

# NATIONAL REPORT OF THE SLOVAK REPUBLIC

## 1. Activities undertaken in the period September 2004 - June 2006

### 1.1 Meetings of the IHP National Committee

The Slovak Committee for Hydrology represents the Slovak NC IHP UNESCO. It was established in 1993 with the support of the Slovak Commission for UNESCO. The committee consists of the Executive Committee and the Plenum. The current business is handled by the secretariat associated with the Institute of Hydrology of the Slovak Academy of Sciences in Bratislava.

The Plenum meets once a year, usually in the first half of the year. The Executive Committee meets at need. There was 1 meeting of the Plenum and 2 meetings of the Executive Committee during the period under consideration.

#### 1.1.1 Decisions regarding the composition of the IHP National Committee

There were few changes in the composition of the IHP National Committee during the period. The Plenum has 28 members and 9 of them form the Executive Committee. All the main research institutes, universities and ministries related to hydrology are represented in the committee.

The present composition of the IHP NC of Slovakia is as follows:

#### **Executive Committee:**

##### *Chairman:*

MIKLÁNEK Pavol, Institute of Hydrology, Slovak Academy of Sciences, Bratislava

##### *Vice-chairman*

SZOLGAY Ján, Slovak University of Technology, Bratislava

##### *Scientific secretary*

HALMOVÁ Dana, Institute of Hydrology, Slovak Academy of Sciences, Bratislava

##### *Members*

BRTKO Juraj, Water Research Institute, Bratislava

MAJERČÁKOVÁ Oľga, Slovak Hydrometeorological Institute, Bratislava

MATUŠKA Milan, Global Water Partnership, Bratislava

MINÁRIK Boris, Slovak Hydrometeorological Institute, Bratislava

PETROVIČ Pavel, retired

SUPEK Marián, Ministry of Environment of the Slovak Republic, Bratislava

#### **Plenum:**

ABAFFY Dušan, retired

BABIAKOVÁ Gabriela, Slovak Hydrometeorological Institute, Bratislava

BODIŠ Dušan, Geological Service of the Slovak Republic, Bratislava

ELIÁŠ Pavol, Slovak Agricultural University, Nitra

FENDEKOVÁ Miriam, Comenius University, Bratislava

HAMBEK Břetislav, retired

HLAVČOVÁ Kamila, Slovak University of Technology, Bratislava

HOLČÍK Vladimír, Water Engineering Construction, Bratislava

HOLKO Ladislav, Institute of Hydrology, Slovak Academy of Sciences, Bratislava

HOLUBOVÁ Katarína, Water Research Institute, Bratislava

LAPIN Milan, Comenius University, Bratislava

LICHNER Ľubomír, Institute of Hydrology, Slovak Academy of Sciences, Bratislava

NOVÁK Viliam, Institute of Hydrology, Slovak Academy of Sciences, Bratislava  
PALKO Dušan, retired  
PODKONICKÝ Ladislav, retired  
RONČÁK Peter, Slovak Hydrometeorological Institute, Bratislava  
ŠKULEC Štefan, Slovak Hydrometeorological Institute, Bratislava  
ŠOLTÉSZ Andrej, Slovak University of Technology, Bratislava  
ŠŤOTOR Július, Institute of Hydrology, Slovak Academy of Sciences, Bratislava

#### 1.1.2 Status of IHP-VI activities

The activities of the Slovak institutions were concentrated on the following IHP-VI projects:  
CCPC Flow Regimes from International Experimental and Network Data (FRIEND)

- 2.1 Extreme events in land and water resources management
- 2.2 International river basins and aquifers
- 2.4 Methodologies for integrated river basin management
- 3.3 Land Habitat Hydrology – Mountains.

Pavol Miklánek was elected member of the *Theme Advisory Board* of the IHP UNESCO for Theme II representing the UNESCO Electoral group II.

Slovak representative Dr. Holko is the international coordinator of FRIEND Northern and Western Europe Working group 5 *Hydrological and biogeochemical processes in changing environment* since 1998.

Slovak representative Dr. Petrovič is the international coordinator of Water Balance of the Danube River Basin project of the Regional co-operation of the Danube countries in frame of IHP UNESCO (Focal Area 2.2 International river basins and aquifers).

Two international meetings were organised in 2005 in Slovakia:

*Hydrological days 2005 conference* (Hydrology for integrated management of water resources), 21–23 September 2005, Bratislava, Slovakia.

10<sup>th</sup> meeting of experts in snow hydrology 14–16 April 2005 in Liptovský Mikuláš, Slovakia. (Participants from Slovakia, Czech republic and Austria – 12 participants from 3 countries)

The Slovak NC participated in organisation of the following international conferences:

22<sup>nd</sup> *Conference of Danubian countries on the hydrological forecasting and hydrological bases of water management*. (National contribution to Focal Area 2.2 International river basins and aquifers.) Brno, Czech Republic, 2004.

*International conference on hydrology of mountain environments*. (National contribution to Focal Area 3.3 Land Habitat Hydrology - Mountains.) Berchtesgaden, Germany, 2004.

*ERB conference 2004, Catchment hydrological and hydrobiogeochemical processes in changing environment*, 13.10.2004, Torino, Italy.

23<sup>rd</sup> *Conference of Danubian countries on the Hydrological Forecasting and Hydrological Bases of Water Management*. (National contribution to Focal Area 2.2 International river basins and aquifers.) Beograd, Serbia, 2006.

*ERB conference 2006, Uncertainties in the "monitoring-conceptualization-modelling" sequence of catchment research*, Luxembourg, 2006.

#### 1.1.3 Decisions regarding contribution to/participation in IHP-VII

The IHP National Committee welcomes the possibility to participate in IHP-VII. No specific decision was adopted with regard to IHP-VII till now.

## 1.2 Activities at a national level in the framework of the IHP

### 1.2.1 National/local scientific and technical meetings

The 16<sup>th</sup> Conference of Young Slovak and Czech Hydrologists was organised in November 2004 in Bratislava and the conference proceedings were published. Following three papers were awarded:

*Langhammer Jakub* – Classification of changes of the water quality in Labe watershed.

*Orfánus Tomáš, Balkovič Juraj* – Generating of regional maps of soil retention properties using soil information system.

*Sopková Mariana, Zakovičová Anna, Molnár Ľudovít* – The evaluation of groundwater flow direction and quantification of amount of groundwater infiltrated to the Hron River in Sliač locality.

The 17<sup>th</sup> Conference of Young Slovak and Czech Hydrologists was organised in November 2005 in Bratislava and the conference proceedings were published. Following three papers were awarded:

*Jan Kopp* – Hydrographic analysis of drainage basin with GIS application.

*Petr Máca* – Short term runoff prediction in selected small watersheds.

*Veronika Mitková* – Transformation of the flood waves of the Danube River in Kienstock-Štúrovo reach.

### 1.2.2 Participation in IHP Steering Committees/Working Groups

Representatives of the NC took part at the 16<sup>th</sup> Intergovernmental Council of IHP UNESCO in Paris in 2004.

The Slovak NC is member of the Steering Committee of the CCPC FRIEND - Western and Northern Europe and Slovak experts participate in its Working Groups. Dr. Holko is the international coordinator of the WG 5 of the project since 1998.

Representatives of the NC took part at following FRIEND meetings:

NE FRIEND WG 5 meetings in Torino in 2004 and in Yundola in 2005.

FRIEND NWE WG 5 closely collaborates with the European Reference Basins (ERB) project including parallel meetings and common conferences. The Slovak NC participated in the ERB Steering Committee meeting and 10<sup>th</sup> ERB conference in Torino in 2004 and took part at the ERB Steering Committee meeting in Yundola in 2005.

The delegates of the committee participate regularly at the meetings of the NC representatives of the Danube countries and Slovak experts co-ordinate or actively participate in different projects within this regional co-operation. There were 2 meetings of the representatives and experts of the Danube countries during the period (2004 Brno, Czech Republic, 2005 Passau, Germany). The Slovak experts actively participated at the 22<sup>nd</sup> Hydrological conference of the Danubian countries in Brno in 2004.

### 1.2.3 Research/applied projects supported or sponsored

The Slovak IHP NC has no possibility to support or sponsor any research/applied projects, but it is supporting co-operation and participation in IHP UNESCO projects.

### 1.2.4 Collaboration with other national and international organizations/programmes

The Slovak Committee for Hydrology is a joint IHP/IAHS national committee, in fact. The national representative of IAHS prof. Szolgay is the vice-chairman of the committee and the IAHS national correspondents are members of the committee. The WMO OHP is also represented in the committee. Most of the activities within these three programmes are organised jointly.

The NC is collaborating also with other programmes like IGBP/BAHC, IAH, etc.

The representative of the Slovak NC is the international coordinator of the project 5.3 Update of the Danube water balance of the Regional co-operation of the Danube countries within the IHP. The project is agreed as a common interest project with the International Commission for Protection of the Danube River (ICPDR) in Vienna.

#### 1.2.5 Other initiatives

Except the IHP projects, the IHP National Committee is traditionally organizing three national activities. The NC has its own library of UNESCO and other international publications that is used by the hydrological community; it is organizing the Conferences of Young Hydrologists and publishing series of SVH Publications (Publications of the Slovak Committee for Hydrology).

### 1.3 Educational and training courses

#### 1.3.1 Contribution to IHP courses

There was no contribution to IHP courses during the period of interest.

#### 1.3.2 Organization of specific courses

The NC organised training seminar concerning GIS application in project "Basin Wide Water Balance of the Danube River Basin" within the Regional co-operation of the Danube countries in hydrology in framework of the IHP UNESCO, Bratislava, 10–11 December 2004, 21 trainees from 10 Danube countries.

#### 1.3.3 Participation in IHP courses

Slovak professors were giving lectures and Slovak participants used to attend the IHP courses in Prague and Budapest. Unfortunately both courses were stopped due to financial reasons.

### 1.4 Cooperation with the UNESCO/IHE Institute for Water Education and/or international/regional water centers under the auspices of UNESCO

There is no specific cooperation between Slovak NC and UNESCO/IHE.

### 1.5 Publications

The Slovak NC is supporting publications in three main groups:

– SVH Publications (Publications of the Slovak Committee for Hydrology).

These are monographs summarizing results of the IHP projects. The series started in 1997 and six volumes were published till now. Unfortunately, none of them was published within the period of this report.

– UNESCO and IHP publications, mainly proceedings of international conferences.

Our experts took part in reviewing and preparation of following proceedings and reports:

Maraga, F., Arattano, M. (Eds.): *Progress in surface and subsurface water studies at plot and small basin scale*. Technical Documents in Hydrology 77, UNESCO, 2005. Proceedings of the 10<sup>th</sup> Conference of the European Network of Experimental and Representative Basins (ERB), Torino, Italy, 2004.

Herrmann, A. (Ed.): International conference on hydrology of mountain environments. Extended abstracts. *Landschaftsökologie und Umweltforschung*, Heft 47, Braunschweig, 459 pp., 2004.

- Proceedings of the conferences organised in Slovakia related to IHP:  
Hydrological Days 2005, CD Hydrology for integrated management of water resources, 21–23 September 2005, Bratislava, Slovakia.
- Special volume of the Journal of Hydrology and Hydromechanics (*on experimental and representative catchments*), No. 2, Vol. 54, 2006, Bratislava, Slovakia, 2006.
- Proceedings from 10<sup>th</sup> meeting of experts in snow hydrology, www.ih.savba.sk
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. Proceedings of the XII<sup>th</sup> poster day. (IHP-VI project 2.4) CD ROM, UH SAV-GfU SAV, Bratislava, Slovakia, 2004.
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. Proceedings of the XIII<sup>th</sup> poster day. (IHP-V project 2.4) CD ROM, GfU SAV-UH SAV, Bratislava, Slovakia, 2005.
- 16<sup>th</sup> Conference of the Young Hydrologists – Proceedings. CD ROM, SHMI, Bratislava, Slovakia, 2004.
- 17<sup>th</sup> Conference of the Young Hydrologists – Proceedings. CD ROM of Hydrological Days conference, SHMI, Bratislava, Slovakia, 2005.
- Proceedings of the Jubilee colloquium of Prof. Milan DZUBÁK, prominent Slovak hydrologist. SHMI, Bratislava, Slovakia, May 2006.

## 1.6 Participation in international scientific meetings

### 1.6.1 Meetings hosted by the country

- Hydrological Days 2005 (Hydrology for integrated management of water resources), 21–23 September 2005, Bratislava, Slovakia.
- 10<sup>th</sup> meeting of experts in snow hydrology 14–16 April 2005 in Liptovský Mikuláš, Slovakia. (Participants from Slovakia, Czech republic and Austria).
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. XII<sup>th</sup> poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, Slovakia, 2004.
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. XIII<sup>th</sup> poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, Slovakia, 2005.
- 16<sup>th</sup> Conference of the Young Hydrologists. Bratislava, Slovakia, 2004.
- 17<sup>th</sup> Conference of the Young Hydrologists. Bratislava, Slovakia, 2005.
- Working group meeting: *Climate variability and land cover change impact on flooding and low flows* within FA 2.1 Extreme events in land and water resources management, Bratislava, Slovakia, 2006.

### 1.6.2 Participation in meetings abroad

- 16<sup>th</sup> Session of the Intergovernmental Council of the IHP UNESCO, Paris, 2004: Miklánek, P., Halmová, D.
- ERB (*European Network of Experimental and Representative Basins*) Steering Committee meeting, (Conference: *Catchment hydrological and hydrobiogeochemical processes in changing environment*), Torino, 2004: Miklánek, P., Holko, L.
- X<sup>th</sup> ERB Conference and General Assembly, Torino, 2004: 4 papers and 6 participants.
- NE FRIEND WG 5 meeting, Torino, 2004: Miklánek, P., Holko, L., Pekárová, P.
- 18<sup>th</sup> Working Session of the Danube countries representatives, Brno, 2004: Miklánek, P., Petrovič, P., Halmová, D., Poárová, J., Holubová, K.
- 22<sup>nd</sup> Hydrological conference of the Danubian countries, Brno, 2004: 20 papers and 25 participants.
- International conference on *Hydrology of Mountain Environments* (FA 3.3 *Land Habitat Hydrology–Mountains*), Berchtesgaden, 2004. Miklánek, P., Holko, L., Kostka, Z.

ICPDR Ministerial conference, Vienna, 2004, Petrovič, P. (as observer on behalf of IHP UNESCO).

ERB (*European Network of Experimental and Representative Basins*) Steering Committee meeting, Yundola, October 2005: Miklánek, P., Holko, L.

NE FRIEND WG 5 meeting, Yundola, 2005: Miklánek, P., Holko, L.

19<sup>th</sup> Working Session of the Danube countries representatives, Passau, 2005: Miklánek, P., Petrovič, P., Halmová, D., Poórová, J., Holubová, K.

Working group meeting: *Climate variability and land cover change impact on flooding and low flows* within FA 2.1 Extreme events in land and water resources management, Vienna, 2005: Szolgay, J.

## **1.7 Other activities at a regional level**

### **1.7.1 Institutional relations/co/operation**

The Slovak IHP NC does not have institutional relations/co/operation at a regional level except the IHP UNESCO projects.

In capacity of the Chair Working Group of the collaborating Danubian IHP National Committees and the coordinator of the project *Water Balance of the Danube River Basin* the Slovak IHP NC collaborates with the International Commission for Protection of the Danube River (ICPDR) in Vienna.

### **1.7.2 Completed and ongoing scientific projects**

The Slovak IHP NC does not organise or participate in any projects out of IHP UNESCO except the collaboration with ICPDR (see para 1.7.1) on project *Water Balance of the Danube River Basin*.

## **2. Future Activities**

### **2.1 Activities foreseen until December 2007**

The NC intends to continue in all the main ongoing activities mentioned in the report. Activities within the IHP projects and participation at the meetings depend on their working plans, but most of the activities will be oriented on following projects of IHP-VI:

CCPC FRIEND (Flow Regimes from International Experimental and Network Data)

CCPC HELP (Hydrology for the Environment, Life and Policy)

2.1 Extreme events in land and water resources management

2.2 International river basins and aquifers

2.4 Methodologies for integrated river basin management

3.3 Land habitat hydrology - Mountains

The individual activities, which are planned to be organised in the country, are following:

Szolgay, J.: Report to IAHS. In: Slovak National Report to International Union of Geodesy and Geophysics 2003 – 2006. Contributions to Geophysics and Geodesy, Special issue, 2007.

18<sup>th</sup> Conference of Young Hydrologists (joint activity with Czech NC). Bratislava, November 2006.

19<sup>th</sup> Conference of Young Hydrologists, (joint activity with Czech NC). Bratislava, November 2007.

Transport of water, chemicals and energy in the system soil-plant-atmosphere. XIV<sup>th</sup> poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, November, 2006.

Transport of water, chemicals and energy in the system soil-plant-atmosphere. XV<sup>th</sup> poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, autumn 2007.

Edition of next SVH Publications (1 per year).

## **2.2 Activities planned for 2008-2009**

The continuation in all the main ongoing activities is foreseen (see para 2.1.). Their inclusion into the VII phase of IHP depends on final structure of the VII phase.

- Continuation in Regional co-operation of the Danube countries in hydrology.
- Participation at the regular hydrological Conference of the Danube countries in 2006.
  
- Continuation in organisation of the Poster days Transport of water, chemicals and energy in the system soil-plant-atmosphere.
  
- Participation in European Reference Basins project.
- Continuation of activities in mountain hydrology.
- Publication of case studies on hydrology of mountain basins.

CCPC FRIEND (Flow Regimes from International Experimental and Network Data)

- Collaboration and co-ordination of activities with other international programs and projects as European Reference Basins, and others.

CCPC HELP (Hydrology for the Environment, Life and Policy)

- Maintenance and promotion of research in experimental and representative basins.

## **2.3 Activities envisaged in the long term**

Continuation in active participation in the IHP UNESCO. No specific activities planned at the moment.

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