

NATIONAL REPORT OF THE SLOVAK REPUBLIC

1. Activities undertaken in the period July 2006 - May 2008

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 were 2 meetings 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 23 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

FENDEKOVÁ Miriam, Comenius University, Bratislava

HOLUBOVÁ Katarína, Water Research Institute, Bratislava

MAJERČÁKOVÁ Oľga, Slovak Hydrometeorological Institute, Bratislava

MATUŠKA Milan, Global Water Partnership, Bratislava

MINÁRIK Boris, Slovak Hydrometeorological Institute, Bratislava

SUPEK Marián, Danube River Basin Authority, Bratislava

Plenum:

BABIAKOVÁ Gabriela, Slovak Hydrometeorological Institute, Bratislava

BODIŠ Dušan, State Geological Institute of Dionýz Štúr, Bratislava

ELIÁŠ Pavol, Slovak Agricultural University, Nitra

HLAVČOVÁ Kamila, Slovak University of Technology, Bratislava

HOLČÍK Vladimír, Water Engineering Construction, Bratislava

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

POÓROVÁ Jana, Slovak Hydrometeorological Institute, Bratislava

RONČÁK Peter, Slovak Hydrometeorological Institute, Bratislava

ŠKULEC Štefan, retired

ŠOLTÉSZ Andrej, Slovak University of Technology, Bratislava

ŠÚTOR 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 was the international coordinator of FRIEND Northern and Western Europe Working group 5 *Hydrological and biogeochemical processes in changing environment* since 1998 till September 2006.

Slovak representative Dr. Fendeková was elected the international coordinator of FRIEND Northern and Western Europe Working group 2 *Low flows and droughts* 2007.

Slovak representative Dr. Petrovič was 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).

Water Research Institute, Bratislava published the final report of the project *Basin-wide water balance in the Danube river basin*, co-ordinated by Dr. Petrovič. The project was finalized in collaboration with the ICPDR (International Commission for Protection of the Danube River) and UNESCO Venice Office (UVO-ROSTE).

Slovak representative Dr. Pekárová was elected the international coordinator of *Flood regimes 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).

Three international meetings were organised in Slovakia:

UNESCO workshop and meeting of working group on *Climate variability and land cover change impact on flooding and low flows* was organised on 27-28 April 2006 in Bratislava.

13th meeting of experts in snow hydrology was organized on 26–28 March 2008 in Chopok-Kosodrevina in the Low Tatras.

UNESCO Workshop and meeting of working group on *Comparative analysis of floods and droughts - Catchment and aquifer typology* was organised on 20-23 April 2008 in Smolenice.

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

23rd *Conference of Danubian countries on the Hydrological Forecasting and Hydrological Bases of Water Management*. (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.

24th *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.) Bled, Slovenia, 2008.

ERB conference 2008, Hydrological extremes in small basins, Cracow, Poland, 2008.

1.1.3 Decisions regarding contribution to/participation in IHP-VII

The IHP National Committee will participate in IHP-VII. The national activities as contribution to IHP-VII Implementation Plan were prepared and submitted to IHP.

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

1.2.1 National/local scientific and technical meetings

The 18th Conference of Young Slovak and Czech Hydrologists was organised in November 2006 in Bratislava and the conference proceedings were published. Following three papers were awarded:

Daňhelka Jan – The use of Schaake shuffle approach and stochastic weather generator for middle range probabilistic stream flow forecasting.

Horvát Oliver – Interpretation of the rainfall-runoff model FRIER.

Psotová Martina, Sokolová Lucia – Assessment of the water level forecast for Streda nad Bodrogom station by forecasting system MIKE11.

The 19th Conference of Young Slovak and Czech Hydrologists was organised in November 2007 in Bratislava and the conference proceedings were published. Following three papers were awarded:

Bulantová Marcela – Agressive properties of the ground waters in the High Tatras and in the quarternary sediments of their region.

Fiala Theodor – Trends of the mean discharges of the Czech rivers in 1961-2005.

Gregor Miloš – ARC 1.0 – program application for complex analysis of the springs recession curves.

Orfánus Tomáš – Modeling of deterministic and stochastic variability of soil moisture in lowland areas.

1.2.2 Participation in IHP Steering Committees/Working Groups

Representatives of the NC took part at the 17th Intergovernmental Council of IHP UNESCO in Paris in 2006 as members of the IHP Intergovernmental Council.

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 was the international coordinator of the WG 5 of the project since 1998 till 2006 and Dr. Fendeková is the international coordinator of the WG 2 of the project since 2007.

Representatives of the NC took part at following FRIEND meetings:

NE FRIEND SC meeting in Havana, Cuba in 2006

NE FRIEND WG 2 meetings in Havana, Cuba in 2006 and Perugia, Italy in 2007

NE FRIEND WG 5 meetings in Luxembourg in 2006 and in Brno, Czechia in 2007.

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 11th ERB conference in Luxembourg in 2006 and took part at the ERB Steering Committee meeting in Brno in 2007.

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 (2006 Beograd, Serbia, 2007 Novi Sad, Serbia).

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 was 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 did not organize any training seminar during the period of interest.

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 eight volumes were published till now. Two of them were published within the period of this report.

Kohnová, S., Szolgay, J., Solín, L., Hlavčová, K. 2006: *Regional Methods For Prediction In Ungauged Basins – Case Studies* (SVH Publication 7) as National report for the IHP UNESCO FA 2.4 *Methodologies for integrated river basin management* in collaboration with IAHS PUB (Prediction in ungauged basins).

Szolgay, J., Hlavčová, K., Kohnová, S., et al. 2006: „*Climate and land cover impact on runoff in the Hron river basin*“ (SVH Publication 8) as National report for the IHP UNESCO FA 2.4 *Methodologies for integrated river basin management*.

– UNESCO and IHP publications, mainly proceedings of international conferences. Unfortunately, none of them was published within the period of this report.

- Proceedings of the conferences organised in Slovakia related to IHP:
 Proceedings from 12th meeting of experts in snow hydrology, Telgárt, 2006, www.ih.savba.sk
 Proceedings from 13th meeting of experts in snow hydrology, Chopok-Kosodrevina, 2008, www.ih.savba.sk
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. Proceedings of the XIVth poster day. (IHP-VI project 2.4) CD ROM, UH SAV-GfU SAV, Bratislava, Slovakia, 2006.
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. Proceedings of the XVth poster day. (IHP-V project 2.4) CD ROM, GfU SAV-UH SAV, Bratislava, Slovakia, 2007.
- 18th Conference of the Young Hydrologists – Proceedings. CD ROM, SHMI, Bratislava, Slovakia, 2006.
- 19th Conference of the Young Hydrologists – Proceedings. CD ROM of Hydrological Days conference, SHMI, Bratislava, Slovakia, 2007.

1.6 Participation in international scientific meetings

1.6.1 Meetings hosted by the country

- 13th meeting of experts in snow hydrology 26–28 March 2008 in Chopok-Kosodrevina, Slovakia. (Participants from Slovakia, Czech republic and Poland).
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. XIVth poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, Slovakia, 2006.
- Transport of water, chemicals and energy in the system soil-plant-atmosphere. XVth poster day. (National contribution to IHP-VI Focal Area project 2.4 Methodologies for integrated river basin management.) Bratislava, Slovakia, 2007.
- 18th Conference of the Young Hydrologists. Bratislava, Slovakia, 2006.
- 19th Conference of the Young Hydrologists. Bratislava, Slovakia, 2007.
- UNESCO Workshop and meeting of working group on *Comparative analysis of floods and droughts - Catchment and aquifer typology* was organised on 20-23 April 2008 in Smolenice.

1.6.2 Participation in meetings abroad

- 17th Session of the Intergovernmental Council of the IHP UNESCO, Paris, 2006: Miklánek, P., Halmová, D.
- Regional Intergovernmental Council of the IHP UNESCO of the Electoral group I, Istanbul, 19-22 September 2007: Miklánek, P., Halmová, D.
- UNESCO Workshop and meeting of working group on *Climatic variability and land cover change impact on high and low flows - at what scales?*, Newcastle, 13-14 September 2007: Szolgay
- FRIEND SC meeting in Havana, Cuba in 2006: Miklánek, P.
- NE FRIEND WG 2 meeting in Havana, Cuba in 2006: Fendeková, M.
- NE FRIEND WG 2 meeting in Perugia, Italy in 2007: Fendeková, M.
- NE FRIEND WG 5 meeting, Luxembourg, 2006: Miklánek, P., Holko, L., Pekárová, P.
- NE FRIEND WG 5 meeting, Brno, 2007: Holko, L.
- ERB (*European Network of Experimental and Representative Basins*) Steering Committee meeting, Luxembourg, 2006: Miklánek, P., Holko, L.
- XIth ERB Conference and General Assembly, (Conference: *Uncertainties in the "monitoring-conceptualization-modelling" sequence of catchment research*), Luxembourg, 2006: 4 papers and 6 participants.
- ERB (*European Network of Experimental and Representative Basins*) Steering Committee meeting, Brno, 2007: Holko, L.

- 20th Working Session of the Danube countries representatives, Beograd, 2006: Miklánek, P., Petrovič, P., Pekárová, P.
- 23rd Hydrological conference of the Danubian countries, Beograd, 2006: 12 papers and 20 participants.
- 21st Working Session of the Danube countries representatives, Novi Sad, 2007: Miklánek, P., Halmová, D., Poárová, J., Pekárová, P.

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

2. Future Activities

2.1 Activities foreseen until December 2009

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-VII:

FA 1.2 - Climate change impacts on the hydrological cycle and consequent impact on water resources

FA 1.3 - Hydro-hazards, hydrological extremes and water-related disasters

FA 2.4 - Managing water as a shared responsibility across geographical & social boundaries

FA 2.5 - Addressing the water-energy nexus in basin-wide water resources

FA 5.1: - Tertiary water education and professional development

FA 5.3: - Water education in schools

FRIEND, HELP

Associated programmes: International Flood Initiative (IFI), International Sediment Initiative (ISI)

Focal area 1.2	2008: Publishing of the monograph on <i>Hydrology of Danube in Bratislava</i>
Focal area 1.3	2008: Organization of the UNESCO workshop on <i>Comparative analysis of floods and droughts – Catchment and Aquifer typology</i> in Smolenice (Slovakia) 2008 – 2009: Co-ordination of Project 9 Flood regime of the Danube river in the Regional co-operation of the Danube countries; 2007 – 2009: Participation in Project 13 Low flow and hydrological drought in Danube basin in the Regional co-operation of the Danube countries
Focal area 2.4	2008 – 2009: Participation in Regional co-operation of the Danube countries in the framework of IHP UNESCO
Focal area 2.5	2008 – 2009: Organization of the annual Poster day on Transport of water, chemicals and energy in the system soil - crop canopy - atmosphere 2008: Publishing of the monograph on <i>SOLEI Model for estimation of radiation income and evapotranspiration in mountainous basins</i>
Focal area 5.1	2008 – 2009: Organization of the annual Conferences of young hydrologists

Focal area 5.3	2008 – 2009: Annual Award for the Best diploma work in hydrology at the Slovak Technical University
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Cross-cutting programmes:

FRIEND	2008 – 2009: Co-ordination of and participation in the NE FRIEND Working group 2 <i>Low flows and droughts</i> 2008 – 2009: Participation in the NE FRIEND Working group 5 <i>Catchment hydrological and hydrobiogeochemical processes in changing environment</i> 2008 – 2009: Cooperation with European Network of Experimental and representative basins (ERB) project
International Flood Initiative (IFI)	2007 – 2009: Co-ordination of Project 9 Flood regime of the Danube river in the Regional co-operation of the Danube countries;
International Sediment Initiative (ISI)	2007 – 2009: Participation in Project 12 <i>Roadmap towards an advice of the implementation of sediment management in the Danube WFD River Basin Management Plan</i> in the Regional co-operation of the Danube countries

2.2 Activities planned for 2010-2011

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 bi-annual hydrological Conferences of the Danube countries.
- Continuation in organisation of the Poster days Transport of water, chemicals and energy in the system soil-plant-atmosphere.
- Publication of SVH Publications
- Participation in European Reference Basins project.

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

- Participation in NE FRIEND working groups 2 and 5
- 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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