

1 INTRODUCTION

Organisations which are assigned — and accept — responsibility for managing datasets are known as **custodians** (see Volumes 4 and 5). They will normally be regarded as being in the best, or most appropriate position to do so. The custodianship of **essential datasets** is especially important, since these are needed by many users for many purposes (see Volume 3). Examples include the basic demographic, geographic and biological data underpinning the analysis of human impacts on the environment.

The key requirement is to manage data in such a way that they can be readily converted into a variety of information products, for a variety of users, thus ensuring that they are flexible enough to respond to the demands of decision-making. This is a difficult challenge for custodians, but one which pays off with an **efficient information infrastructure**. The goal is to collect, store and quality-assure data just once, but access them many times for many different purposes (UK Government 1995).

In order to reap the benefits of efficient infrastructure, including lower costs and better services to users, custodians require certain basic **capacities**. These may need to be strengthened, perhaps in collaboration with other organisations, to ensure that the right balance of data, expertise, facilities, management systems and partnerships is available (see Volume 6). However, capacity alone does not breed efficiency; some fundamental insights and processes relating to the management of data must also be considered. These are summarised below and are examined in later sections.

- **Data flexibility**

Data should be stored in their primary form, not classified, aggregated, or otherwise interpreted, so that they can be employed in the widest possible range of applications.

- **Data standards**

Data should be collected, managed and distributed following agreed standards or conventions. This reduces transaction costs and facilitates comparison of results in space and time.

- **Data quality-assurance**

Data quality — which is a measure of the **fitness for use** of a dataset for a specific purpose — may be assured through a number of processes, including data validation, documentation and protection.

- **Appropriate use of technology**

Data should be managed within an environment that is conducive to data storage, processing and retrieval. Information and communication technologies are ideally suited to this task, and should be applied as appropriate and sustainable.