

3 What is GIS?

People have made maps for thousands of years to present and analyse information. **Geographic Information Systems** or **GIS** is a computer system for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to positions on the Earth's surface.

An example:

The Pais Pescan department of fisheries collected data on the number of fishers in different districts of Pais Pesca and published them in the form of tables such as those presented in Table 3.1 below.

TABLE 3.1

Number of riverine fishers in the districts of Pais Pesca

| District name | Number of riverine fishers |
|---------------|----------------------------|
| Bandarbadan | 142 174 |
| Bargun | 49 867 |
| Boldan | 101 860 |
| Cankir | 129 457 |
| Dadon | 90 561 |
| Denaida | 40 |
| Faodoa | 147 191 |
| Felixsad | 117 989 |
| Ganjpani | 42 455 |
| Goodt | 219 005 |
| Grumara | 297 070 |
| Kathijalo | 53 302 |
| Muladi | 51 432 |
| Nerad | 107 853 |
| Pepedas | 80 016 |
| Puradi | 57 255 |
| Siraba | 121 353 |
| Tara | 45 775 |

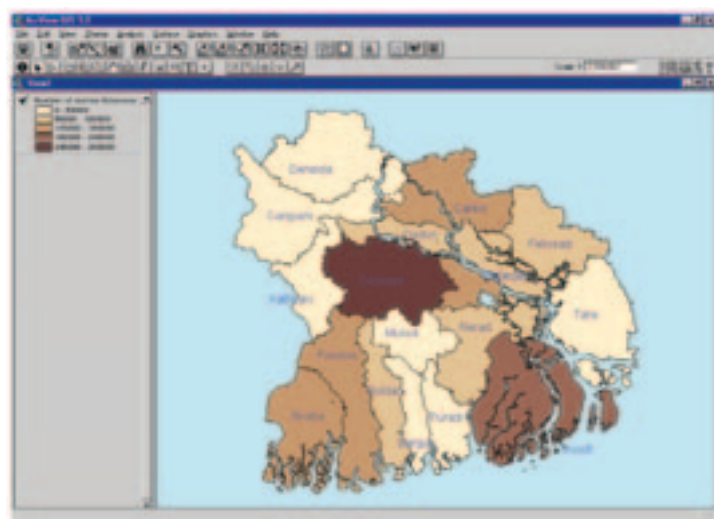
Questions GIS can answer:

1. Location: What is at...?
2. Quantification: How big, How long, How many in...?
3. Routing: What is the best way to...?
4. Condition: Where is it...?
5. Trends: What has changed since...?
6. Patterns: What spatial patterns exist...?
7. Modelling: What if...?

(Copemed, 2001a; b)

FIGURE 3.1

Number of riverine fishers in the districts of Pais Pesca



The same information can be presented in the form of a map as presented in Figure 3.1. In this case, because there is very little information, both the table and the map are easy to use but the situation changes if we want to present the data of all sub-districts of Pais Pesca. There would be so much information, that tables of several pages would be needed, and it is clear that presenting the data in the form of a map then is more comprehensive.

In the example, the number of fishers were presented in the form of a map, but of course any information obtained from a district, sub-districts, etc. can be visualized in such a way, i.e. the number of fishing boats per district, literacy rate per district, the number of fish markets per district, the number of schools per district.

GIS is nowadays the principal tool for presenting and analysing georeferenced data,

that are data collected from a known location. GIS has the following advantages (FAO, 1996):

GIS allows for the display of spatially related data in a way that is easily comprehensible for most people;

Once maps have been made in digital format, it is a simple task to update them, to change them, or to merge them with other maps in order to create new maps;

GIS allows for the easy and immediate integration of other large data sets, i.e. enabling technologies of, for instance, GIS and remote sensing, or GIS and radar, to be readily combined;

GIS allows a regular flow of spatially related information in a standardized format. This might be for a given time series in which all maps are produced together, or it might mean that periodically a new version of the same map could be produced.