Water Resource Associates

A network of consultants in hydraulics, hydrology, groundwater & environmental issues

Project title: **Surface Water Yield – Software Implementation in Scotland and N.Ireland**

Summary: Development of a complete hydrology and water resource simulation package with special consideration to the land use and climate of Scotland and N. Ireland including demonstration at five test sites.

Client: Consortium comprising SNIFFER (Scotland and Northern Ireland Forum for Environmental Research) and the three Scottish Water Companies

Financed by: Client

Period of assignment: 1997 - 1998

Location: Scotland and Northern Ireland, UK

Project Value: £ 130,000

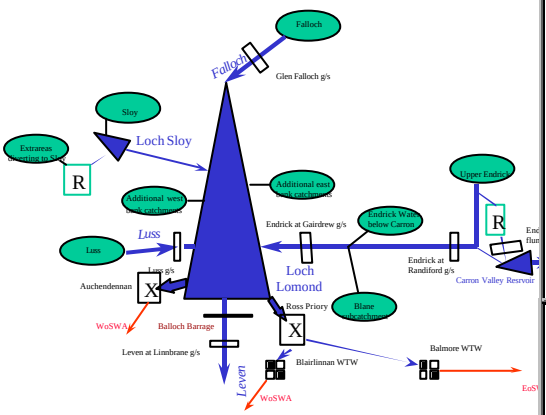
WRA services: £ 80,000

In co-operation with:
Oxford Scientific Services (OSS)

Gated control on the River Leven at the outlet to Loch Lomond

Background

As elsewhere in the UK, a number of different methods for estimating surface water yield have been used in Scotland and Northern Ireland in past years. The clients identified the need to develop a consistent methodology which could be used by the various organisations with water resource responsibilities in the two countries. They elected to use a conceptual catchment model founded on physical principles but required it to take account of all available scientific knowledge relating to processes of particular relevance to the region (e.g. snowmelt, evaporation from peat etc.). They also required the hydrological model to be linked to a water resource simulation model. The whole package was to be developed and proved using data from five diverse test catchments



Schematic representation of Loch Lomond 'system'

Scope of work by Water Resource Associates Ltd

The Company, together with OSS, was in a good position to bid for the project having in-house experience of software development in two key areas – catchment rainfall-runoff models and water resource system simulation. The HYSIM model would need some adaptation to accommodate recent scientific thinking and the RESSIM model applied in England would be developed further, with powerful new facilities enabling users to mould specific implementations, and renamed AQUATOR.

Results

The Project is current but, at the time of writing (June 1999), rainfall and stream flow data for five test sites (which include, *inter alia*, Loch Lomond and the Dee catchment) are being collated prior to HYSIM calibration. A method of estimating monthly PE sequences from 1918 to 1998 anywhere in the region is being developed and all system data have been collated.

Project Number 000011

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