

Identification of dangerous properties

(based on: the Directive, Chapter II, Article 4, paragraph 2)

The task was to map out and provide a description of any potentially dangerous properties located at different levels of x-year water, both in terms of their possible impact on surface water pollution, and properties being potentially exposed to hazard in terms of flood damage scope.

This data layer is directly related to the information layers "Hazardous properties" and "Hazard-exposed properties" as set out in the Flood Plan of the Czech Republic. These databases are processed centrally in the POVIS database. In the framework of hazardous properties the structures of both the databases in the POVIS database have been modified in such a way that the structure would meet the requirements of the LABEL Project and those set out in the EU Directive 2007/60/EC on the assessment and management of flood risks. Based on a field survey and mapping out critical properties, the final form of these databases has been made.



Identifikace nebezpečných objektů

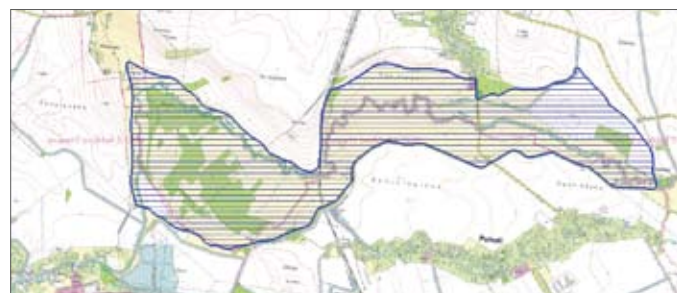
In addition to the above-stated outputs resulting from the requirements defined by the Directive, other map layers have been processed:

Natural flooding areas in the studied area

The aim was to find areas lying within the studied territory (except municipal residential areas) where increased flows lead to more extensive natural flooding, without any hazard caused to property, i.e. built-up areas, industrial buildings, school and healthcare facilities, etc.

The areas in question were determined based on field research and consultation, primarily with municipalities with extended powers. Natural flooding areas cannot be considered to be flood preventive measures and cannot be therefore included in the existing data structure of flood protection, though they have a significant impact on run-off conditions in the river basin.

Within the river basin district of the studied territory is a total 10 areas where more extensive natural flooding occurs at increased flow rates. Three areas designated as flood-related are situated within the territory of the Dobruska ORP (municipality with extended powers), one area on the territory of the Kostelec nad Orlicí ORP and six of them are on the territory of the Hradec Králové ORP. The area of these districts totals to 1,608 ha.



Zmapování přirozených rozlivových ploch v řešeném území

Localisation and identification of realised flood prevention measures

(polders, levees, reservoirs)

This includes localisation of waterworks to the S-JTSK coordinate system, a brief description of the waterworks, especially their purpose and scope of protection.

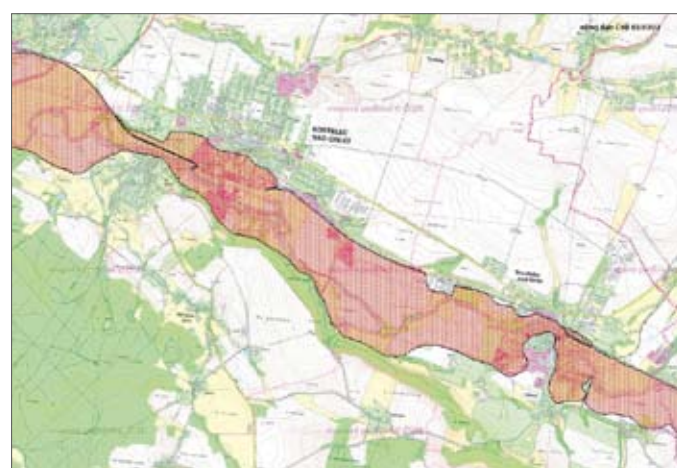
The important basis for the identification of the flood protection measures included the "Concept of Flood Protection of the Hradec Králové Region". Considering the fact that there is a plethora of existing flood protection measures, only the most significant measures, which have a major impact on flood protection in the respective district, particularly polders, river levees and reservoirs, were chosen. A total of 29 completed flood protection facilities were identified in the studied area.



Lokalizace a identifikace realizovaných protipovodňových opatření



Lokalizace a identifikace realizovaných protipovodňových opatření



Stanovení záplavového území Q500

Determination of Q500 floodplains

A Q500 floodplain was determined only on a selected section of the Divoka Orlice flow, applying the "expert" method. It is a stretch leading from the village of Potstějns to the confluence with Ticha Orlice

The subject was not the Q500 hydraulic modelling and modification of the existing model for this extreme flow rate but the expert determination of levels, from which flood flow lines for Q500 flow rate, which is considered a so-called residual hazard.

For the needs of this study Q500 flow rate values were derived from known values of x-year-old water by extrapolation. However, this method is only approximate; while developing flood hazard maps and flood risk maps, real Q500 values will be determined by CHMU (the Czech Hydrometeorological Institute) using other methods.

The study outputs are also available as an Internet project with its own website:

<http://mapy.kr-kralovehradecky.cz/label>

The LABEL Project

Hlavní partner:

STAATSMINISTERIUM
DES INNERN



Freistaat
SACHSEN

Saské státní ministerstvo vnitra

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LABEL – Data Processing for Creating Flood Risk and Flood Hazard Maps



www.label-eu.eu



The LABEL Project

Activities in the Hradec Kralove Region

The LABEL Project is an international project financed by the Central Europe Transnational Cooperation Operational Programme through the European Regional Development Fund (ERDF).

Launched in September 2008, the Project will be completed in February 2012. The project has a total budget of EUR 4,275,680; EUR 141,980 is allocated to the part of the project concerning the Hradec Kralove Region. The ERDF subsidy is 85% of the total project budget.

The project is aimed at the responsible and sustained management of the Elbe river basin. The project is primarily focused on flood risk prevention, river basin protection and adaptation to climate change, prospects for using the Elbe as a waterway, economic development and tourism as well as exchange of information with other European institutions.

The project involves a total of 20 partners from Czech, German, Austrian and Hungarian institutions – government, local government and professional bodies – particularly from the regions affected by the Elbe river basin. The project's Lead Partner is the Saxon State Ministry of the Interior. Czech partners include the regions affected by the Elbe river basin (Hradec Kralove, Pardubice, Pilsen, Usti, and Central Bohemia), the Ministry of the Environment, and the Labe (Elbe) and Vltava River Basin Authorities.



Přehrada Les Království

Mainly personnel from the Department of Environment and Agriculture and the Department of Land Planning and Building Regulations of the Regional Authority of the Hradec Kralove Region have joined together to resolve the project's implementation in the Hradec Kralove Region. The project is managed in cooperation with the Centre for European Projects Development (CEP, p. o.).

International workshops and conferences focused on sharing information and hands-on experience are organised in the framework of the LABEL Project.

More information can be found on the official project website:
<http://www.label-eu.eu>



Besides the creation and assessment of international methodologies and approaches related to flood protection and land-use planning, the main objective of the Hradec Kralove Region, as one of the project partners, is obtaining any available data, eventually any easily derivable information, required for Preliminary Flood Risk Assessment.

The region intends to process any basis required for the creation of flood hazard and flood risk maps, based on the requirements as set in "Directive (2007/60/EC) of the European Parliament on the assessment and management of flood risks" (hereinafter only referred to as the "Directive")

Obligations arising from the Directive have been adopted into the Czech legal system, namely Act No. 150/2001 Coll., based upon which Act No. 254/2001 Coll., on water and on amendments to certain acts (hereinafter only referred to as the “Water Act”) has been amended. This particularly includes Sections 23, 24, 25 and 64a as well as interim provisions of Article II, Points 4 and 5.

These legal provisions, among others, require river basin management plans and flood risk management plans to be established while planning in the framework of water policy. These plans are the basis for executing public administration, particularly that required for land-use planning and water-right proceedings.

The river basin management plans are provided by the river basin authorities while flood risk management plans are provided by the Ministry of the Environment and the Ministry of Agriculture in cooperation with the respective river basin authorities and locally relevant regional offices. The government approves flood risk plans.

The national river basin plans and flood risk management plans are integrated into international flood risk management plans.

The management of flood risks is aimed at the reduction of any possible adverse consequences for human health, the environment, cultural heritage and economic activity, and, if considered appropriate, non-structural initiatives and/or the reduction of the likelihood of flooding.

Preliminary flood risk assessment is the basis for identifying those areas for which it can be concluded that significant flood risks exist. For these territories **flood hazard maps, flood risk maps and flood risk management plans** are being either prepared or updated.

Flood hazard maps cover any geographical areas which could be flooded according to different flood scenarios, using the floodplains determined.

Flood risk maps shall cover any potential adverse consequences of future floods according to these scenarios.

Flood risk management plans are part of planning in the field of water policy and take into account significant aspects such as costs and benefits, flood extent and flood conveyance routes, the retention capability of floodplains, water protection objectives, soil and water management, land-use planning, land use, nature conservation, navigation and port infrastructure. Flood risk management plans address all aspects of flood risk management focusing on prevention, protection and preparedness, including flood forecasts and early warning systems, and taking into account the characteristics of the particular river basin or sub-basin. Flood risk management plans may also include the promotion of sustainable land use practices for the improvement of water retention as well as the controlled flooding of certain areas in the case of a flood event.

The preliminary flood risk assessment and the designation of the areas with a significant flood risk will be completed by 22 December 2011 at the

latest. The flood hazard maps and the flood risk maps will be completed by 22 December 2013. The national river basin plans and the flood risk management plans must be approved by 22 December 2015 at the latest.

To assess flood risks in floodplains, detailed knowledge of the area, its development, all other properties and any natural phenomena in the floodplain is required.

Based on the requirements as set out in the Directive of the European Parliament and of the Council (2007/60/EC) on the assessment and management of flood risks, the Hradec Kralove Region intends to develop a so-called pilot project, upon which an assessment will be made of any adverse impacts future floods may have on human health, the environment, cultural heritage and economic activity in the chosen area.

The subject of the pilot project is model data processing required for the creation of flood hazard maps and flood risk maps to monitor the respective area of the Orlice river basin, i.e. including all its significant tributaries (Ticha Orlice, Divoka Orlice, Knezna, Bela, Dedna, Zlaty potok (the Golden Brook), Zdobnice, Jestetický potok (Jestetice Brook), and Olesnice).



Řešené území

The results of the pilot project shall provide the basis for the subsequent processing of flood hazard maps, flood risk maps, extension of a flood management plan, etc. Additionally, they shall form a significant basis for land-use planning and water management planning at both municipal and regional levels.

Study Name:
**"LABEL – Data Processing for the Creation of Flood Risk Maps
 and Flood Hazard Maps for the Orlice River Basin District
 in the Hradec Kralove Region".**

Processed by:
HYDROSOFT Veleslavin, s.r.o.
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in cooperation with the firm:

Agroprojekce Litomyšl, spol. s r.o.
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<http://www.agroprojekce.cz>

Processing Date:
01/2010 – 01/2011

Project particulars provided by:
The Hradec Kralove Region, the municipalities with extended powers (Dobruska, Kostelec nad Orlicí, Rychnov nad Kneznou, and Hradec Kralove), selected villages located within the territory of the Rychnov nad Kneznou District and parts of the Hradec Kralove District, Labe (Elbe) River Basin Authority and others.

The data layers required for flood risk maps and subsequent maps for flood risk management have been processed on maps at a scale of 1:10 000, and on the processor's proposed and already determined Q_{5r} , Q_{20r} , Q_{100r} and Q_{ac-} tive floodplains. For Divoká Orlice the data has also been processed, taking into account a flow rate of Q_{500} .

In the framework of the pilot project the following outputs and data layers have been prepared:

An overview of historical floods (flood events) and related applications which hold records on flood marks
(based on: the Directive, Chapter II, Article 4, paragraph 2)

The aim was to develop, in detail, all the available information on historical floods which occurred within the territory of the region and assess it. Localisation of the events in very old records is related to the territory of the region, the municipalities with extended powers, other municipalities or the watershed of the entire flow or pinpointed to a particular locality. Historical records have been kept since 1845 and include more than 1,800 events. Besides map-related information, the database contains all data on time, place and the extent of flooding, sources of information, text records from the historical sources and, among others, also optional graphical attachments.

Povodňová značka: TOR_P_30 Borohrádek Tichá Orlice			
Provozní informace			
identifikátor	ref. list	časová	typ
Střelení - červen 2010	31.03.2010	30.04.2010	
Základní údaje o povodňové značce			
identifikátor	TOR_P_30		
název	Borohrádek		
adres. kó	Tichá Orlice (1020000010)	odkaz na třídu	
datum zahájení	21.04.2008	vyřazení datovými	Ano
datum příjmu výjezdu	25.08.2010	vyřazení daty	vyřazení
typ značky	typ (např.)	osazení (např.)	Ne
řídí	hlavová značka	řídí (OWP)	Komunik. nad Orlicí
stav	zastavení	stav	zastavení
stav označení		stav	zastavení
stav označení v		stav	zastavení
časová data V1 mapy		souřadnice UTM	422717.84; 106015.49
id mapy	BIP_P3N_OSAZENE		
verze			
vytvořena	Kazdinský, Váňrová, Váňrová		
poslední			
stav	nová v Borohrádku, vč. třídy je opatřena na 10		

Aplikace povodňové značky

The database can be viewed, edited and managed through web applications designed for the filing and administration of flood marks. The application allows any authorised user from municipalities, municipalities with extended powers and others from the region to view, administer and edit records on flood marks for their administrative territories. Previews and exports of information on individual marks and flood events are provided by the application in the form of websites and export into PDF file format.

Flooded sections of roads
(based on: the Directive, Chapter IV, Flood Risk Management Plans)

The content of the resulting output is a map marking the roads flooded at Q5, Q20, Q100, and Qactive (if available) and how passable they are. Flooded sections for each level of the flood flow rate are graphically distinguished. Processing flooded road sections covers all classes of road (particularly due to subsequent development of detour routes).



Zaplavované úseky komunikací