Working with Census Operations

Case Study from KSA

International Workshop on Integrating Geospatial and Statistical Information

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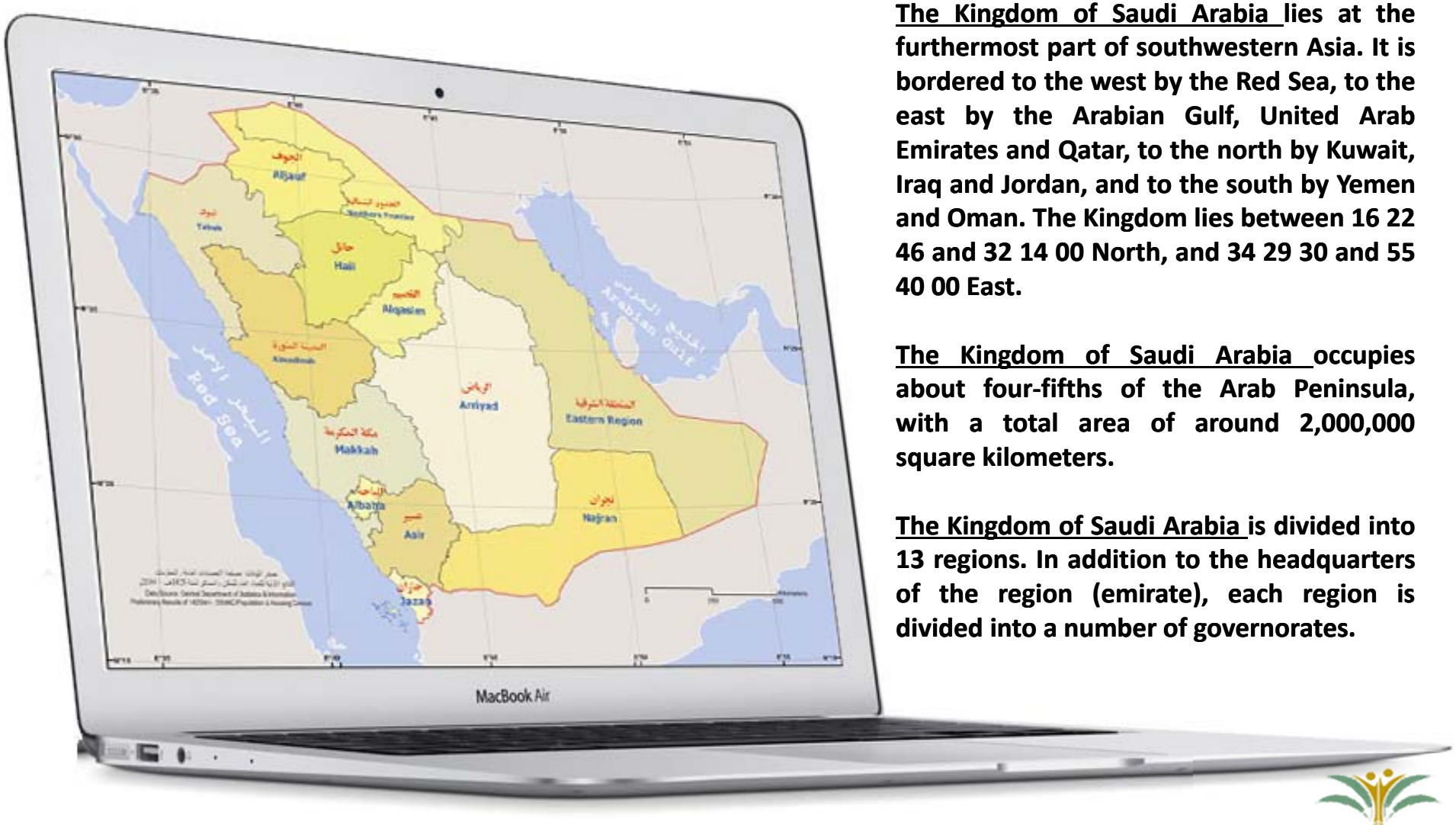
Kingdom of Saudi Arabia



The Kingdom of Saudi Arabia lies at the furthermost part of southwestern Asia. It is bordered to the west by the Red Sea, to the east by the Arabian Gulf, United Arab Emirates and Qatar, to the north by Kuwait, Iraq and Jordan, and to the south by Yemen and Oman. The Kingdom lies between 16 22 46 and 32 14 00 North, and 34 29 30 and 55 40 00 East.

The Kingdom of Saudi Arabia occupies about four-fifths of the Arab Peninsula, with a total area of around 2,000,000 square kilometers.

The Kingdom of Saudi Arabia is divided into 13 regions. In addition to the headquarters of the region (emirate), each region is divided into a number of governorates.

Central Department of Statistics & Information

Sector of statistics and information in the Kingdom of Saudi Arabia consists of the Central Department of Statistics and Information (Central Agency for Statistics) and multi Suit of statistical centers and units formed within the administrative structures of government agencies and some private sector institutions under a technical supervision done by the Central Department of Statistics and Information (CDSI).

CDSI draws out its statistical information from two main sources representing the core of national statistics system, namely:

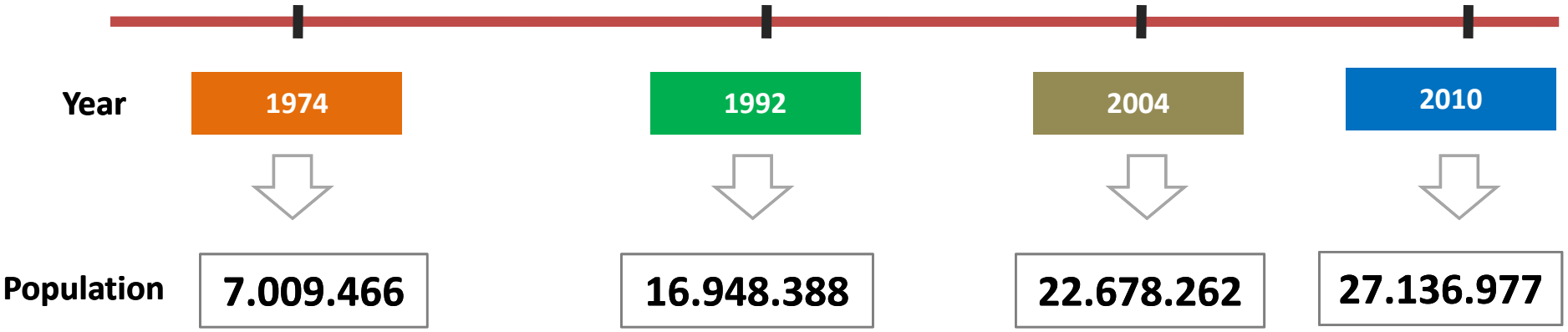
1. General statistics of censuses, field surveys, research and statistical studies conducted by the CDSI.

2. Administrative records (administrative data) derived from the records, bulletins and statistical reports issued by the statistical units and information centers in government agencies and institutions in its capacity as responsible for providing the service concerned.

CDSI Objective

Improving , enhancing and facilitating the **Process** of **Census Operation** to deliver not only data but also **Knowledge**

Census Operation Timeline in KSA



Understanding Census Operation

WHAT

Population Census is defined as the entire operation of collecting demographic, economic and social data with reference to population in a specific period of time. It includes the counting of every individual alive inside the borders of a specific country at a particular point in time. It also means the registration of the individual's social and economic characteristics at that point in time. These characteristics are recorded for every member of the family.

WHY

1 - Provide the state, planners and researchers with the basic data on population and housing necessary for development planning.

2 - Set up an up-to-date frame for all specialized statistical research being undertaken in accordance with the sample method such as research related to: labor force, consumption expenditures, fertility, mortality, migration and environment, housing features, etc.

3 - Set up a wide database to help in undertaking various demographic studies required for social and economic planning.

4 - Periodically make available data and indices required to measure the change in demographic profile, make comparisons and make future projections.

WHERE

All persons inside the Saudi borders (whether Saudis or non Saudis) are covered by the census operation whether those persons are staying permanently or temporarily in the Kingdom.

The census includes the following categories as well:

1- Saudi diplomats living abroad. The counting of those diplomats is undertaken in coordination with the Ministry of Foreign Affairs.

2 - Other Saudis living abroad for various reasons (such as business, tourism, medical treatments, etc.)

The Roles of CDSI-Mapping Unit in Census Operation

- Production and preparing maps for census operation and statistical tasks in KSA
- Build CDSI spatial database repository (multi–layer)
- Build the base-map for census operation to be available in and out CDSI
- Building capacity of field surveyors and researchers
- Analyze and normalize data for better understanding of the census results
- Disseminate the census results (Geo-Distribution) for experts and public (Atlases – Portal – Reports)

Preparing the Census Operation
Pre-Phase

Using Maps in Census Operation

Post -Census

- **Updating Process**
- **Working with Results**
  - CDSI Web Mapping Portal
  - Census Atlas Preliminary Results
  - Census Atlas Detailed Results

Pre-Census

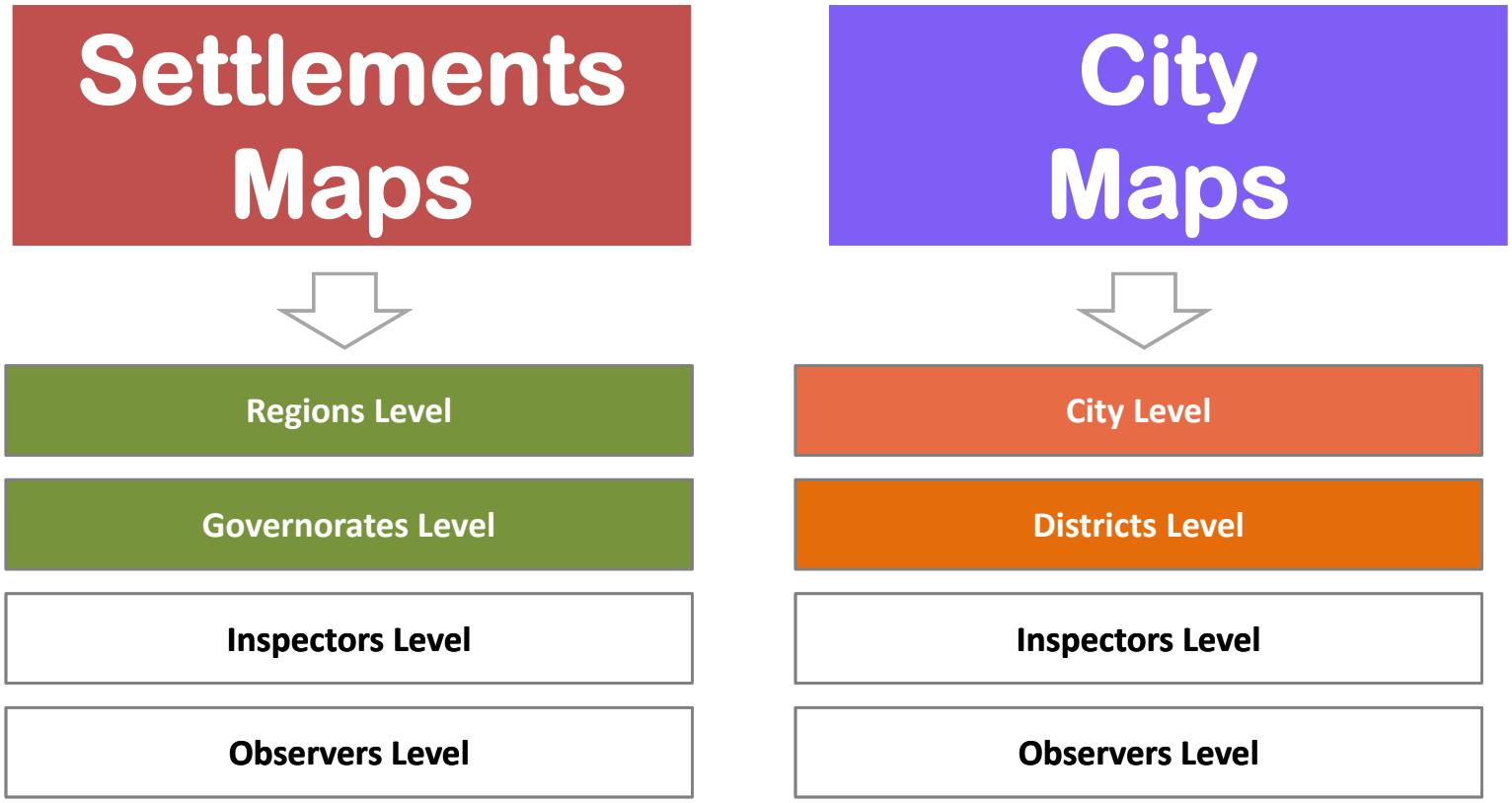
- **Production of Maps for Census Operation**
  - Field Maps
  - City Numbering Maps
  - Settlements Numbering Maps
  - Supervisors Maps +327
  - Detailed Maps (City Level) +430
  - Regions Maps +13
  - Inspectors Maps +1390
  - Detailed Maps (District Level) +6500
  - Governorates Maps +118
  - Observers Maps +7300
- **Spatial Data Collection and Manipulation**
  - Collecting Updated Maps from local Authorities
  - GPS Data
  - Build CDSI Spatial Database Repository

More Than

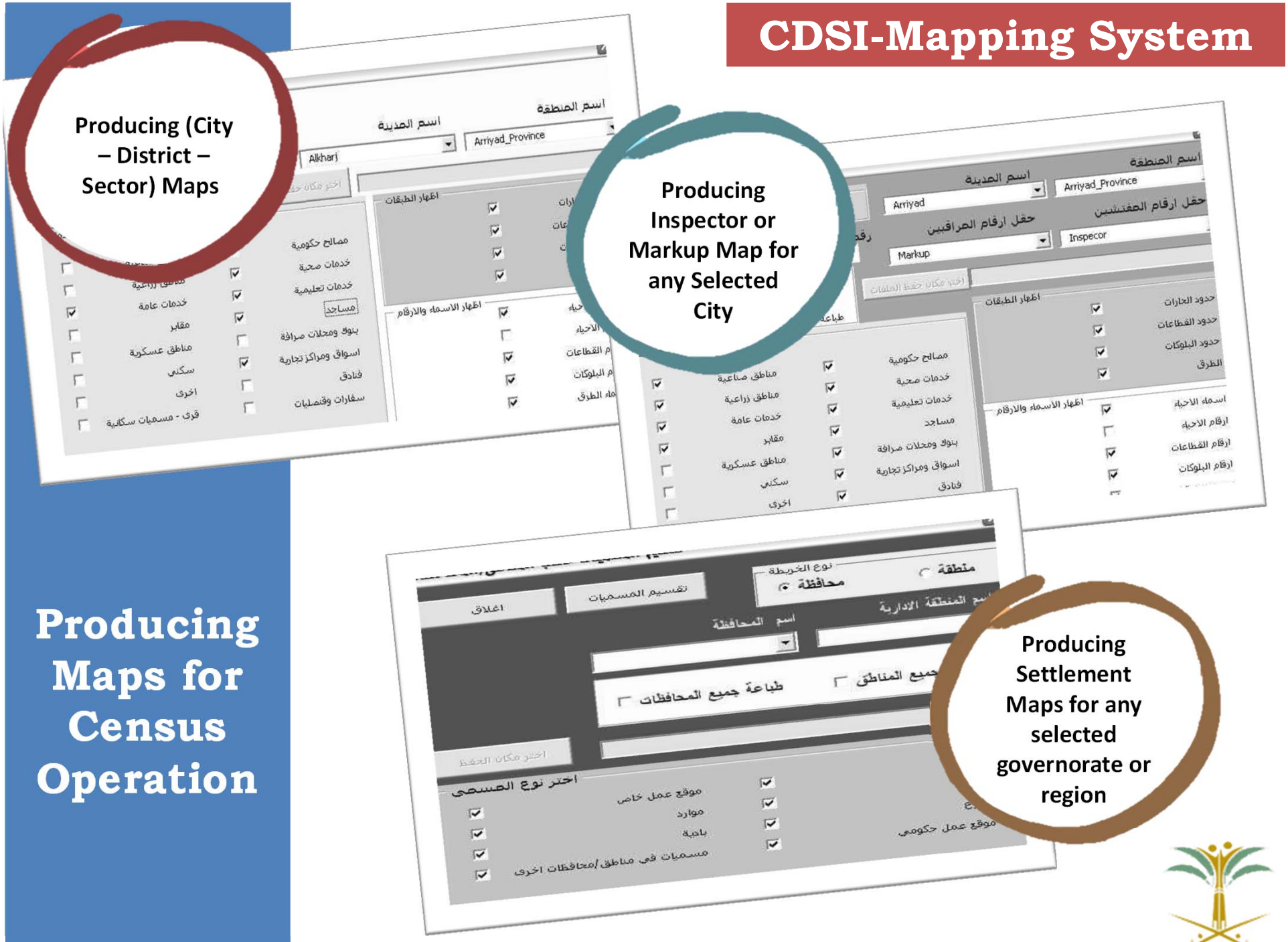
16000

Pre-Census Field Work Maps

Types of Maps in Census Operation



CDSI-Mapping System



Producing Maps for Census Operation

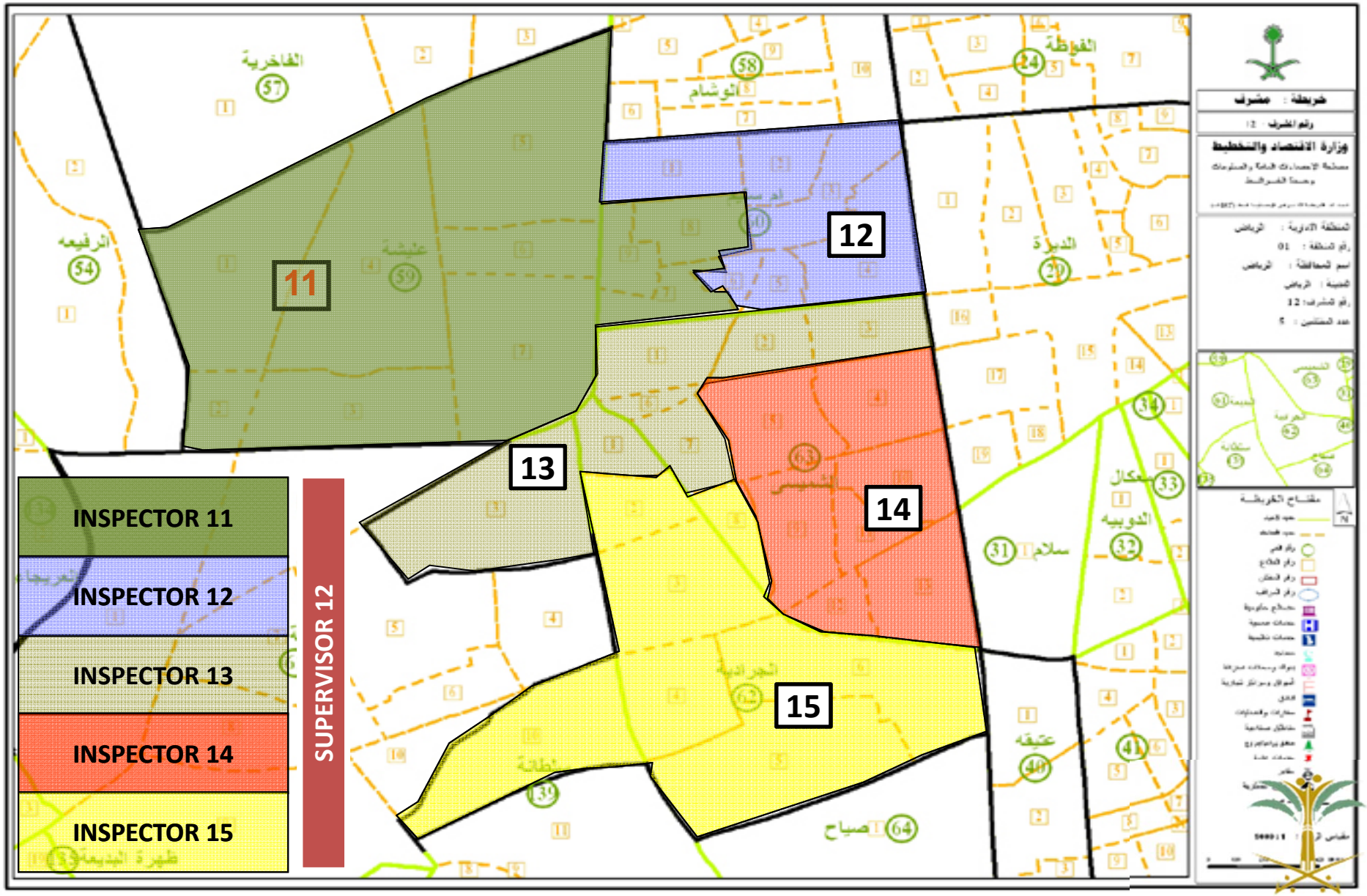
District Map

City Maps

Production of Cities Maps

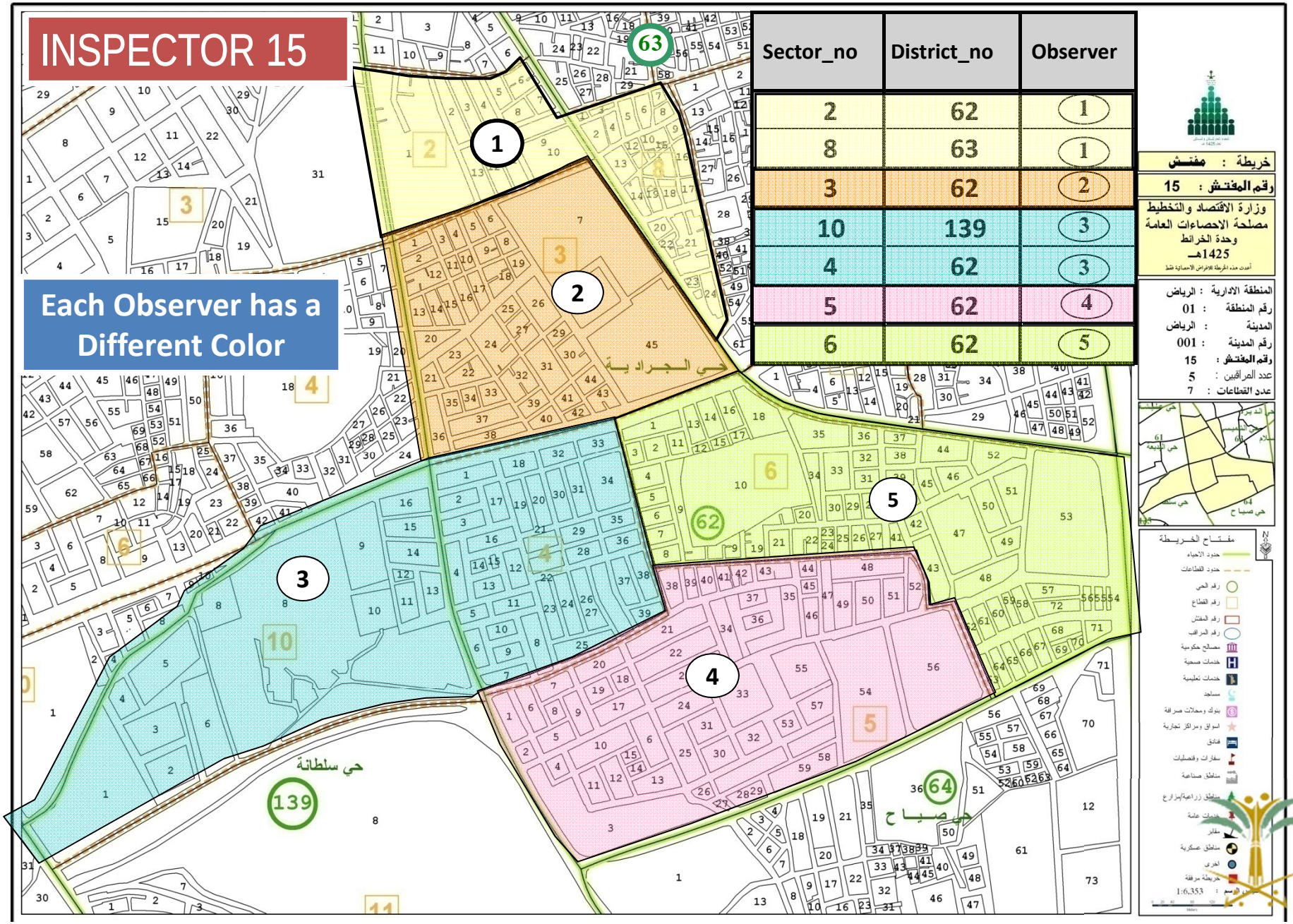
Supervisor Map

City Maps



Inspector Map

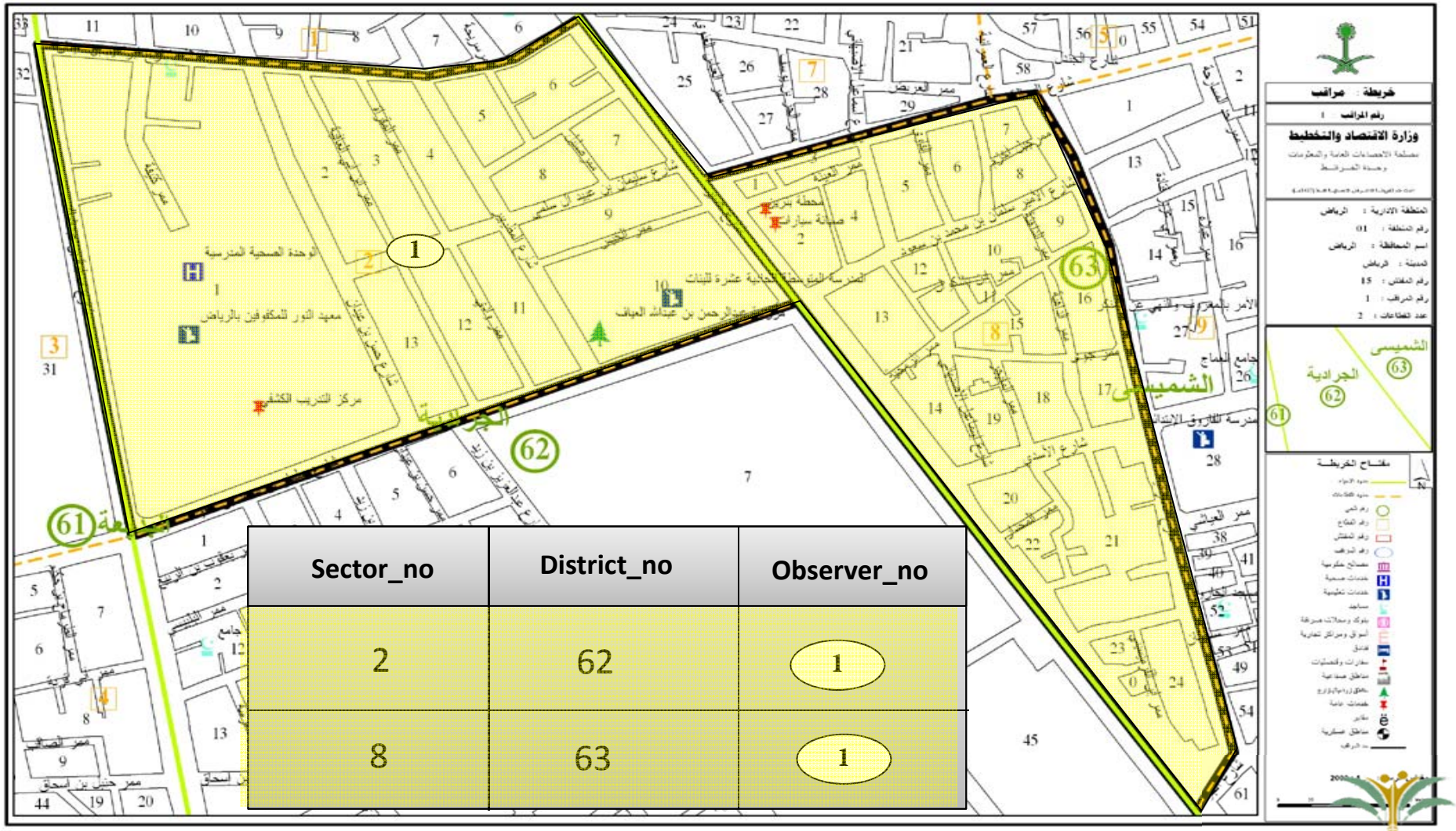
City Maps



Sector_no	District_no	Observer
2	62	1
8	63	1
3	62	2
10	139	3
4	62	3
5	62	4
6	62	5

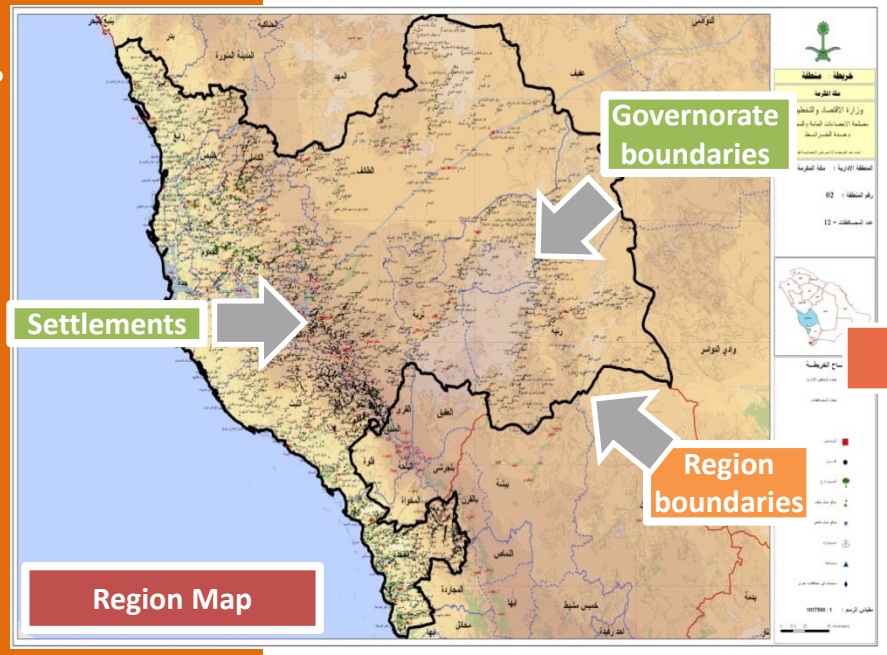
Observer Map

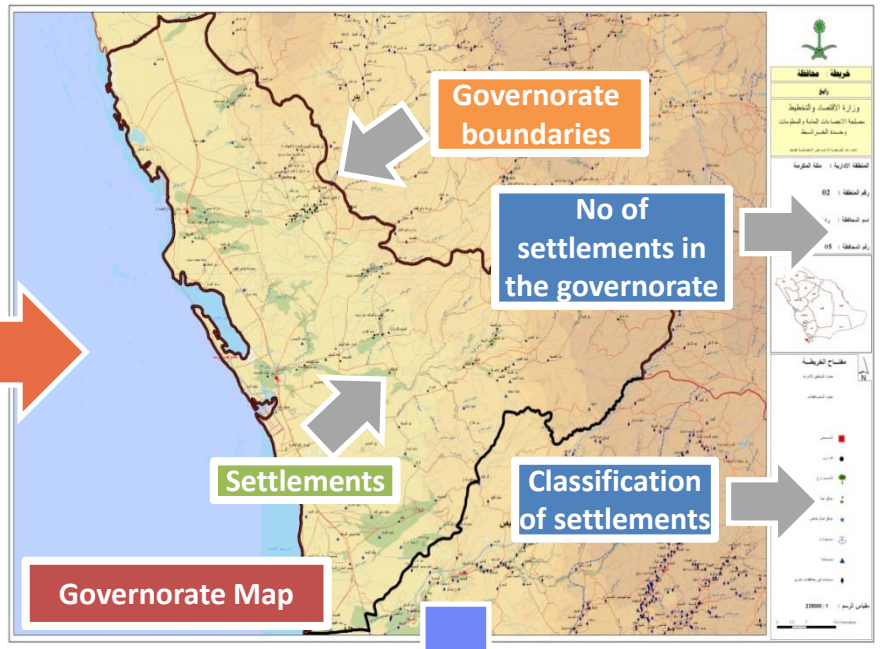
City Maps

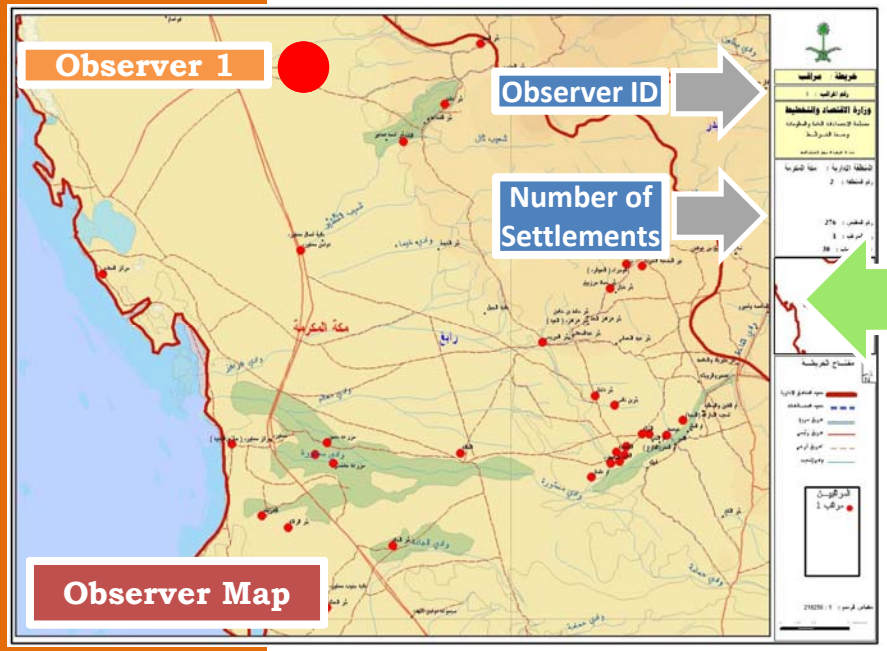


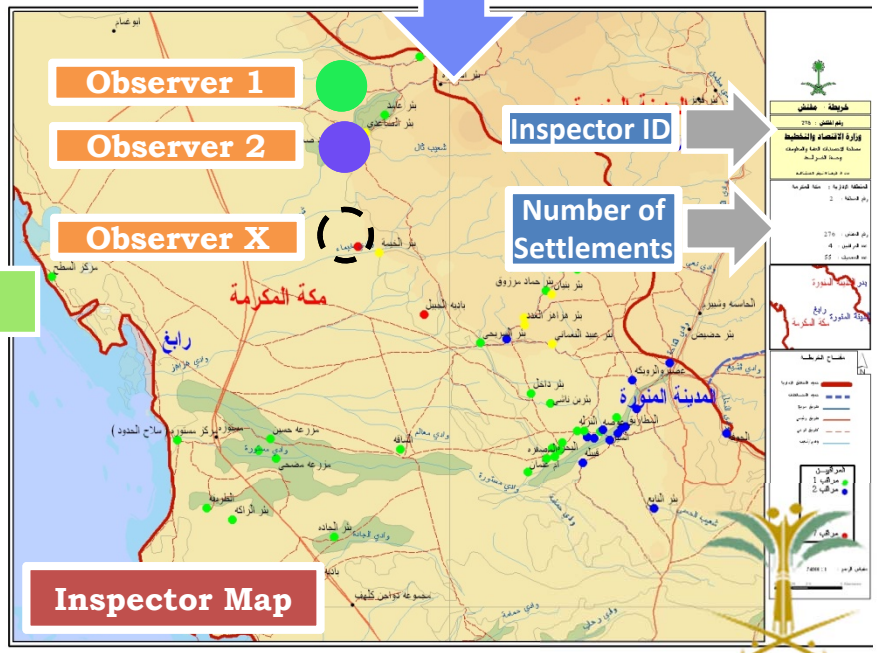
Sector_no	District_no	Observer_no
2	62	1
8	63	1

Production of Settlements Maps



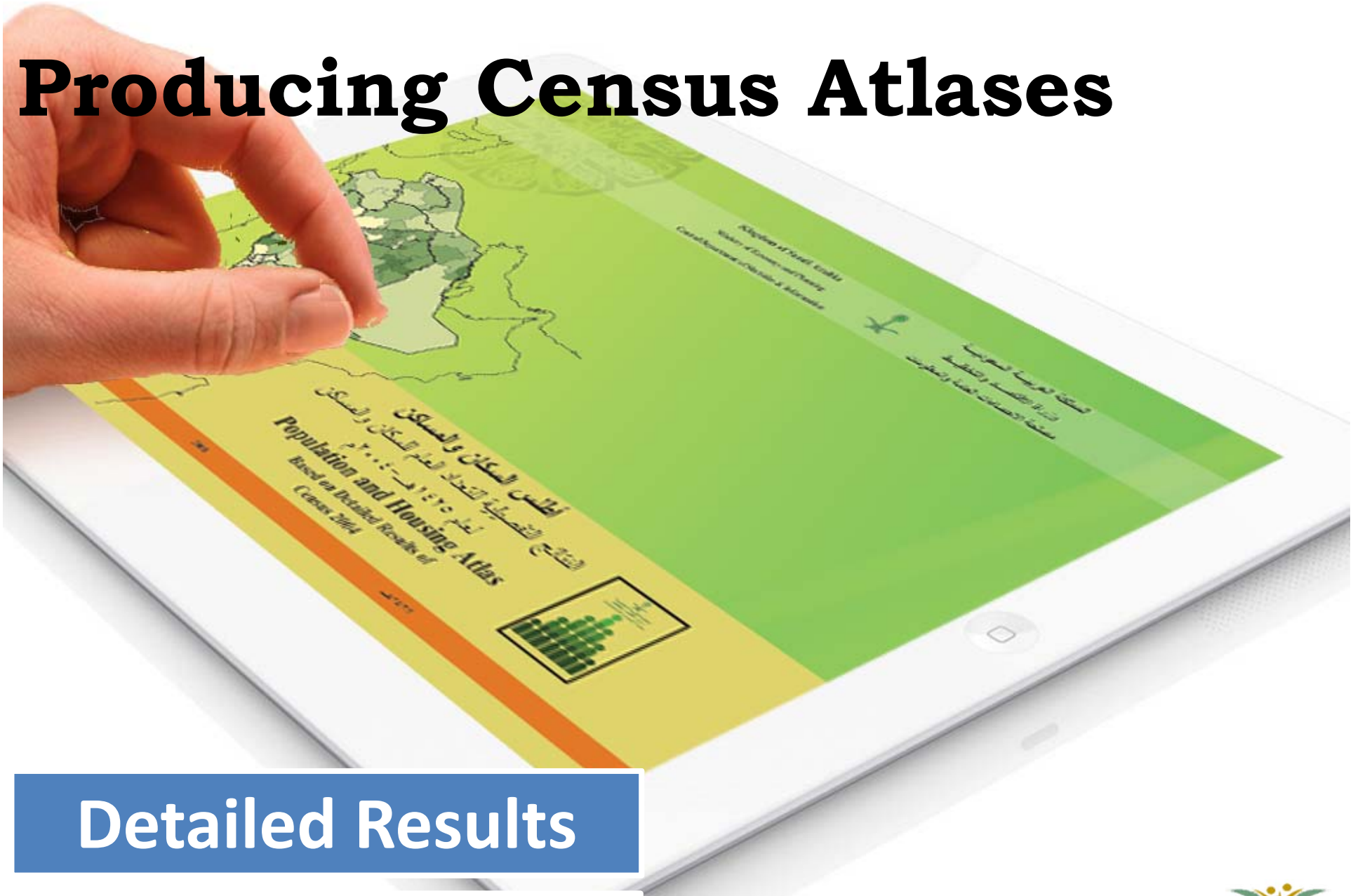






Working with Results Post-Phase

Producing Census Atlases



Detailed Results

Preliminary Results

Census Atlas - Preliminary Results (Level 1)

Housing Distribution	Population distributions	Administrative divisions
Houses distribution by Regions	Population distribution by Regions	KSA Regions
Houses distribution by cities	Population distribution by cities	KSA Governorates
Houses distribution by Governorates	Population distribution by Governorates	
Houses Distribution by governorates of each region	Population Distribution by governorates of each region	

KSA Administrative Boundaries

الموقع العام
General Location

Location:

The Kingdom of Saudi Arabia lies at the furthermost part of southwestern Asia. It is bordered in the north by Kuwait, Iraq and Jordan, in the east by the Arabian Gulf, United Arab Emirates and Qatar, in the south by Yemen and Oman, and in the west by the Red Sea.

الموقع:

تقع المملكة العربية السعودية في أقصى الجنوب الغربي من قارة آسيا حيث يحدها شمالا كل من الكويت والعراق والأردن وشرقا الخليج العربي والإمارات العربية المتحدة وقطر وجنوبا اليمن وسلطنة عمان وغربا البحر الأحمر.

Kingdom of Saudi Arabia Map — خريطة المملكة العربية السعودية

The Kingdom General Location — الموقع العام للمملكة

Kingdom Administrative Division — التقسيم الاداري للمملكة

Administrative Division

The Kingdom of Saudi Arabia is divided into 13 regions (emirates). In addition to the headquarters of the region (emirate), each region is divided into a number of governorates. The following table shows the regions (emirates) of the kingdom.

التقسيم الاداري

تنقسم المملكة العربية السعودية الى 13 منطقة ادارية (امارات) وتنقسم المنطقة الادارية الى مركز الامارة وعدد من المحافظات. ويوضح الجدول التالي التقسيم الاداري للمملكة:

المنطقة الادارية Region	عدد المحافظات No. of Gov.
الرياض Arriyad	19
مكة المكرمة Makkah Almukarramah	11
المدينة المنورة Almadinah Almunawwarah	6
القصيم Alqasim	10
المنطقة الشرقية Eastern Region	10
عسير Asir	11
تبوك Tabuk	5
حائل Hail	3
الحدود الشمالية Northern Frontier	2
جازان Jazan	13
نجران Najran	7
الباحة Albaha	6
الجوف Aljauf	2

Administrative Boundaries– Governorates Level

الموقع العام General Location

Location:

The Region of Makkah Almukarramah is located in the western part of the Kingdom. It is bordered in the north by the region of Almadinah Almunawarah, in the east by a part of Arriyad region, in the south by the regions of Asir and Albaha , and in the west by the Red Sea.

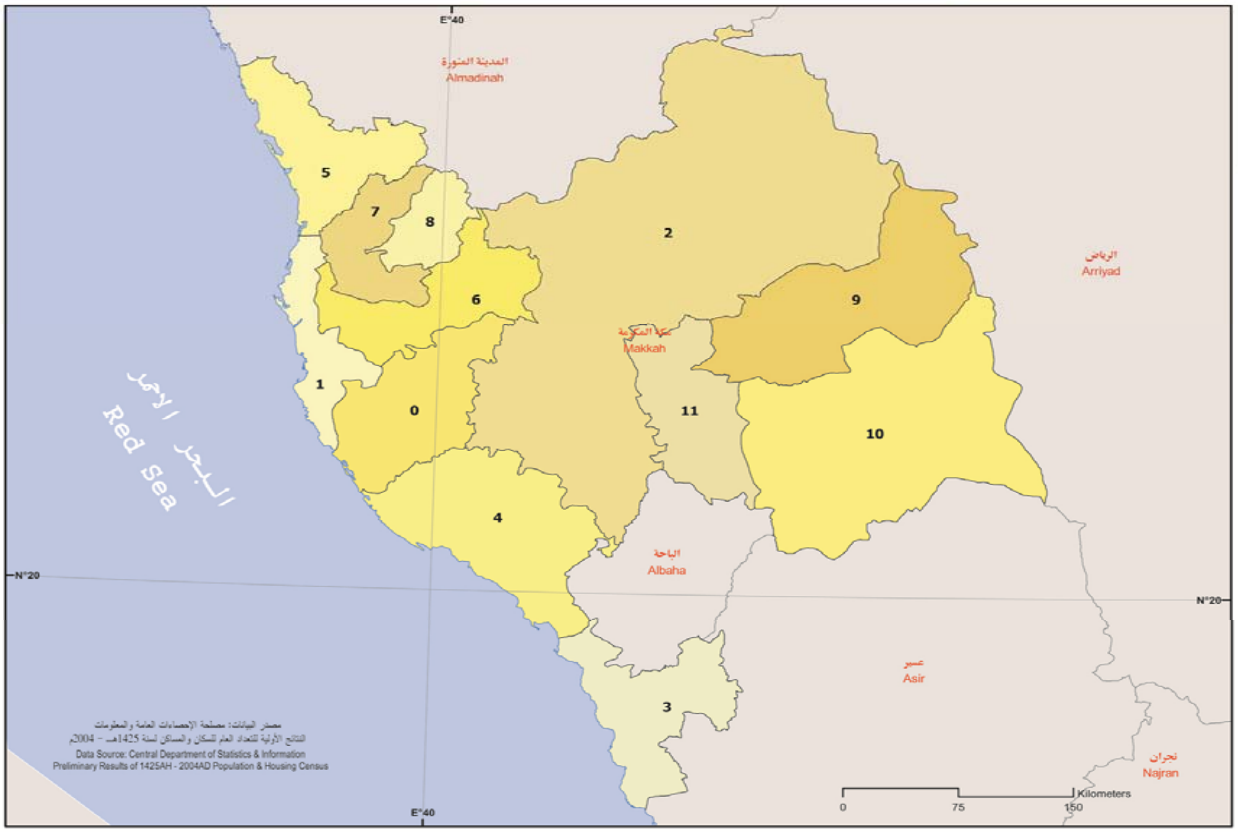
الموقع:

تقع منطقة مكة المكرمة في الجهة الغربية من المملكة العربية السعودية حيث يحدها شمالا منطقة المدينة المنورة وشرقا جزء من منطقة الرياض وجنوبا منطقتا عسير والباحة وغربا البحر الأحمر.

Makkah Almukarramah Region — منطقة مكة المكرمة

Makkah Almukarramah Region General Location — الموقع العام لمنطقة مكة المكرمة

Makkah Almukarramah Region Governorates — محافظات منطقة مكة المكرمة



Governorates

Makkah Almukarramah Region is divided into the emirate quarter and eleven governorates. The following table shows Makkah Almukarrama's governorates:

المحافظات

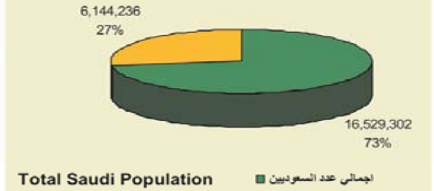
تنقسم منطقة مكة المكرمة الى مقر الامارة واحدى عشرة محافظة ويوضح الجدول التالي اسماء المحافظات :

المحافظة Governorate	الرمز Code
مكة المكرمة Makkah Almukarramah	0*
جدة Jiddah	1
الطائف Altaif	2
القنفذة Alqunfidhah	3
الليث Allith	4
رابغ Rabigh	5
الجموم Aljumum	6
خليص Khulays	7
الكامل Alkamil	8
الخرمة Alkhurmah	9
رنية Ranyah	10
تربة Turubah	11

* Emirate Quarter — مقر الامارة

Population Distribution – Regions Level

المناطق الإدارية
Regions



نسبة السكان السعوديين الى غير السعوديين
Percentage of Saudi to Non Saudi Population

اجمالي Total	الاناث Females	الذكور Males	Region	المنطقة
5.455.363	2.332.726	3.122.637	Arriyad	الرياض
5.797.971	2.579.946	3.218.025	Makkah Almukarramah	مكة المكرمة
1.512.076	700.342	811.734	Almadinah Almunawwarah	المدينة المنورة
1.016.756	451.757	564.999	Alqasim	القصيم
3.360.157	1.448.714	1.911.443	Eastern Region	المنطقة الشرقية
1.688.368	791.969	896.399	Asir	عسير
691.517	311.550	379.967	Tabuk	تبوك
527.033	248.953	278.080	Hail	حائل
279.286	129.664	149.622	Northern Frontier	الحدودالشمالية
1.186.139	573.106	613.033	Jazan	جازان
419.457	194.510	224.947	Najran	نجران
377.739	186.525	191.214	Albaha	الباحة
361.676	166.516	195.160	Aljauf	الجوف
22.673.538	10.116.278	12.557.260	Grand Total	الاجمالي العام

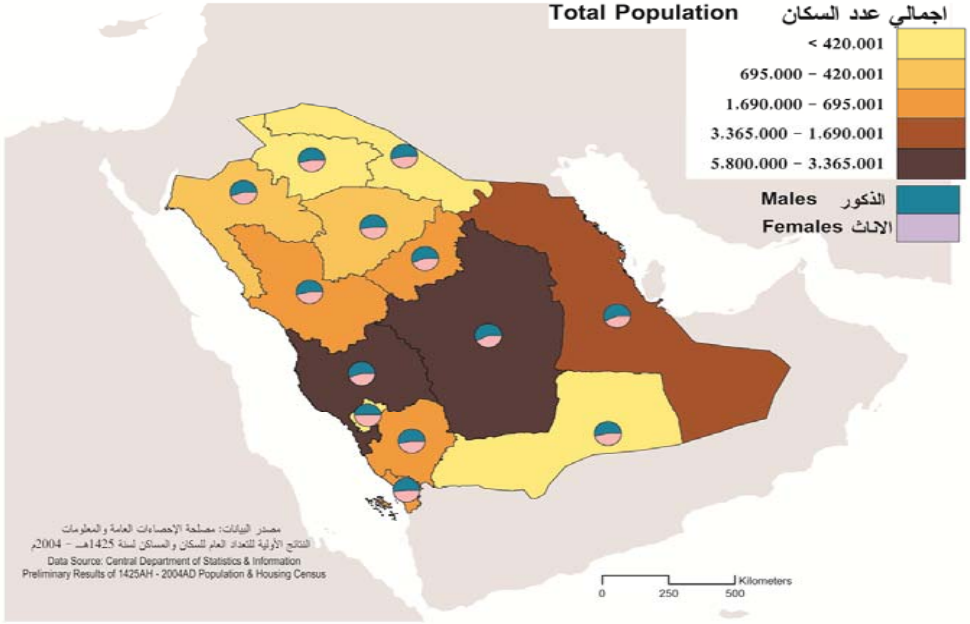
Regions المناطـــق الاداريـــة

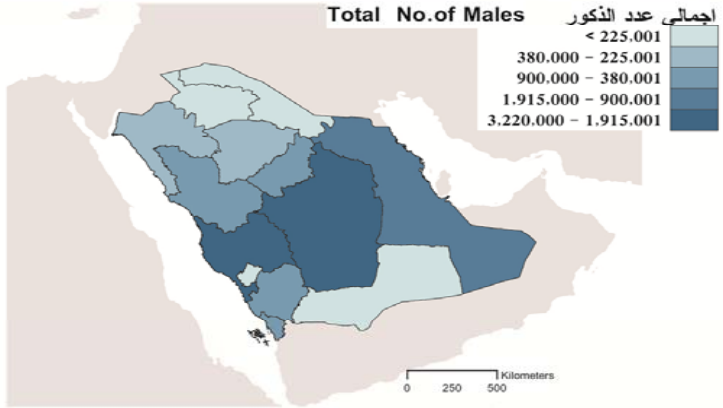
Population: عـــدد الســـكـــان:

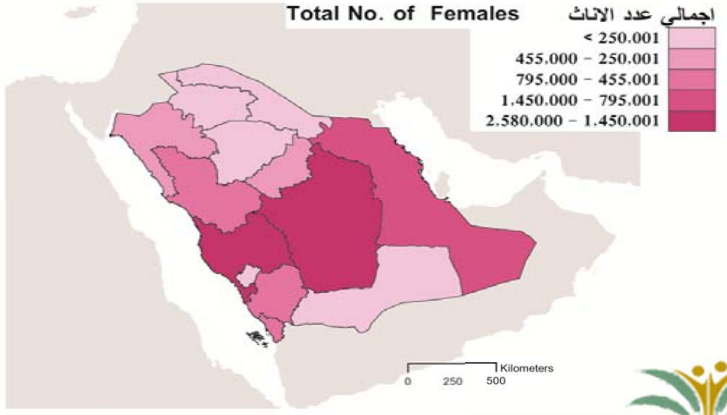
Total Population اجمالي عـــدد السكان

Males, Females and the Total Population distributed by Regions

توزيع السكان الذكور والاناث على مناطق المملكة بالاضافة الى اجمالي السكان في كل منطقة







Population Distribution – Cities Level

There are about 212 cities in the Kingdom of Saudi Arabia with total population exceeding 5000 people, the map illustrates the distribution of Saudis in these cities

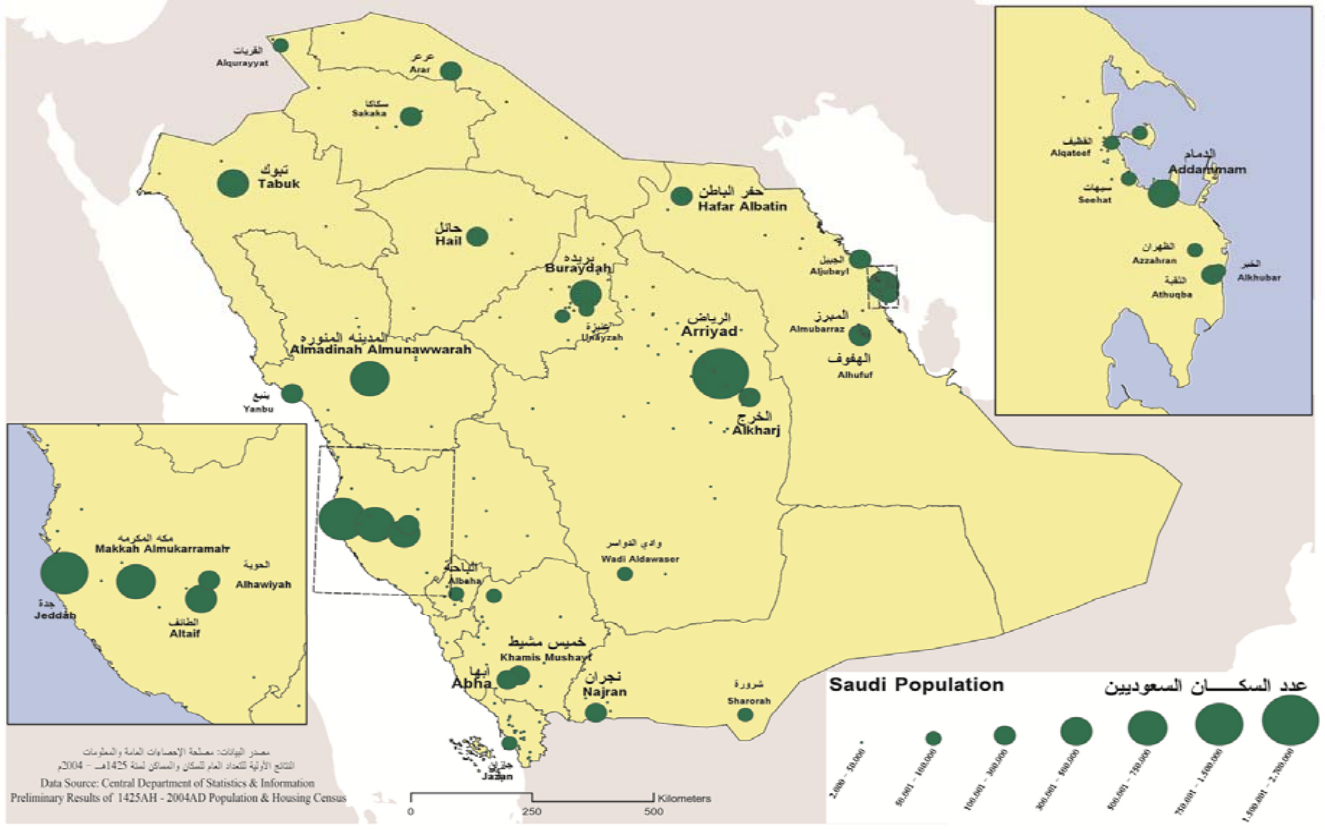
يوجد بالمملكة العربية السعودية نحو 212 مدينة يزيد عدد سكانها عن 5000 نسمة
توضح الخريطة توزيع السكان السعوديين في هذه المدن

Cities — **المـــدن**

Population: Saudis — **عـــدد الســـكـــان: سعوديون**

Saudi population in cities with total population more than 5000 people

عدد السكان السعوديين في المدن التي يزيد اجمالي عدد سكانها عن 5000 نسمة

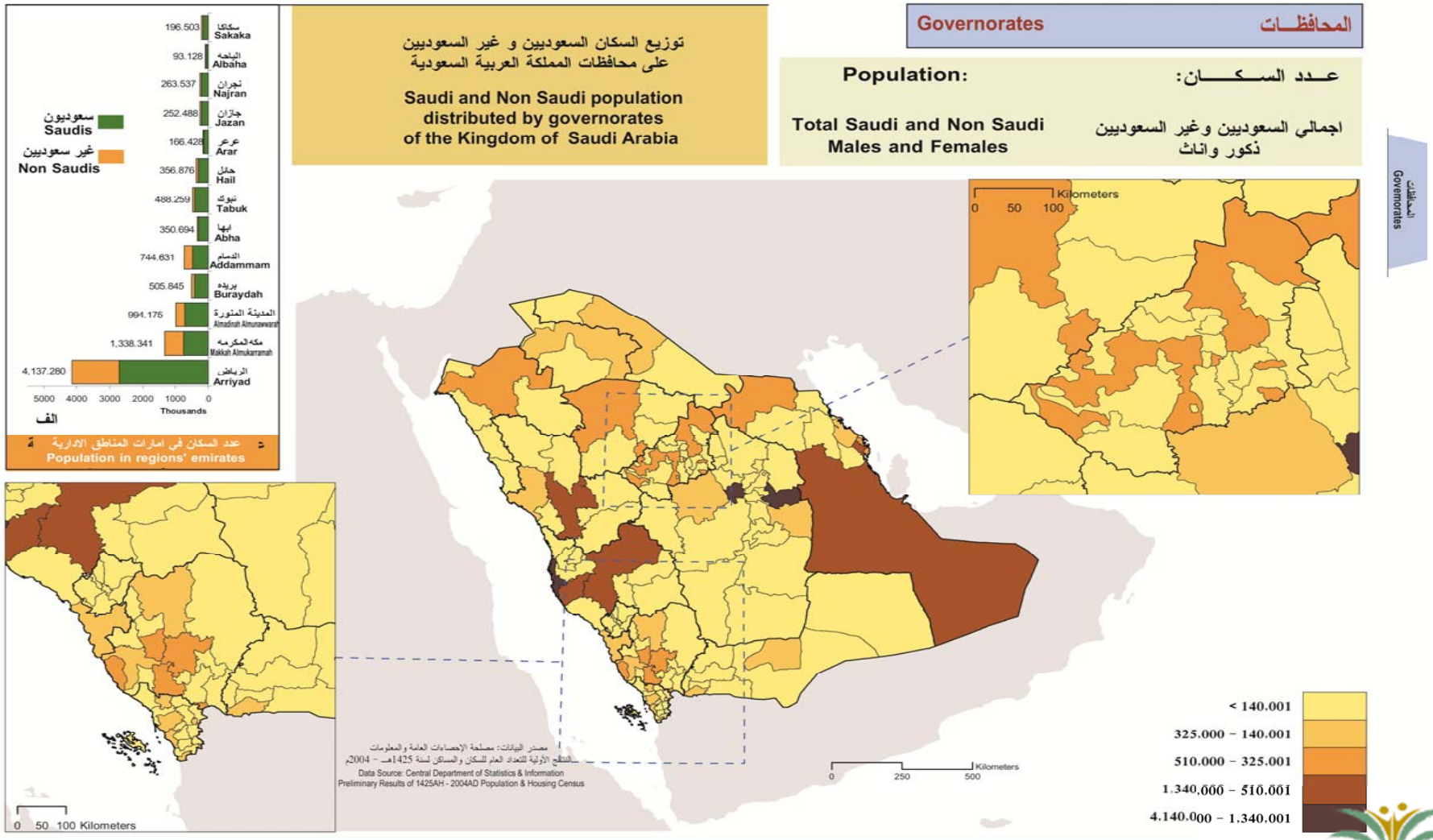


مصدر البيانات: مصلحة الإحصاءات العامة والمعلومات
النتائج الأولية للتعداد العام للسكان والمساكن لسنة 1425هـ - 2004م
Data Source: Central Department of Statistics & Information
Preliminary Results of 1425AH - 2004AD Population & Housing Census

عدد السكان السعوديين في المدن التي يزيد اجمالي عدد سكانها عن 200,000 نسمة
Saudi population in cities with total population more than 200,000 people

المدينة City	ذكور سعوديون Saudi Males	اناث سعوديات Saudi Females	جملة سعوديين Total Saudis
الرياض Arriyad	1,376,865	1,283,731	2,660,596
جدة Jiddah	735,018	694,743	1,429,761
مكه المكرمه Makkah Almukarramah	363,283	360,907	724,190
المدينه المنوره Almadinah Almunawwarah	319,133	320,511	639,644
الدمام Addammam	251,151	227,236	478,387
الطائف Altaif	197,858	203,332	401,190
تبوك Tabuk	201,019	182,753	383,772
بريده Buraydah	153,270	148,457	301,727
خميس مشيط Khamis Mushayt	149,806	146,339	296,145
الهفوف Alhufuf	116,269	114,351	230,620
المبرز Almubarraz	126,243	126,360	252,603
حائل Hail	107,764	111,425	219,189
نجران Najran	97,243	99,589	196,832
حفر الباطن Hafar Albatin	96,283	97,309	193,592
الجبيل Aljubayl	82,326	72,173	154,499
ابها Abha	80,378	75,673	156,051
الخرج Alkharj	82,671	81,833	164,504

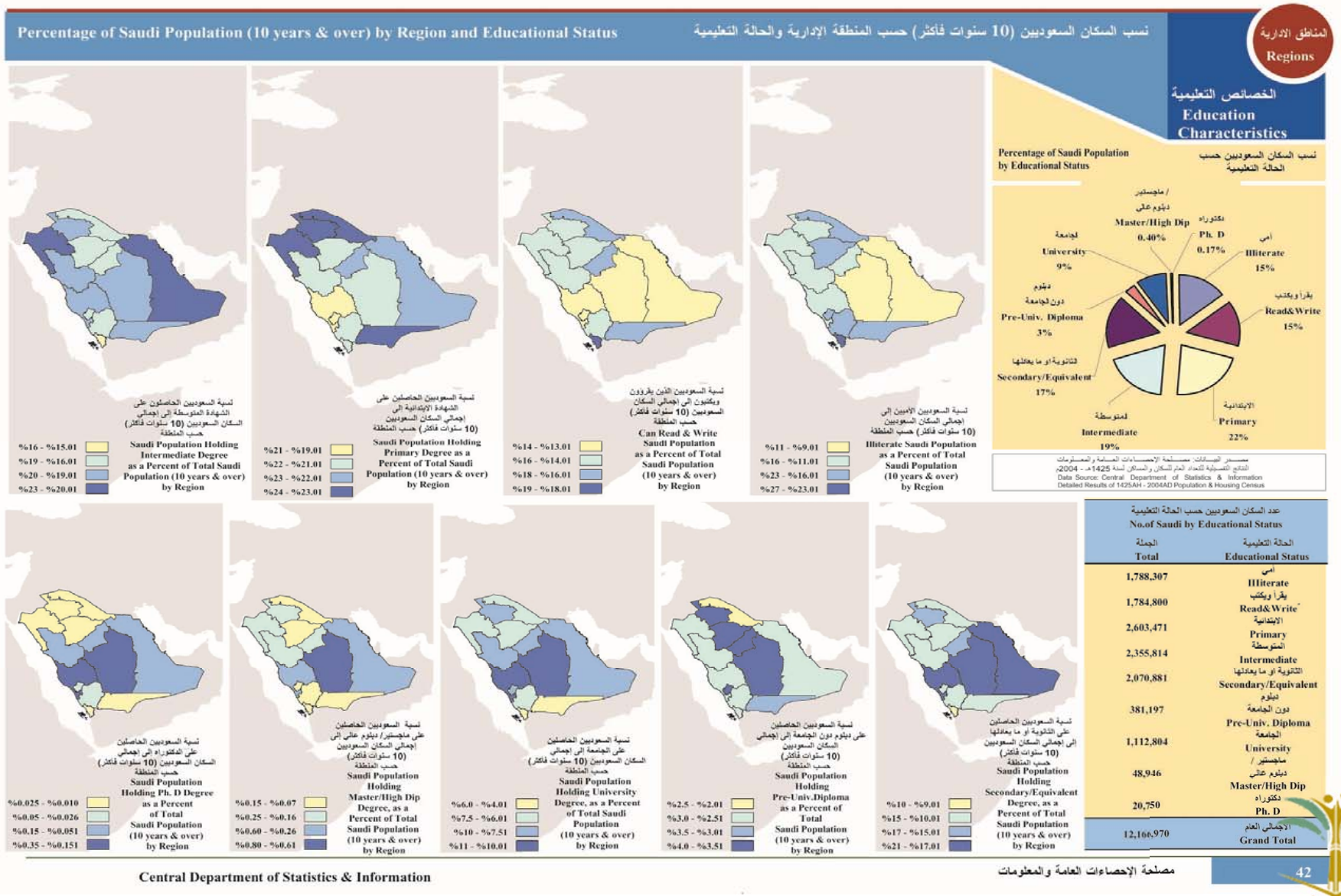
Population Distribution – Governorates Level



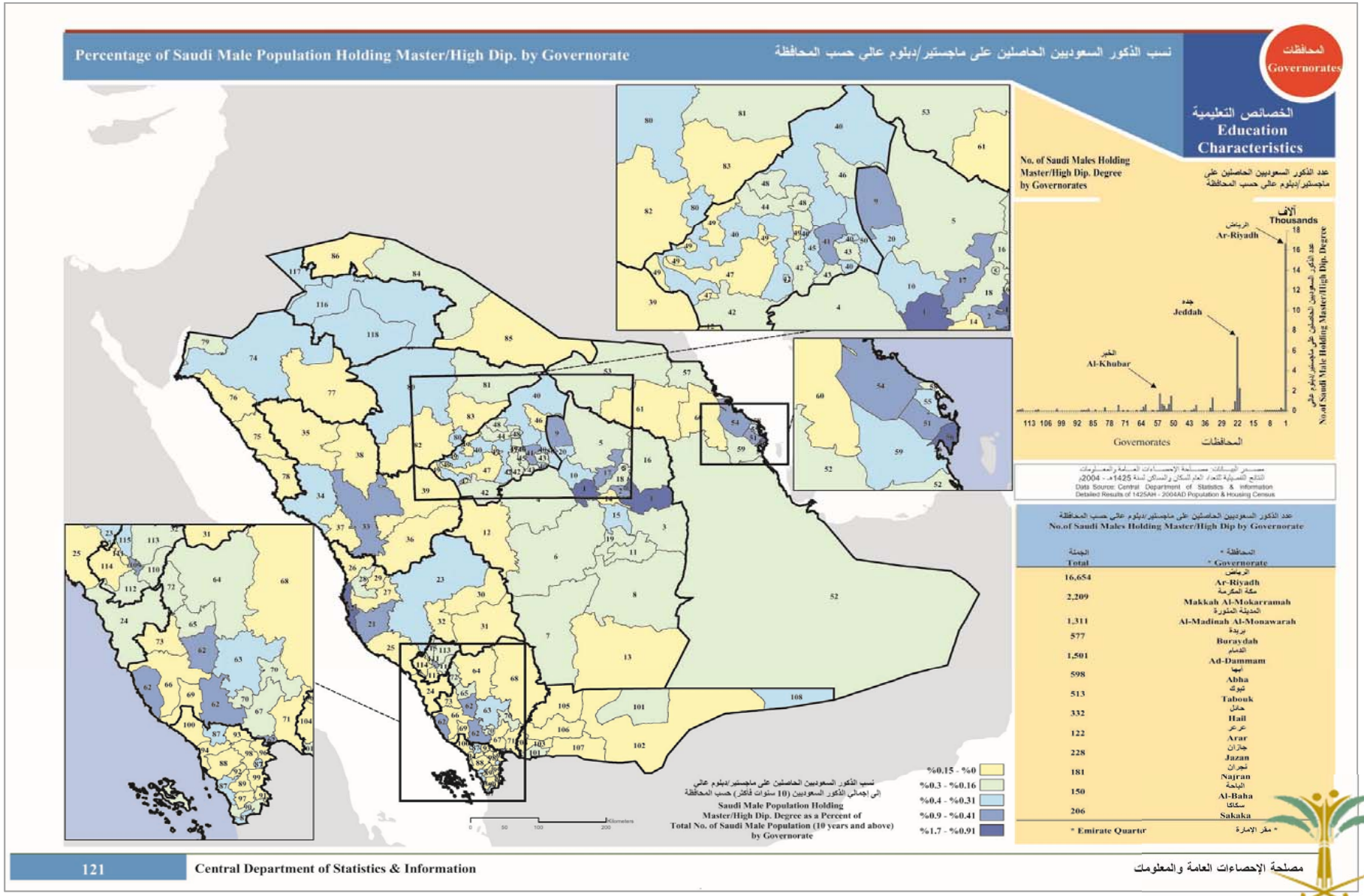
Census Atlas - Detailed Results (Level 2)

Distribution By Governorates	Distribution By Regions	Administrative divisions
Demographic Characteristics	Demographic Characteristics	KSA Regions
Education Characteristics	Education Characteristics	KSA Governorates
Economic Characteristics	Economic Characteristics	
Disability	Disability	
Housing & Household Characteristics	Housing & Household Characteristics	

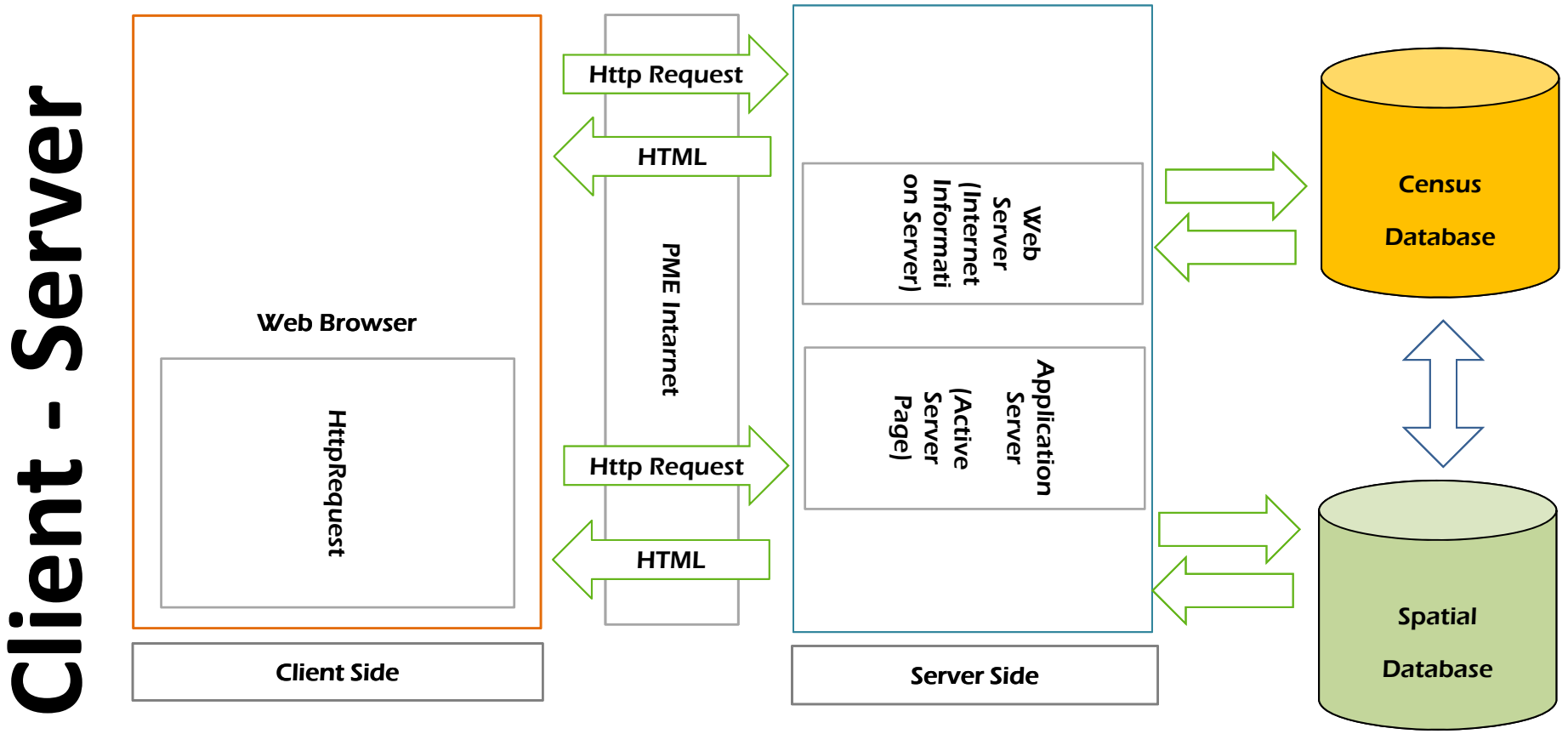
Education Characteristics – Regions Level



Education Characteristics – Governorates Level



Current CDSI Web Mapping Architecture



This architecture consists of three separates tiers, namely :The presentation tier , The application logic tier and the data tier

CDSI Web Mapping Portal

Demographic Data

- Analysis
  - Statistics
  - Statistical Comparisons
  - Statistical Analysis
- Housing Data
  - Type of Housing
  - Building Material
  - Ownership Type
  - Water & Electricity
  - Sewage Method
  - Telephone Availability
  - Water Tanks
  - Electricity Source
- Services data
  - Education
  - Health
  - Agriculture
  - Social
  - Administrative
  - General
- Population data
  - Population Categories
  - Population Density
  - Population Pyramid
  - Education Status
  - Social Status

KSA City Guide

- Kingdom Map
- Riyadh City
- Makka City
- Jeddah City
- Damam-Khubar-Dharan

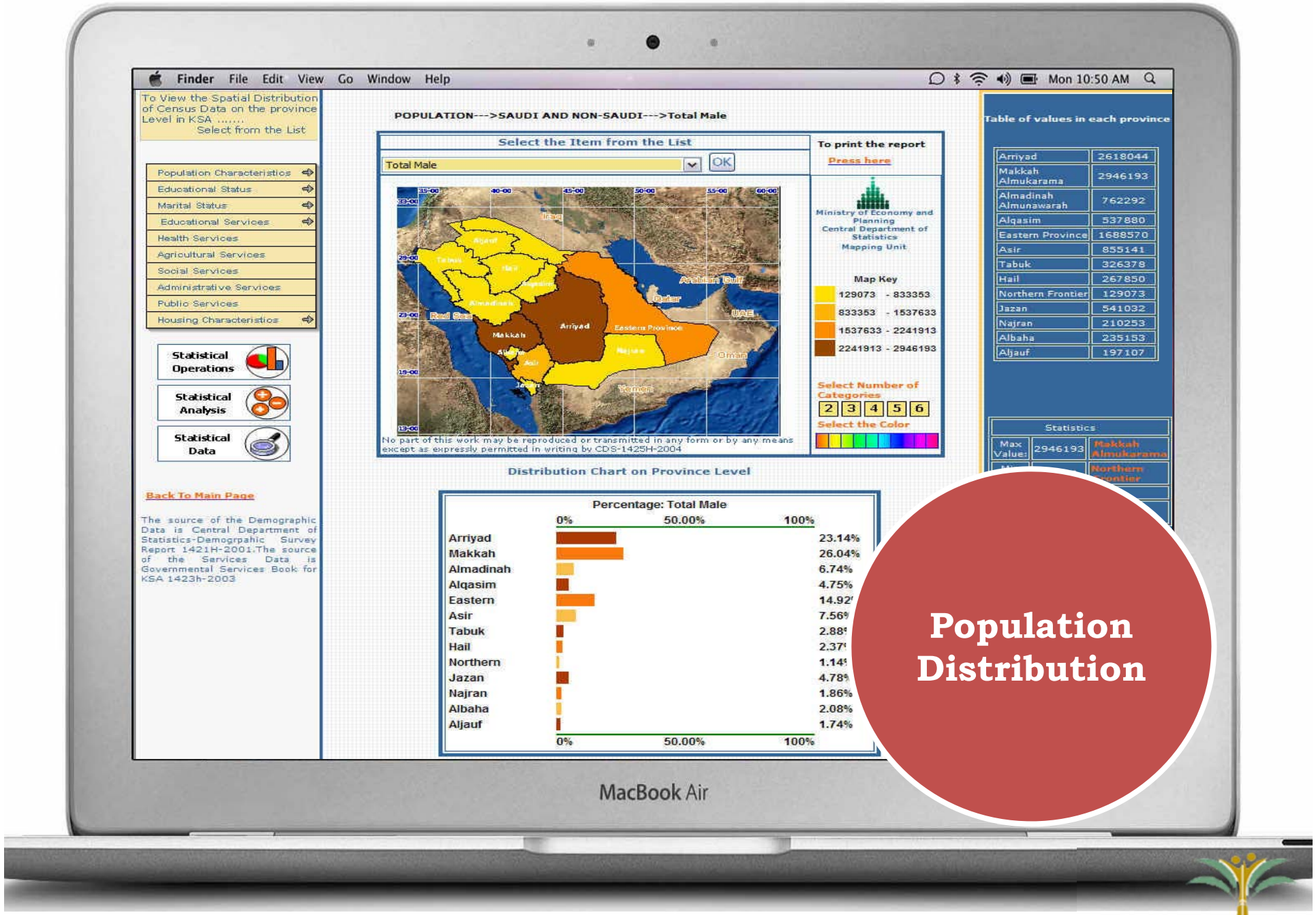

Finder File Edit View Go Window Help
Mon 10:50 AM
To View the Spatial Distribution of Census Data on the province Level in KSA .....
Select from the List
Population Characteristics
Educational Status
Marital Status
Educational Services
Health Services
Agricultural Services
Social Services
Administrative Services
Public Services
Housing Characteristics
Statistical Operations
Statistical Analysis
Statistical Data
Back To Main Page
The source of the Demographic Data is Central Department of Statistics-Demogrpahic Survey Report 1421H-2001.The source of the Services Data is Governmental Services Book for KSA 1423h-2003
POPULATION--->SAUDI AND NON-SAUDI--->Total Male
Select the Item from the List
Total Male
OK
To print the report
Press here
Ministry of Economy and Planning
Central Department of Statistics
Mapping Unit
Map Key
129073 - 833353
833353 - 1537633
1537633 - 2241913
2241913 - 2946193
Select Number of Categories
2 3 4 5 6
Select the Color
Iraq
Arabian Gulf
Qatar
UAE
Oman
Yemen
Red Sea
Arriyad
Makkah
Eastern Province
Najran
Asir
Jazan
Aljauf
Hail
Tabuk
Almadinah
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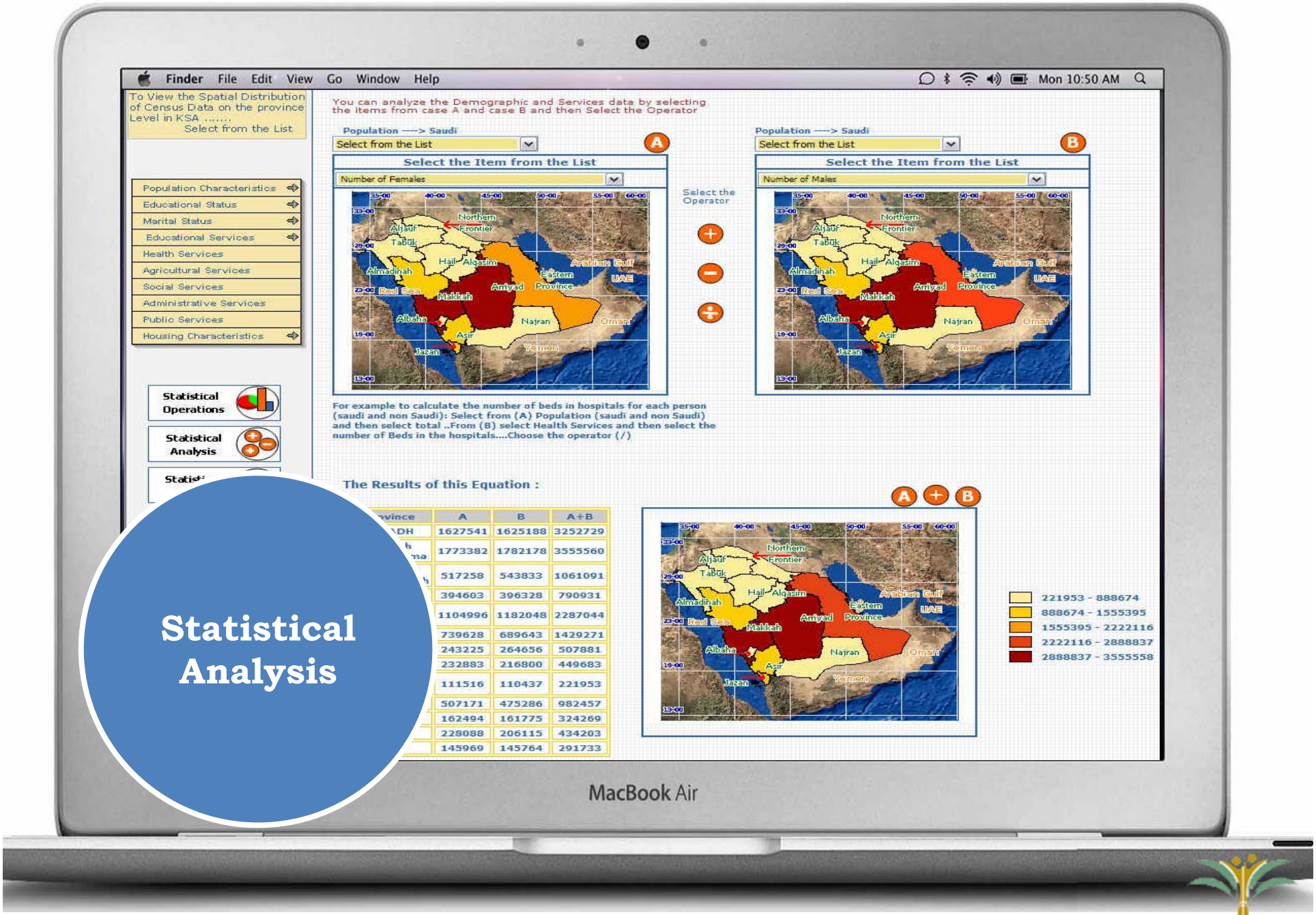
Table of values in each province
Arriyad 2618044
Makkah Almukarama 2946193
Almadinah Almunawarah 762292
Alqasim 537880
Eastern Province 1688570
Asir 855141
Tabuk 326378
Hail 267850
Northern Frontier 129073
Jazan 541032
Najran 210253
Albaha 235153
Aljauf 197107
Statistics
Max Value: 2946193 Makkah Almukarama
Distribution Chart on Province Level
Percentage: Total Male
0% 50.00% 100%
Arriyad 23.14%
Makkah 26.04%
Almadinah 6.74%
Alqasim 4.75%
Eastern 14.92%
Asir 7.56%
Tabuk 2.88%
Hail 2.37%
Northern 1.14%
Jazan 4.78%
Najran 1.86%
Albaha 2.08%
Aljauf 1.74%
0% 50.00% 100%
Population Distribution
MacBook Air



A	B	A+B
1627541	1625188	3252729
1773382	1782178	3555560
517258	543833	1061091
394603	396328	790931
1104996	1182048	2287044
739628	689643	1429271
243225	264656	507881
232883	216800	449683
111516	110437	221953
507171	475286	982457
162494	161775	324269
228088	206115	434203
145969	145764	291733

Statistical Analysis

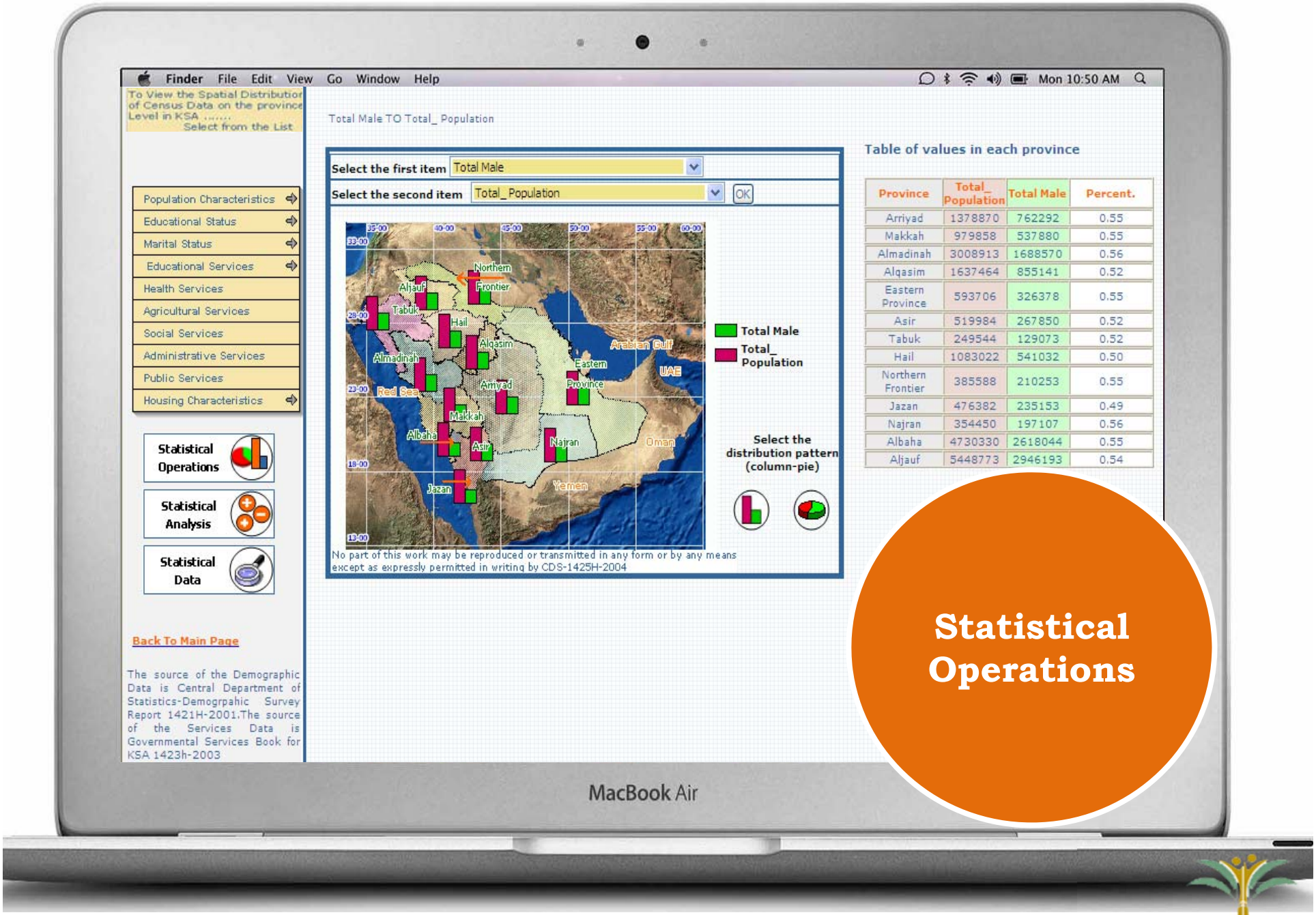

Finder File Edit View Go Window Help
Mon 10:50 AM
To View the Spatial Distribution of Census Data on the province Level in KSA .....
Select from the List
Total Male TO Total_ Population
Population Characteristics
Educational Status
Marital Status
Educational Services
Health Services
Agricultural Services
Social Services
Administrative Services
Public Services
Housing Characteristics
Statistical Operations
Statistical Analysis
Statistical Data
Back To Main Page
The source of the Demographic Data is Central Department of Statistics-Demogrpahic Survey Report 1421H-2001.The source of the Services Data is Governmental Services Book for KSA 1423h-2003
Select the first item
Total Male
Select the second item
Total_ Population
OK
Northern Frontier
Aljauf
Tabuk
Hail
Alqasim
Almadinah
Red Sea
Ameyad
Makkah
Albaha
Asir
Najran
Jazan
Eastern Province
Arabian Gulf
UAE
Oman
Yemen
Total Male
Total_ Population
Select the distribution pattern (column-pie)
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Table of values in each province
Province | Total_ Population | Total Male | Percent.
Arriyad | 1378870 | 762292 | 0.55
Makkah | 979858 | 537880 | 0.55
Almadinah | 3008913 | 1688570 | 0.56
Alqasim | 1637464 | 855141 | 0.52
Eastern Province | 593706 | 326378 | 0.55
Asir | 519984 | 267850 | 0.52
Tabuk | 249544 | 129073 | 0.52
Hail | 1083022 | 541032 | 0.50
Northern Frontier | 385588 | 210253 | 0.55
Jazan | 476382 | 235153 | 0.49
Najran | 354450 | 197107 | 0.56
Albaha | 4730330 | 2618044 | 0.55
Aljauf | 5448773 | 2946193 | 0.54
Statistical Operations
MacBook Air

Ministry of Economy and Planning

The Population Pyramid for Saudi Kingdom of Saudi Arabia

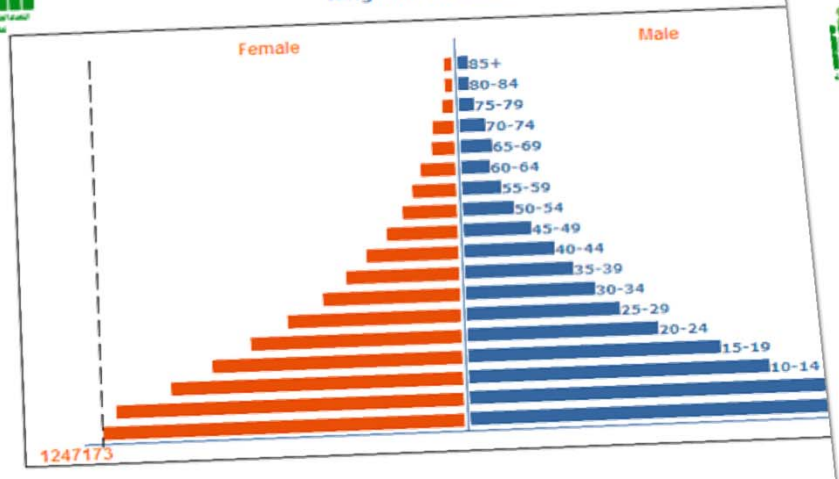


Table of Values

Age range	Total	Percentage	Value	
From 0-4	2545949	8.33	Male	1298776
		8.00	female	1247173
From 5-9	2454994	8.05	male	1254647
		7.70	female	1200347
From 10-14	2051481	6.68	male	1040984
		6.48	female	1010497
From 15-19	1741832	5.62	male	876047
		5.55	female	865785
From 20-24	1393349	4.26	male	663493
		4.68	female	729856
From 25-29	1128267	3.40	male	530569
		3.83	female	597698
From 30-34	92[illegible]	2.90	male	451681
		[illegible]	female	476359
From 3[illegible]		[illegible]		378656
		[illegible]		391184
Fr[illegible]		[illegible]		12060
		[illegible]		3590
		[illegible]		02
		[illegible]		0

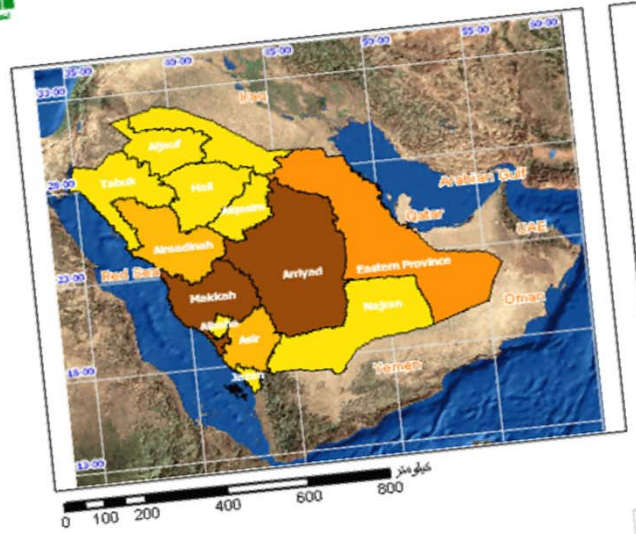
Statistics

Total-Male and Female	15588805
Total-Male	7800051
Total-Female	7788754
Max.Value-Male	1298776
Min.Value-male	36747
Max.Value-female	1247173
Min.Value-female	27105

The source of Demographic data is "Central De
Statistics-Demographic Survey 1421H"
This report produced from Central Department
web site.
email:mapping@cds.gov.sa

Ministry of Economy and Planning
Central Department of Statistics

Distribution of Population Saudi Number of Males in each Province in KSA



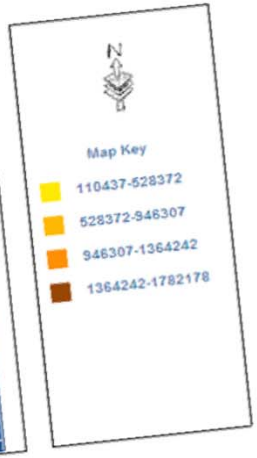
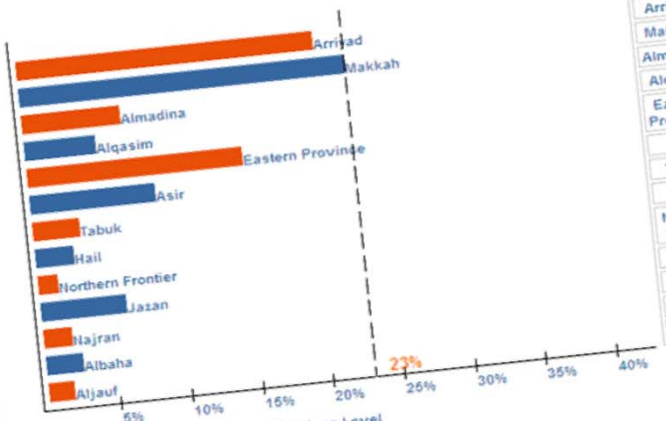


Table of values in each province

Province	Value	Percentage	Remark
Arriyad	1625188	21 %	**
Makkah	1782178	23 %	**
Almadina	543833	7 %	
Alqasim	396328	5 %	
Eastern Province	1182048	15 %	**
Asir	689643	9 %	**
Tabuk	264656	3 %	
Hail	216800	3 %	
Northern Frontier	110437	1 %	
Jazan	475286	6 %	
Najran	161775	2 %	
Albaha	206115	3 %	
Aljauf	145764	2 %	



Distribution Chart on Province Level

(**) Provinces more than Average Valu

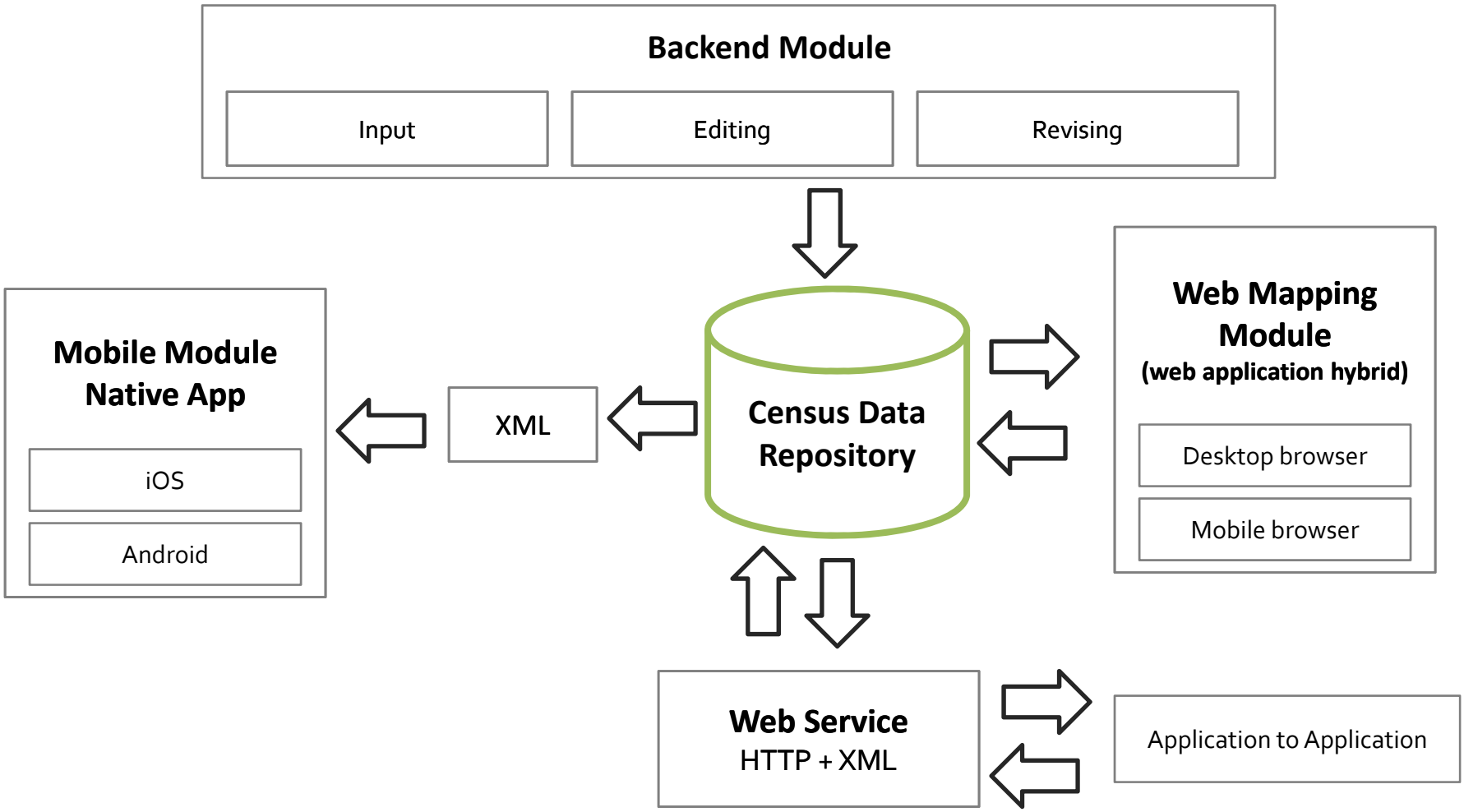
Statistics

Max Value:	1782178
Min Value:	110437
Total Value:	7800051
Average Value:	600004

» source of Demographic data is "Central Departemnt of Statistics-Demographic Survey 1421H"
» source of service data is "Governmental Services Book for KSA"

CDSI Reporting System

The Proposed CDSI Mapping Portal Architecture (Open Source Vision)



MashUp Technique