

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

NATIONAL REPORT ON IHP RELATED ACTIVITIES

21ST SESSION OF THE IHP INTERGOVERNMENTAL COUNCIL
PARIS, JUNE 2014

1. ACTIVITIES UNDERTAKEN IN THE PERIOD JUNE 2012 – MAY 2014

1.1 Meetings of the IHP National Committee

1.1.1 Decisions regarding the composition of the IHP National Committee

Two meetings of the United Kingdom National Committee for the IHP were held during the reporting period; on 5 March 2013 and 11 February 2014. Since its formation in 2007 (through the merger of the UK National Committee for the IHP and the UK Inter-Departmental Committee on Hydrology) the *UK Committee for National and International Hydrology* (UKCNIH) has acted as the UK National Committee for the IHP. The committee comprises representatives from UK bodies with a major stake in hydrology and water resources research; the current organisations represented are detailed in Table 1.

Table 1 Representation on the *UK Committee for National and International Hydrology* (as of June 2014).

Natural Environment Research Council (NERC)
Centre for Ecology & Hydrology (CEH)
Department for Environment, Food and Rural Affairs (DEFRA)
Department for International Development (DfID)
Department for Transport (DfT)
Welsh Government
Scottish Government
Department of Agriculture and Rural Development, Northern Ireland (DARDNI)
Scottish Environment Protection Agency (SEPA)
Environment Agency (EA)
Northern Ireland Environment Agency (NIEA)
Met Office
British Geological Survey (BGS)
UK Water Industry Research (UKWIR)
British Hydrological Society (BHS)
UK Committee of the International Association of Hydrological Sciences (IAHS)
International Association of Hydrogeologists (IAH)
UK National Commission for UNESCO
UNESCO Category II Centre of Water Law, Policy & Science, Dundee
UK interests in IHP Flow Regimes from International Experimental and Network Data (FRIEND)
UK interests in IHP Hydrology, Environment, Life and Policy (HELP)
UK interests in IHP Water and Development Information for Arid Lands (G-WADI)
UK interests in IHP International Sedimentation Initiative (ISI)
UK interests in UNESCO Ecohydrology projects

The Natural Environment Research Council (NERC) Centre for Ecology & Hydrology (CEH) continues to provide the UK IHP secretariat with Professor Alan Jenkins remaining as Chair of the UKCNIH and Dr Harry Dixon as its Secretary.

1.1.2 Status of IHP-VII activities (including IHP-VIII activities if applicable)

The UK is able to contribute towards the IHP through a number of current scientific research programmes at a national and international scale. Contributions cover a range of IHP-VII and IHP-VIII Themes and Focal Areas. UK researchers continue to play a leading role in many of the cross-cutting and associated programmes of the IHP. Contributions over the reporting period and current activities include those detailed below.

Ecohydrology

Professor David Harper (University of Leicester) continues to play a leading role in coordinating research and capacity building activities in the area of Lake Naivasha (Kenya) and is an advisor to Imarisha Naivasha. The area is an International Ecohydrology Reference Site and IHP HELP basin. The work was highlighted in the UNESCO *Free Flow* publication (see Section 1.5).

Principles of Ecohydrology have also guided initiatives within the Welland catchment in eastern England (as UK HELP basin, see below).

FRIEND Programme

The UK has maintained its involvement in the FRIEND Programme providing support and research contribution to FRIEND initiatives worldwide through the activity of many hydrologists from across the country.

Dr Harry Dixon (CEH) represents UKCNIH on the Steering Committee of EURO-FRIEND. No meetings of the Steering Committee have been held over the reporting period. Gwyn Rees (CEH) is member of the Steering Committee of HKH-FRIEND. Helen Houghton-Carr (CEH) continues to represent the UK on the Steering Committee of Southern Africa FRIEND.

UK scientists presented at a midterm meeting of the Low Flow and Drought group (October 2012, Payerbach, Austria) and attended FRIEND meetings held at the 2013 and 2014 General Assemblies of the European Geosciences Union.

A number of UK authors (from CEH, University of Birmingham and Met Office) had papers accepted for presentation at the 7th FRIEND world conference which was due to be held in February 2014 (Hanoi, Vietnam). Professor David Hannah (University of Birmingham) was on the International Scientific Committee. Some of these authors intend to attend the rearranged conference in Montpellier, France (October 2014).

The UK, through the National River Flow Archive hosted by CEH, has continued to provide data updates to the FRIEND European Water Archive (EWA).

UK scientists have been involved in collaboration between European and North American researchers, focusing on the analysis of climate driven hydrological change in near-natural catchments across these domains – the results of which were published in 2012. Collaborations established through the FRIEND programme led to a successful research bid to the

Belmont Forum focusing on *DRought Impacts and Vulnerability thresholds for monitoring and Early-warning Research* (see section 1.2.3).

G-WADI Programme

The involvement of UK scientists in the development of the G-WADI programme continued between 2012 and 2014. Professor Mike Edmunds (University of Oxford) continues to serve on the G-WADI Steering Committee and has been involved in coordination of activities across the global network. UK contributions over the reporting period include a paper coordinated by Professor Mike Edmunds summarising the first decade of G-WADI activities. This paper, published in a special issue of *Sciences in Cold and Arid Regions* was presented at the G-WADI meeting organised by Asian G-WADI in September 2013 (Beijing, China).

HELP Programme

In 2012 the Category II Centre for Water Law, Policy and Science published a review of selected projects with integrated catchment management experiences, placing particular focus on HELP basins. The review considered links between national “top-down” policy processes and local “bottom-up” catchment scale initiatives and was published by Scotland’s Centre of Expertise for Waters (CREW).

Under its renewed Category II agreement (2014-2020), the Centre for Water Law, Policy and Science at the University of Dundee is no longer responsible for the coordination of HELP basins within Europe.

Over the reporting period, activities have continued in the Tweed and Welland HELP basins. In the Welland basin two projects involving the Welland Rivers Trust, University of Leicester and others partners were funded under the *Catchment Restoration Fund* established by DEFRA in 2012. Principles of Ecohydrology are being guiding restoration of the Welland through the town of Market Harborough.

In the Tweed, several linked projects involving the University of Dundee and others have focused on river restoration and natural flood management, as well as governance models, stakeholder engagement and the provision of ecosystem services.

ISI Programme

Professor Des Walling (University of Exeter) continues to act as a member of the ISI Steering Committee and Core Steering Group but UK contributions over the reporting period have been limited by the wider Programme inactivity.

IHP-VII Theme 1:

The British Geological Survey (BGS) led research funded by the UK Department for International Development (DFID) aimed at improving the understanding of the resilience of groundwater in Africa to climate change. The project brought together UK researchers from BGS, the Overseas Development Institute (ODI) and University College London (UCL) with African research institutions in Nigeria, Tanzania and Ethiopia. A series of quantitative groundwater maps for Africa and new data from focused groundwater case studies were published in 2012.

1.2 Activities at national level in the framework of the IHP

1.2.1 National/local scientific and technical meetings

The UK hydrological community continues to convene a comprehensive range of national and local scientific/technical meetings. The British Hydrological Society (BHS) is a UK national society for the advancement of hydrology. The Society's membership is drawn from both the academic (universities and research institutes) and operational sectors. The Society holds regular national and regional scientific and technical meetings related to Hydrology. Over the reporting period numerous meetings have been held focusing on topics such as *Urban Storm Drainage*, *Changing Extremes in Hydrology*, *Ecohydrology*, *Hydrometric Data*, *Abstraction Licensing* and *Upland Hydrology*. The Society's latest National Symposium was held in Dundee, Scotland in July 2012. *Hydrology Research* is the official journal of the Society and the Nordic Association for Hydrology.

1.2.2 Participation in IHP Steering Committees/Working Groups

UK researchers continue to be involved in wide range of IHP Steering Committees and Working Groups. In relation to the cross-cutting and associated programmes of IHP, UK scientists serve on, amongst others, the committees of FRIEND, HELP and ISI (see section 1.1.2). The UK National Committee for the IHP is represented on the Governing Board of the Category II Centre for Water Law, Policy and Science by Dr Harry Dixon (see Section 1.4).

The UK continues to actively engage with other National Committees in IHP Region 1, providing contributions to consultations and other initiatives. In October 2013, Alan Jenkins represented the UK National Committee for the IHP at the IHP Region 1 meeting in Oslo, Norway.

The UK has actively participated in the implementation planning for IHP-VIII. Professor Alan Jenkins and Dr Harry Dixon have contributed to the Implementation Working Group, including participating in its December 2012 meeting in Koblenz, Germany.

Professor Geoffrey Gooch (Director of the Category II Centre for Water Law, Policy and Science) participated in the *UNESCO Strategic and High-Level Meeting on Water Security and Cooperation* (September 2013, Nairobi, Kenya).

The UK maintains links with the UNESCO Division of Water Sciences. Over the reporting period the National Committee for the IHP provided a UK response to the Member State consultations on the implementation of IHP-VIII and feedback to the IHP-VII evaluation team. In March 2013, the Chair of the IHP Intergovernmental Council visited CEH to hold discussions with the National Committee Chair.

Nationally Professor Alan Jenkins and Dr Harry Dixon (as Chair and Secretary of the UKCNIH) represent UK involvement in the IHP in UK National Commission for UNESCO initiatives – for example, providing IHP related input to the Commission's 2013 assessment of the [Wider Value of UNESCO to the UK](#). Through the Commission the IHP National Committee provides advice on relevant policy issues to the UK Permanent Delegation to UNESCO. Over the reporting period this input has included significant work on potential improvements to UNESCO's Category II Centre network – a UK National Commission [Policy Brief](#) was published on this topic in 2012.

1.2.3 Research/applied projects supported or sponsored

The European Union continues to be an important source of funding for UK international research activities. For example, CEH are collaborators in the 2014-2017 project entitled *Earth2Observe (Global Earth Observation for Integrated Water Resource Assessment)*. Funded under the European Union Seventh Framework Programme for Research, the project will contribute to the assessment of global water resources through the use of new Earth Observation datasets and techniques.

A number of UK funded research initiatives of relevance to the IHP have been established over the reporting period. For example: *Unlocking the Potential of Groundwater for the Poor (UPGro)*, is a 2012-2019 international research programme which is jointly funded by UK's Department for International Development (DFID), Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC). The programme focuses on improving the evidence base around groundwater availability and management in Sub-Saharan Africa (SSA) to enable developing countries and partners in SSA to use groundwater in a sustainable way in order to benefit the poor.

In 2013, a joint programme was funded by the UK's Natural Environment Research Council (NERC) and the Ministry of Earth Science (MoES) in India to allow UK researchers to collaborate with Indian scientists to research *Drivers of Variability in the South Asian Monsoon*.

In April 2012 a joint collaborative research action focusing on *Freshwater Security and Coastal Vulnerability* was launched between the Belmont Forum and the G8 Research Councils Initiative on Multilateral Funding. Six international research consortia were awarded funding under the Freshwater Security Theme, with UK researchers participating in three. The funding call is allowing UK researchers to participate in partnerships with more than 15 other countries, including Belmont Forum countries Australia, Brazil, Canada, China, France, Germany, India, South Africa.

1.2.4 Collaboration with other national and international organisations and/or programmes

Close links are maintained between the UK National Committee for the IHP (see section 1.1) and other international organisations/ programmes. In November 2012 Professor Alan Jenkins (Chair of the UKCNH) replaced Dr Ann Calver as UK Hydrological Adviser to the UK's WMO Permanent Representative, representing UK involvements in the WMO Commission for Hydrology (WMO-CHy). UK scientists continue to be actively involved in a wide range of WMO initiatives.

Linkages with the IAHS are maintained through Professor David Hannah, Chair of the UK National Committee for IAHS, and UK scientists continue to contribute to a wide range of IAHS Commissions and activities. UK hydrologists (co-)convened a number of symposia and workshops at the IAHS - IAPSO - IASPEI Joint Assembly on *Knowledge for the future* (July 2013, Gothenburg, Sweden) as well as editing IAHS Red Books on conference themes. The UK, through the British Hydrological Society, is playing an active role in the recently formed (IAHS supported) *Network of National Hydrological Associations (NHS)*.

Professor Mike Acreman (CEH) continues to offer support to the Ramsar Convention on Wetlands as a member of the Scientific and Technical Review Panel.

UK hydrogeologists continue to be actively involved in a number of Commissions and Working Groups of the IAH. Hydrogeologists from the BGS contributed to the 39th IAH Congress (September 2012, Niagara Falls, Canada).

In Europe, the UK (through NERC/CEH) are partners in the EU Joint Programming Initiative, *Water Challenges for a Changing World* and leading a Working Group on *Managing Hydro-climatic Extremes* as part of the European Technology Platform for Water (WssTP).

1.2.5 Other initiatives

See other sections of report.

1.3 Educational and training courses

1.3.1 Contribution to IHP courses

See other sections of report.

1.3.2 Organisation of specific courses

The UK continues to provide and contribute to a wide range of hydrological training and education both nationally and overseas, including an extensive range of postgraduate degrees in hydrology and related subjects. See other areas of report for examples, including current educational initiatives by the Dundee Category II Centre.

The British Hydrological Society offers a studentship scheme to help support members who wished to study hydrology at postgraduate masters level.

1.3.3 Participation in IHP courses

See other sections of report.

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

UNESCO Category II Centre for Water Law, Policy and Science (University of Dundee)

The Centre for Water Law, Science and Policy was officially launched as a Category II Centre under the auspices of UNESCO in November 2006. The Centre underwent a successful Category II status renewal evaluation in December 2011, and a new agreement was signed by UNESCO and the UK Government in May 2014. In 2012 Professor Geoffrey Gooch was appointed Director of the Centre.

The Centre produces a wide range of research and policy output relevant to the IHP at a national and international scale. Examples of current and recent projects over the reporting period include the European Union funded LAGOONS project (investigating integrated water resources and coastal zone management in European lagoons in the context of climate change) and the GENESIS project (assessing climate change and land-use impacts on groundwater).

As part of the *Ecosystem Services for Poverty Alleviation* (ESPA) programme funded by the Department for International Development (DFID), the Economic and Social Research Council (ESRC) and the Natural Environment Research Council (NERC), the Centre are contributing to a project *Assessing Health, Livelihoods, Ecosystem Services and Poverty*

Alleviation in Populous Deltas. The Centre's contribution involves the legal, institutional and policy analysis and working with stakeholders to secure better policy outcomes.

Research is ongoing under the NERC *Changing Water Cycle* programme (2010-2014) investigating *Hydrologic and Carbon Services in the Western Ghats: Response of Forests and Agro-ecosystems to Extreme Rainfall Events*. The project is being co-hosted by the Centre and the University of Lancaster.

In the field of education and training, the Centre continues to deliver a postgraduate Master (LLM) programme in Water Law as well as PhD training and an annual *International Law and Transboundary Freshwater Workshop* (5th Annual Workshop, June 2014, Dundee, UK). The workshop is supported in part by the Global Water Partnership and draws in a wide variety of participants, both students and presenters. Over the reporting period, the Centre has further developed its educational activities related to IHP, establishing a portfolio of short continued professional development courses suitable for water professionals and managers interested in learning more about water law, policy and science.

Professor Geoff Gooch contributed to a side event at the 37th UNESCO General Conference on Water Education and Capacity Development (November 2013, Paris, France).

1.5 Publications

No list is maintained of UK publications related to the IHP. See other sections of report for examples of related publications.

UK researchers contributed to the book *Free Flow: Reaching Water Security Through Cooperation* published by UNESCO in support of the 2013 International Year of Water Cooperation. Chapters were authored on *Sharing water observations: turning local data into global information* (CEH *et al*), *Water cooperation for sustainable utilization: Lake Naivasha, Kenya* (University of Leicester *et al*) and *Integrated water resource management – combining perspectives from law, policy and science* (Centre for Water Law, Policy and Science, University of Dundee).

1.6 Participation in international scientific meetings

1.6.1 Meetings hosted by the country

UK scientists have led and contributed to numerous international scientific meetings in relation to the IHP over the reporting period, both in the UK and abroad. See other sections of the report for examples of these meetings.

In January 2013, the University of Dundee hosted a photography exhibition by Gil Garcetti entitled *Women, Water and Wells* to mark the International Year of Water Cooperation.

1.6.2 Participation in meetings abroad

See other sections of report.

UK hydrogeologists, including researchers from the British Geological Survey (BGS), University of Strathclyde, Thames Water and Overseas Development Institute (ODI) participated in the regional consultation meeting for the Global Environment Facility (GEF) Groundwater Governance project (March 2013, The Hague, Netherlands).

1.7 Other activities at regional level

1.7.1 Institutional relations/cooperation

See other sections of report.

1.7.2 Completed and ongoing scientific projects

See other sections of report.

2. FUTURE ACTIVITIES

2.1 Activities planned until December 2014

UK hydrologists will organise and contribute to wide range of forthcoming activities, including:

- The British Hydrological Society's 12th National Symposium (September 2014, Birmingham, UK).
- 5th Annual International Law & Transboundary Freshwaters Workshop, co-organised with Global Water Partnership (June 2014, University of Dundee, UK).

2.2 Activities foreseen for 2015-2016

The UKCNIH is in the early stages of developing plans for an event at the International Water Resources Association (IWRA) *XVth World Water Congress* (May 2015, Edinburgh, UK) to highlight current and future activities related to the IHP and Hydrology and Water Resources Programme of WMO in the field of integrated catchment management science and application. While the event is still to be confirmed the planned scope will incorporate international experiences in catchment management, while also highlighting examples of current initiatives within the UK.

2.3 Activities envisaged in the long term

UK scientists intend to continue their participation in the IHP, contributing to a wide range of initiatives and programmes as funding permits.

Report compiled by Dr. Harry Dixon and Professor Alan Jenkins (NERC Centre for Ecology & Hydrology) on behalf of the UK Committee for National and International Hydrology. June 2014.

For further information regarding the activities outlined in this report please contact Dr Harry Dixon (harr@ceh.ac.uk).