Data gathering Somali cities

Training manual

UN⊕HABITAT

UNITED NATIONS HUMAN SETTLEMENTS PROGRAMME
P.O. Box 30030 Nairobi 00100, Kenya
www.unhabitat.org

Index

Introduction

How to?

What to?

Introduction

Why this manual?

This manual is a complementary text to "Mapping Somali Cities | Training manual" that provides a more precise approach to urban scale. Gathering detailed information increases the knowledge about a city and improves the processes of decision-making around it.

While many data are available across different sectors and key actors, there is no official cartography nor related databases which represent Somali cities as they are now. In this sense, Somalia is, in many senses, unexplored territory. Access limitations to many of its parts make it very difficult to provide updated, reliable and verified information from a spatial perspective.

With concrete improvements in the governance of the country, from the Federal level to the Federal Member States established in the last years, to the administrations at district and municipal level, the challenge is to coordinate different level of spatial data and produce an updated cartography. This would contribute effectively to the development of a shared understanding of the complexity of Somali territory, as well as support the country's development.

What is the manual about?

The manual is meant to fit into a training course for data gathering in Somalia. It serves as an introduction for local government and other interested stakeholders, guiding through the different scales and themes relevant to the context, the different methods of gathering data, and the types of data that can be gathered.

Who is the target for this course?

This course is designed as an introductory training module, which would enable participants to equip themselves with foundation principles, further disseminate the knowledge, or train other users.

The end-users of the course are intended to be local government staff (ministries, district), 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, solid waste management, or natural resource management.

The course assumes a basic knowledge of concept of Geographic Information systems (GIS) and the use of QGIS 3 (a free and open-source cross-platform GIS software).

In selecting participants, it would be advisable to ensure geographical and gender distribution, a wide range of expertise and experience as well as diversity of ethnic and religious backgrounds. This diversity would increase the mutual learning experience.

By the end of the course participants should be:

- familiar with
- aware of
- able to

Limitations

The manual is structured to work with additional materials:
•   a set of base layers or a set of online maps
The system of data gathering presented in this manual is not meant to be the only system for layer production. It is designed to get a first approach, and it composes a sufficient base in the elaboration of most of the thematic layers reputed necessary for the basic representation of the territory at district level. The training attendees will be able to collect further data and enrich their maps with ground-level information.

Building up local governments' technical capacity

This manual is part of a UN-Habitat strategy for building up the capacity of local and state governments in Somalia and laying the foundation to establish functional urban development departments, themselves able to cope with the tremendous urban development challenges of the country. Data gathering is only one of the technical skills at the base of urban planning. Other trainings that are developed in coordination with the current one are:

•   Rapid urban profiling and land use mapping
•   Urban risk mapping and resilience planning
•   Roles and responsibilities in urban planning

Abbreviations and acronyms

GIS | A Geographic Information System is a conceptualized framework that provides the ability to capture and analyze spatial and geographic data.
GPS | Global Positioning System is a global navigation satellite system that provides location
IDP | Internally displaced person
QGIS | Free and open-source cross platform GIS software.
MSN | Municipal Sewage Network
MSW | Municipal Solid Waste
RAP | *from City RAP tool>* City Resilience Action Planning Tool

How to?
Data gathering methods

There are several ways of gathering data. In this training manual, three methods are chosen. They are complementary to each other and contribute to increasing the knowledge about the studied cities, while facilitating the work of urban management and planning. This approach -sometimes subjective- enables the creation of basic information for the city study. It is not a manual of data collection for statistical purposes, but rather a first approach to data collection.
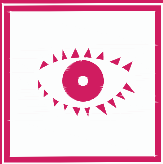
Direct observation.
Local staff directly observes the city and transforms the observations into data.
Example: Height of the buildings
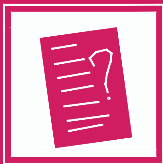
Conducting interviews.
Local staff conducts interviews with a wide range of locals: Administration workers, experts and local residents about information / memories / experiences around the city.
Example: When was the last flood?
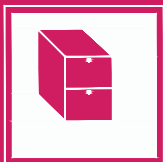
Extracting information from historical archives or data records.
Local staff browse through and select information from data recordings in archives or libraries.
Example: Aerial views from 1950 are filed at the local University.

*In some cases, the methods blend into each other and it is impossible to discern between them.
Example: A farmer has registered the flowering dates of his crops and the floodings in his area for 20 years.
Example: A member of the local staff registers her personal knowledge about the city when drawing the neighbourhood plans.
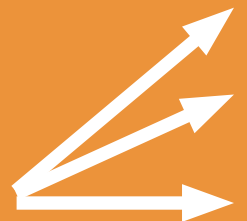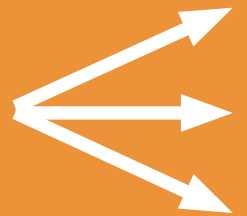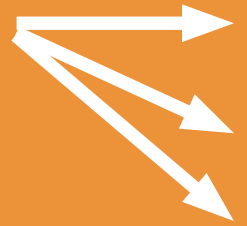
How to?
Types of data

Data can have different formats. In this training manual, it is proposed to use the following three categories. These three types of information are preferable because they are clearer than others. The data contributes to increasing the knowledge about the studied cities, while facilitating the work of urban management and planning.

Pictures or images
Can be taken *exprofeso* **(intentionally) or collected from other sources.**
Example: Relevant pictures of family gatherings. Pictures of floodings.

Spatial information
Information related to areas, points or existing axis in the cities. These areas can be located.
Example: Areas that were flooded during the last flood. Location of schools.

Other information
Information that is not specific to any city area.
Example: Droughts in recent periods.

*These data types are complementary to each other.

How to?

Pictures and images

Photographs are essential to get to know a city and its surroundings. They are a record of the urban landscape, environment, people, customs, buildings and other urban elements. They compose a recording of the current state of the city and its surroundings. Pictures provide great information for the set of data that is needed to work in urban environments.

Taking pictures

01
Phone camera settings
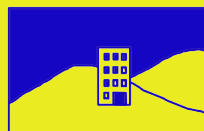
-Maximum resolution

-GPS activated for the camera *check before *(see point 05)*

-Flash (*Only if necessary*)

02
Meaning

What do I want to explain with the photo?

Which would be the best way to show this?

03
Shooting

Paying attention to:
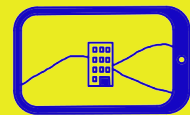
Landscape
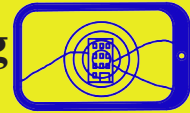
Importance

Permission
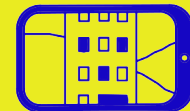
Zoom / Frame

Light

How to?

Pictures and images

It is also possible to find information in existing paper photos. Registering photos of past moments can help visualizing some significant moments of the city's history (such as floods or popular festivals) and can also contribute to representing the recent memories of the city.

Taking pictures of pictures

(A scanner is preferable. In case there is none available, then follow the procedure to take pictures of original pictures)

01
Phone camera settings

-Maximum resolution

-Flash (*Never*)

02
Lighting and locating the camera

Choose a place well illuminated with solar light (indirect illumination is preferable). Avoid reflections of direct solar light if the picture surface reflects light.
If possible, immobilize the camera parallel to the original picture.

03
Shooting

Paying attention to:
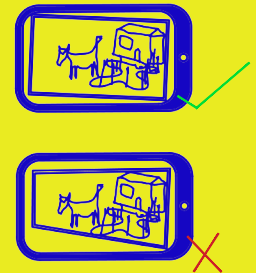
The whole original picture is photographed. The original picture is not deformed. The colors of the new picture are similar to the ones on the original.

How to?

Pictures and images

Checking pictures is an essential part of the process. Selecting the most illustrative pictures is of great help for people who were not on the field to understand the data. It is also essential to preserve the image resolution, for which the files must be sent using the correct methods.

Checking and sharing

04
Checking picture quality

Sharp (not blurry)	✓
Light	✓
Meaning	✓
Frame	✓

>>Select one

05
Checking geolocation

It is important to make sure that every picture is geolocated.

To check this, first send pictures to a computer as an e-mail attachment.

Then check the detail properties contain GPS information, by right-clicking on the picture file and then selecting "Properties" and then "Details".

C/ My PC / Pictures

Picture1.jpg
Picture2.jpg
Picture3.jpg
Picture4.jpg
Picture5.jpg

Properties

IMG_0085.JPG Properties

General Security Details

Property	Value
Exposure program	Normal
Saturation	
Sharpness	
White balance	Auto
Photometric interpretation	
Digital zoom	
EXIF version	0221
GPS	
Latitude	36; 6; 48.36000000000589
Longitude	115; 10; 20.729999999981...
File	
Name	IMG_0085.JPG
Item type	JPEG image

How to?

Pictures and images

06
Naming and coding

Every picture must have a name, indicating where it belongs and what it is the meaning of the picture.

In this case, it is preferable if pictures refer directly to specific objects located in a map. Pictures are then named with a code and organized in folders according to the numbering of the required information (see section "What to?").

Example: A picture of a "*water source*" *would be in folder "06 Water source" and its name would be WS-03.*

07
Sharing

Field

Via Whatsapp

Via Word (.doc) document

As an e-mail attachment

On the body of an e-mail

@

Nairobi
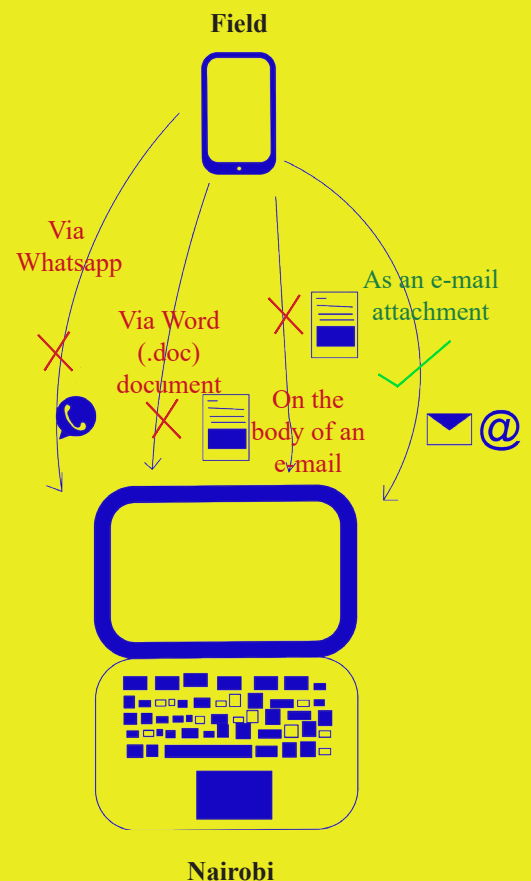
How to?

Spatial information

The most efficient technique for gathering spatial data by surveying or by direct observation is to draw directly on paper maps. This manual provides maps for this task. The information will be filtered and organized later by the local staff.

Drawing on paper maps
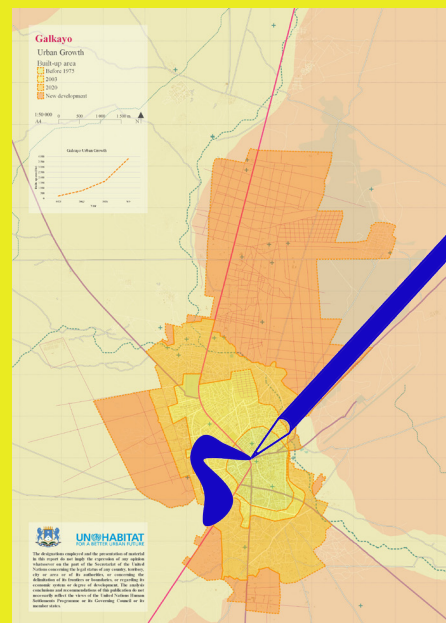
01
Drawing
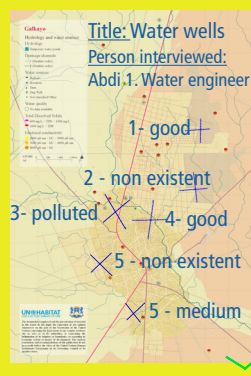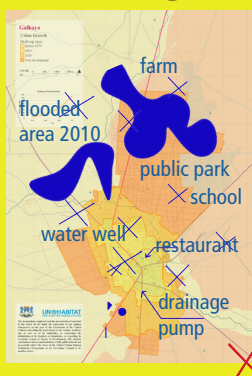
Pay attention that:

-The represented information is clear.
-The gathered data is annotated.
-Each map only displays ONE set of information.
-The content matches with the base map.
-Information may differ between different respondents. Note from which one did the information come.

How to?

Spatial information

Once a series of interviews has been conducted, it is necessary to review the obtained information and either create new layers or complete and update existing ones. This can be done using QGis and Google MyMaps. In the case that there is no access to a computer, it is possible to filter and organize the information manually -in summary maps and tables-, and send it as an picture.

Checking and sharing

02
Checking

Is the information complete?

Is the information clear?

Did you note the different sources of information?

Is there any relevant contradiction between different trustworthy sources?

03a
QGis

This is the best option if you are familiar with the software.

03b
Google MyMaps

03c
Taking pictures of maps

Only if there is no accessible computer.

How to?

Spatial information

Creating spacial databases presents clear information related to different city areas, axis or objects. Once the data has been gathered, it is necessary to present it in formats that display the information unequivocally (clearly, without different possible interpretations).

03 Sharing spatial information and layer generation

In this case it is proposed to create new vectorized layers and update the existing layers that were made with the previous manual. These layers contain spacial objects (points, lines or polygons) connected to attribute tables (or data tables). The format of the data table makes it possible to connect the information with other types of data, such as images.

In the section "What to" it is indicated which layers exist already and must be reviewed, and which ones must be created, with a color code:
Layer > Existing layer (defined in Mapping Training Manual)
Layer > Must be created

N1.jpg

	NAME	OBS
N1	xx	Area 1
N2	xx	Area 2
N...	xx	Area ...
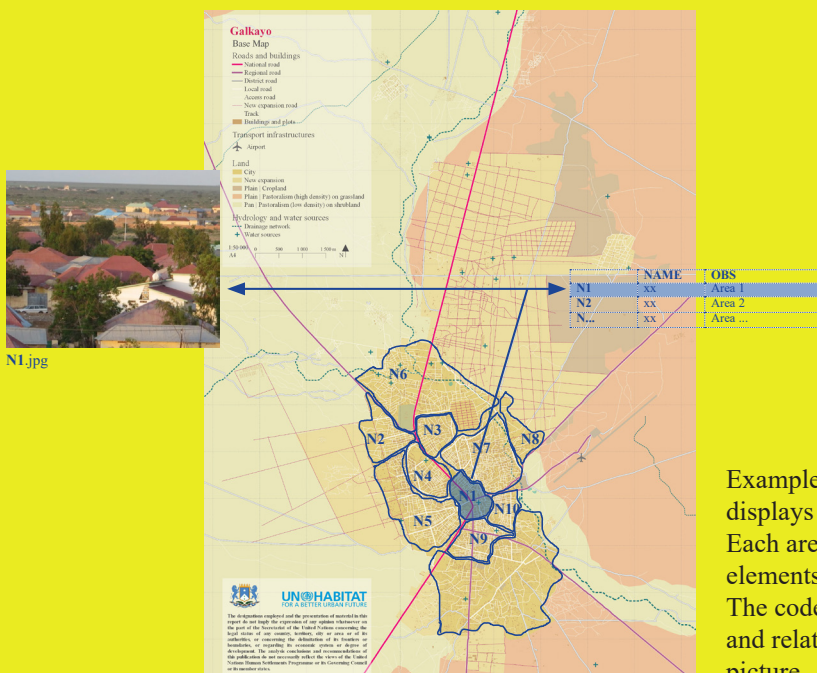
Example: This is an image that displays different areas of a city. Each area is associated to a series of elements organized in a data table. The code identifies the neighbourhood and relates the information to the picture.

How to?

Spatial information

Attribute table common fields

This section presents the minimum types of fields to contain the spacial objects from the different layers created or updated with this manual. Additional specific fields are explained for each data collection. The section "What to" displays fragments from this attribute table in order to clarify how to fill it in according to the required information.

CODE	GROUP	TYPE	NAME
Code of the object	Generic object selection	Specific type of object	Official name / Other known names -if relevant-

SOURCE_1*	SOURCE_2**	DISTRICT	REGION
Source that the element was extracted from	Source quoted by the first source from which the element was originally taken from	Name of the district where the element resides	Name of the region where the element resides

STATE	CURRENT_ST***	OBS	+ other fields
Name of the State where the element resides	R= Revised / It is most likely to be at this stage NR= Needs revision / It is unlikely to be at this stage	Any observation about this object	

*SOURCE_1: Add "UN" if you created, checked, updated or confirmed information on attribute table.
*Ex: SOURCE_1= OSM / UN ***or SOURCE_1= UN (*Do not erase previous sources, add "/" between them.)
SOURCE_2: For **direct observation, add "DO + name of the person in charge"
For **surveys or interviews**, add "S + name of the respondent" if it is an expert or an administrative or "S+ name of the person in charge" if the data has been gathered after multiple surveys.
*Ex: SOURCE_2= DO Abdi (*Do not erase previous sources, add "/" between them.)
**CURRENT_ST: If you created, checked, updated or confirmed information on the attribute table, this field must be "R". If an object does not exist, write NO in this field. (Do not erase the object!)

How to?

Spatial information

03a
Taking pictures of maps

Sharing information with QGis

In order to work and share information with QGis it is necessary to have the set of layers from the "Mapping Somali Cities | Training manual" and technicians with a basic understanding of QGis.

Knowledge used in QGis:
-Editing existing layers
-Creating new layers
-Adding new fields

This work is not difficult, however, it is necessary to be accurate and precise when updating or creating data, and to always check that:
-There is a controlled number of variables, according to the fields.
-There are no errors in the writing cells of the fields.
-All objects have a proper code, and the codes are unique and not repeated.

After checking all the above, the files must be then sent. It is recommended to make a .zip or a .rar that includes all the layers, and send them either:
-Attached in an email
-With a download link

Remember to check that all the files are attached from each layer (.cpg, .dbf, .prj, .qpj, .sbx, .shp, .shx).

UN@HABITAT

How to?

Spatial information

If there is no technician familiar with QGis, the data can be displayed on Google MyMaps. This allows people who were not present at the data collection to have access to the data in vector format.

03b
Google My Maps
www.google.com › mymaps

Sharing information with MyMaps

https://support.google.com/mymaps/answer/3024454?hl=en&ref_topic=3188329

MyMaps is similar to QGis but it does not need specific training. Nevertheless, it is important to read "Mapping Somali Cities | Training manual" to clarify how to organize attribute table data.

Working with MyMaps requires, in addition to this manual, some MyMaps links to specific maps that were prepared by UN-Office to facilitate information transfer.

Basic features of Google MyMaps:
(1) Choosing different Base Maps
(2) Adding new layers. By default, new layers are configured as point layers. If you want to switch to a line (*ex:streets, rivers etc*) or polygon (*ex:areas*) layer, click on **(3)** before drawing on the layer.
Reminder: It is preferable that each layer only contains one type of object. There are three types of objects: Points, lines and polygons.
(4) Open Data table of each layer, by left-clicking on the three points of the layer and then clicking on Open data table.
(5) Adding fields on Open data table. It is important to create the same fields described in the "Mapping Somali cities" training manual.
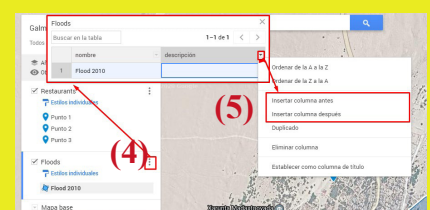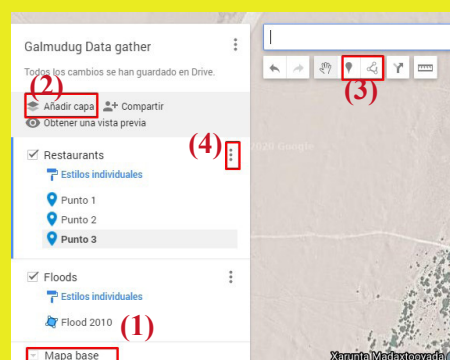
How to?

Spatial information

03c

Taking pictures of maps

Sharing information without a computer

If there is no accessible computer, another possible option is to manually create the spatial databases. To display the information in this manner would require making summary maps and a table that summarizes the information.

In this case it is most important that the information expressed on the map is clear and orderly so that someone else can create vector files from it.

SUITABLE BASE MAP
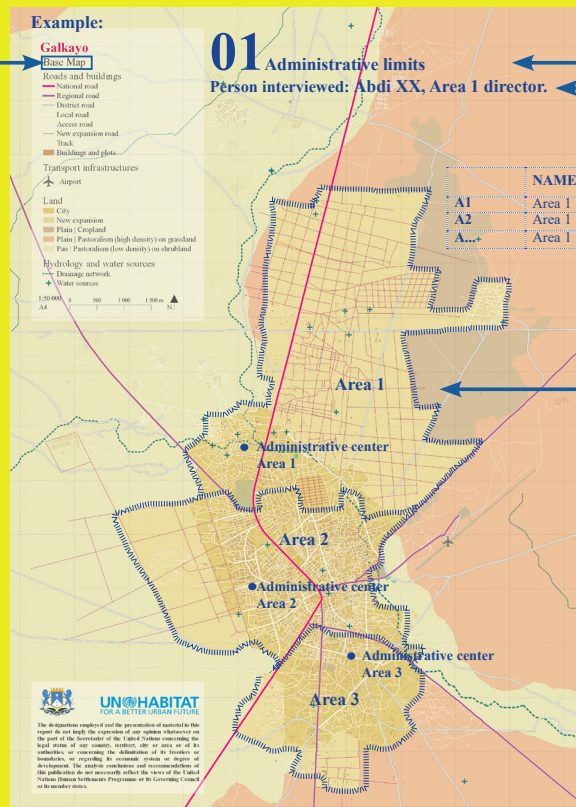
No. +TITLE SOURCE

ATTRIBUTE TABLE

DRAWING

-Is the information complete?
-Is the information clear?
-Did you note the different sources of information?

Example:

Galkayo
Base Map
Roads and buildings
— National road
— Regional road
— District road
— Local road
— Access road
— New expansion road
— Track
— Buildings and plots
Transport infrastructures
✈ Airport
Land
City
New expansion
Plain | Cropland
Plain | Pastoralism (high density) on grassland
Pass | Pastoralism (low density) on shrubland
Hydrology and water sources
Drainage network
Water sources

01 Administrative limits
Person interviewed: Abdi XX, Area 1 director.

	NAME
A1	Area 1
A2	Area 1
A...+	Area 1

Area 1

● Administrative center
Area 1

Area 2

●Administrative center
Area 2

● Administrative center
Area 3

Area 3

How to?

Other data

Some information cannot be represented in images or maps. One way to register this information is through a Google Form, which can be easily done with a mobile phone. If there is no internet connection, then it would be necessary to fill in the surveys on paper, and later digitize them into a Google Form.

01

Google Forms

https://docs.google.com/forms

Other data

It is proposed to collect this information in text format. In this case, the aim is to establish a description -not quantitative- of basic aspects of the city.

This compilation has a very simple format and allows key aspects to be clarified in order to understand the city.

Attached is a basic form with questions to be answered in text format.

What to?

01

Governance and administrative limits of the city

-Is there any specific governance/administrative limit in the city that can be mapped? Is there any internal division that depend on different administrations? Are these administrations based on different buildings? Draw different areas in a map and their names after asking administration staff.

Administration
For this data, it is better to interview persons from different administrative areas to note possible inconsistencies.
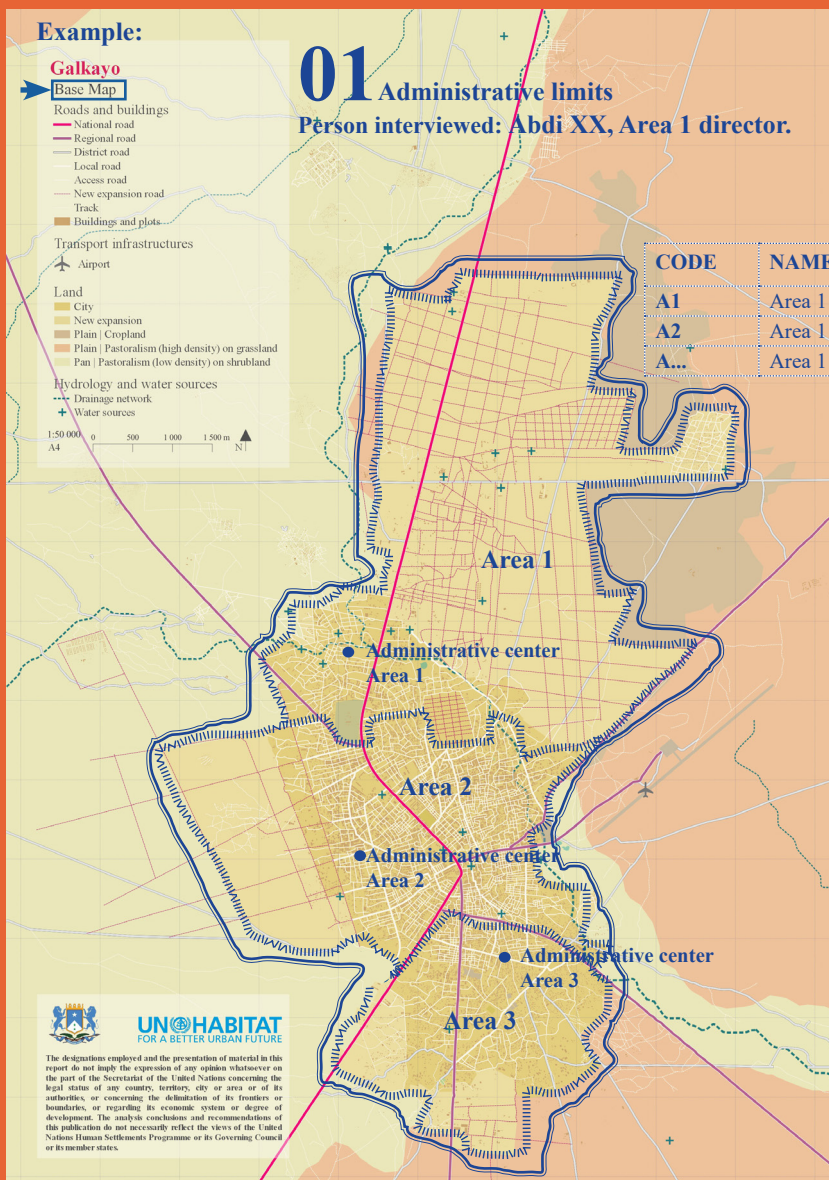
Spatial data
Adm 4 | *polygon*
Facilities and infrastructures | *polygon (see point 07)*
Don't forget the attribute table!

Short explanation of city administration system
Ex: 1 central administration + 3 "administration" areas

Example:

Galkayo
Base Map
Roads and buildings
— National road
— Regional road
District road
Local road
Access road
New expansion road
Track
Buildings and plots

Transport infrastructures
✈ Airport

Land
City
New expansion
Plain | Cropland
Plain | Pastoralism (high density) on grassland
Pan | Pastoralism (low density) on shrubland

Hydrology and water sources
Drainage network
✛ Water sources

1:50 000   0   500   1 000   1 500 m
A4   N

01 **Administrative limits**
Person interviewed: Abdi XX, Area 1 director.

CODE	NAME
A1	Area 1
A2	Area 1
A...	Area 1

Area 1

● Administrative center
Area 1

Area 2

● Administrative center
Area 2

● Administrative center
Area 3

Area 3

UN@HABITAT
FOR A BETTER URBAN FUTURE

The designations employed and the presentation of material in this report 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, or regarding its economic system or degree of development. The analysis conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council or its member states.

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

02
Neighbourhoods

-Are there different neighbourhoods in the city? What are the main features of this neighbourhood? Draw different neighbourhoods in a map and their names after asking local residents.

Local residents

02 Neighbourhoods
Interviewer: XX XX.

CODE	NAME	OBS
N1	xx	Old city
N2	xx	New Market area
N...	xx	Any observation

Spatial data
Neighbourhood |
polygon
Don't forget the attribute table!

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

03
Urban morphology

-Are there uniform areas with similar built units? Ex: 3-story-buildings area. Draw this uniform area on the map.

Uniform area identi-fication

Pictures:
One per uniform area that illustrates the main features of each area.

Spatial data
Uniform area |
polygon
Don't forget the attribute table!

Galkayo
Base Map
Roads and buildings
— National road
— Regional road
— District road
   Local road
   Access road
— New expansion road
   Track
▬ Buildings and plots
Transport infrastructures
✈ Airport
Land
▬ City
   New expansion
▬ Plain | Cropland
▬ Plain | Pastoralism (high density) on grassland
   Pan | Pastoralism (low density) on shrubland
Hydrology and water sources
┈ Drainage network
+ Water sources
1:50 000   0   500   1 000   1 500 m
A4   N

03 Urban morphology
Local staff: XX XX.

CODE	GROUP	TYPE	OBS
HA1	Open Block	1 or 2 story	Recent
HA2	Closed Clock	5 or 6 story	Old area
HA...	Detached house	XX story	...

HA6
HA6 2   HA3
HA7   HA8
HA4
HA1
HA10
HA5
HA9
HA11

Uniform area:
Any area that has similar uses, and buildings with similar height, shape and other features.

Types of buildings:
These categories must be defined by the local staff, as they are different in every town. Examples:
>Closed block
>Open block
>Detached house

UN HABITAT
FOR A BETTER URBAN FUTURE

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

04
Urban growth

Where were the limits of the city 20/30/40 years ago? Did this city change abruptly? When?

Local residents
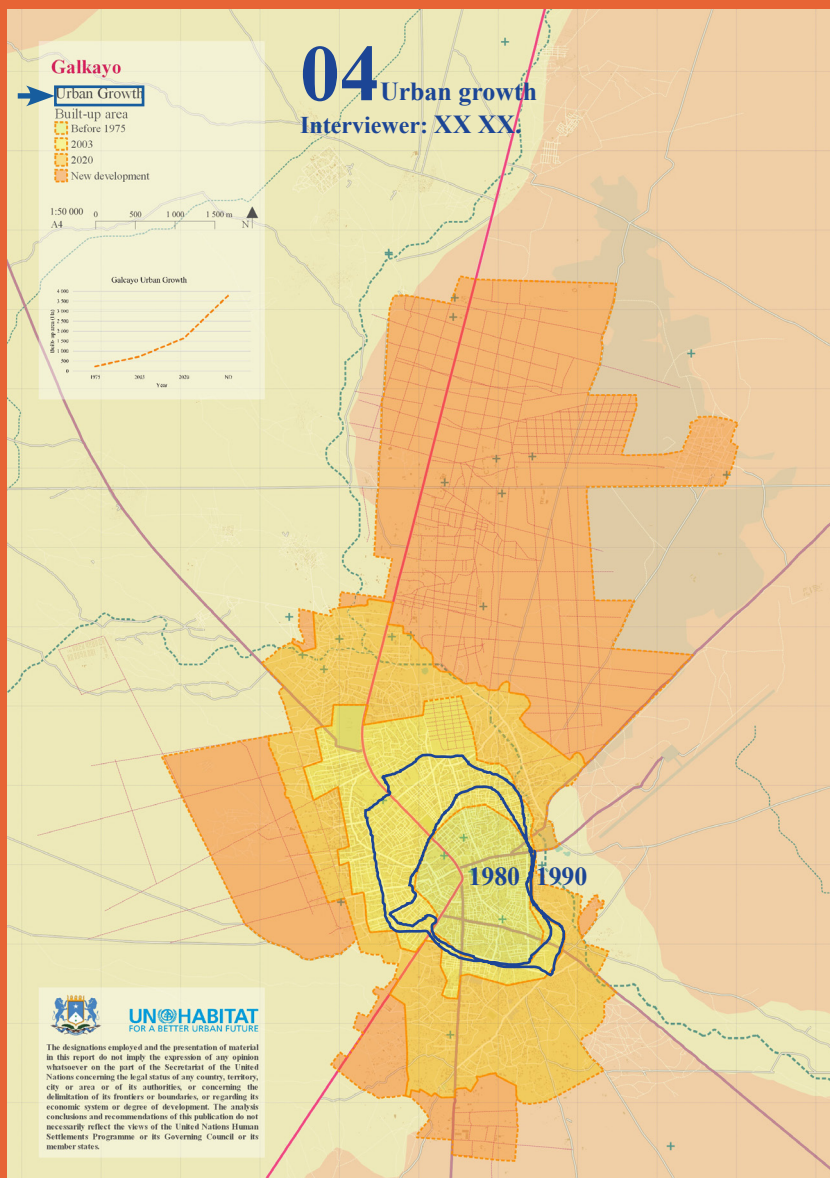
Spatial data
Historical-Us |
polygon
**Don't forget the
attribute table!**

Short explanation
*Ex:The city changed
during the 90's when
it grew very fast.*

Note: The information delivered in this map **is not correct**. It is an example of the kind of information
that should appear on the map and how it should be represented.

What to?

05

Urban inequality

-Is there an adequate supply of safe and affordable housing? Are there distinct unserviced areas or neighbourhoods where most poor live? How many people live there? Are there spontaneous IDP sites and how many people live there? Are there formal IDP sites / shelter projects and how many people live there? Update the information about IDP in the IDP layer and type in this information in Uniform areas or Neighbourhoods.

Do you collect data on crime, violence and insecurity in the city? If so, classify the different Uniform areas or Neighbourhoods into Low/Medium/High categories.
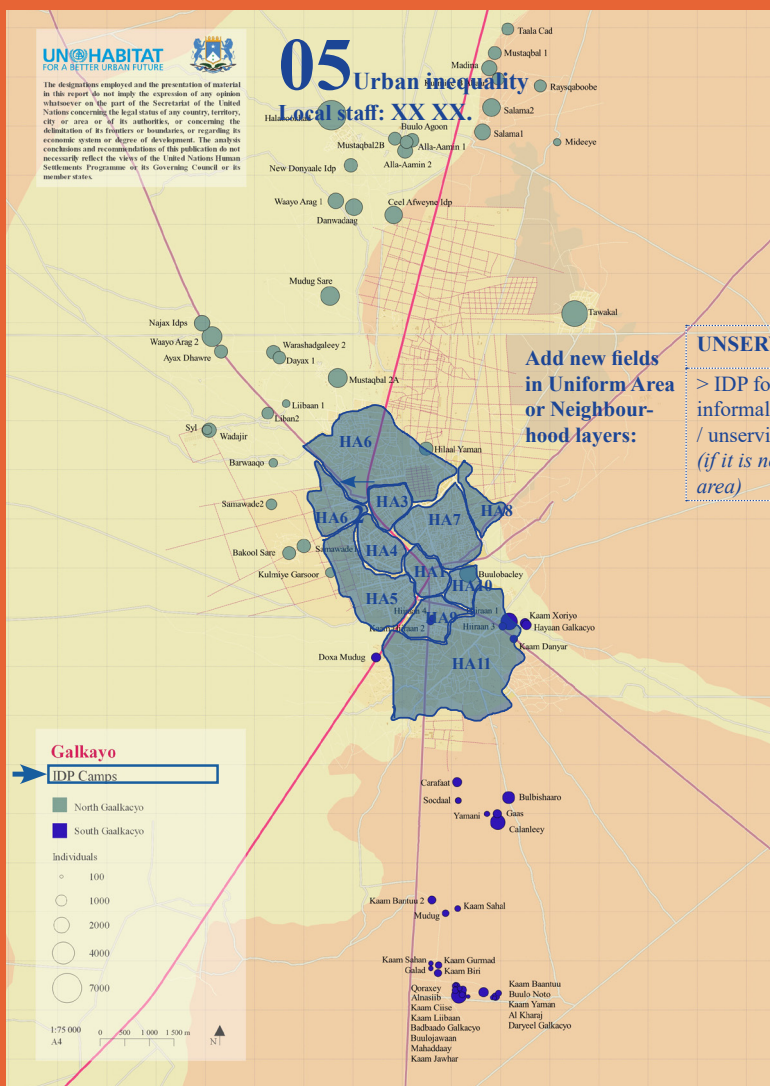
Spatial data
Uniform area or
Neighbourhood | *or polygon*
Recover or Disposal facilities | *points*
Don't forget the attribute tables!

Short explanation about affordable housing
Ex: The city lacks affordable housing. There are several new informal areas.

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.
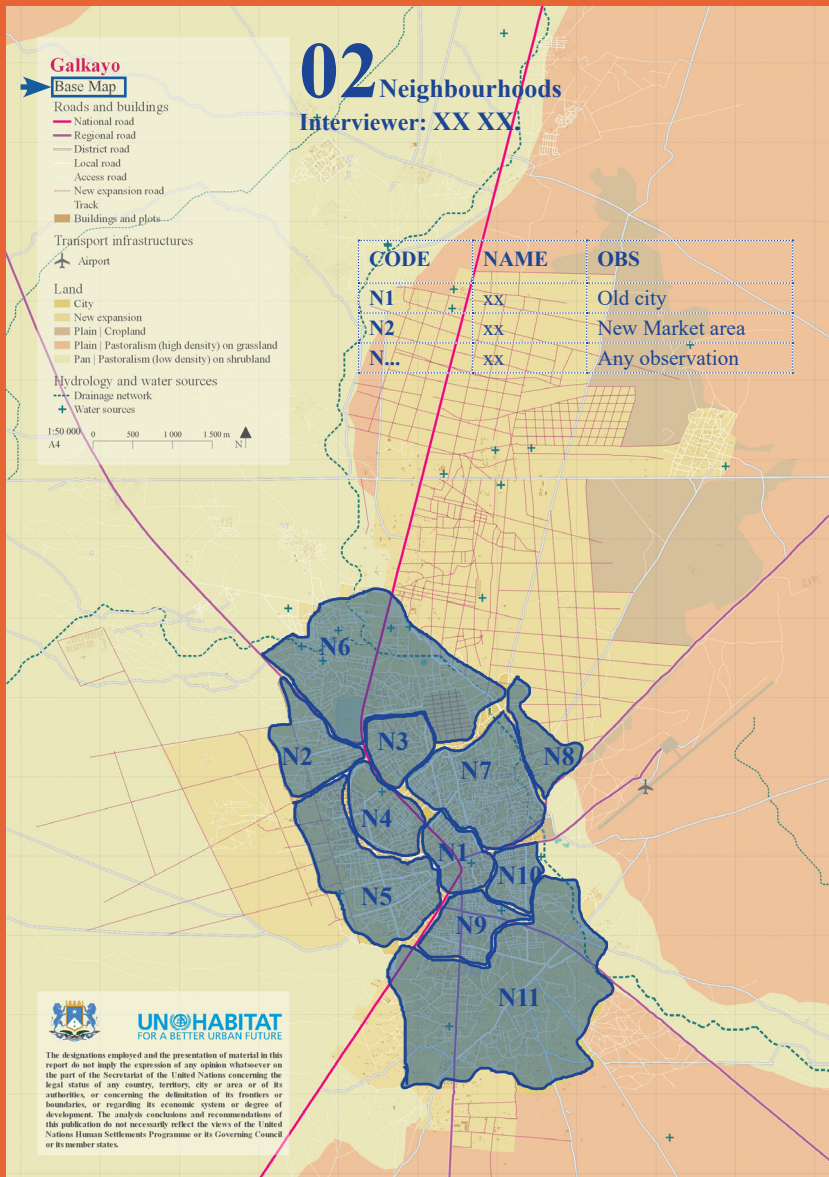
What to?

06

Rivers, streams and waterponds

-Are rivers/streams/waterponds correctly located on the map? Is there any missing one?
-What is the global trend of each river/stream/waterpond? Are they temporary or do they carry water throughout the year? Which season is it most likely that the stream will flow? Are there any specific areas that experience floods regularly? How are rivers/streams/waterponds used? Update this information on the Drainage network and Waterponds flood areas layer.

Streams, water-ponds identification

Local residents Administration

One picture per stream/waterpond with the same code as in the attribute table.

Spatial data
Drainage network (streams) | *line*
Waterponds and flood areas | *polygon*
Don't forget the attribute tables!

Galkayo

Hydrology and water sources
Hydrology
- Temporary water ponds
Drainage channels
- — 1 (Strahler order)
- --- 6 (Strahler order)
Water sources
- Berkad
- Borehole
- Dam
- Dug Well
- Not classified/Other
Water quality
- No data available
Total Dissolved Solids
- 600 mg/L < TDS < 1000 mg/L
- 1000 mg/L < TDS
Electrical conductivity
- 2000 µS/cm < EC < 3000 µS/cm
- 3000 µS/cm < EC < 4000 µS/cm
- 4000 µS/cm < EC

1:50 000 0   500   1 000   1 500 m
A4

06 Rivers, streams and waterponds
Local staff: XX XX.

CODE	GROUP	TYPE	NAME	DATE	OBS
ST-00	Stream	>Perennial / Intermittent / Ephemeral Disappeared		*Ex:September, October*	*Ex: Used as dumpsite*
WP-00	Waterpond	*(Same types that stream)*		*Ex:September, October*	*Ex: After road construction*
FA-00	Flood area	*(Same types that stream)*		*Ex:Twice a year*	*Ex: Urban park*
	Non existent	Non existent			*Ex: Causing damages*

ST01 Intermittent stream September, October

WP01 Intermittent waterpond, December

ST02 Ephemeral stream

ST03 Perennial stream

Non existent

ST03 Perennial stream

Classification of streams according to time:
Perennial: Stream that flows continuously
Intermittent or seasonal: It occurs only in a certain time of the year when it receives ample water from other sources. Ex: mountain or groundwater.
Ephemeral: Only flows in direct reaction to rainfall.

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.
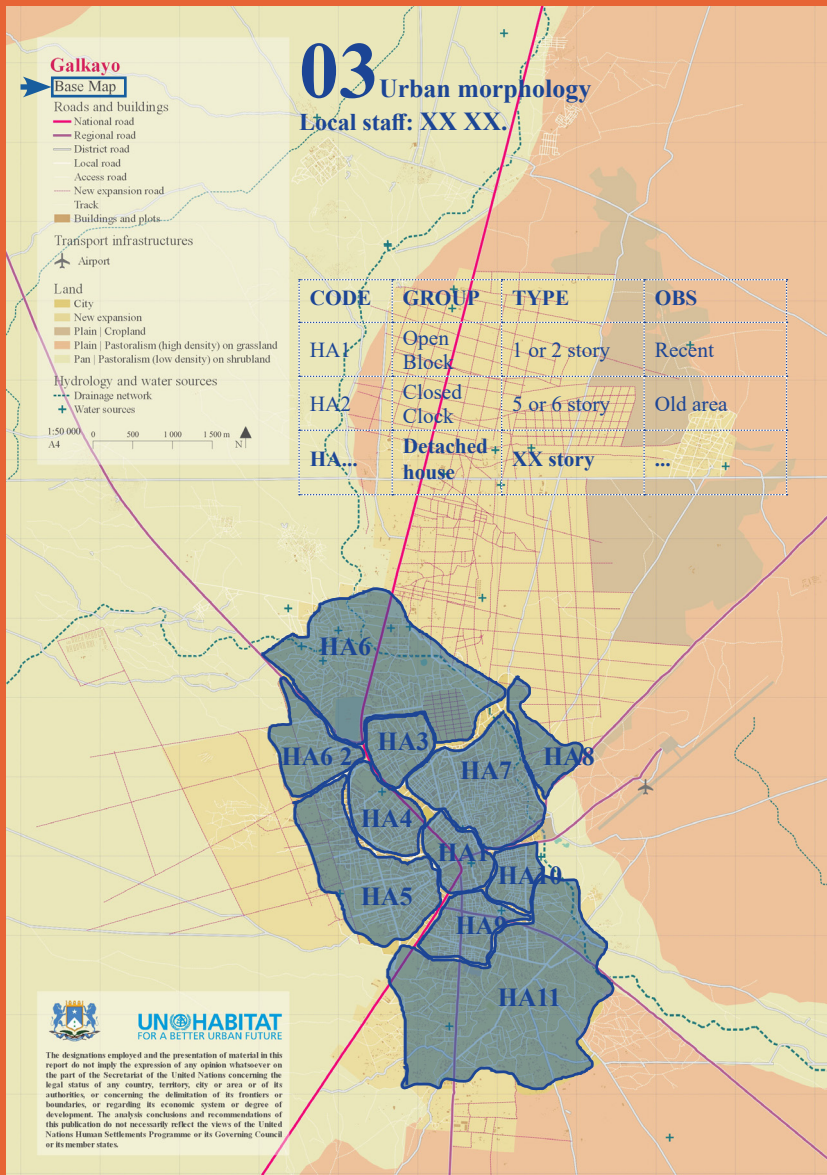
What to?

07
Water sources

Is there any water source that is not located in the map? Is there on the map any water source that does not exist? Is there any water source that is considered "better" or "more important" or "more used" than other? Update this information on the Water sources layer.

Water sources and drainage systems id.

Local residents Administration

Pictures of different water sources.

Spatial data Layers:
Water sources |
point
Don't forget the attribute tables!

Galkayo

Hydrology and water sources

Hydrology
- Temporary water ponds

Drainage channels
- 1 (Strahler order)
- 6 (Strahler order)

Water sources
- Berkad
- Borehole
- Dam
- Dug Well
- Not classified/Other

Water quality
- No data available

Total Dissolved Solids
- 600 mg/L < TDS < 1000 mg/L
- 1000 mg/L < TDS

Electrical conductivity
- 2000 µS/cm < EC < 3000 µS/cm
- 3000 µS/cm < EC < 4000 µS/cm
- 4000 µS/cm < EC

1:50 000   0   500   1 000   1 500 m
A4

07 Water sources
Local staff: XX XX.

CODE	GROUP	TYPE	OBS
WS-00	Water source	>Not classified	Ex: Meeting point

WS-02

WS-03

WS-01

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

08
Urban roads

Which streets are paved? Which streets concentrate the most pedestrians? Classify pedestrian activity in Low/Medium/High categories. Which streets have more car traffic? Classify car traffic in in Low/Medium/High categories. Which streets are regularly flooded?

Streets observation identification

Local residents Administration

Pictures of different road types.

Spatial data Layers:
Roads | *line*
Don't forget the attribute tables!

Galkayo
Base Map
Roads and buildings
— National road
— Regional road
— District road
— Local road
Access road
— New expansion road
Track
Buildings and plots
Transport infrastructures
✈ Airport
Land
City
New expansion
Plain | Cropland
Plain | Pastoralism (high density) on grassland
Pan | Pastoralism (low density) on shrubland
Hydrology and water sources
--- Drainage network
+ Water sources
1:50 000   0   500   1 000   1 500 m
A4

08 Urban roads
Local staff: XX XX.

Add new fields in Road layer:

PAVEMENT	PEDESTRIAN	CAR TRAFFIC	FLOOD
>YES/NO	>Low / Medium / High	>Low / Medium / High	>YES/NO

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

09
Basic urban facilities

Check this layer and expand it -if necessary- by adding as many points as needed. It is recommended to display the information in different paper maps following the epigraphs depicted below. While possible, it is preferable to maintain these Groups and Types, filling in any extra fields that are required.

Facilites and services identification

Local residents Administration

Security

CODE	GROUP	TYPE
PS-00	Police Station	> Police station / Central police station / Coast guard
FS-00	Fire Station	> Fire station / Central fire station

Public facilities

CODE	GROUP	TYPE	CAPACITY
ED-00	Educational	> School / Community centre /Other	Students No.
HE-00	Health	> Hospital / Pharmacy / Health care center / NGO health care cente / Other	Patients No.
RE-00	Religious	> Muslim / Mosque / Madrassa/ Place of Worship	
SO-00	Social	> Community centre / Feeding centre / Food distribution center / Other	Attendants
SP-00	Sports	> Playground / Stadium / Pitch	Max. capacity
PA-00	Parks	> Urban park / Neighbourhood park	
OT-00	Other	> Cemetery	
NC-00	Not classified	> Not classified	

Administration and NGO

CODE	GROUP	TYPE
GO-00	Government	> Local government centre / Regional government centre
NG-00	NGO	> Office

Transports

CODE	GROUP	TYPE
TR-00	Transports	> Bus station

Pictures: One per different basic urban facilities
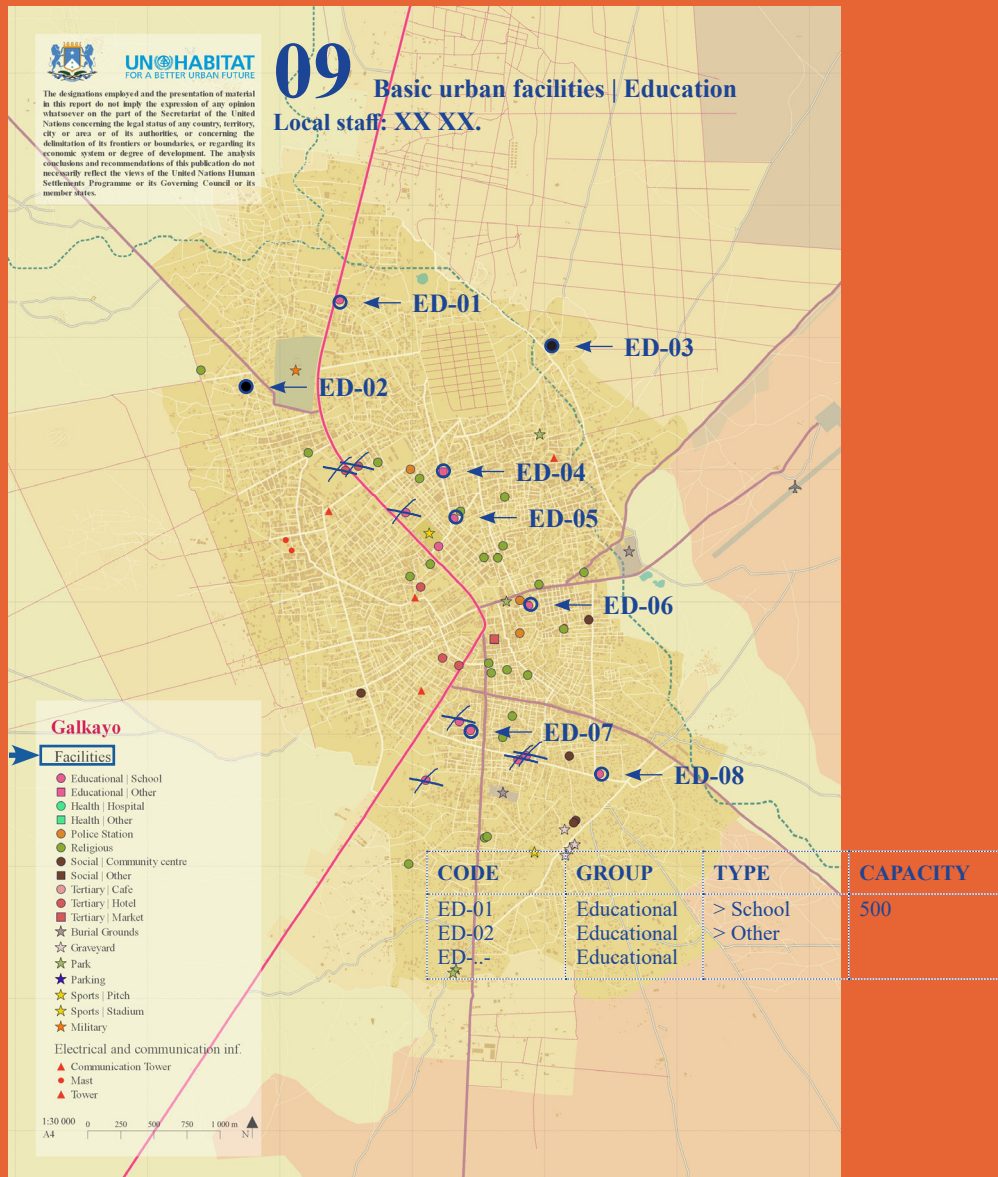
UN@HABITAT

29

What to?

09 **Basic urban facilities | Education**
Local staff: XX XX.

ED-01
ED-02
ED-03
ED-04
ED-05
ED-06
ED-07
ED-08

Galkayo

Facilities

- Educational | School
- Educational | Other
- Health | Hospital
- Health | Other
- Police Station
- Religious
- Social | Community centre
- Social | Other
- Tertiary | Cafe
- Tertiary | Hotel
- Tertiary | Market
- Burial Grounds
- Graveyard
- Park
- Parking
- Sports | Pitch
- Sports | Stadium
- Military

Electrical and communication inf.

- Communication Tower
- Mast
- Tower

1:30 000   0   250   500   750   1 000 m
A4   N

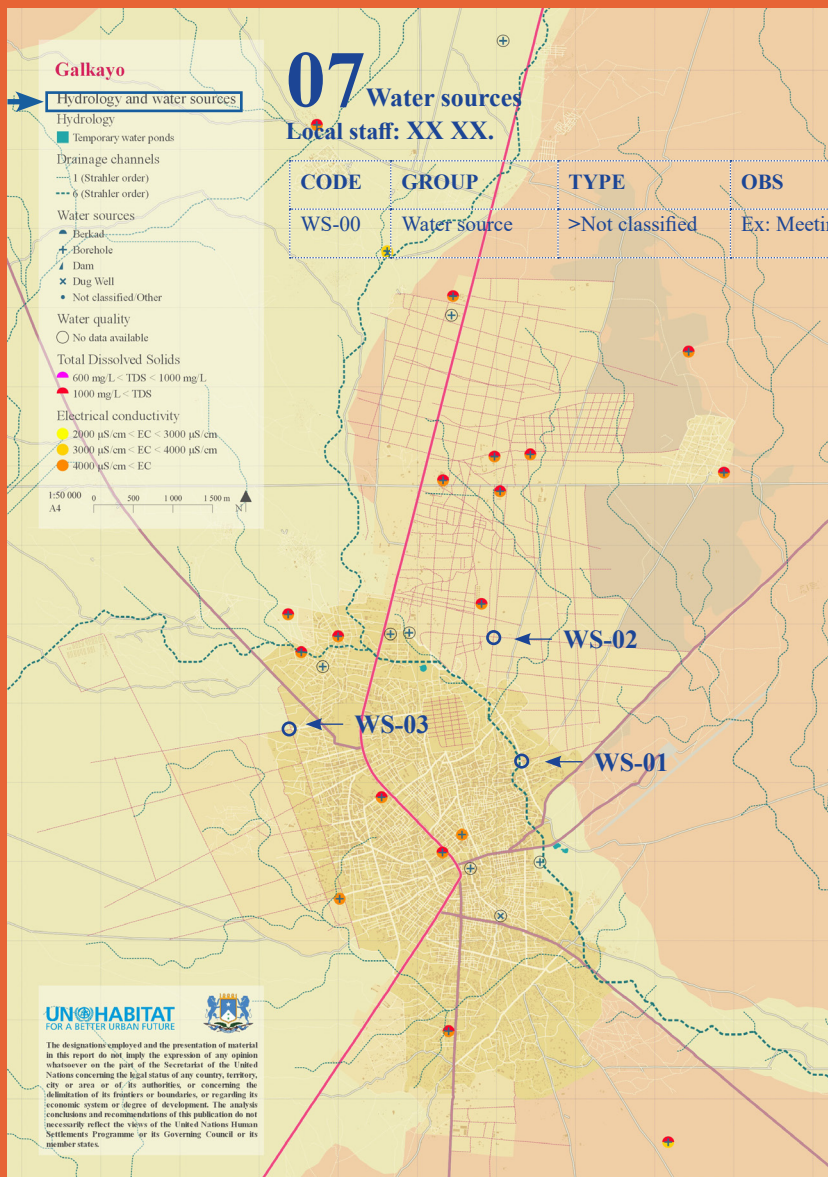| CODE	GROUP	TYPE	CAPACITY
ED-01	Educational	> School	500
ED-02	Educational	> Other	
ED-...-	Educational		

Spatial data
Facilities and infra-structures | *point*
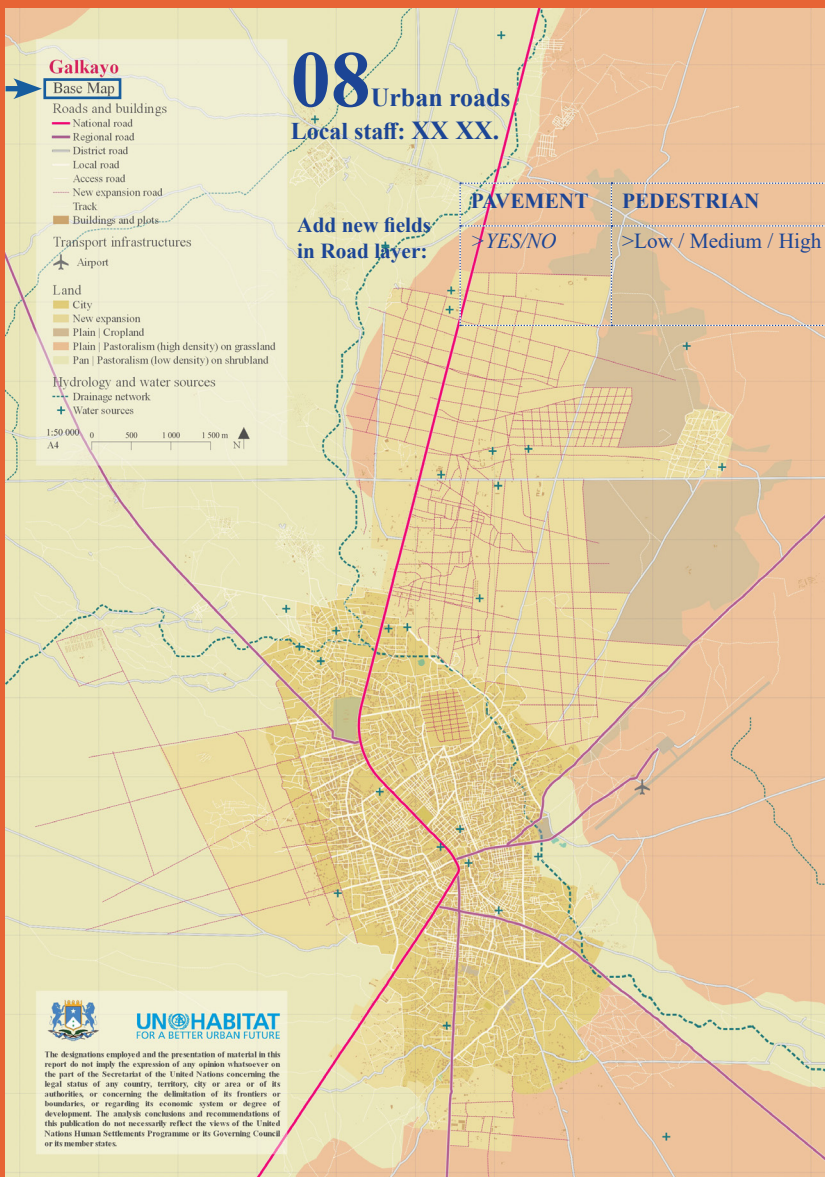**Don't forget the attribute table!**

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

10
Transport

Which cities are connected to the city with communal transports (small buses etc)? Which are the most used transports? Locate -at a regional scale- the cities that are reachable by communal transport.

**Local residents
Administration**

**Spatial data
Regional Transport
| polygon**

**List of medium and
large cities that are
reachable through
communal transport**

Galkayo

Base Map | Regional scale

10 Transport
Local staff: XX XX.

Borders and limits
National border
Regional limit
District limit

Settlements
Regional Capital
District Capital
Settlement

Roads
National road
Regional road
District road
Airports

Drainage network and water source
Channels
Water sources

Land cover
Mosaic forest or shrubland/grassland
Open grassland
Closed to open herbaceous vegetation (or lichen and mosses)
Sparse vegetation
Mosaic vegetation / cropland
Rainfed cropland

Land form and land use
Plain | Pastoralism (high density)
Plain | Pastoralism (high density) with scattered oasis farming
Pan | Pastoralism (low density) with scattered oasis farming in a gypsiferous surface

Ethiopia
Somalia
Kenia

UN@HABITAT
FOR A BETTER URBAN FUTURE

The designations employed and the presentation of material in this report 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, or regarding its economic system or degree of development. The analysis conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council or its member states.

What to?

11

Electricity and telecommunications

Is there an electricity / telecommunications network in the city? Which neighbourhoods / uniform areas are mainly connected to this network? Are Infrastructure points correctly located? Is there any missing point?

Electricity and tele-communications .

Local residents Administration
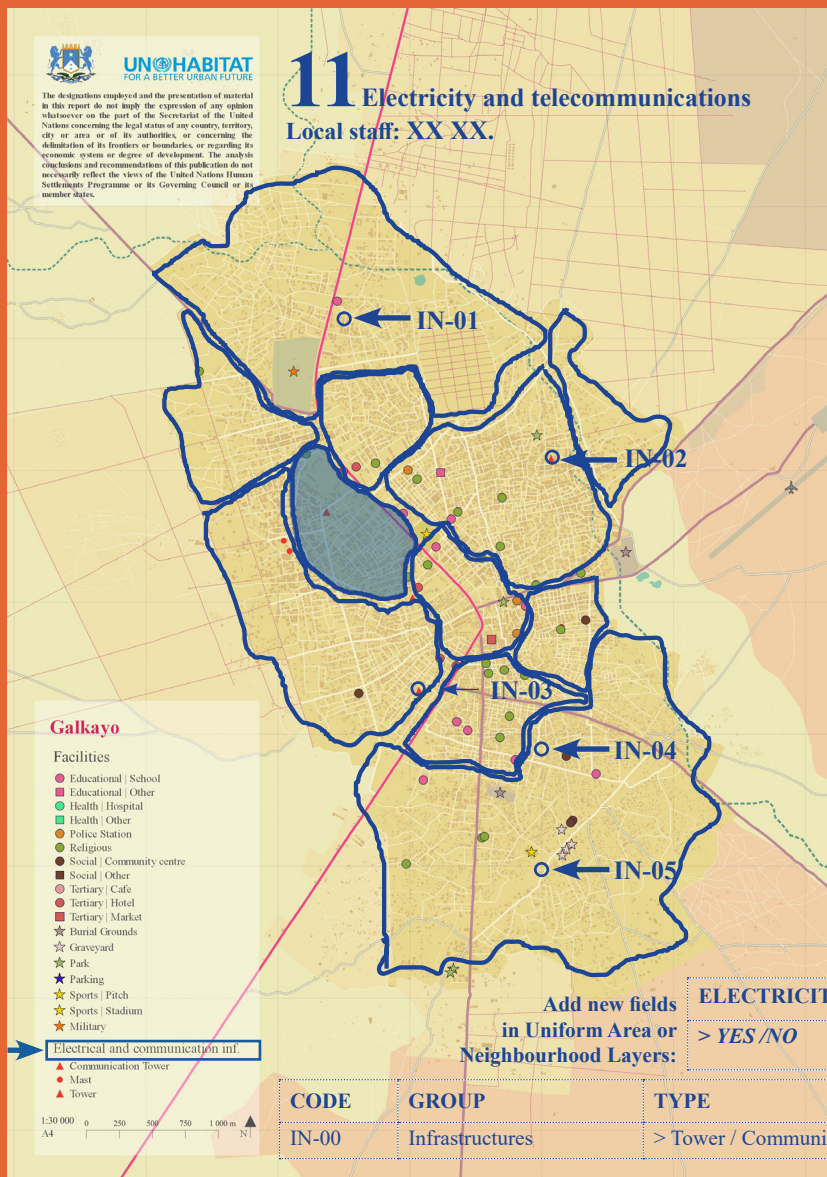
Spatial data
Uniform area or Neighbourhood | *polygon*
Facilities and infrastructures | *point*
Don't forget the attribute tables!

11 Electricity and telecommunications
Local staff: XX XX.

Galkayo

Facilities
- Educational | School
- Educational | Other
- Health | Hospital
- Health | Other
- Police Station
- Religious
- Social | Community centre
- Social | Other
- Tertiary | Cafe
- Tertiary | Hotel
- Tertiary | Market
- Burial Grounds
- Graveyard
- Park
- Parking
- Sports | Pitch
- Sports | Stadium
- Military

Electrical and communication inf.
- Communication Tower
- Mast
- Tower

IN-01
IN-02
IN-03
IN-04
IN-05

1:30 000   0   250   500   750   1 000 m
A4

Add new fields in Uniform Area or Neighbourhood Layers:

ELECTRICITY	TELECOM
> YES /NO	> YES /NO

CODE	GROUP	TYPE
IN-00	Infrastructures	> Tower / Communication tower / Mast

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.
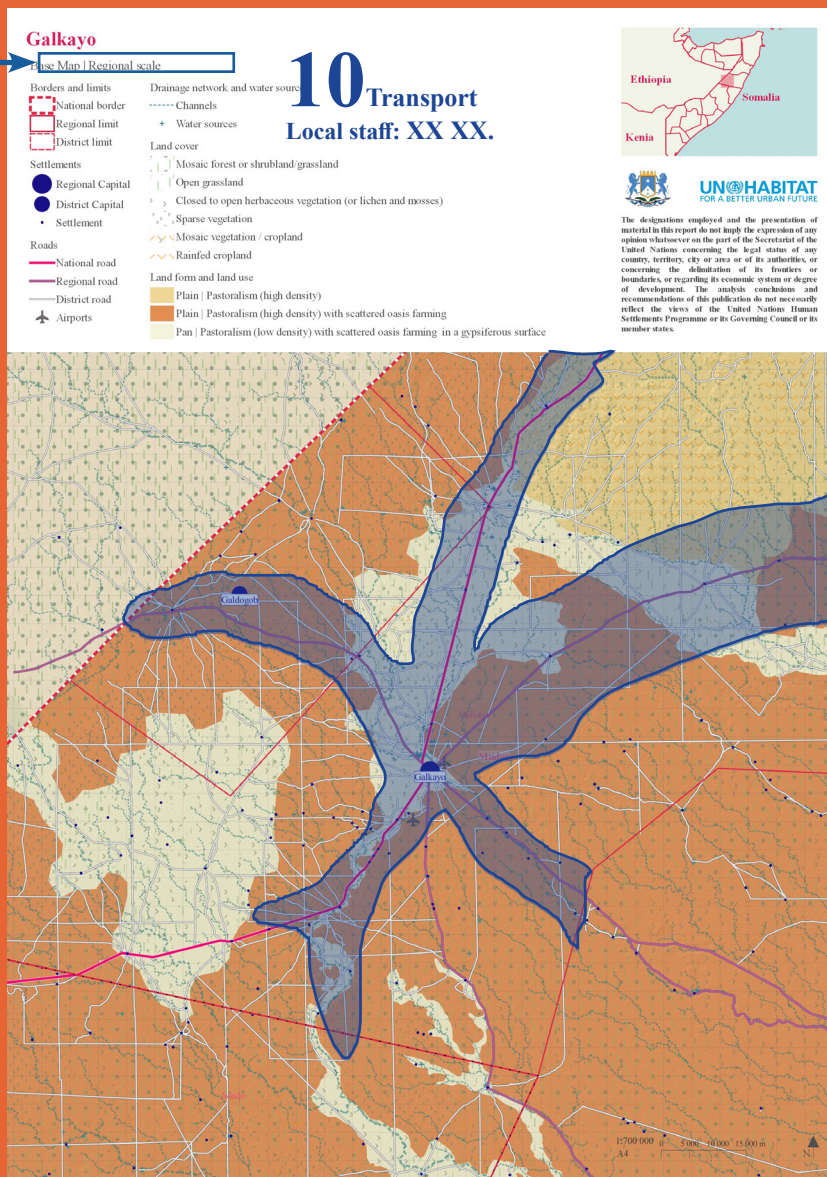
What to?

Recovery or disposal facilites identification

Local residents Administration

Pictures of:
-Uncollected waste
-Collectors
-Recovery and disposal facilites.
Related to the code.

Short responses to questions about Uncollected MSW

Spatial data
Uniform area or Neighbourhood | *polygon*
Recovery or Disposal facilities | *points*
Don't forget the attribute tables!

12
Municipal solid waste (MSW)

MSW includes waste generated from: households, commerce and trade, small businesses, office buildings and institutions (schools, hospitals, government buildings). It also includes bulky waste (e.g. white goods, old furniture, mattresses) and waste from selected municipal services, e.g. waste from park and garden maintenance, waste from street cleaning services (street sweepings, the content of litter containers, market cleansing waste), if managed as waste. The definition excludes waste from municipal sewage network and treatment, municipal construction and demolition waste. **Total MSW Generated** by the city is the total MSW generated by the population and their economic activities within the defined system boundary.

Collection
Total MSW Collected refers to the amount of MSW generated that is moved from the point of generation, such as specific addresses or designated collection points, to facilities where the waste is recovered or disposed, regardless of collection modality (e.g. by municipal governments, non-state actors or informal sector). **Total MSW Uncollected** refers to the remaining share of MSW generated.

Is MSW partially collected in the city? In areas that have no waste collection, how is waste treated? (Ex: Burned, buried, dumped into the sea...) For areas with MSW collection, are there different service levels between neighbourhoods or areas in the city? Add MSW_COLLECTION field in Neighbourhood or Uniform area layers, and complete that field with different service levels, following table definition.

SERVICE LEVEL	DEFINITION
Full	-Receiving door-to-door MSW collection service with basic frequency and regularity and MSW is collected in three or more separate fractions; or -Having a designated collection point within 200m distance served with basic frequency and regularity and without major littering and MSW is collected in three or more separate fractions
Improved	-Receiving door-to-door MSW collection service with basic frequency and regularity and MSW is collected in a minimum of two, separate fractions (eg. wet and dry fractions) -Having a designated collection point within 200m distance served with basic frequency and regularity and without major littering and MSW is collected in a minimum of two, separate fractions (eg. wet and dry fractions)
Basic	-Receiving door-to-door MSW collection service with basic frequency and regularity or -Having designated collection point within 200m distance served with basic frequency and regularity
Limited	-Receiving door-to-door MSW collection service without basic frequency and regularity; -Having a designated collection point within 200m distance but not served with basic frequency and regularity; or -Having designated collection point in further than 200 m distance.
No	-Receiving no waste collection service
Note: Basic frequency and regularity: Served at least once a week for one year	

Recovery and Disposal
Recovery refers to any operation that results on waste serving a useful purpose: either by replacing materials which would otherwise have been used to fulfill a particular function, or by waste being prepared to fulfill that function, either in the facility or in the wider economy.

What to?

Disposal means any operation where the main purpose is not the recovery of materials or energy, even if the operation has as a secondary consequence the reclamation of substances or energy.
Recovery facilities include any facilities with recovery activities defined above including recycling, composting, incineration with energy recovery, materials recovery facilities, mechanical biological treatment facilities, etc.
Disposal Facilities refer to sites which are regularly used by the public authorities and private collectors, regardless of their level of control and legality, for the disposal of waste. Such sites may or may not have an official recognition, a permit or a license. Disposal sites may be managed in either a controlled or uncontrolled manner. The definition excludes other unrecognized places where waste is deposited occasionally in small amounts which public authorities may clean up from time to time.

Is there any recovery/disposal facility related to the city? If there are recovery facilities, which one of the following activities are they developing?

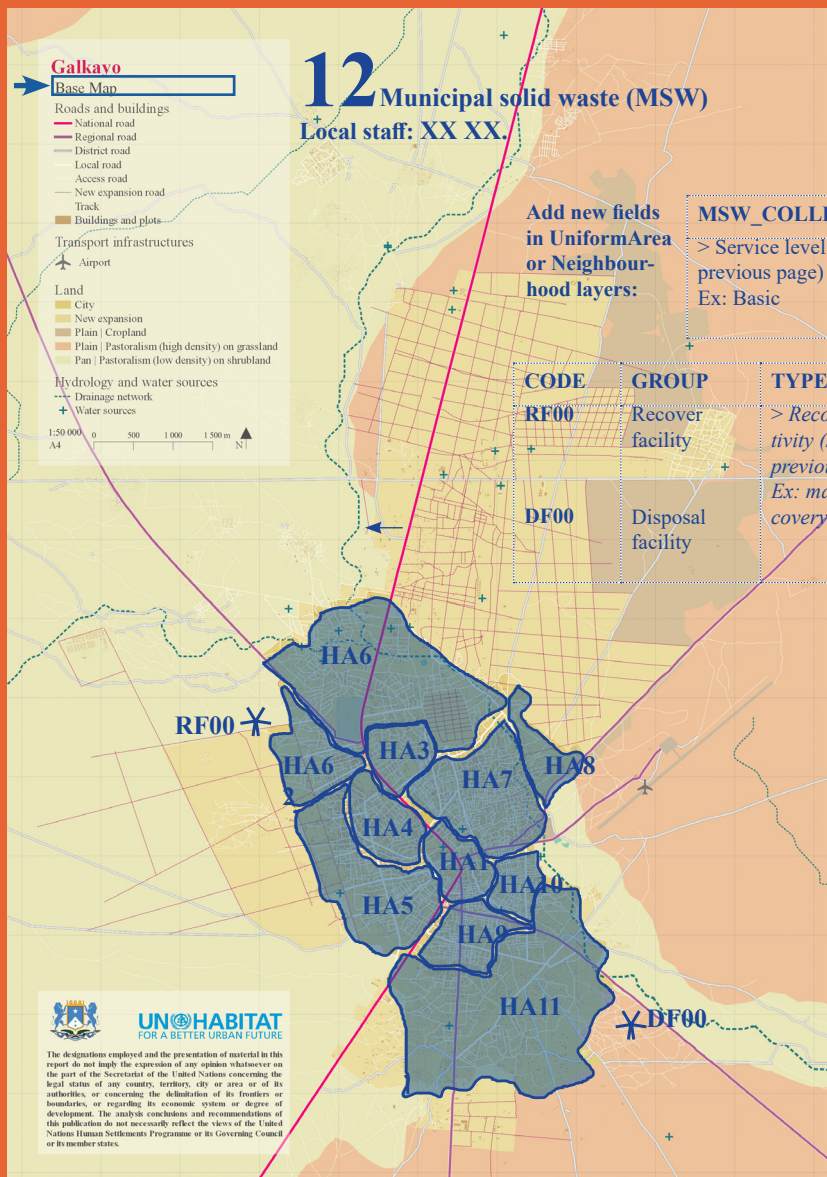| RECOVERY ACTIVITY	DEFINITION
Material Recovery Facility	Specialized recovery facility that receives, separates and prepares recyclable materials for marketing to further processors or end-user manufacturers
Mechanical Biological Treatment	Type of recovery facility that combines an MRF with a form of biological treatment such as composting or anaerobic digestion.
Incineration	Controlled combustion of waste with or without energy recovery.
Incineration with Energy Recovery	Controlled combustion of waste with energy recovery.
Recycling	Any reprocessing of waste material in a production process that diverts it from the waste stream, except reuse as fuel. Both reprocessing as the same type of product, and for different purposes should be included.

Formality of MSW Management

The Formality of MSW management activities is an important aspect to take into consideration. MSW management activities are carried out by formal and informal economic units, both public and private, and by generators for the purpose of the prevention, collection, transportation, recovery and disposal of waste.
Formal waste management relates to waste management activities undertaken by units working within the context of the formal governmental or non-state actors regulating and operating waste management; that is, organisations or individuals registered as economic units with government authorities and assumed to generally abide by local laws and regulations related to wastes and their management.
Informal waste management refers to individuals or enterprises who are involved in private sector recycling and waste management activities which are not sponsored, financed, recognised, supported, organised or acknowledged by the formal solid waste authorities, or which operate in violation of or in competition with formal authorities (Scheinberg et al., 2010). Informal units are assumed to abide by local waste-related laws and regulations when it is in their interests to do so.

If possible, add MSW_FORMALITY field in previous layers related to each collection / disposal or recover facility or area, indicating if MSWManagement is (1) formal or (2) informal.

What to?

Spatial data
Uniform area or Neighbourhood |
polygon
Recovery or Disposal facilities | *points*
Don't forget the attribute tables!

Map content:

Galkayo
Base Map

Roads and buildings
— National road
— Regional road
— District road
   Local road
   Access road
— New expansion road
   Track
▪ Buildings and plots

Transport infrastructures
✈ Airport

Land
   City
   New expansion
   Plain | Cropland
   Plain | Pastoralism (high density) on grassland
   Pan | Pastoralism (low density) on shrubland

Hydrology and water sources
--- Drainage network
✚ Water sources

1:50 000   0   500   1 000   1 500 m
A4

12 **Municipal solid waste (MSW)**
Local staff: XX XX.

Add new fields in UniformArea or Neighbourhood layers:

MSW_COLLECTION	MSW_FORMALITY
> Service level (see table previous page) Ex: Basic	>Formal / Informal

CODE	GROUP	TYPE	MSW_FORMALITY
RF00	Recover facility	> Recovery activity (see table previous page) Ex: materials recovery facilities	>Formal / Informal
DF00	Disposal facility		>Formal / Informal

Map labels: RF00, HA6, HA3, HA6, HA8, HA7, HA4, HA1, HA10, HA5, HA9, HA11, DF00

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

13

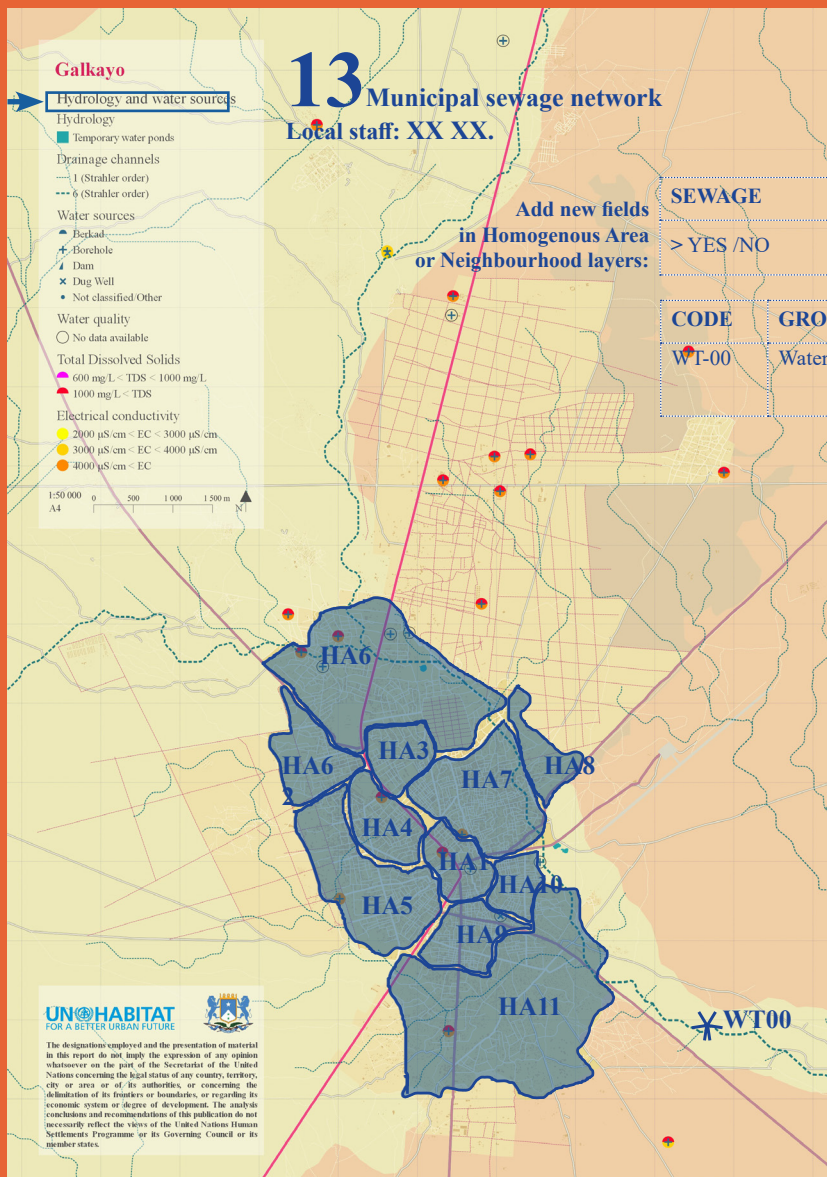## Municipal sewage network (MSN) and treatment plants

Is there in the city a municipal sewage network? Which neighbourhoods / homogenous areas are connected to this network? Do this network collects rainwater in the mayority of the streets? Is there a municipal sewage treatment plant?

Drainage system and water treatment .

Local residents Administration

Spatial data
Uniform area or Neighbourhood | *polygon*
Water treatment plant *(point)*
Don't forget the attribute tables!

Galkayo
Hydrology and water sources
Hydrology
  Temporary water ponds
Drainage channels
  — 1 (Strahler order)
  --- 6 (Strahler order)
Water sources
  Berkad
  Borehole
  Dam
  Dug Well
  Not classified/Other
Water quality
  No data available
Total Dissolved Solids
  600 mg/L < TDS < 1000 mg/L
  1000 mg/L < TDS
Electrical conductivity
  2000 μS/cm < EC < 3000 μS/cm
  3000 μS/cm < EC < 4000 μS/cm
  4000 μS/cm < EC
1:50 000   0   500   1 000   1 500 m
A4   N

13 **Municipal sewage network**
Local staff: XX XX.

Add new fields in Homogenous Area or Neighbourhood layers:

SEWAGE	RAINWATER_COL
> YES /NO	> YES /NO

CODE	GROUP
WT-00	Water treatment plant

HA6
HA3
HA8
HA7
HA6
HA4
HA1
HA10
HA5
HA9
HA11
WT00

UN@HABITAT
FOR A BETTER URBAN FUTURE

The designations employed and the presentation of material in this report 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, or regarding its economic system or degree of development. The analysis conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council or its member states.

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

Source:
City RAP

Local residents

Are there any stations that register climate phenomena? Are there any weather stations?

14
Environmental constraints and land use patterns

01-Is there any modified land use? Examples: From forest to grassland. From grassland to agriculture. From agriculture to urban. Indicate the aproximate date of each land use change. Is there any protected -conservation- area near the city?

02-Has the city been affected by natural and/or man-made disasters in the past?
Check the boxes corresponding to disasters that the city has suffered and indicate the year of the 3 last occurrences:

☐ *Floods and mud flows*   ☐ *Volcanic eruption*   ☐ *Technological disaster*
☐ *Cyclones / Strong winds*   ☐ *Landslides*   ☐ *Conflict / Violence*
☐ *Drought*   ☐ *Fires*   ☐ *Other*
☐ *Earthquakes*   ☐ *Epidemics*

03-What type of damage has the city endured due to disastrous events? (Select as many boxes as necessary)
☐ *Loss of lives*
☐ *Injuries*
☐ *Disruption of utilities provision (water, energy, telecommunications, waste management, etc.)*
☐ *Interruption of economic activities*
☐ *Food insecurity*
☐ *Partial or total destruction of public buildings/facilities (hospitals, schools, government buildings, etc.)*
☐ *Partial or total destruction of housing*
☐ *Others*

04-Do you observe the following phenomena in the city?
☐ *Changes in rain patterns, floods or cyclones occurrence*
☐ *Sea level rise or coastal erosion*
☐ *Deforestation*
☐ *Decrease in soil and/or fishery productivity*
☐ *Increased pollution (waste, water and air pollution…)*
☐ *Others*

05-Which disaster prevention and mitigation mechanisms are in place in your city?
☐ *Early warning systems*
☐ *Evacuation routes*
☐ *Drainage systems / seawalls / dams / other protective structures*
☐ *Well conserved ecosystems*
☐ *Prevention and awareness-raising campaigns*
☐ *Others*

Pictures:
Landscape
-Rainfed cropland
-Mosaic Forest / Shrubland
-Grassland
-Sparse vegetation
-Any picture of a previous/lost landscape?
Disaster
Damage
Phenomena
Mitigation mechanisms

**Short responses and box selection**

What to?

-Create as many paper maps as necessary in both scales, locating, if possible, responses to the previous questions. This map should be collected in a layer.
14-01| Land use change
14-02| Disasters
14-03| Damage
14-04| Phenomena
14-05| Mitigation mechanisms
You may need to create different types of layers (point, lines and polygons).

CODE	GROUP	TYPE	DATE	OBS
	Land use change	Agriculture to badland Forest to grassland ...		
	Disaster	(See list question 02)	around 2010	after war.
	Damage	(See list question 03)		
	Phenomena	(See list question 04)		
	Mitigation mechanisms	(See list question 05)		
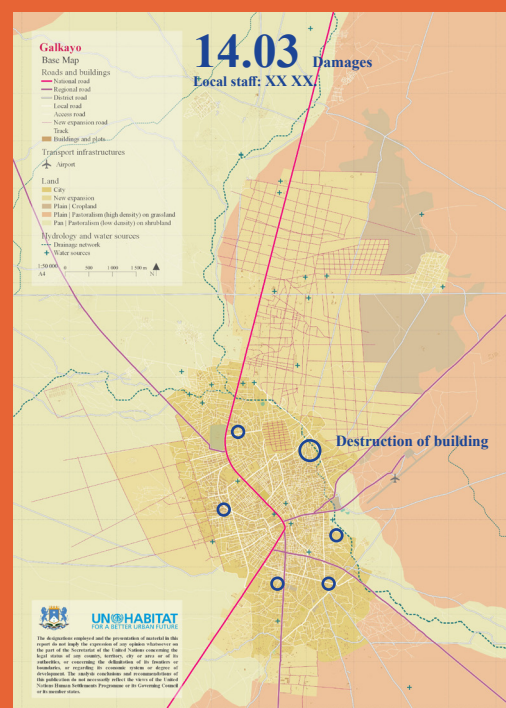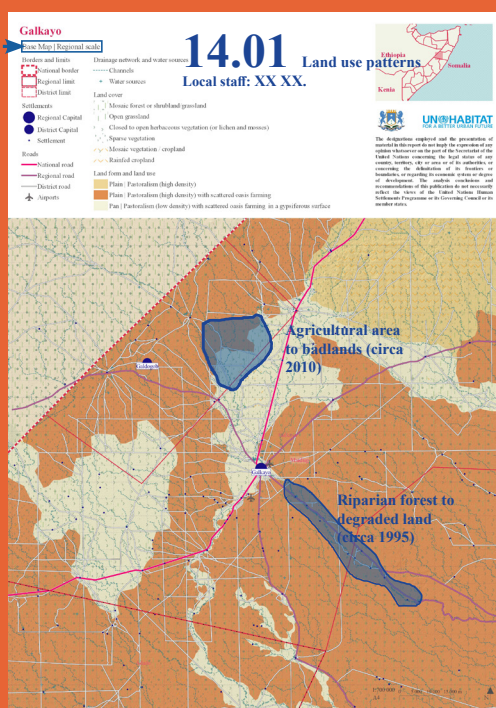
Spatial data (both scales if possible)
EC | line
EC | point
EC | polygon
Don't forget the attribute tables!

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

15

Urban economy

What are the main activities people do in the city?

CODE	GROUP	TYPE
CO-00	Commerce	> Hotel / Cafe / Market / Store / Money transfer office / Travel Agency / Bank
LI-00	Light industry	>Household electric appliances / Textiles / Wood / Food / Paper / Leather
HI-00	Heavy industry	>...
FA-00	Farm	> Crop / Crop and livestock / Livestock

Facilities and services identification

Do people from the surrounding area come into town seeking:
□ *Available waterpoints for landstock*
□ *Commerce*
□ *Health facilities*
□ *Education facilities*
□ *Leisure facilities (sports)*
□ *Administrative services*
□ *Other*

-What is the type of food consumed in the city?
□ *Once a day:*
□ *Once a week:*
□ *Once a month:*

Where does food from agricultural crops available to inhabitants come from?
□ *Urban, peri-urban, immediately surrounding agricultural areas*
□ *Regional production*
□ *National production*
□ *Imported from abroad*

Where does food from animal origin available to inhabitants come from?
□ *Urban, peri-urban, immediate surrounding agriculture areas*
□ *Regional production*
□ *National production*
□ *Imported from abroad*

Where do other goods -different from food- available to inhabitants come from?
□ *Urban, peri-urban*
□ *Regional production*
□ *National production*
□ *Imported from abroad*

Short responses and box selection

What to?
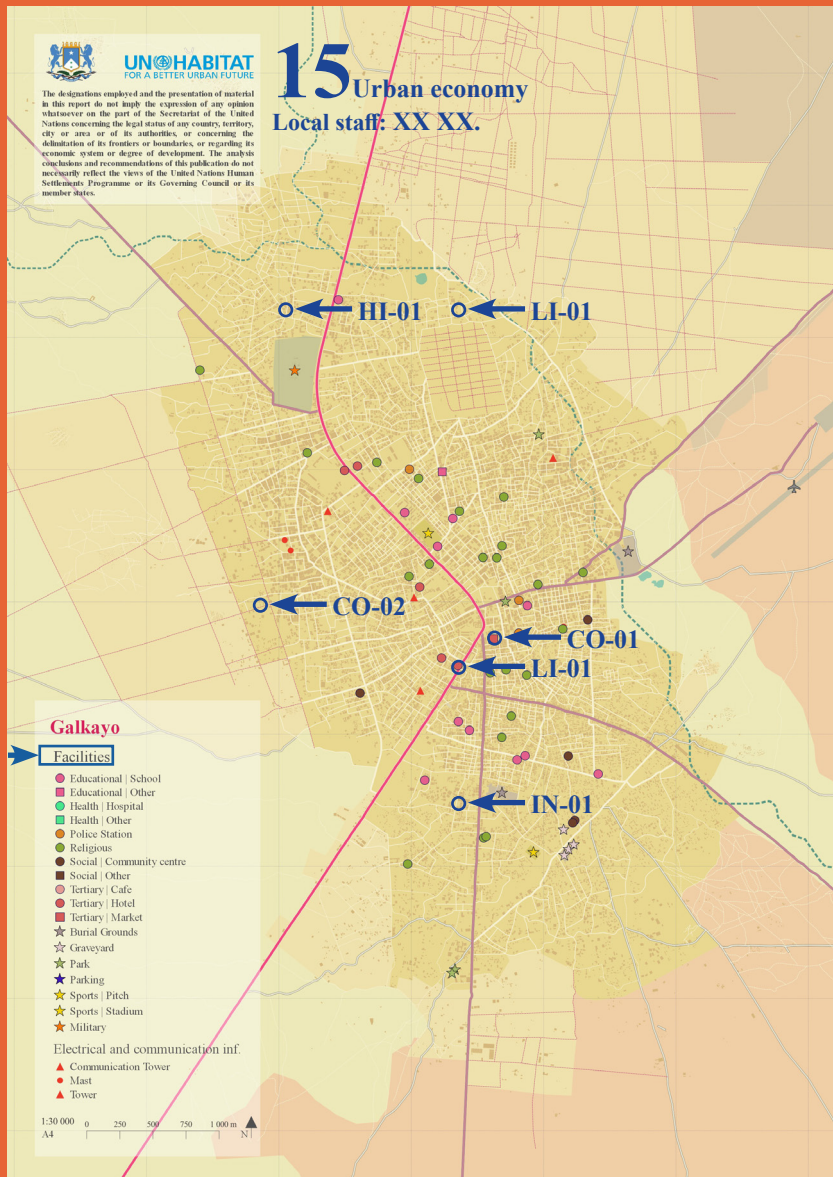
Pictures: Pictures of different economic activities in the city

Spatial data
Facilities and infra-structures | *point*
Don't forget the attribute table!

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.

What to?

16
Agriculture and fisheries

**Observation of
Crop / Fisheries**

**Administration
Local residents**

**Pictures of different
farms, crops and
fisheries and the
people that work on
them.**

**Short responses and
box selection**

-People in the region mostly feed from:
□ *Crops*
□ *Livestock*
□ *Fish*
□ *Other:....*

-Do most of the farms / fisheries produce:
□ *mainly for self-consumption*
□ *for self-consumption and exchange / commerce*
□ *for agricultural cooperatives*
□ *for medium-sized companies*
□ *for large national / international companies*

-Do most of the farms grow:
□ *Crops*
□ *Livestock*
□ *Both crops and livestock*

-Which are the main crops?

-Are livestock farmers:
□ *Nomadic*
□ *Sedentary*

-Which are the main livestock species of the region?
□ *Horses, donkeys, mules*
□ *Bovine animals*
□ *Swine*
□ *Sheep*
□ *Goats*
□ *Poultry*
□ *Bees*
□ *Other*

-Which ones of the species above are present in the city?
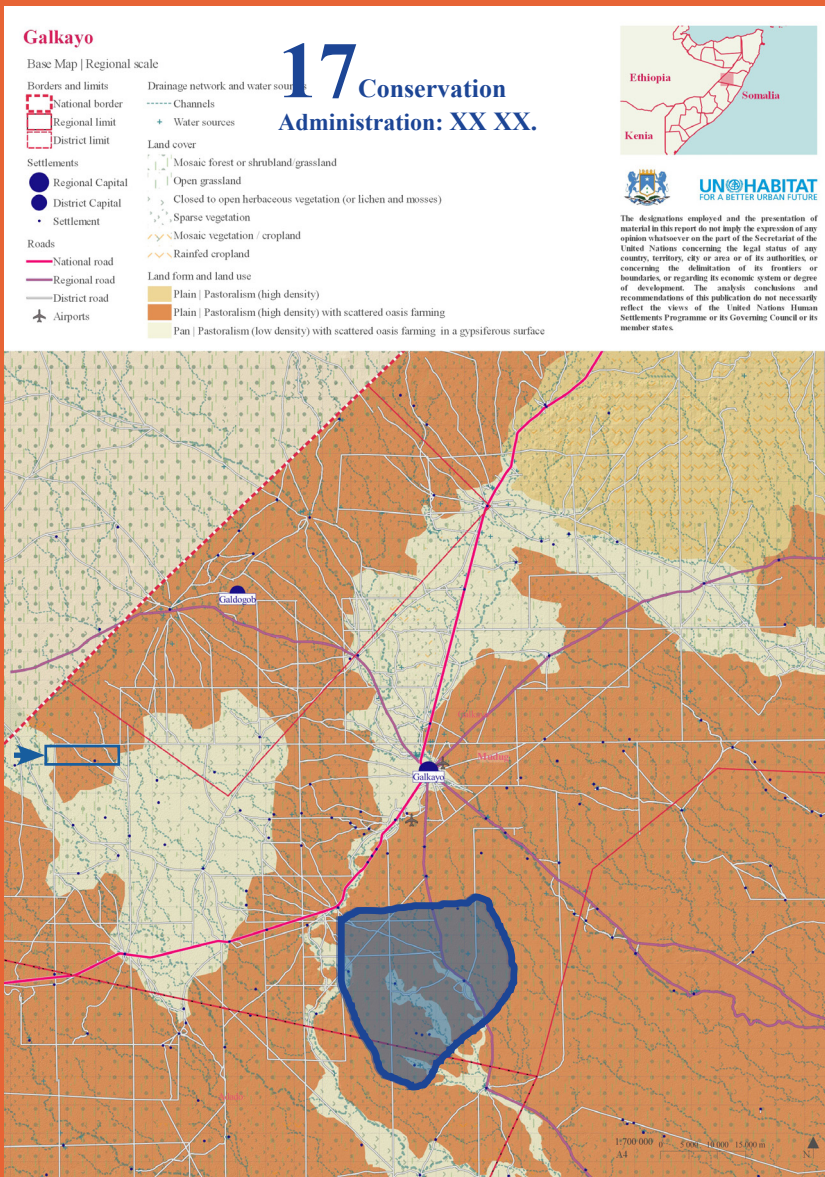
What to?

17
Conservation

-Which wild species of "medium-size" or "large" fauna animals are commonly present in the city? (*Medium size: Cat). -Is there any protected -conservation- area in the region? Draw any existing conservation area.

Conservation areas

Administration

Pictures: Conservation area and fauna in the city.

Spatial data Conservation | *polygon* **Don't forget the attribute table!**

Galkayo
Base Map | Regional scale

Borders and limits
- National border
- Regional limit
- District limit

Settlements
- Regional Capital
- District Capital
- Settlement

Roads
- National road
- Regional road
- District road
- Airports

Drainage network and water sour
- Channels
- Water sources

Land cover
- Mosaic forest or shrubland/grassland
- Open grassland
- Closed to open herbaceous vegetation (or lichen and mosses)
- Sparse vegetation
- Mosaic vegetation / cropland
- Rainfed cropland

Land form and land use
- Plain | Pastoralism (high density)
- Plain | Pastoralism (high density) with scattered oasis farming
- Pan | Pastoralism (low density) with scattered oasis farming in a gypsiferous surface

17 Conservation
Administration: XX XX.

Ethiopia
Somalia
Kenia

UN@HABITAT
FOR A BETTER URBAN FUTURE

The designations employed and the presentation of material in this report 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, or regarding its economic system or degree of development. The analysis conclusions and recommendations of this publication do not necessarily reflect the views of the United Nations Human Settlements Programme or its Governing Council or its member states.

Galdogob

Galkayo

1:700 000
A4

Note: The information delivered in this map **is not correct**. It is an example of the kind of information that should appear on the map and how it should be represented.