UNITED NATIONS

ESCWA

Background Paper:

"The prospects of Innovation and Technology in Official Statistics"

<u>Annex II</u>
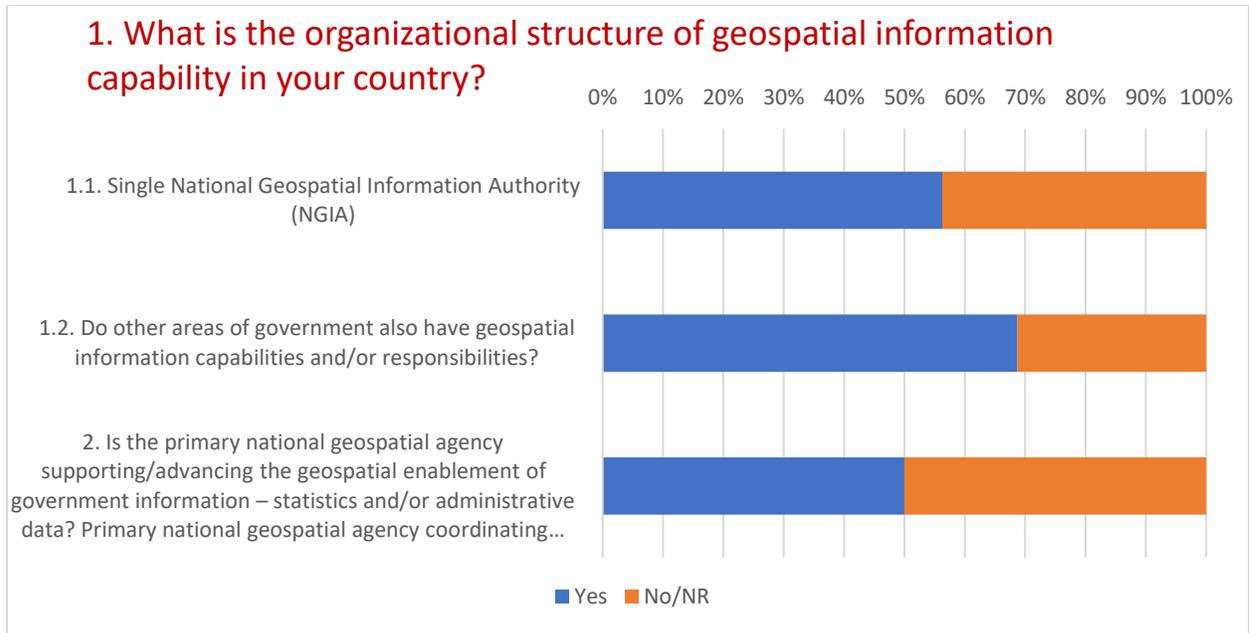
Arab Countries Responses to the ESCWA Questionnaire

A. National Statistical Geospatial Information Capability

• What is the organizational structure of geospatial information capability in your country?

Response	Number of countries
1. Single National Geospatial Information Authority (NGIA)	
YES	9
NO/NR	7
2. Do other areas of government also have geospatial information capabilities and/or responsibilities?	
YES	11
NO/NR	5

• Is the primary national geospatial agency supporting/advancing the geospatial enablement of government information – statistics and/or administrative data?
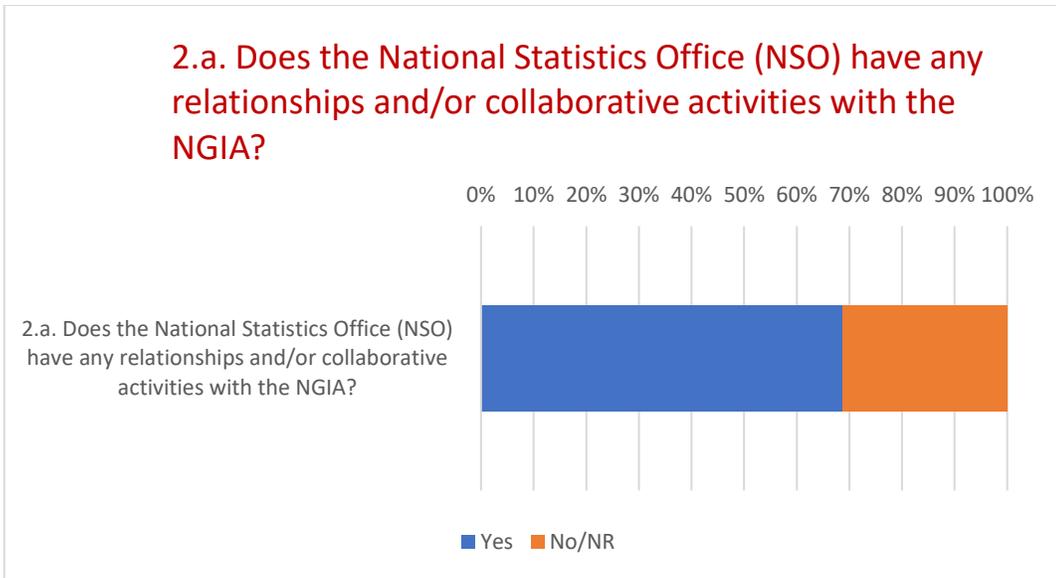
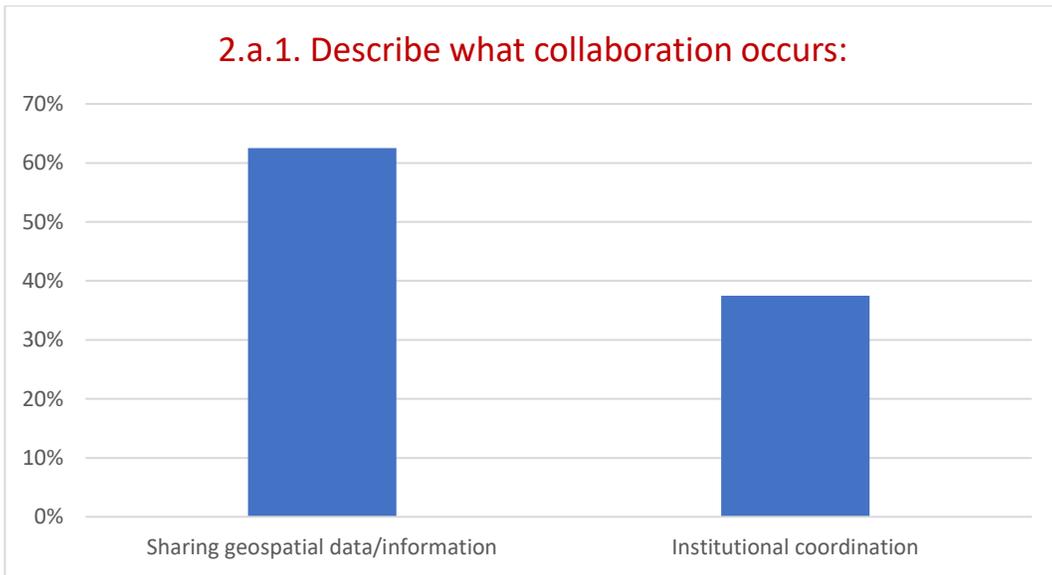| Response	Number of countries
Primary national geospatial agency coordinating with and supporting statistics	
YES	8
NO/NR	8
Yes - Providing geospatial data to the National Statistical Office	3
Yes - Coordinating and exchanging data with the National Statistical Office	2
Yes - Sharing data through Geoportal and Interoperability of national data systems and platforms	3 (Oman+Qatar+UAE)
No - There is a gap in coordination	2 (Sudan)
No - There is no primary geospatial agency	4 (Iraq, Lebanon, Mauritania, Palestine)

1. What is the organizational structure of geospatial information capability in your country?

Figure 1: Responses to Questions 1.1, 1.2 and 2 about the geospatial information organizational structures and capabilities in Arab countries.

a. Does the National Statistics Office (NSO) have any relationships and/or collaborative activities with the NGIA?

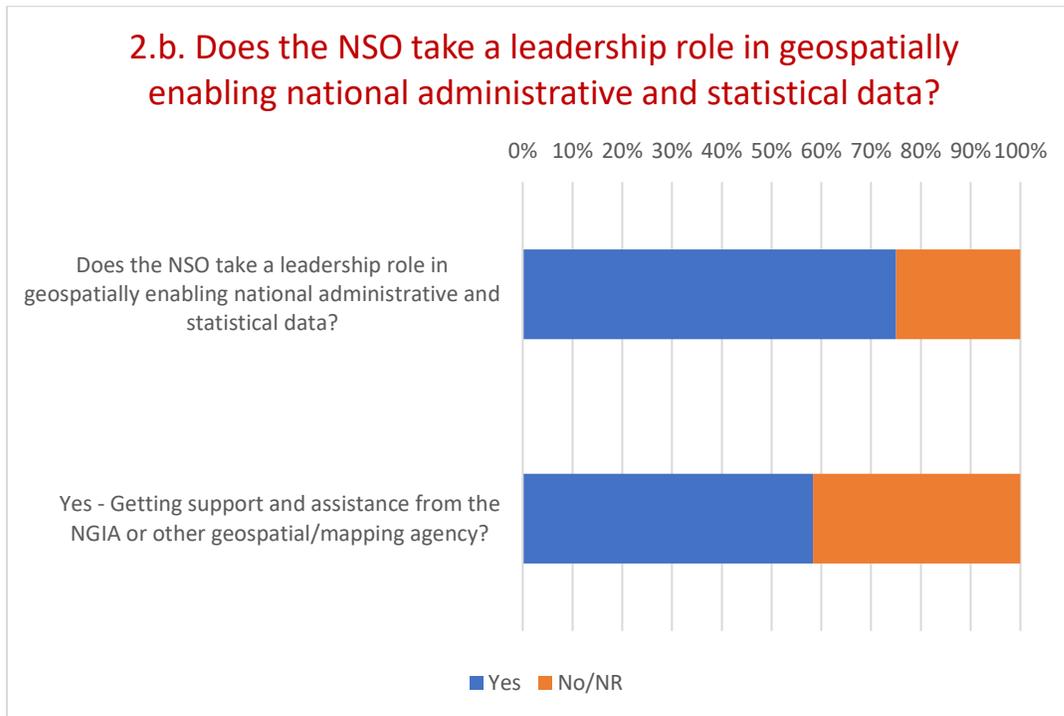| Response	Number of countries
YES	11
NO/NR	5
1. Describe what collaboration occurs:	
- **Sharing geospatial data/information**	10
- **Institutional coordination**	6

2.a. Does the National Statistics Office (NSO) have any relationships and/or collaborative activities with the NGIA?

Figure 2: Responses to Question 2.a.

2.a.1. Describe what collaboration occurs:

Figure 3: Responses to Question 2.a.1.

b. Does the NSO take a leadership role in geospatially enabling national administrative and statistical data?

Response	Number of countries
YES	12
NO/NR	4
Yes - Getting support and assistance from the NGIA or other geospatial/mapping agency?	
YES	7
NO/NR	5
No - Organization undertaking this role:	
- NSO GIS Unit	3
- Military Geographic Affairs Directorate	1

Figure 4: Responses to Question 2.b.

c. What geospatial capability and capacity does your NSO have?

i. Do you have a specific geography or geospatial unit?

Response	Number of countries
YES	15
NO/NR	1

ii. Does this group produce only maps or does it undertake other geospatial activities to support the NSO?

Response	Number of countries
Maps only	2
Maps and other geospatial activities	14

iii. Does this group support organizations and activities outside the NSO?

Response	Number of countries
YES	14
NO	2
Yes - Namely: - Governmental Departments/Organizations - Governmental Departments/Organizations, Researchers/Academia - Regional and international Organizations - Private Sector	12 9 5 3
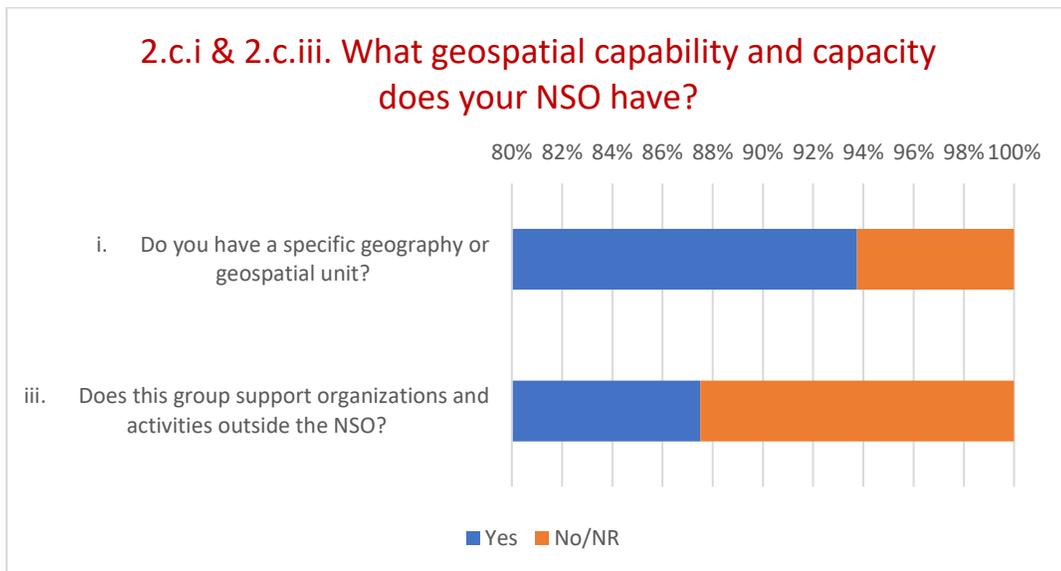
Figure 5: Responses to Questions 2.c.i and 2.c.iii
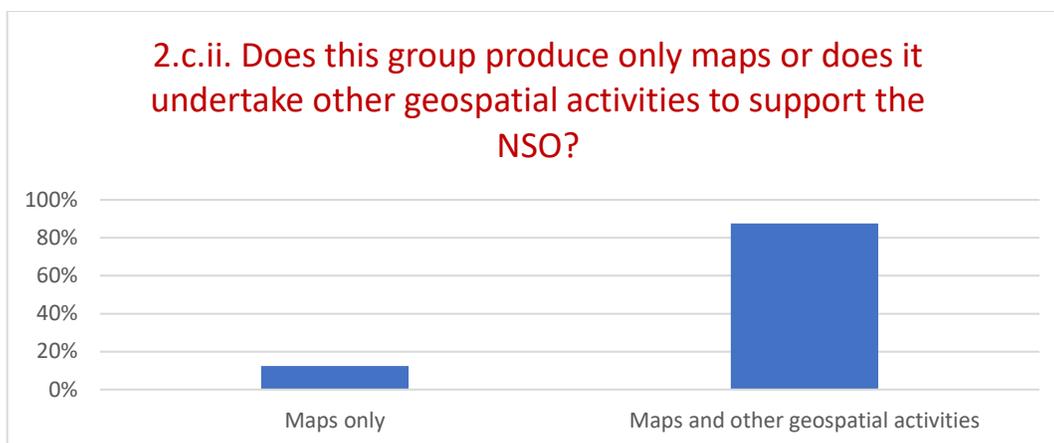
Figure 6: Responses to Question 2.c.ii.

d.   Could you describe the geospatial framework that you use in the Organization's activities?

Response	Number of countries
YES – Basic layers: 1. Administrative boundaries/Hydrography/Roads Blocks/Establishments/Land Parcels	9
2. Administrative boundaries/Hydrography/Roads Buildings/Establishments/Urban areas/Slums/Rural Settlements	2
3. Administrative boundaries/Settlements/Urban and populated areas/Roads Blocks/Buildings/Land Parcels Landmarks/Industrial Establishments/Farms/	1
- WGS84/Imagery	3
- National Statistical Spatial Framework (NSSF)/Global Statistical Geospatial Framework (GSGF)	2
NO – Geospatial Framework	1

1.   Do you use different levels (scales) of geographies?

Response	Number of countries
YES	10
NO/NR	6
Yes – How does each level relate to each other: - Use of scales 1/500, 1/1500, 1/2000, 1/5000, related by generalization, through Datum WGS84/Projection UTM/Others - Nested Administrative Hierarchy/Geocoding - Geospatial Database	3 8 4

e. Do you have geospatial attributes linked to the statistical information (unit level records and statistical outputs) in your organization's data management systems?

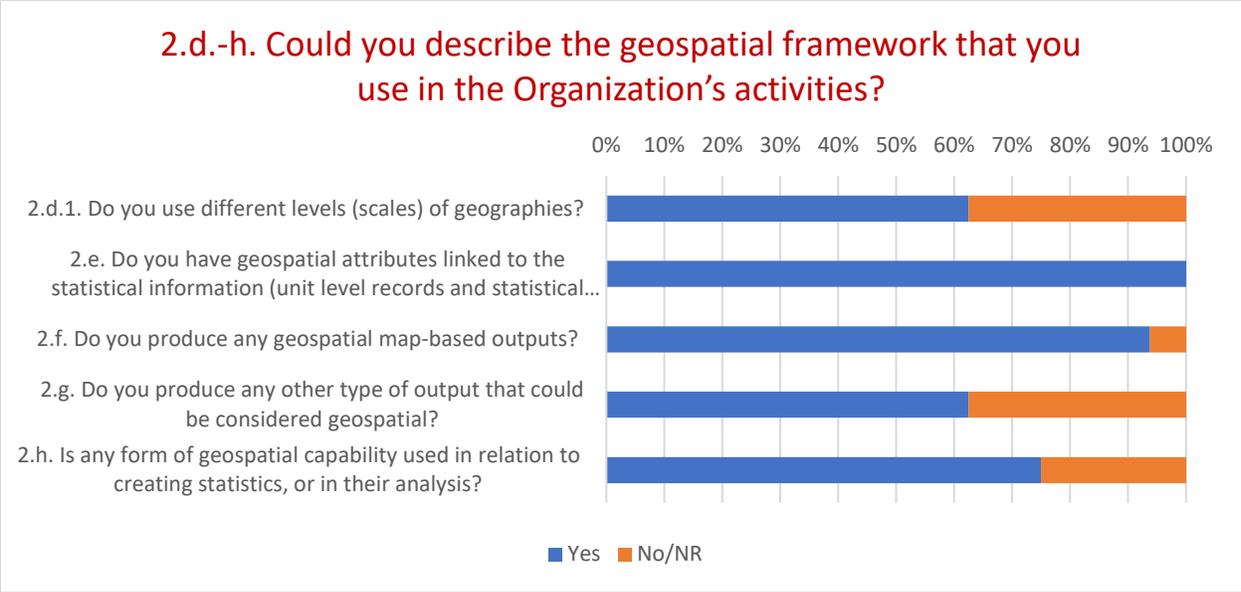| Response	Number of countries
YES	16
NO	0
Yes – Types of geospatial attributes attached to the unit record and statistical aggregation are:	
- Geographic attributes + Demographic/statistical data	7
- Level of administrative unit, geocoded buildings, floor, record units codes, etc.	5
- Geographic attributes (distance, length and coordinates of the unit)	2
Yes - Approaches (and systems) used to geo-code your unit level data:	
- Enumeration area geocoding	11
- Enumeration area geocoding + point-based	3
Yes - Do you apply any specific geographic administrative boundaries to your statistical information – such as suburb, local government or other boundaries?	
Yes	16
No	0
Yes - Do these geographic boundaries ever change and if they do, do you track these changes over time?	
Yes	14
No	1

f. Do you produce any geospatial map-based outputs?

2.

Response	Number of countries
YES	15
NO/NR	1
Yes – Geospatial map-based outputs:	
- Maps of Administrative units	12
- Thematic/Sectoral Maps	10
- Statistical Publications with maps	6
- Mapping Main statistical indicators	2
- Atlas (paper)	7
- Electronic Atlas/Interactive maps	5
- Apps	1
Geoportals/Web Mapping	5

a. Do you produce any other type of output that could be considered geospatial?

Response	Number of countries
YES	10
NO/NR	6
Yes – Other types of output:	
- Gazetteers/Brochures	3
- Administrative units guidelines	2
- Agricultural statistical maps/products	1
- Residential buildings damaged by disasters	
- Urban/Land Development areas	1
- Census Geography layers	
- Statistical studies with spatial analysis	1
- Mapping services	1
	4
	3

b. Is any form of geospatial capability used in relation to creating statistics, or in their analysis?

Response	Number of countries
YES	12
NO	4
Yes – Other geospatial capabilities:	
- GIS-based Statistical (Spatial) Analysis	11
- GIS-based Poverty maps	
- GIS-based Health maps	5
- Other Atlases/Indicators	2
	5

2.d.-h. Could you describe the geospatial framework that you use in the Organization's activities?

Figure 7: Responses to Questions 2.d.1, 2.e, 2.f and 2.g.

B. Technological Tools

- What technological tools has the national statistics office/census office used for the dissemination of census results? (Check all that is applicable):

Response	Number of countries
CD-ROM/DVD	15
Static web pages (html, PDF, excel)	15
Census Atlas (Static)/Thematic Maps	13
Interactive Census Atlas	6
Query-able database(s)	7
Online database(s)	8
Dynamic web pages	8
GIS web-based mapping tools	6
Cloud Computing	2
IHSN[1] Toolkit	2
Interactive Map Systems	1

---

[1] IHSN: International Household Survey Network

3. What technological tools has the national statistics office/census office used for the dissemination of census results? (Number of countries)

Legend:
- CD-ROM/DVD
- Static web pages (html, PDF, excel)
- Census Atlas (Static)/Thematic Maps
- Interactive Census Atlas
- Query-able database(s)
- Online database(s)
- Dynamic web pages
- GIS web-based mapping tools
- Cloud Computing
- IHSN[1] Toolkit
- Interactive Map Systems
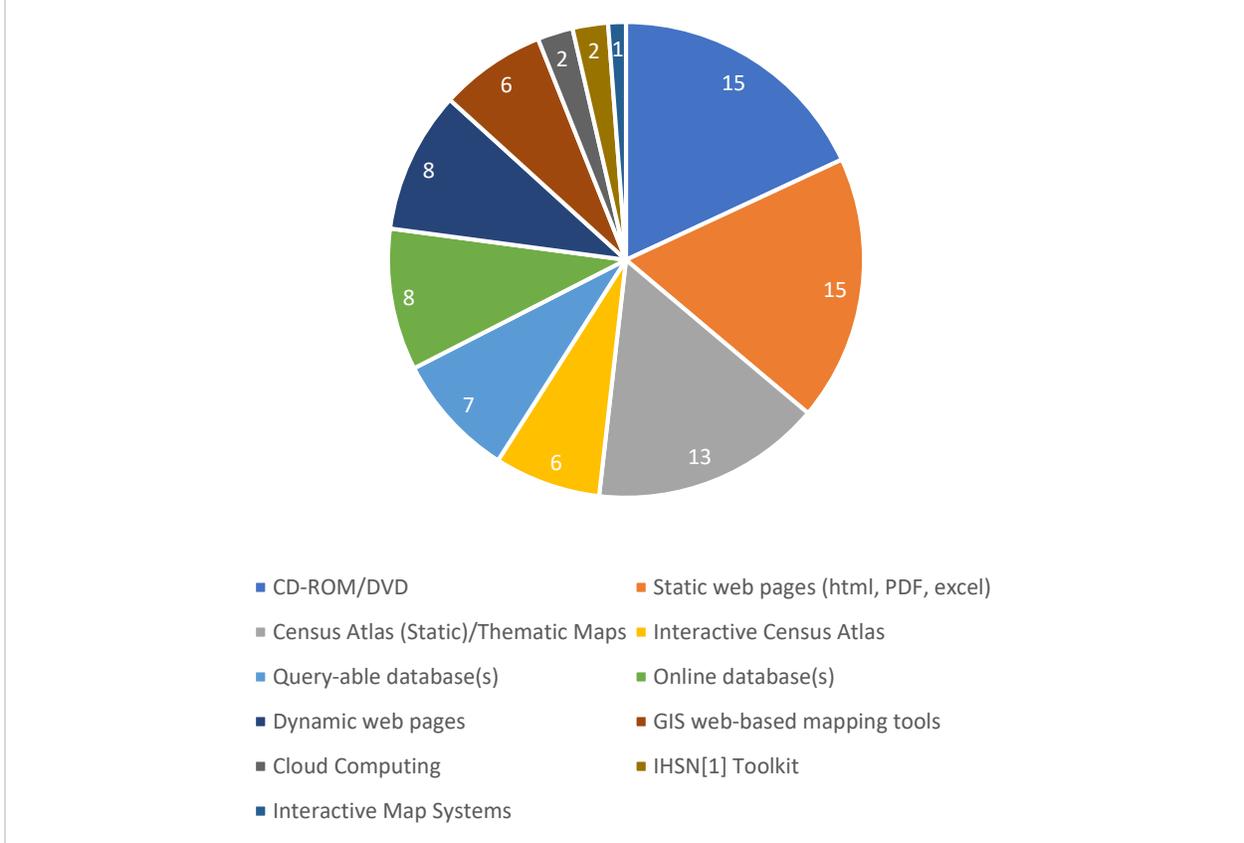
Figure 8: Responses to Question 3.

- Does the national statistics office/census office employ interactive tools for mapping, tabulating, analyzing and presenting data in graphs or other visual formats in the dissemination of census data?

Response	Number of countries
YES	11
NO	5
Yes – Links to the dissemination tools: - Djibouti: www.dised.dj - Egypt: http://geoportal.capmas.gov.eg - Jordan: http://gisweb.dos.gov.jo:3001 - Kuwait: www.gis.csb.gov.kw	

- Morocco: http://rgphencartes.hcp.ma and http://rgphentableaux.hcp.ma - Oman: https://data.gov.om and http://nsdig2gapps.ncsi.gov.om/nsdiportal/ - Palestine: (in progress) - Qatar: http://gis.mdps.gov.qa/GisApps/GSA/GSA.html and https://www.mdps.gov.qa/ar/statistics1/GIS/Pages/atlas.aspx - KSA: https://www.stats.gov.sa/ - Tunisia: www.ins.tn\census - Yemen: cso1yemen@org.com	

- Does the national statistics office/census office employ mobile technology applications and the new social media (Twitter, Facebook, SMS, etc.) in reaching users?

Response	Number of countries
YES	12
NO/NR	4
Yes – Social media tools: - Twitter - Facebook - SMS - YouTube/Dailymotion/Spot Videos - Mobile Apps/WhatsApp - Instagram	6 7 1 5 4 2
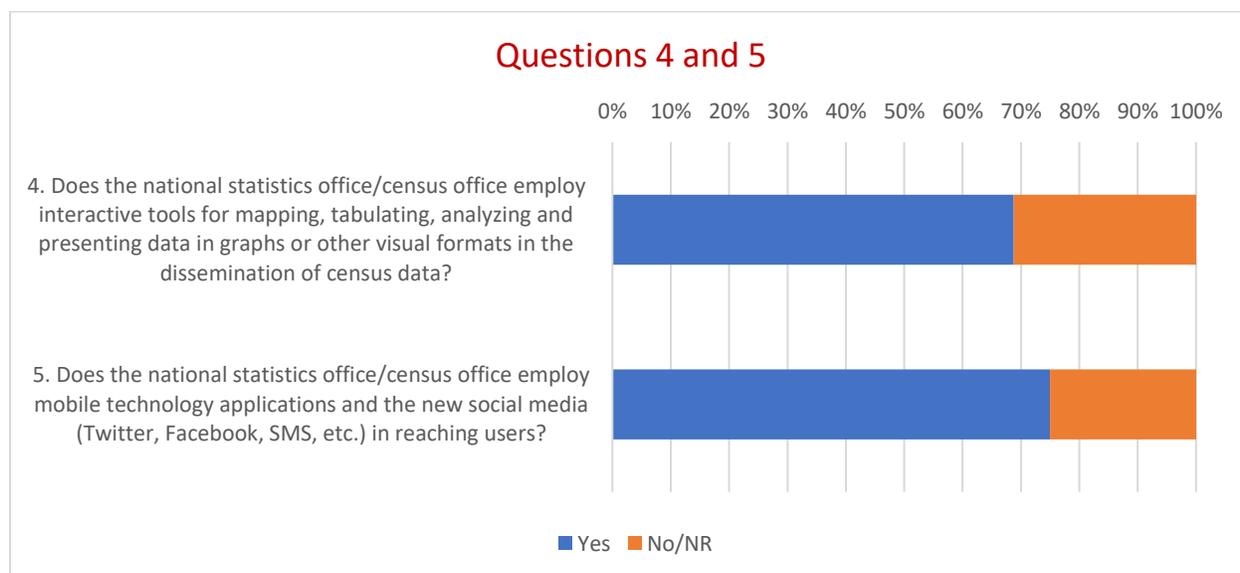
Figure 9: Responses to Questions 4 and 5.

C. Geographic Information System (GIS)

- Does the national statistics office/census office have GIS infrastructure to capture, manage, analyze and disseminate geo-referenced data?

Response	Number of countries
YES	13
NO/NR	3
Yes – types of GIS and Geographic Database: - ArcGIS Platform/ArcGIS Desktop/Arc Map/ArcGIS Server/ArcSDE/ArcPad - QGIS - Enterprise Geodatabase/Geodatabase (EA-level) - Oracle Database/ SDE in Oracle/Oracle Spatial - Access Database - National Geographic Database (multi-sectoral/ Indicators)	11 1 6 5 3 3

- Does the national statistics office/census office have a geographic/cartographic unit (with trained human resources and the requisite IT infrastructure) dedicated for managing the geographic information system?

Response	Number of countries
YES	14
NO/NR (Sudan + Yemen (?))	2

- Indicate the census activities towards which the geographic information system is used (check all that is applicable)

Response	Number of countries
Cartography/census mapping in the initial stages of census operation (pre-enumeration stage)	15
Census data collection (enumeration stage)	14
Analysis and dissemination of geo-referenced census data (post-enumeration stage)	14

(*) Lebanon (No for census data collection), Mauritania (No for 3 stages), and Sudan (No for stage 3).
Not clear about responses from Egypt, Palestine, KSA, Yemen, even accepted as yes.

- Does the national statistics office/census office disseminate geo-referenced data?

Response	Number of countries
YES	15
NO	1

Yes - Smallest geographical level at which geo-referenced data are disseminated:	
- Buildings	1
- Census Block (group of buildings)	1
- Control unit (group of EAs)/Census District	2
- Municipal level	2
- (Smallest/Popular) Administrative units	6
- Towns and Cities	2
- Mouhafadha/Wilaya (Province)	4
-	
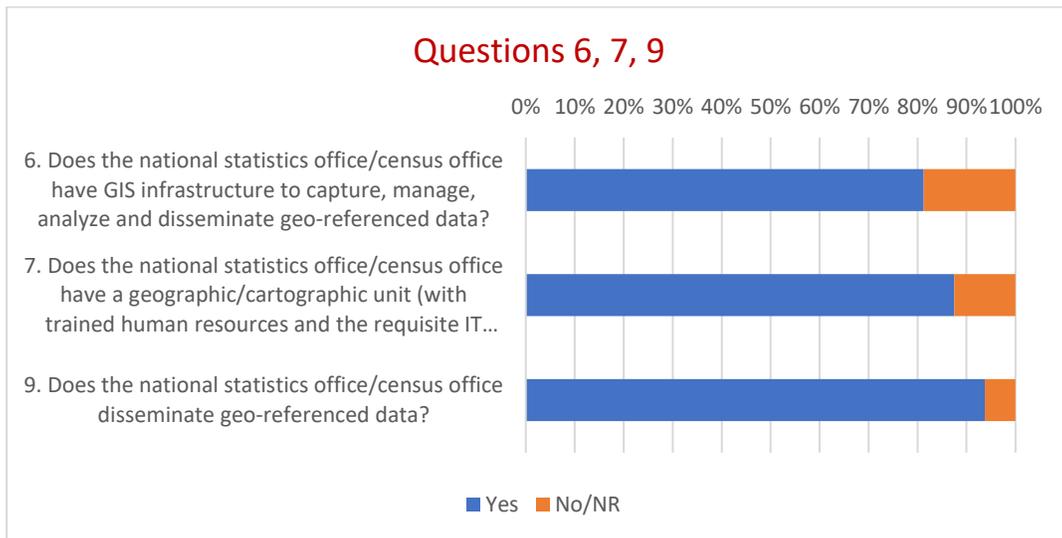
Figure 10: Responses to questions 6, 7 and 9 on the Use of Geospatial Information.
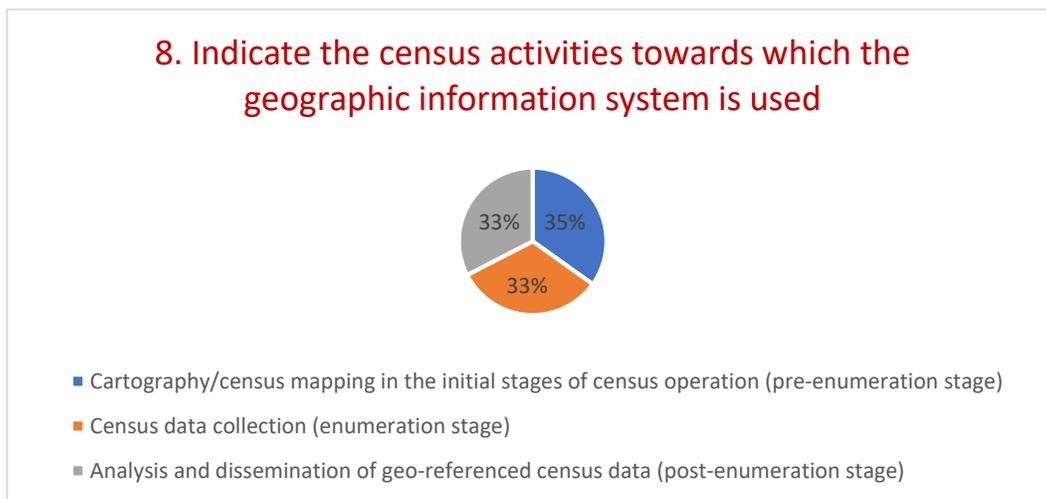
Figure 11: Responses to Question 8 on the use of GIS

D. Dissemination and Archiving Strategy

• Has the national statistics office/census office developed a written plan/strategy for the dissemination of census data?

| Response	Number of countries
YES	12
NO (Iraq, Lebanon, Morocco, Sudan)	4
Yes – Specific Components of the dissemination plan/strategy: - Periodic and continued dissemination of data - Dissemination printouts, census tabulations in pdf through the NSO's website; dissemination of census data through the Geoportal; Atlas; interactive database, etc. - Identification of type of methods of dissemination; fixing the schedule of dissemination for each statement and publication; and dissemination of the data produced by the NSO - Dissemination of data aggregate at the country, provinces, governorates, and population settlements levels; dissemination of disaggregated data at the country, provinces and governorates levels - Convening conference, workshops for the announcement of results; dissemination through traditional and electronic means; through analytical reports; Atlas of poverty; Geographic dissemination; individual data; and aggregate data - Identification of users, partners, and beneficiaries of each census product; and creation of their address database; scheduling the census products based on the dissemination dates; dissemination of the census products through the official NSO's website; dissemination of the census products with the traditional tools; through the social media; conversion of the census data into easy friendly information content for the non-specialists; benefitting from dissemination through raising awareness of definitions, methodologies, objectives, etc.; observing and analyzing reactions/feedback from users and beneficiaries; receiving the users inquiries through official communication means and responding to the inquiries and data demands - Communicating data users before preparing census outputs; Adoption of all channels of dissemination and communication with users: WAP, media, short messages, leaflets, paper publication; Preparing census outputs by user segments - Defining Policy for dissemination of data and information where the data dissemination rules according to it granularity and specification are defined in a matrix; conducting an open data study within NSO to assess and classify indicator data openness.	 1 2 1 1 2 1 1 1

• Did the national statistics office/census office develop a dissemination schedule (a comprehensive list of census outputs with accompanying timetable)?

Response	Number of countries
YES (not sure about Egypt, Jordan)	9
NO/NR (Iraq, Lebanon, Morocco, Qatar, Sudan) /Mauritania, Yemen	7
Yes: - Schedule in a table below (Oman) - An annex to the questionnaire/website (Palestine, KSA, Tunisia)	1 3

• Does your country have a law/regulation for archiving census micro-data?

Response	Number of countries
YES (Egypt, Mauritania, Morocco, Oman, Palestine, Qatar, KSA, Tunisia, UAE, Yemen)	10
NO/NR (Djibouti, Iraq, Kuwait, Lebanon, Sudan, Jordan)	6
Yes: law/regulation - Just internal regulations (Egypt) - Law 69.99 of 30 Nov. 2007 (Morocco)/Law (Oman)/Order (Palestine)/ By law of the State, MDPS is the official source and the sole reference for all statistical data in the Country (Decree Law No.12, 1980) (Qatar)/ Regulation (KSA). - Federal Law No. 6 of 2015 (UAE) - Creation of the National Council for Documentation/Archives (Yemen) Yes - law/regulation is available on the internet/web-link: - http://www.archivesdumaroc.ma/canvas-modules/events/files/096fa234e4f4fe48-b23a4925e61d0c87.pdf - http://www.pcbs.gov.ps/site/lang__ar/539/default.aspx?lang=ar - https://www.mdps.gov.qa/ar/statistics1/Pages/default.aspx - http://www.ins.tn/fr/node/254 - http://ncar.gov.sa/Documents/Details?Id=011ifR%2BWMlmVUnsj8Cs0ow%3D%3D / http://ncar.gov.sa/Documents/Details?Id=OmBshVc%2BRw4xVYnh%2FNOh%2Fg%3D%3D	
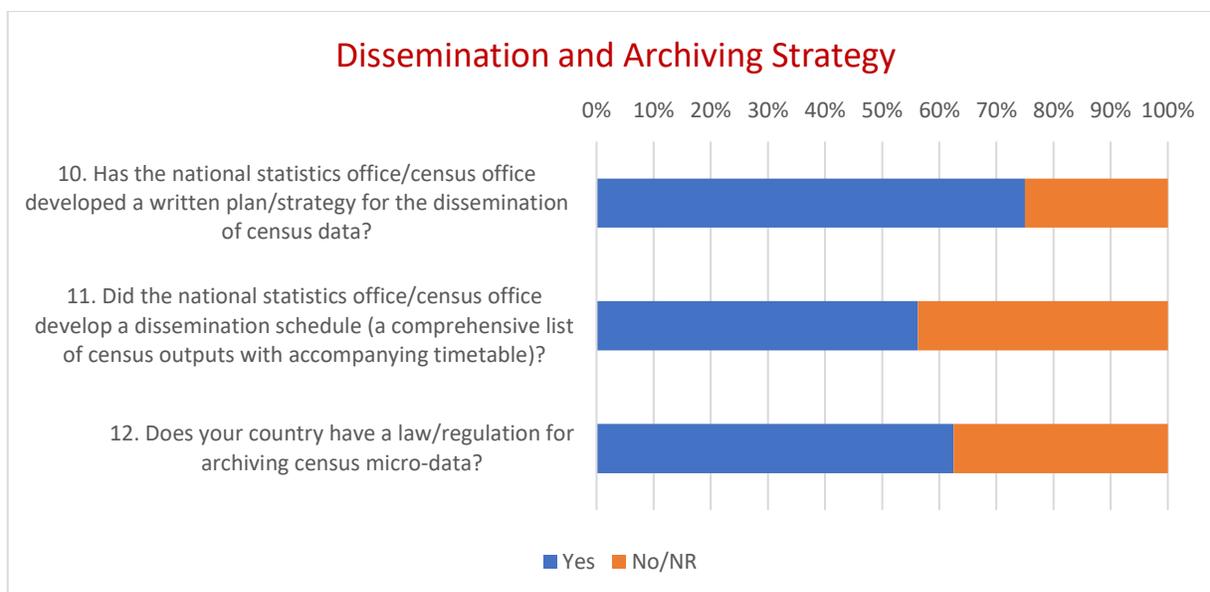
Figure 12: Responses to Questions 10, 11 and 12 about Dissemination and Archiving.

E. Data Confidentiality and Metadata

• Does the statistical law of your country include clause(s) to ensure confidentiality of census micro-data?
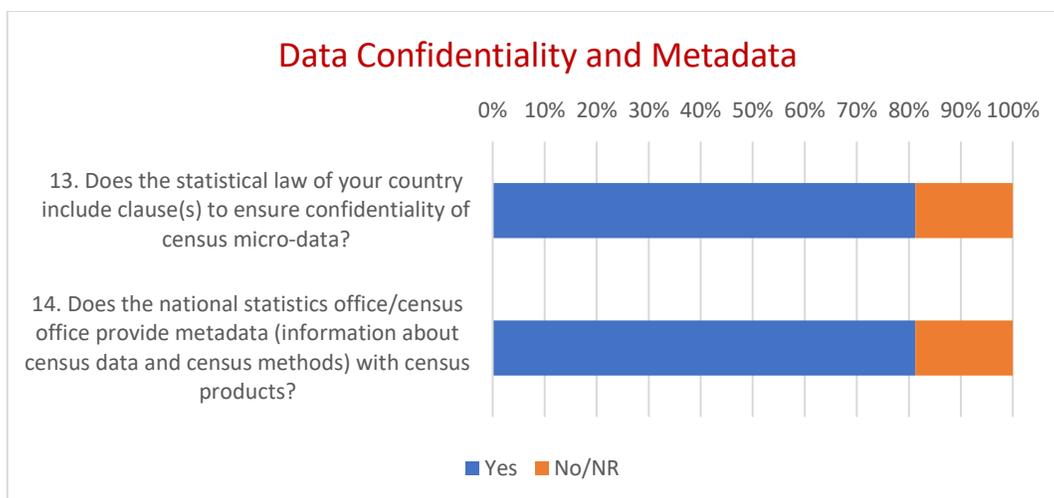
Response	Number of countries
YES	13
NO/NR (Egypt (?), Kuwait, Sudan)	3

Yes - Description of the clauses:
 - Law 21 of 1972 on Privacy/Confidentiality (Iraq)
   - http://dosweb.dos.gov.jo/ar/laws-and-instructions
                  (Jordan)
- Law 1793 of 22/2/1979 (Lebanon)
- Law 001.71 of 16/6/1971 (Morocco)
- Article 8 of the Statistics Law (Oman)
- Law of General Statistics no. 4 of 2000 (Palestine)
(http://www.pcbs.gov.ps/site/lang__ar/539/default.aspx?lang=ar)
- Laws and principles that apply to the access and use of the statistical as well as geospatial data under its custody (Qatar)
- Article 11 of the Law of General Statistics (KSA)
- Tunisia: http://www.ins.tn/sites/default/files/Loi%2063-2004%20Fr.pdf
- A mechanism for the disclosure/dissemination of population data was developed (UAE)
- Article 5 of the 1997 Statistics Law (Yemen)	

17

Yes - Procedures for anonymization of census micro-data:	1
- Personal information extracted from the database for the academic research	2
- No dissemination/communication of the individual data such as names to any parties	2
- Adoption of International Recommendations	1
- Use of techniques of data encryption and anonymization	1
- Omission of the fields related to the names, identities, and addresses of individuals from individual databases and aggregation to the smallest geographic level	
- Publish the aggregated data/Remove any direct and indirect identifier in dissemination	2
- Providing users with a sample of the previous census/Data anonymization (http://nada.ins.tn/index.php/catalog)	1
-	
-	

• Does the national statistics office/census office provide metadata (information about census data and census methods) with census products?

Response	Number of countries
YES	13
NO/NR (Kuwait, Lebanon, Yemen (?))	3
Yes - Kinds of metadata:	
- Data source (census methodology)	11
- Variables and definitions	11
- Structure and formatting of the dataset	6
- Coding instructions and classifications	9
- Data processing procedures	9
- Evaluation of data quality	7
- Confidentiality and anonymization[2] procedures	8
- Sampling methodology and weighting	9
- Other-Important considerations	1
	(Egypt/KSA responses not legible)

---

[2] Anonymization of data refers to the procedures of removing and modifying all individual identifiers (such as the name of the person, address and so forth) from digitized census micro-data.

Figure 12: Responses to Questions 13 and 14 about Data Confidentiality and Metadata.

F. Challenges

• What are the main challenges faced by the national statistics office/census office in the dissemination of census data?

Response	Number of countries
Lack of funding, including for data collection and dissemination/software for geographic information dissemination	6
Data Dissemination/Internet-based Data Security technical issues	3
Dissemination of individual data, increasingly in demand by governmental organizations, researchers/students, international organizations, and private sector	1
Lack of public awareness about census	2
Lack of available/trained staff on the use of new technologies	5
Data on expatriates/people with disabilities/level of education	1
Data on buildings/record units and the changes that occurred on them	1
Dissemination of small area statistics and statistical geospatial integration at unit address level to integrate other sources of information.	2
Limitations of regularly updated statistics for dissemination/Data Gaps.	2
Integrity and standardization among data sources	2
Identification of all census products/ understanding and producing all census indicators	1
Quality data processes	2
Data Openness policies	1
Low level of coordination among national organizations related to census/Collaboration of all stakeholders	3

19

G. National Experience - Case of Oman

Based on the responses to the questionnaire, we find out that Oman experience meets almost all the criteria required for having a geospatial infrastructure and the use of innovative technologies in support of census and statistical activities. It is indeed selected as a formative experience other countries in the region may want to emulate. This good practice is characterized by the following features:

- Oman does have a national geospatial information infrastructure, guided by data policies, a legal framework, and standards, facilitating the use and sharing of geospatial data, with respect of its ownership by the various governmental providers. Their National Statistical Office has a statistical geospatial information capability, and provides an institutional coordination role with other national organizations, which have also geospatial information capabilities and responsibilities.

- Oman has adopted a range of technological tools for data dissemination that includes Interactive Census Atlas, Online database(s), Dynamic web pages, GIS web-based mapping tools, Cloud Computing, and Social media.

- Oman National Statistical Office has developed a Geographic Information System (GIS) based on a national geographic database, encompassing 56 datasets related to 30 sectoral themes (11 fundamental and 19 supporting data themes).

- Oman National Statistical Office has formulated a written strategy for the dissemination and archiving of census data, with specific components of the data and its related geographic area for which it will be disseminated, and a comprehensive list of census outputs with well-defined timeline.

- Oman does have a statistical law that includes clauses ensuring confidentiality of census micro-data, as well as procedures for anonymization of census micro-data.

- Oman National Statistical Office provides metadata with census products, and the various metadata cover Data source, Variables and definitions, Structure and formatting of the dataset, Coding instructions and classifications, Data processing procedures, Evaluation of data quality, Confidentiality and anonymization3 procedures, and Sampling methodology and weighting.

- On a regional level, the NSO of Oman is active in the area of data integration, chairing the UN-GGIM:Arab States Working Group on the integration of geospatial and statistical information4.

---

[3] Anonymization of data refers to the procedures of removing and modifying all individual identifiers (such as the name of the person, address and so forth) from digitized census micro-data.

[4] See UN-GGIM:Arab States website: http://www.un-ggim-as.org/