NATIONAL IHP-ACTIVITIES IN THE NORDIC COUNTRIES DURING 1995 - 1996 AND PLANNED COOPERATION DURING 1997 - 1998

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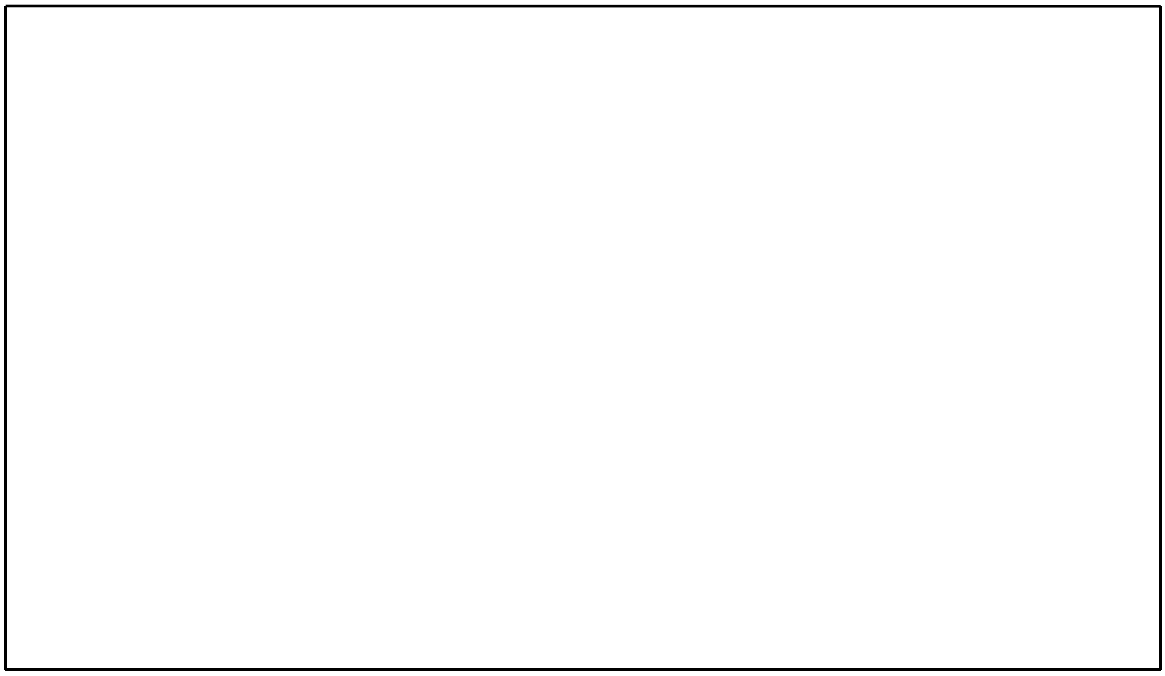

12TH SESSION OF THE INTERGOVERNMENTAL COUNCIL OF THE IHP

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1. Activities undertaken in the period January 1995 - August 1996

Introduction

There are three different forms of organized hydrological co-operation between the Nordic countries: Denmark, Finland, Iceland, Norway and Sweden:

1. *Nordic Association for Hydrology*
   The main activity of the Association is publishing the international journal "Nordic Hydrology" and the Nordic periodical magazine "Vannet i Norden - Water in Nordic Countries". The Association also organizes every second year, on a rotational basis, the Nordic Hydrological Conference (NHK). The last NHK was held in Akureyri - Iceland 13.-15. August 1996 with approximately 200 participants from the Nordic countries and with a considerable participation also from the Baltic countries: Estonia, Latvia and Lithuania /1/. The association also participates in organizing smaller seminars, workshops etc. Membership to the Association is either individual or organizational.

   There are about 300 individual and 30 organizational members in the Association

2. *UNESCO, IHP/Hydrological Committtees*
   The main function of the Nordic IHP/Hydrological Committees is to encourage and stimulate regional co-operation between institutions across the national borders of the region. Joint projects are carried out within the Nordic Hydrological Programme (NHP). The activities in NHP can be a working group, an expert meeting, a seminar or a research project. Results of the NHP are published in the series "NHP-reports". The members of IHP/Hydrological committees are invited on national basis. The coordination of NHP is done by KOHYNO (Coordination committee of hydrology in the Nordic countries; one member of each Nordic country).

3. *Nordic Operational Hydrological Institutes*. Tthe co-operation between the institutes is mainly focused on instruments and methods for hydrological measurements, collection, transmission, processing, storage and publication of basic data, hydrological forecasting and development and improvement of relevant methods and techniques in network design, specification of instruments and development of geographical information system. The institutes also discuss nordic participation in working groups of international organizations.

All the three branches of nordic hydrological co-operation work under published statutes.

Regional co-operation between the Nordic IHP/Hydrology Committees

The Nordic IHP-Committees have continued their co-operation in hydrology. The main activities are the joint projects carried out in two year phases within the NHP and participation in the work and projects of governmental and nongovernmental international organizations. The programme for the years 1995-96 comprised 16 projects:

1. NOPEX (a northern hemisphere climate processes land-surface experiment)
2. FRIEND (Flow regimes from international experimental and network data, IHP IV: H-5-5/IHP V: 1.1)
3. Northern Research Basins
4. Future groundwater resources at risk (IHP-V, Theme 3) /2/
5. Analysis and control of precipitation data /1/
6. Spatial and temporal variability and interdependencies among hydrological processes /3/
7. Nordic working group "Hydrology 2010" /4/

8. Ecohydrodynamics of shallow eutrophic lakes
9. Nordic network on reference watersheds
10. An advanced course on “Snow in NorthEuropean Environment”
11. BALTEX (Baltic Sea Experiment)
12. The use of satellites in hydrological mapping and models /5/
13. Cost-benefit analysis of hydrological data /1/
14. Climate change and energy production /6/
15. A Nordic Hydrologic Information System (NORDHIS, UNESCO/IHP cooperation, /1/)
16. Cooperation with the British Hydrological Society

National IHP activities in the Nordic countries

Denmark

The Danish Water Resources Committee (DVK) was established in 1994 by a group of organizations. The motivation was a felt need for a forum that could coordinate activities and strategies and facilitate exchange and dissimination of information of matters of common interest.

One of DVK’s important tasks is to work as the national IHP Committee and be responsible for the relations to the Nordic Hydrological Programme through its coordination committee, KOHYNO. At present Denmark is a member of the intergovernmental IHP council on behalf of the Nordic countries for the next five year period (1996-2000). Other tasks include (i) exchange and dissimination of information, (ii) relations to WMO (commision of hydrology/hydrological advisor), (iii) tasks generated by external demand and (iv) tasks where DVK has taken independent initiatives (national water resource information system, arranging conferences, input to research programmes/strategies etc.).

Exchange and dissemination of information has been a main activity for 1995-96 both at DVK-meetings, at public meetings arranged by DVK and through the newsletter ‘Nyt om Vandressourcer’ (Water resources news). There has been arranged two public meetings: “Water resources in Danish, European and Global Perspective” (10 Januar 1995), “Water Resource Information System” (23 May 1995) and a 1-day seminar: “Tasks and goals for the Danish Water Resources Committee (DVK)” how to link international and national research and management strategies (21 May 1996).

At present the funding of hydrological research in Denmark is characterized by a high priority to groundwater research projects. The most recent national initiative is in relation to the Danish Environment Research Programme (SMP), which was initialized in 1992/93. A new sub-programme includes a comprehensive project on “Pesticides and Groundwater” which is to be carried out 1996-99. Furthermore, DVK has prepared inputs to a new “Danish National Reserach Strategy”.

DVK has created the idea and conducted a pre-feasibility study on establishment of a national water resource information system (VRI). The VRI project is very ambitious and a final implementation will depend on a joint interest of all datacollection organizations and a governmental funding.

DVK has taken the initiative to host the EWRA 1997 conference: “Operational Water Management”. 3.-6. September 1997 in Copenhagen, Denmark.

Finland

In Finland the IHP-activities are financed by the Academy of Finland. The main national activities have been financing five research projects and Finnish participation and organization in international IHP-conferences and seminars.

The Finnish IHP committee jointly organized the International Conference on Artificial Recharge of Groundwater in June 3 - 5, 1996. The proceedings of the conference have been sent to all IHP National Committees /2/.

The Finnish IHP committee co-organised with the Hungarian IHP committee Nordic-Baltic-Hungarian symposium ”On Ecohydrodynamics of Shallow Euthrophic Lakes” Oct. 15 - 18, 1995 in Budapest, Hungary.

Concerning the Nordic Hydrological Programme the Finnish IHP committee has organised:

- NOPEX fifth annual meeting, in Helsinki, Feb. 9 - 10, 1996
- Nordic-Baltic postgraduate course on Geostatistical and Stochastic Analysis in hydrology, in Espoo, May 26 - June 1, 1996
- an Advanced course on Snow in North-European Environment, in Lammi Feb. 8 -14, 1995

The Finnish IHP committee has cofinanced on request of UNESCO’s Regional Office for Science and Technology for Southeast Asia the publication ”Major Lakes and Reservoirs in Indonesia” and on request of Northern European FRIEND the reprinting of Volume 1 of the FRIEND Report.

In the report series of Nordic Hydrological Programme the Finnish IHP committee has financed:

- Report 38 Artificial Recharge of Groundwater /2/
- Report 39 Hydrology in 2010 (in Swedish) /4/
- Report 41 Monitoring of Snowcover and Precipitation by Remote Sensing in Sweden, Finland and Norway (in Norwegian) /5/
- Report 42 Cost-benefit analysis of Hydrological Data (in print).

The co-operation with Estonian IHP committee has continued. The co-operation has been active in administrative, scientific and educational level. The Finnish IHP Committee has been able to finance the participitation of Estonian researchers in international conferences, seminars and courses organized in Finland.

Finland has been responsible for the co-ordination of the Nordic Hydrological Programme in 1995 -1996 and will organize a Nordic-Baltic meeting for preparation for the next Nordic Hydrological Programme (1997 - 1998) in Nov. 10 - 12, 1996 in Helsinki and Tallin, Estonia.

Finland has been a member of the IHP Council in 1992 - 1995 and a member of the Bureau in 1995 -1996.

Iceland

In Iceland the IHP activites have been financed by the Hydropower Division of National Energy Authority, which maintains the secretariat of the IHP Icelandic Hydrological Committee, with occasional contributions from other sources. In 1995 the committee got a renewal of its mandate from the Ministry of Cultural and Educational Affairs, and some new delegates were appointed at the same time. There was, however, no change in the participating institutions.

The committee took part in organizing the final symposium of the Nordic research programme "Climate Changes and Energy Production", which was held in Reykjavik in late April 1995 with over 70 participants from six countries, and publishing a draft programme report to the symposium.

In August 1996 the XIX. Nordic Hydrological Conference "NHK-96" was held in Akureyri, Iceland, with 200 mainly Nordic and Baltic participants, coming from eleven countries. The Icelandic Hydrological Committee was also involved in organizing this conference by publishing the 800 page and two volume proceedings of the meeting, which was number 40 in the NHP report series. The Icelandic committee invited the chairman of the newly established Estonian Commmitte for the IHP to a meeting of the Coordinating committee of hydrology in the Nordic countries (KOHYNO), which was held in connection with the conference, for strengthening the ties between Nordic and Baltic hydrologists and exploring the ground for further cooperation.

Some changes in the work and organizational arrangement of the Icelandic Hydrological Committee may occur in the near future, as a reorganization has been decided for the hosting institution, the National Engergy Authority of Iceland.

Norway

The Norwegian Hydrological Council (NHR) was established in 1995, on the initiative of the Research Council of Norway, the Norwegian Meteorological Institute, the Norwegian Geological Survey and the Norwegian Water Resources and Energy Administration.

NHR is a cooperative body that is open to all Norwegian institutions, organizations, governmental authorities, and companies working within the field of hydrology. As of 1 September NHR has 23 institutional members.

The Councils tasks are to:

- promote cooperation and task sharing between Norwegian hydrological institutions;
- promote hydrological research and education;
- initiate water research programmes and provide expert advice during implementation;
- disseminate relevant knowledge and data;
- organize meetings, symposia, conferences and courses;
- provide information on international hydrology to Norwegian institutions;
- coordinate Norwegian participation in international programmes;
- act as the Norwegian committee for the International Hydrological Programme (IHP).

The main activities in 1995/96 have been to establish the Council and its secretariat and to exchange and disseminate information. NHR has arranged a seminar: Water and economic growth.

NHR participates in the Nordic Hydrological Programme through its coordination committee KOHYNO. NHR does not directly allocate public funds for research and development activities.

Sweden

The Swedish IHP-Committee, organised within Swedish Natural Science Research Council, is com-posed by scientists and representatives from sector authorities. The Committee has as a contribution to the fourth phase of IHP, focused their activities on following:

Ecological-hydrologic monography
The Swedish IHP Committee is preparing together with international well-known authors a publication on "Water, a reflection of land use. Options for improving land and water management". The book aims at clarifying for the layman the interactions between man, land and water. Its main purpose is to demystify the hydrological cycle by conveying a comprehensive image of the different functions of the water circulating through the watercycle, thereby passing through different landscapes, above and below the soil surface, so that better attention can be paid to its consequences in future decision making. The objective is to open Man's eyes to his own dependence on interaction with water and its quality when passing by human settlements and to the ways in which his own actions interface with the globally circulating water. The third draft has just been ready and the book intended to be out in mid 1997.

International project NOPEX
Sweden has the responsibility for the international project 'A Northern Hemisphere Climate Processes Land-surface Experiment (NOPEX)'. NOPEX is devoted to studying land-surface-atmosphere interaction in a northern European forest-dominated landscape. The NOPEX main study region was selected to represent the southern part of the boreal zone. The region consists of a mosaic-type terrain with patches of forest, mires, lakes, agricultural fields i.e., a highly small-scale, heterogeneous landscape. NOPEX is specifically aiming at investigating fluxes of energy, momentum, water and CO2- and the associated dynamics- between the soil, the vegetation and the atmosphere, between lakes and the atmosphere as well as with in the soil and the atmosphere on local to regional scale ranging from centimetres to ten of kilometres.

The goals are met by a combined measurement and modelling approach. The measurement challenge in NOPEX is to develop a working balance between intensive, time-limited field campaigns with many participating groups and intensive, continuous measurement programmes going on for many years. Modelling challenges include the integrated analysis of local and regional data for initialisation and validation purposes, the use of remote-sensing data to provide input to hydrological and atomspherical models at the scale of the NOPEX region as well as the development of relevant algorithms for the remotely-sensed data, the test of algorithms and models for their sensitivity to the quality of input data, and the possibility to couple hydrological atmospheric models in an interactive way.

Long-term changes of large water bodies
The Committee is now preparing a workshop together with the organisers of Stockholm Water Symposium. The workshop will be arranged to promote a better understanding of the causes of the large-scale and long-term changes observed in most large water bodies. The workshop will focus on both hydrological changes, changes of chemical water characteristics, and biological changes. Four groups of issues will be highlighted: (i) observed water quality and their relation to man-affected and natural variability of waterpartitioning in the drainage area; (ii) links between water quality and spatial distribution ofpollutant sources including land use, point sources, physiographic factors and water pathways; (iii) long-term retention of elements including both transit times in the terrestrial environment, and the transformation and retention in coastal waters and sediments; (iv) prediction of future changes by use of partitioning models and water quality models, and evaluation of performed mitigation programmes.

Integrated water management in urban areas
The Committee organised together with the Department of Water resources Engineering, University of Lund an international symposium on 'Integrated water management in urban areas - Searching for new realistic approaches with respect todeveloping world', 26-29 September 1995. Present time is a transition time.Two different philosophies with different ways of approaching increasing environmental problems of the world may be distinguished. Both of them claim an ability to solve the problems. The first approach, a traditional one, is a continuation of present line of development and a wider implementation of technology known and used in developed countries. The other approach states that basic changes on all levels of the societies, as well as different novel technologies are needed in order to bring progress leading to conservation of

resources and sustainability. The symposium aimed at a consensus on how these two approaches can be combined in order to create conditions for real break-through in a present disastrous situation in sanitation and drainage sector in growing cities.

Salt water intrusion
The Committee organised the 14th Salt Water Intrusion Meeting (SWIM) in co-operation with Geological Survey of Sweden, Land and WaterResources at Royal Institute of Technology, Swedish Nuclear Fuel and Waste Management Co, and VBB. The meeting was held in Malmö 16-21 June 1996 and the purpose was to give special attention to methods for prognoses and methods for mitigation of salt water problems. Salinization of freshwater aquifers is a main problem around the world even far from the coastlines. This is due to e.g. relict water, extensive irrigation and evaporation in arid zones and anthropogenic sources of salt.

The 14th SWIM included a variety of aspects such as intrusion of sea water in coastal areas, occurrence and origin of relict salt water, pollution of fresh water aquifers from road salts, industries and waste deposits, methodologies for evaluation and progresses of salinizations of aquifers, methods (chemical and geophysical) of tracing salt water as well as methods (technical, legal and physical planning) for mitigation of salt water problems.

2. Future Activities

The planned joint projects and participation for the years 1997 - 98 will be decided at a KOHYNO meeting in Helsinki, Finland: 11-12 November 1996. Some of the above projects will continue and contribute to IHP V others will be finalized in 1996/97 and new projects will be initiated and carried out during 1997-98. The next Nordic Hydrological Conference is planned to take place in Helsingki in August 1998.

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