14. COMPUTER HARDWARE AND SOFTWARE

14.1 COMPUTER HARDWARE REQUIREMENTS

A dedicated server is a preferable means of storing and managing information electronically. Many organisations are currently using Windows NT operating system, although some organisations prefer Novell or the older Unix systems. To run these systems, the computer designated as the file server should have a pentium processor and substantial amount of hard disk space (additional SCSI drives can be fitted) and random access memory (RAM). Servers have the added advantage in that most have a back-up system (such as a tape drive) on which the invaluable information can readily be stored at set intervals. Consult your local IT experts for more information on this and of course the budget too!

Alternatively, if the server option is not feasible, a standard PC can be used to house the Rivers Database (see Rivers Database section).

14.2 SOFTWARE REQUIREMENTS

Basic software requirements include spreadsheet programmes such as Microsoft's Excel or Quatro Pro which can readily be interfaced with database programmes such as Microsoft Access or DBase. A number of other database programmes are available, which range considerably in price. However, costly database systems such as Oracle are not necessities for managing your RHP information.

14.2.1 Rivers Database

The Rivers Database has been specifically tailored for the RHP. It is very useful for the standardisation and harmonisation of RHP information storage and management, enabling results obtained from different RHP initiatives to be readily comparable. The Rivers Database consists of a data storage component (for the editing and viewing of data) and a query centre for data extraction underpinned by Microsoft Access database files.

It is also envisaged that the Rivers Database will be the means for transferring regional RHP information to the national RHP database housed by Southern Waters Ecological Research and Consulting in Cape Town. The Rivers Database could also potentially interface RHP initiatives with DWAF's Water Management System (WMS) which has been designed to house all water resource related information in South Africa. The Rivers Database is available from the IWQS and further information can be obtained from Southern Waters Ecological Research and Consulting. See NAEBP Report No11 "Rivers Database: A user manual" (Fowler *et al.*, 2000).

Minimum hardware and software requirements for the Rivers Database:

- \$ Operating system: Windows NT and Windows 98
- \$ Memory: minimum 64 MB RAM
- \$ Minimum Screen Resolution: 800x600
- Software: MS Office Professional 97.

NOTE:

A runtime version has been developed for those users who do not have MS Access 97.

14.2.2 Geographical Information Systems (GIS)

Another application of RHP information is that of spatial representation and analysis. Because the RHP information has a spatial component, it is ideally suited to this type of application. Using a suitable database where longitude and latitude co-ordinates for sites are stored, the GIS programme plots these on an electronic map of the area. The advantages of GIS are manifold, including routine queries and statistical analysis and the production of thematic maps depicting sampling points and results (see reporting section) in relation to environmental information such as geology, topography, rainfall and land use.

ArcView and GeoMedia are two of the more popular GIS software packages being used in the environmental field. These can be obtained from Geographical Information Management Information Systems (GIMS) and Intergraph respectively, both based in Mid-Rand, Johannesburg. As these are imported from the US, prices are subject to exchange rates.

NOTE:

Although a wide range of GIS programmes are available, it is strongly advised that you choose a package that is compatible with those being used by other organisations in the environmental field. The reason for this is that most environmental databases (such as ENPAT) are designed for a particular GIS application and GIS programmes are notorious for their inability to convert from one format to another, which has the potential to make data sharing and exchange a very tedious process.