**Workshop “Drought and floods as critical situations, warnings,**

**fast response and crisis management“**

The workshop with this title, which took place in the city hall of Prague 9 on May 18, 2017 with a patronage of the minister of agriculture Mr. Jurečka and the minister of environment Mr. Brabec, was the ninth one from the series of workshops called „Prevention of catastrophes – protection of inhabitants and environment“, organized during the last five years. The workshop was devoted to two rather urgent problems – drought and floods. Similarly as the previous workshops this event was organized by the Czech Association for Environmental Care and the Czech National Committee for Disaster Reduction. More than 80 specialists from the state and public administration and crisis management, non-governmental organizations and specialists from industry and education participated in this topical workshop.

Despite the both extreme phenomena – drought and floods differ by their features (contrary to often rather slow start of drought floods mostly begin very quickly), prevention and protection measures against negative impact of these catastrophes have many common features. It is necessary to prepare for drought as a critical situation even though it has a slow character, and be ready to adequately react in advance with the use of experience obtained from floods hitting the country in the past. We should treat both extremes – drought and floods, in a more complex way than in the past with respect to some common measures to minimization of their negative impacts. Several drought periods in recent years led to intensification of protection and prevention from drought impact. Fulfillment of governmental resolution No. 620 (2015) for “Preparation of realization of measures to lower negative impacts of drought and lack of water” has accelerated this process. Many measures specified in this resolution have already been fulfilled. However, most of the measures have a conceptual character only.

The program of the workshop, guaranteed by Ivan Obrusník, concentrated on current situation and operational activities during the drought and flood episodes. It also showed creation of forecasts and graded warnings for drought and floods (including flash floods), how the warnings are disseminated, how we can understand to these events and also how to respond, where we can be informed about them (web pages, dissemination on the line from Czech Hydrometeorological Institute (CHMI) through Fire and Rescue Service (FRS) to cities and villages). Activities of important parts of crisis management and integrated rescue system were also described. Other part of the program was devoted to the activities of ministries of environment and agriculture important for protection against floods and drought and responsible for fulfillment of great number of measures specified in the governmental resolution No. 620. Water management authorities play also important role in flood and drought prevention. Presentations also showed the activities of FRS in dissemination of warnings from CHMI and its cooperation with other components of the integrated rescue system. The final part of the program concentrated on practical experience with handling flood and drought situation in cities – namely in Prague and Beroun.

***The program of the workshop covered 8 lectures:***

**D. Barták**, (Municipal Council of Prague): **“Crisis management in water related extremes and cooperation with the Czech Hydrometeorological Institute”**

**M. Sandev**, (Czech Hydrometeorological Institute): **“Forecasts and warnings issued by CHMI”**

**J. Daňhelka**, (Czech Hydrometeorological Institute**): “Drought and floods – possibilities of prediction and warnings”**

**J. Tejkalová, P. Marták and T. Davidová**, (Ministry of environment): “**Drought and floods - creation of concepts at the state level”**

**E. Fousová**, (Ministry of agriculture): **“Drought – approach to this hazard by the ministry of agriculture”**

**M. Tanajewski, T. Pail**, (Ohře river catchment authority): **“Influence of major reservoirs and systems on hydrological extremes”**

**J. Urbánek**, (Fire and Rescue Service): **“Operational management in FRS during natural disasters”**

**P. Stančíková**, (Dept. of crisis management in the municipality of Beroun): **“Experience with drought and floods in the municipality of Beroun”**

***CONCLUSIONS***

Participants in the workshop stressed importance of preparedness for both drought and floods. Moreover, most of the measures, especially long-term ones, are common for both extremes. The participants also agreed that the recent activities of the government for prevention of drought like governmental resolution No. 620 from 29.7.2015 contributed to intensification of efforts in prevention. However, a novel of so-called Water Act covering drought and measures against this extreme is a very urgent goal. Connection with climate change and adaptation measures has also been mentioned. Crisis management authorities have less experience with protection against drought than against floods and it is urgent to devote more effort in this direction. It is necessary to develop a system comprising warnings for different levels of drought, plans and special commissions for drought management at all levels, restrictions on the use of water during drought periods, better understanding and education of the public and communities administration to the measures against drought as well as appropriate trainings. It is also desirable to develop better forecasting and warnings for drought (it is more difficult than in the case of floods). The participants also stressed importance of long-term measures especially in agriculture towards the use of better technologies and procedures ensuring retention of water in soil, the use of smaller size of fields with ridges, etc. Importance of research and special projects devoted to drought and floods prevention has also been mentioned. It is also necessary to move from creation of documents with strategies and conceptions instead of proposals a realization of practical measures and to ensure proper financing of these activities. Finally, the participants also mentioned important role of people towards their own activities towards prevention and preparedness without relying too much (or only) on governmental and municipal support. They also agreed the workshop was very useful and it can serve as a good example of improvement of education in the important field of disaster prevention.

Ivan Obrusnik, September 15, 2017