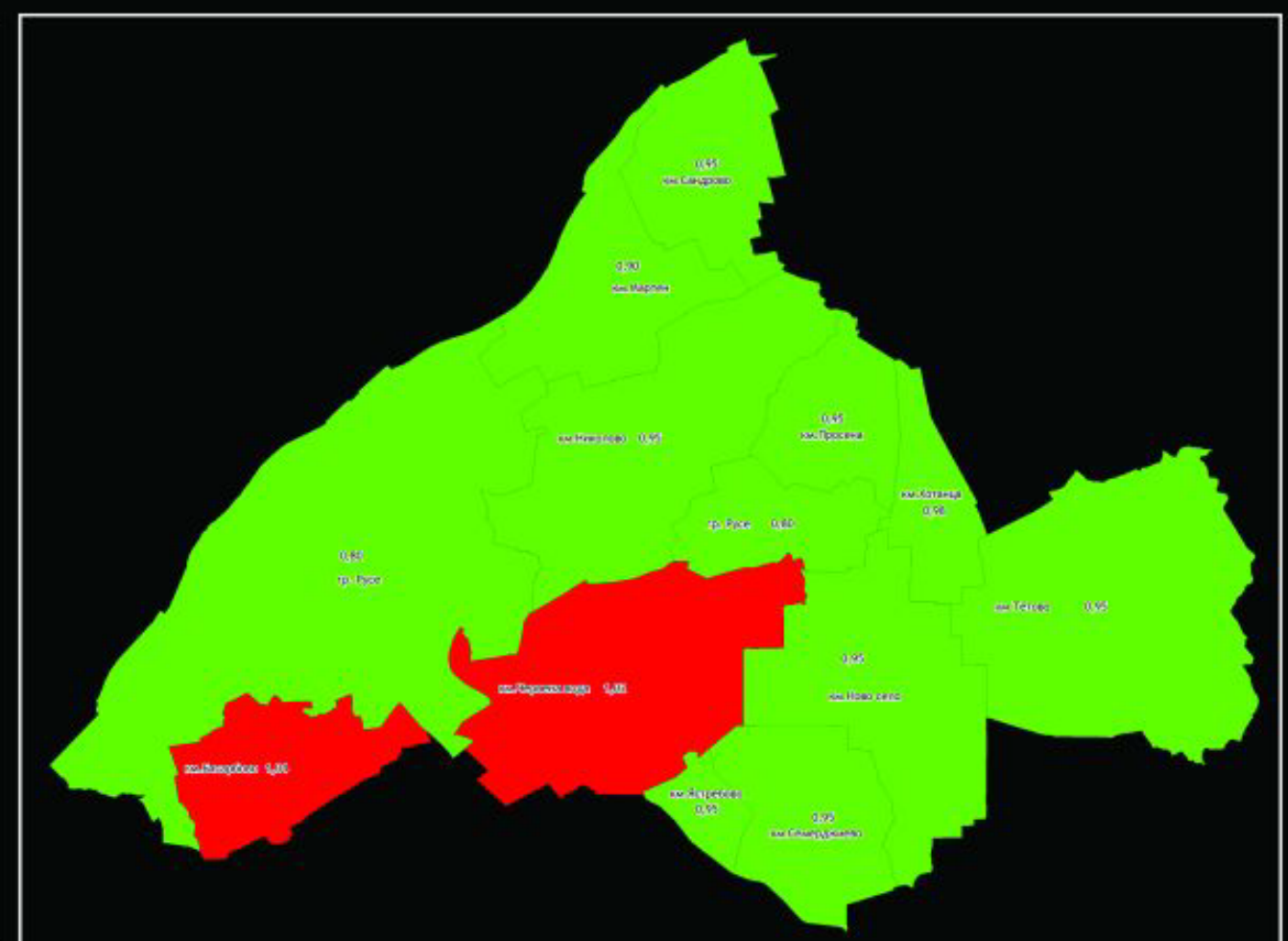


RkFMEA and RiskMan are result of the collective efforts of the organizations and participants with the logos on the top. The whole system was tested in Rousse and Gotse Delchev municipalities, while a further experimental application in several NUTS3 level regions is in progress under the initiative of the Ministry of Transport, Information Technologies and Communication
For more information: <http://riskbg.org>

Municipality of Rousse - Change of Flood Risk Level (Comparison to flood risk level of previous year, accounting for executed preventive measures)



Municipality of Rousse - Flood Risk - Need and urgent effective investment in prevention



Disclaimer: Displayed data does not explicitly correspond to real data