



Using Geographic Information System (GIS) For Environmental Applications

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CRP 514: Introduction to GIS
Term 081

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Outline

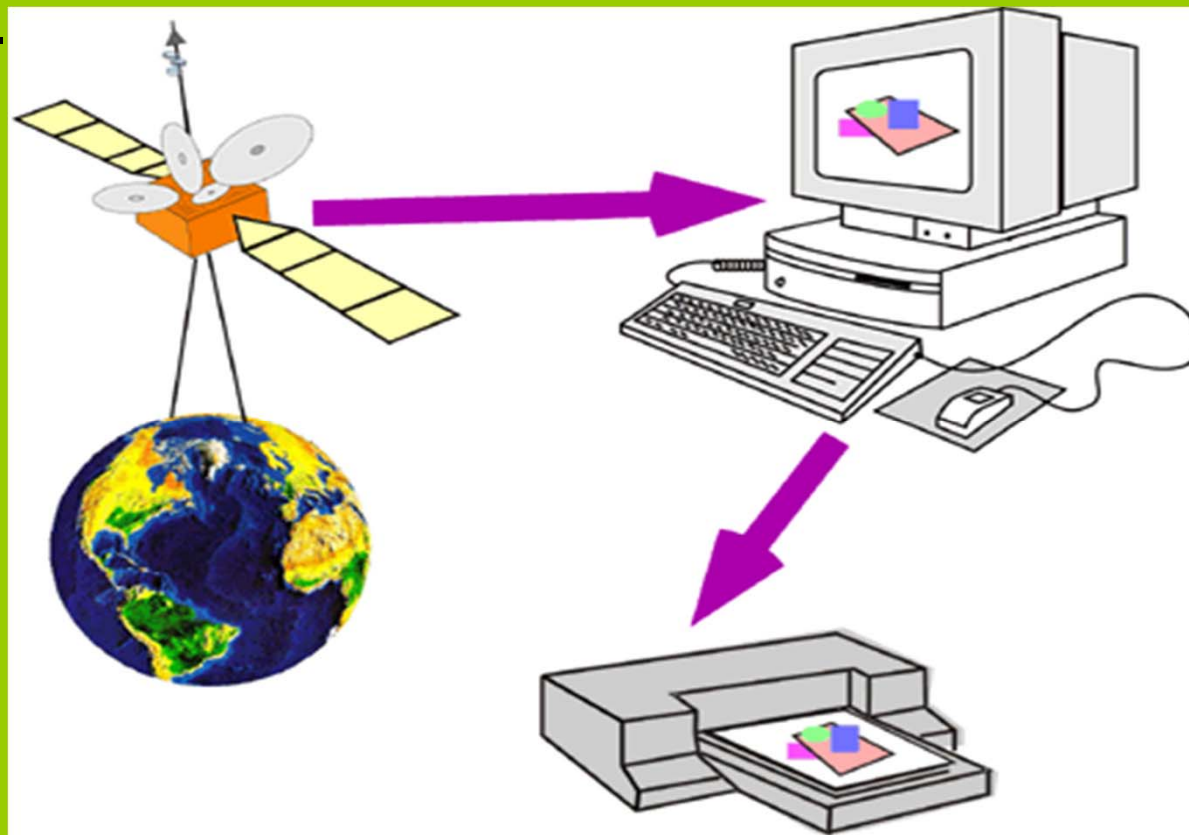
- **Objective**
- **Definition of GIS**
- **Introduction**
- **GIS Applications in Environment**
- **Why GIS is Important**
- **Case study**
- **Conclusions**

Objectives

- To show the importance of Geographic Information System (GIS)
- To illustrate the environmental applications of GIS

GIS Definition

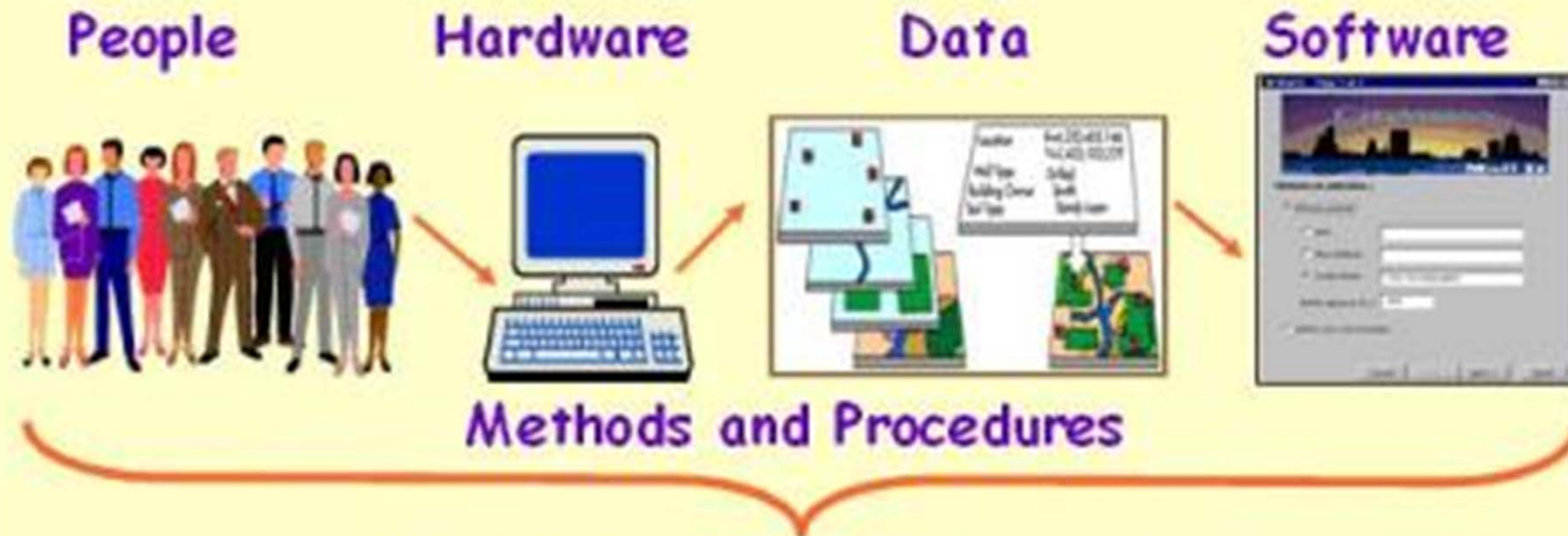
The term Geographic Information System (GIS) is defined as a system of hardware, software and procedures to facilitate the management, manipulation, analysis, modeling, representation and display of geo-referenced data to solve complex problems regarding planning and management of resources.





GIS Components

GIS is an Integrated System of:



To help manipulate, analyze and present information that is tied to a specific location

Introduction

- It has seen numerous well-publicized catastrophic natural disasters occurred throughout the world
- An important component in environmental management
- Allows various levels of management to view and analysis the data easily
- Over 75% of environmental managers uses ESRI products in managing natural resources (GIS World)

Why GIS is Important

- Using GIS every day to protect the environment
- GIS delivers useful map making and analytical capabilities to groups and by long distance over the Internet.

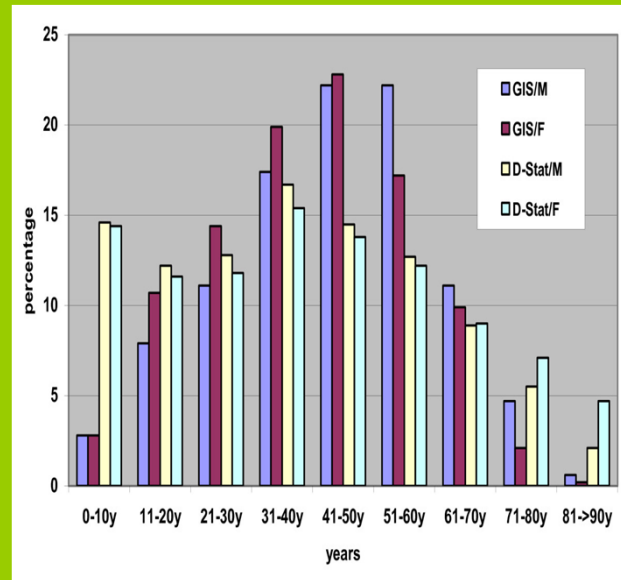
Mapping



Why GIS is Important

- Map making and geographic analysis are not new, but a GIS performs these tasks better and faster than do the old manual methods.

Data



Navigation

- GIS is optimized to perform certain kinds of data analyses
- Involving distance, area, direction, and so on, better than other computer software.

GIS Applications

GIS has many applications and has been used for many years in the agricultural, natural resource, urban and regional planning, and tourism sectors and health sector.

Pollution Monitoring

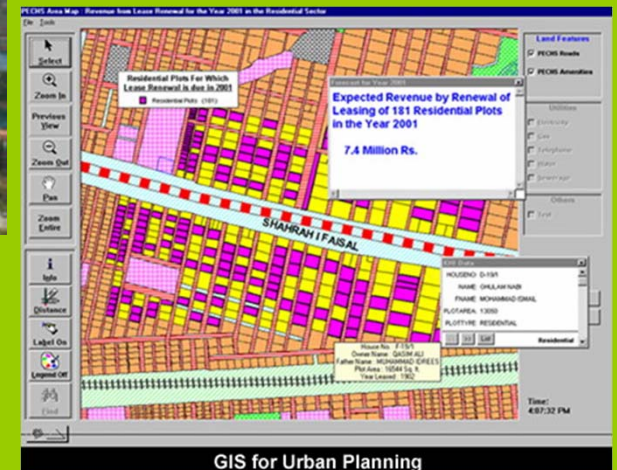


Water resources



Forest Resources

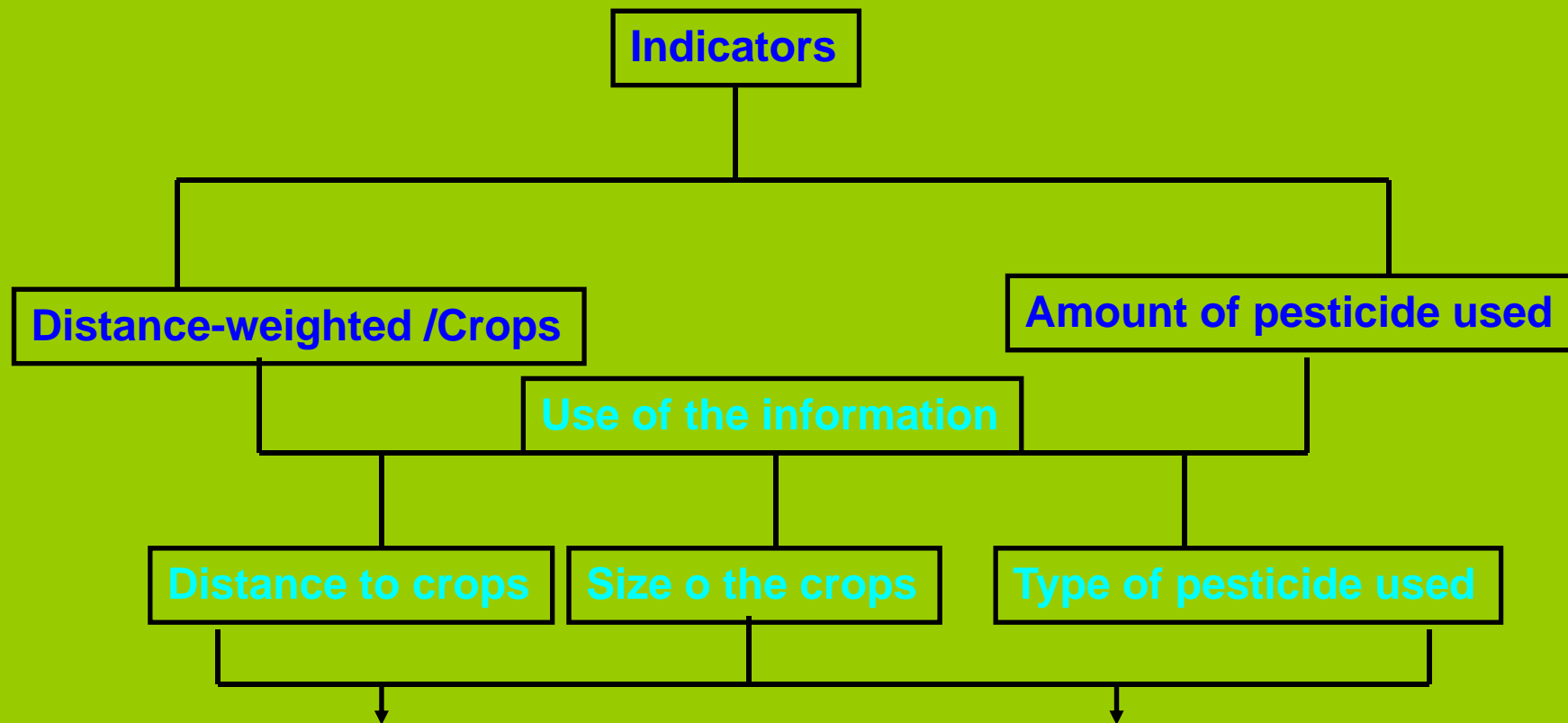
Waste Management



GIS for Urban Planning City Planning

Case Study

Indicators to assess the exposure of residents to agricultural pesticide in the province of Limburg, Belgium.



- Correlation between the type of crops and pesticides and the effect of each type
- By using GIS, it is possible to reconstruct potential environmental pesticide exposure accounting for changes in pesticide use, crop area and residence history

Conclusions

- Powerful tool in facilitating data handling and visualization.
- Beneficial for environmentalists, planners and decision makers so that they can reliably generate, simulate and analyse more information about environmental parameters.
- Management and cost effective.
- GIS does not depend on technical choices alone. Organizational and institutional factors frequently are a greater barrier to successful GIS use.
- GIS is very important to any data creation, analysis, and assessment of the environmental risk at hand.

Thank You
For your attention!

Questions?

