

GIS Handbook

for municipalities



UN Joint Programme on Local Governance
and Decentralised Service Delivery

UN HABITAT
FOR A BETTER URBAN FUTURE

GIS Handbook for municipalities

All rights reserved © 2013

United Nations Human Settlements Programme (UN-Habitat)

P.O. Box 300030 00100 Nairobi GPO KENYA

Tel: +254-020-7623120 (Central Office)

www.unhabitat.org

HS Number: HS/026/16E

Disclaimer

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Views expressed in this publication do not necessarily reflect those of the United Nations Human Settlements Programme, the United Nations, or its Member States.

Excerpts may be reproduced without authorization, on condition that the source is indicated.

Acknowledgements

Main author: Asia Adam

Contributors: Gilbert Sosi and Pinar Caglin

Cover photo: Shutterstock

Design and Layout: Freddie Maitaria

GIS Handbook

for municipalities



UN Joint Programme on Local Governance
and Decentralised Service Delivery

UN HABITAT
FOR A BETTER URBAN FUTURE

CONTENTS

1	PREFACE	1
1.1	What is the purpose of this handbook?	1
1.2	Who should use this handbook?	1
2	What Is a Geographic information system?	2
3	What DOES a Geographic information system Do?	4
4	HOW DOES a Geographic information system WORK?	5
5	HOW CAN a Geographic information system BE USED?	8
5.1	Land Use Planning/District Profiling	13
5.2	Transportation Planning and Service Routing	16
5.3	Land Administration and Property Taxation	18
5.4	Infrastructure	20
5.5	Municipal Services	22
5.6	Natural Resource Management	24
5.7	Emergency Management	26
6	What are the benefits and implementation costs of Geographic information systems?	28
7	What is required to set up a Geographic information system?	30
8	What is NEEDED to make a geographic information system sustainable?	32

1 PREFACE

1.1 What is the purpose of this handbook?

This handbook serves as an introductory guide to geographic information system (GIS) technology for local government and other interested stakeholders. It suggests some common opportunities for GIS application, the benefits a GIS provides to users, and what is required to set up a GIS and sustain it. This is not a technical GIS manual, but a handbook that provides basic knowledge on GIS.

1.2 Who should use this handbook?

The GIS handbook is intended for local government decision makers (mayors, executive secretaries, heads of departments) and staff, as well as other stakeholders (e.g. NGOs and international agencies), particularly those engaged in development activities that deal with infrastructure, agriculture, hydrology, land administration, urban planning, crime mapping, solid waste management, or natural resource management.

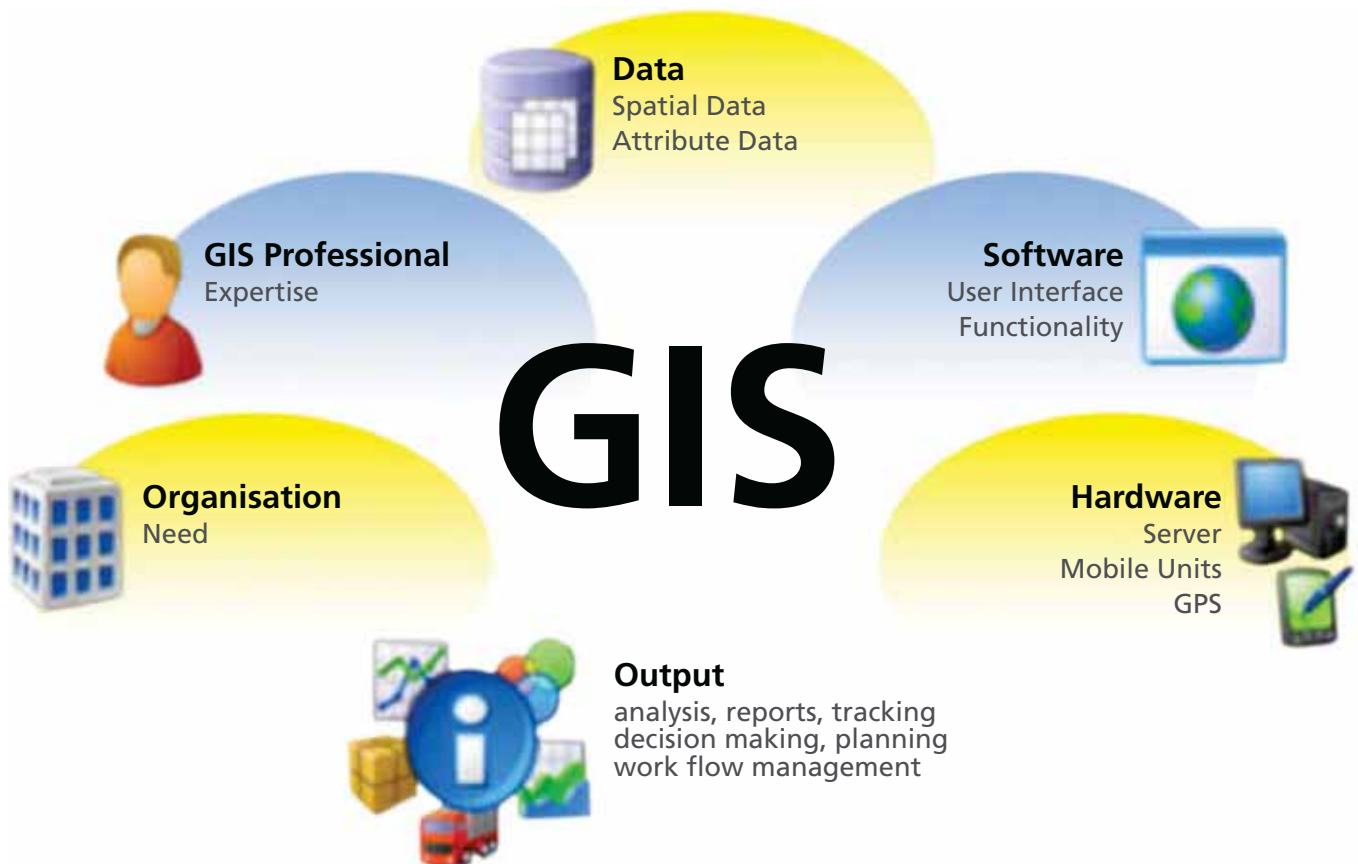
2 WHAT IS A GEOGRAPHIC INFORMATION SYSTEM?

GIS technology has emerged as a powerful set of tools for managing and analysing spatial data (data tied to a specific point or area on the ground). The various types of spatial data are at the core of many development efforts, and GIS is seen as a solution to a number of problems local governments face in their area of jurisdiction.

In simple terms, a GIS can be described as an integrated system that combines hardware,

software, and spatial data for the purpose of capturing, managing, analysing, and displaying all forms of geographically referenced information. Geographic information systems are a special class of information systems that keep track not only of events (e.g. environmental disasters), activities (e.g. construction), and things (e.g. facilities, institutions, or natural resources), but also of where they happen or exist.

The figure below describes the components of a GIS.



3 WHAT DOES A GEOGRAPHIC INFORMATION SYSTEM DO?

A GIS allows the user to view, understand, question, interpret, and visualize data in ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. The GIS answers questions and solves problems by presenting data in a way that can be quickly understood and easily shared. By understanding geography and people's relationship to location, we can make informed decisions about the way we live on our planet. A GIS can answer the following questions:

- What is at a given location? For example, what facilities (e.g. clinic, school, market) are
- For example, in which areas does flooding occur? Why are these areas prone to flooding?
- What is nearby? For example, what sorts of facilities, services, or dangers are close to a particular school?
- What trends are occurring? For example, what changes occurred to properties in the municipality since 2006?
- What happens "if"? For example, what happens if we expand this road? How many properties will be affected?
- What interactions occur? For example, what

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_18502

