

**ACTIVITY REPORT
OF THE
CZECH NATIONAL COMMITTEE (CNC) FOR THE UNESCO INTERNATIONAL HYDROLOGICAL
PROGRAMME (UNESCO IHP)
FOR 2010–2012**

1. ACTIVITIES UNDERTAKEN IN THE PERIOD JUNE 2010 – MAY 2012

1.1. Meetings of the CNC

1.1.1. Decisions regarding the composition of the CNC

The first quarter of 2012 saw personnel changes in the CNC IHP, which is now composed of 19 elected hydrology experts, of whom three worked in the preceding Committee. The executive is comprised of the Chairman, two Vice-Chairmen, and a Scientific Secretary. In technical and administrative terms, CNC IHP is situated at the Czech Hydrometeorological Institute in Prague, the founder of which is the Ministry of the Environment (ME). The approval process for the new composition of the CNC IHP is currently under way from the position of the superior authorities, i.e. ME and the Czech Commission for Cooperation with UNESCO. At the same time, an amendment to the CNC Statute is being prepared.

CNC Chairman is a member of the Czech Commission for Cooperation with UNESCO. He is appointed to this position by an edict of the Minister of Foreign Affairs of the Czech Republic. At the national level, CNC IHP cooperates with, or has contact observers, in the committees of other international programmes:

- Czech National Committee of Geodesy and Geophysics,
- National Committee for the Czech Climate Programme,
- Czech National Committee for Disaster Reduction,
- Czech Committee of International Commission on Irrigation and Drainage,
- Czech National Committee for IOC UNESCO.

The CNC's cooperation with IAHS is based on 11 elected national correspondents and the fact that the Czech Republic's national representative for IAHS is a CNC Vice-Chairman at the same time.

1.1.2. Status of IHP-VII activities

Under IHP-VII, the Czech Republic also cooperates on the following projects, among others:

(A) EURO FRIEND:

(a) Techniques for extreme rainfall and flood runoff estimation,

(b) Analysis of regimes of low flow and drought.

(B) Groundwater for Emergency Situations (GWES).

(C) Experimental observations in a network of representative catchments in the headwater areas of the Czech Republic to improve knowledge of the water regime under the conditions of climate change.

(D) Regional Hydrological Cooperation of the Danube Countries.

All tasks can be expected to be completed in line with the IHP-VII, i.e. most of the new findings have been published in available periodicals and in published reports; the proposed methodologies have been tested and made available, etc. An exception is the incomplete third stage of the GWES project, where UNESCO has not covered costs of USD 7,000 due to the reduction in funds for the meeting of a task force that would prepare the legend for the methodology of groundwater maps for vulnerable areas.

1.2. Activities of the CNC at national level

1.2.1. National scientific and technical meetings

In 2011, CNC IHP members cooperated with the Institute of Hydrodynamics of the Academy of Sciences of the Czech Republic in the organisation of an international conference on Hydrology of Small Catchments. This three-day event was attended by more than 120 participants, of whom approximately every sixth was from the Slovak Republic. The conference included 41 presentations, and 73 full texts of scientific papers were published in the conference proceedings. The conference brought in particular a number of new methodological

procedures in the evaluation of extreme precipitation and runoff in small unobserved catchments.

In 2010, the second international interdisciplinary conference on Predictions for Hydrology, Ecology and Water Resources Management (HydroPredict) was held. The organisers were IHP UNESCO, IAHS, Charles University in Prague, BOKU Vienna, Czech University of Life Sciences in Prague, and the T. G. Masaryk Water Research Institute, p.r.i (T. G. Masaryk WRI). The conference looked into the modelling of dangerous processes with a high resolution in time and space, and their impacts. The outputs form the basis of a warning system and create the conditions for sustainable environmental development. At the same time it devoted attention to the analysis of the consequences of anthropogenic activities and climate change. Exchange of experience was also organised between experts in various disciplines for the purpose of mitigating harmful consequences.

As part of the Hydrology Days 2010, the 7th conference of Czech and Slovak hydrologists on Water in a Changing Environment was held on 25-27 October 2010 upon initiative of the CNC IHP and SNC IHP. The proceedings contain 86 contributions that map the development of hydrology in the Czech Republic in the period between 2005 and 2010. Some 180 hydrologists and water managers participated in the conference deliberations.

1.2.2. Participation in IHP Steering Committees/Working Groups

Mrs Šárka Blažková was the coordinator of sub-project 4 Techniques of Extreme Rainfall and Flood Runoff Estimation under EURO FRIEND, and Mr Jaroslav Vrba holds the position of the international coordinator of IHP GWES (IHP-VII, Theme 3, local area 3.4).

1.2.3. Supported or sponsored projects

Czech hydrologists carried out a number of activities under the WATCH (Water and Climate Change) and COST (European Cooperation in Science and Technology) projects financed, in full or in part, by the European Union.

1.2.4. Collaboration with other national committees

The Czech Republic cooperates most with the IHP National Committees in the neighbouring countries, i.e. Germany, Poland, Slovakia and Austria, and also in working groups of UNESCO IHP Regional Hydrological Cooperation of the Danube Countries.

1.2.5. Other initiatives

The Czech standard *Hydrological Terminology* was amended, and merged with the standard *Hydrogeological Terminology* to form one whole, with equivalents of terms in three languages (English, French and German). This standard was then modified based on the English version of EN ISO 772 *Hydrometric determinations – Vocabulary and Symbols*.

1.3. Educational and training courses

1.3.1. Contribution to IHP courses

Some Czech experts were invited to speak at international courses.

1.3.2. Organization of specific courses

The Czech University of Life Sciences in Prague organised, in cooperation with experts from the US and Austria, short-term hydrological courses focused on the reduction of damage caused by natural disasters, and the development of hydrological forecasting models. In terms of financing, these courses are subsidised from non-UNESCO sources.

1.3.3. Participation in IHP courses

CNC IHP has not received any reports that Czech experts participated in international IHP courses in the past two years.

1.4. Cooperation with UNESCO-IHE

Some Czech hydrologists and water managers maintain personal and professional contacts with members of the UNESCO- IHE staff.

Czech hydrology is interested in the activities of UNESCO regional centres for water in particular in Poland as regards ecohydrology, in Japan as regards natural disasters and in the Netherlands as regards groundwater and drought.

1.5. Publications

A contribution entitled Water in the Czech Republic for the 4th World Water Assessment report was prepared and published. At the national level, hydrologists prepared publications, articles, reports and studies, and contributed appropriate chapters to books:

- *Vodstvo a podnebí České republiky v souvislosti se změnou klimatu [Water and Climate in the Czech Republic in Connection with Climate Change]* (ISBN 80-903482-7-0).
- *Voda ve vesmíru, na zemi, v životě a v kultuře [Water in Space, on Earth, in Life and in Culture]* (ISBN 978-80-86212-98-2).
- *Floods, drought and prediction of uncertainties* (ISBN 978-80-8742-13-9).
- *Časová a plošná variabilita hydrologického sucha v podmínkách klimatické změny na území České republiky [Temporal and Spatial Variability of Hydrological Drought in Climate Change Conditions on the territory of the Czech Republic]* (ISBN 978-80-87402-11-5).
- *Testování indikátorů sucha a nedostatku vody navrhovaných Evropskou komisí na pilotním povodí ČR [Testing drought and water shortage indicators proposed by the European Commission on a pilot catchment of the Czech Republic]* (2011, T. G. Masaryk WRI).
- *Implementation of the Water Framework Directive and adaptation strategies in the Czech Republic* (IAHS, publ. 340).
- *A limits of acceptability approach to model evaluation and uncertainty estimation in flood frequency estimation by continuous simulation: Skalka catchment, Czech Republic* (Water Resources Research, vol. 45, no. 12, ISSN 0043-1397).
- *Vliv preferenčního proudění na pohyb vody a transport kadmia v půdě [The impact of preferential flow on water and cadmium transport in soil]* (Vodní hospodářství 2011, No. 4, ISSN 1211-0760).
- *Grass cover influences hydrophysical parameters and heterogeneity of water flow in a sandy soil* (Pedosphere 2011, ISSN 1002 - 0160).

- *Vegetation impact on the hydrology of an aeolian sandy soil in a continental climate (Ecohydrology 2010)*
- *Trees never rest: The multiple facets of hydraulic redistribution (Ecohydrology 2010. Published online in Wiley InterScience)*
- *Root Function: In Situ Studies Through Sap Flow Research (Springer Verlag 2012, ISBN 978-3-642-22066-1).*

1.6. Participation in international scientific meetings

1.6.1. Meetings hosted by the Czech Republic

- International Conference on Groundwater in Fractured Rocks, Prague, Czech Republic, May 2012.
- Hydrology Days 2010, Water in a Changing Environment, Hradec Králové, Czech Republic.

1.6.2. Participation in meetings abroad

Periodical participation of Czech hydrologists with papers at conferences:

- European Geophysical Union (EGU) in Vienna.
- 13th ERB 2010 conference on Hydrological Responses of Small Basins to a Changing Environment (Seggau, Austria).
- ERB Workshop on Geochemical, Isotope and Innovative Tracers: Challenges and Perspectives for Small Catchment Research (Belvaux, Luxembourg).
- The XXVth Conference of Danube Countries on Hydrological Forecasting and Hydrological Basis of Water Management in Budapest.

1.7. Other activities at regional level

1.7.1. Institutional relations and cooperation

CNC representatives attended the meetings of working groups as part of Regional Hydrological Cooperation of the Danube Countries and under FRIEND and ERB programmes. There was no delegate at the General Assembly of IUGG, and hence IAHS, in Melbourne due to lack of funds.

1.7.2. Ongoing scientific projects

T. G. Masaryk Water Research Institute, p.r.i., is preparing a project on the Proposed Concept of Addressing the Crisis Situation Caused by Drought and Water Shortage in the Czech Republic.

2. FUTURE ACTIVITIES

2.1. Activities planned until December 2012

Replacements in the staffing of the UNESCO IHP CNC and a new CNC Statute due to the changed conditions in the country compared with those when the original Statute was drawn up.

2.2. Activities foreseen for 2013–2014

Development of activities of CNC working groups.

Completion of IHP-VII tasks and preparation of the Czech Republic's participation in IHP-VIII.

2.3. Activities envisaged in the long term

8th Hydrology Days 2015 in the Slovak Republic.

Coordination of IHP-VIII tasks in the Czech Republic.

IUGG General Assembly in Prague in 2015.