

Key Projects

Canada: Lake Simcoe Nutrient Modelling [Trent University and Ontario Ministry of the Environment].

Norway: SEALINK project, examining changes in nutrient fluxes to the sea from air and land sources in the Vansjø-Hobøl Basin [NIVA].

Scotland & Northern Ireland: HYSIM-AQUATOR software for surface water yield assessment [SNIFFER].

England: HYSIM models of the Rother, Cuckmere & Sussex Ouse. PENSE software for PET calculation, & real-time Flood Forecasting Platform [Environment Agency & South East Water].

England: DO assessment and review of the impact of climatic change on surface water resources [Severn-Trent Water].

England: Water Strategy and development of new water supplies for golf course irrigation and safari park [Bedford Estates].

British Waterways: Development of hydrological models for reservoir and canal feeders throughout England and Scotland.

Flooding in England: Thames Valley FRAG [TUG - Macdonald Hotels], Killingholme Power Station flood risk appraisal [NRG].

England: Water quality modelling [Environment Agency].

Belgium: Flood Study of Meuse tributary [Namur City Council].

Romania: Modelling metals in the Aries and Mures Rivers [Rosia Montana Gold].

Turkey: Yeşilirmak Basin water resource and water quality modelling to assess impact of climate change on irrigation and hydropower [Solventa].

Azerbaijan: Surface Water Studies for Sangachal terminal and Serenja hazardous waste facility [SWK for ROSRECHFLOT].

Russia: Reservoir optimisation for Volga navigation study at Nizhny Novgorod [SWK for ROSRECHFLOT].

Middle East Peace Process: Development of national water data banks & Environmental early warning system [EU and GEF].

Jordan: Modelling ancient and modern hydrology for the Water, Life and Civilisation project [Leverhulme Trust].

Lebanon: Water Resource study of the Hasbani Basin to facilitate equitable use of the Jordan River resources [EU-Relex].

Yemen: Sayhut and Noujad Dam feasibility Studies [Conser, Abu Dhabi Fund for Development].

Botswana, Namibia: Effects of proposed pumped abstractions on Okavango Delta [Ministry of Water, CSIR, South Africa].

Malawi: Environment & Natural Resources Management Action Plan for Upper Shire Basin [LTS-MCC].

Lake Victoria Basin Commission: Control rules for hydro-power operation & management of lake water level [with CEH].

Tanzania: Dar-es-Salaam future water supply [Norconsult].

Mozambique: Hydropower part of Energy Master Plan [Norconsult].

Nepal: Upper Tama Koshi hydropower feasibility study [Norconsultant].

Brunei: Temburong Transfer Scheme & Batu Apoi Dam feasibility study [Montgomery Watson, for Ministry of Public Works].

Indonesia: South Java flood control sector study [Public Works Ministry]; Bintan Industrial Estate Water Supply [Sembcorp Parks].

For more information and to discuss your project requirements, please contact:

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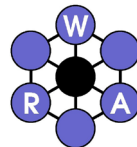
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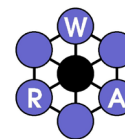
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A Network of Consultants in Water Resources, Hydrology,
Hydrogeology, Water Quality, Floods, Drought Studies
& Climate Change



Water Resource Associates

Our Services



Hydrogeology & Groundwater Development
Flood, Urban & Drought Hydrology
Water Resource Management & Systems Simulation
Hydrological Database & Software Development
Hydrological & Water Quality Modelling
Hydrometric monitoring & Data Acquisition
Hydro-Ecology & Climate Change Analysis

Water Quality & Hydro-Ecology



INCA-N for Windows
Version Land Use Change (based on 1.8.1)

Water quality and hydro-ecological studies are key WRA activities, including modelling, management, and development of software for rivers, lakes and catchments. Capability includes environmental impact assessment, integrated catchment management and investigation of land-use and climate change assessment of nitrogen balance, movement of metals, acidification and real-time forecasting and control. Services include hydrochemistry, time series analysis, water quality sampling and analysis, liming control software for acid rivers and lakes, aquatic and river corridor surveys.

Hydrological Expertise



WRA covers hydrometric network design, instrumentation, data capture and processing, flood estimation and forecasting, low flow, yield and drought studies, hydropower assessment, modelling complex conjunctive use water resources systems, arid zone and wetland hydrology, transboundary resources and implementation of the Water Framework Directive.

Groundwater & Water Well Science



WRA has experience of groundwater development and management in most global geologies. The company has provided advice on centralised management of groundwater for large-scale irrigation and water supply projects, as well as developing frameworks for provision of Rural Water Supply & Sanitation Schemes & installing individual borehole and well supplies.

Environmental issues and sustainable water supplies are central to many water resource projects. Support has been given to the British water industry at many levels. Writing and use of specialised software for tackling complex problems include borehole design, pumping test analysis and deployable output assessment. WRA is supported by Groundwater Monitoring & Drilling Ltd, and can offer hydrometry as well as soil and aquifer test services.

The Way we Work



The Directors and Associates operate from their own offices, using centralised communications and computing facilities. Common software and fast data exchange ensure that work is carried out efficiently and that a corporate identity and archiving system is maintained. This flexible working plan enables us to be responsive to client needs: there are no long chains of management and no expensive overheads. When necessary, support staff are recruited on contract and supervised directly by the Project Director or Associate.

The Directors are personally more involved in hands-on processing and analysis of data than is usual in the consultancy world. By combining extensive professional experience of project execution at senior level with high levels of computer competence (both in using a wide variety of commercial software and in developing new software of our own), we believe we can offer unrivalled efficiency in tackling problems in the water environment.

The Associates are known personally to, and have worked with, one or more of the Directors, which provides further integrity of the WRA team. Work may be commissioned directly by clients, and WRA also acts as specialist sub-contractor to larger firms.

WRA personnel have undertaken a wide variety of water resources projects throughout the world. The company offers experience in leading technical development and research programmes for aid donors and for the UK Environment Agency. WRA can also provide experienced project managers and team leaders for multidisciplinary water resource projects.

The company uses GIS and thematic mapping software to provide additional analytical and presentational tools for projects.

WRA Software



WRA has developed state-of-the-art software that is widely used as the preferred tool for water resource, hydrological & water quality modelling and can provide bespoke software solutions for clients.

HYSIM: Hydrological catchment simulation.

HYSIM-CC: Climate Change modelling package.

AQUATOR: Conjunctive use water resource system simulation.

HYDRO: Multi-purpose reservoir operation and analysis.

CDIG: Digitising software for hydrological data.

LASER: Liming control model.

DISPRIN: River water quality and dispersion model.

INCA-N & INCA P: Integrated catchment water quality modelling suite including nutrients, sediment & macrophyte dynamics.

PTFIT: Interpretation and analysis of pumping test data

WDT: Well design toolkit for Water wells.

WRA the Company



Water Resource Associates Ltd was formed in 1994 and provides specialist consultancy services, world-wide. The directors have previously worked for a range of organisations including the UK Institute of Hydrology, the British Geological Survey, firms of consulting engineers, the UK Water Industry and International agencies. They have experience of working on problems in the water environment in over 120 countries across the full spectrum of arid to humid climates.

Directors



Dr. Sean T Avery: African hydrology & water resources
Frank Farquharson: Flood hydrology, water resource assessment
Paul A C Holmes: Groundwater & water resource planning
Dr A Nick Mandeville: Foreign hydrological services, RIS author
Ron E Manley: Engineering hydrology, HYSIM author
Dr Patrick J Reynolds: Environmental management, microbiology
Prof Paul Whitehead: Water quality modelling, INCA author
Prof Andrew J Wade: Water quality-ecological modelling, INCA-P

Associates



Richard B Bradford: Well design & groundwater modelling
Dr John Bromley: Hydrogeology & water management
Robert P C Brown: Hydrological & water resource modelling
Dr. Sean Burke: Hydrogeology & catchment science
Daniel Butterfield: Software development & GIS
Dr David Carless: Hydropower & renewable energy & GIS
Dr. John Chatterton: Environmental economics
Prof Mike Edmunds: Hydrogeochemistry
Dr Paul N Garrad: Flood hydrology
Dr Chris S Green: Hydrologic software, AQUATOR author
Robin L Hall: Land-use, evaporation & modelling
Dr Robin Herbert: Hydrogeology, author of PTFIT
Dr Bruce A Lankford: Irrigation engineering & science
Dr Mike J Lowing: Flood hydrology & hydrometric data
Dr Harvey J E Rodda: GIS applications, DTMs & ISIS modelling
Dr David T Plinston: Developing countries water resources
Dr Debbie Snook: Hydro-ecologist, aquatic surveying
Tim Stephens: Land-use & watershed conservation
Kyle Thomas: Hydrologic, sediment & pollution models