The Preparation for 2015 Population and Housing Census of Korea

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Statistics Korea

통계청
STATISTICS KOREA

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I. Concepts

1. Concepts

2. Population and Housing Census of Korea

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1. Concepts

Population and Housing Census

- The process of collection, assessing, analyzing and disseminating demographic and socioeconomic data related to all persons, households and domiciles in a nation or designated area at a given point in time, which is administered by the government.

Register-based Census

- The new method of conducting Population and Housing Census by producing data on population, households and housing without visiting all households but instead using available administrative data such as Resident Register and Building Register.

Population

- All persons residing within the territory of Korea at the reference period.
- Residing: The sum of period in residence and period intended to reside at a fixed location is greater than 3 months.

2. Population and Housing Census

Population Census	* 1925: First round * 2010: 18th round
Housing Census	* 1960: First round * 2010: 10th round

Legal Basis	* Laid out on Statistics Act (Articles 4 and 8) and Enforcement Ordinance
	    - Designated Statistics : Population Census 10101
	                   Housing Census 10102
	* Governing Rules on Population and Housing Census

Periodicity	* Every 5 years
Utility	• Used in economic development plans and population policies such as family planning, low fertility and aging society * Provide population of sampling framework for household sector sample surveys

2. 2010 Population and Housing Census

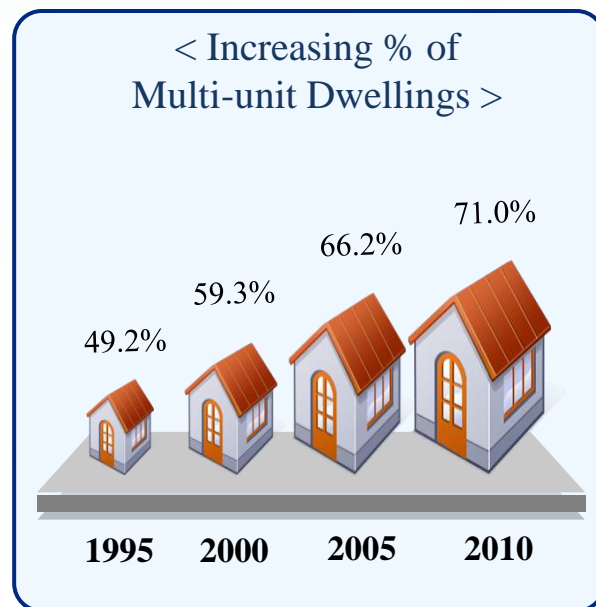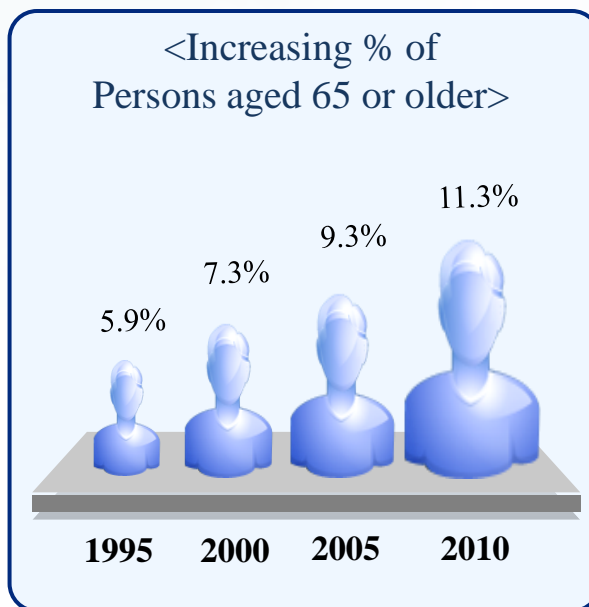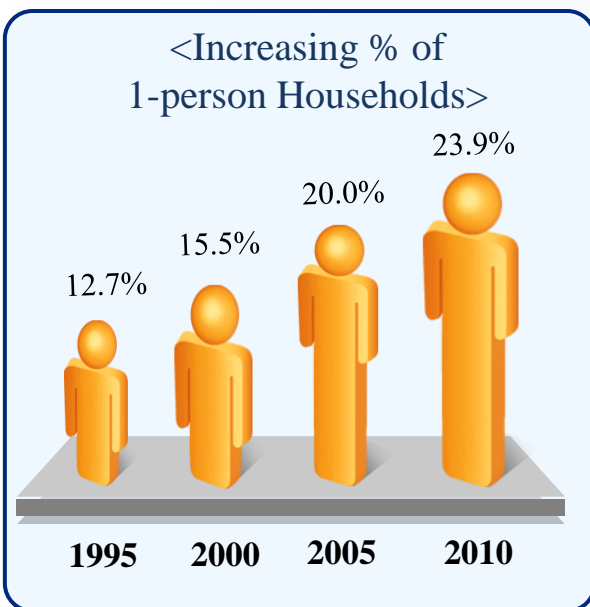| Reference Date	• 0:00AM, Nov. 1, 2010
Enumeration Period	• Nov 1 – 15, 2010 (15 days)
Variables	• 50 variables (19 in complete enumeration; 31 in sample enumeration)
Highlight	• Internet Uptake Rate : 47.9%
Manpower	• 119,000 persons: 6,000 civil servants + 113,000 enumerators
Results Release	• Preliminary Results : Dec 29, 2010 • Final Results: Complete Enum.: May – July 2011 / Sample Enum. Sept – Dec 2011
Budget	• 180.8 billion KRW (160 million USD)

II. Background

1. Background

1 Deterioration in Survey Environment and Increasing Burdens on Respondents

- (**Changes in Population/Households**) Growing number of 1-person or dual-earner households and aging population making it difficult for interview visits
- (**Changes in Housing Structure**) Difficult for enumerators to access households with more housing with controlled access and security
- (**Changes in Perception**) Increasing awareness on privacy protection adding to more people refusing to respond in surveys

<Increasing % of 1-person Households>

12.7%	15.5%	20.0%	23.9%
1995	2000	2005	2010

<Increasing % of Persons aged 65 or older>

5.9%	7.3%	9.3%	11.3%
1995	2000	2005	2010

< Increasing % of Multi-unit Dwellings >

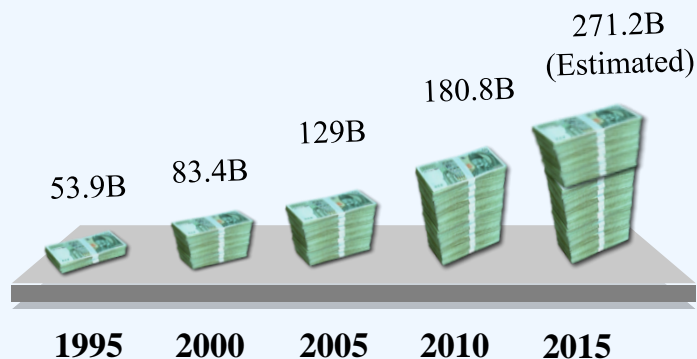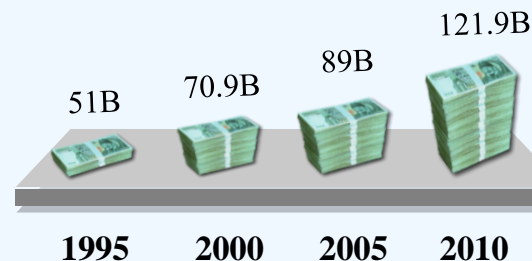|			
49.2%	59.3%	66.2%	71.0%
1995	2000	2005	2010

2 Questions raised on applicability of Census data due to lack of timeliness and outdated population

- (Lack of timeliness)   With Periodicity of 5 years, data cannot adequately describe the rapidly changing society
- (Outdated Population) Population cannot effectively reflect the changes over the five year period when used in sample surveys

3 Unable to secure sufficient budget due to continuous increase in census taking cost

- Rise in # of Households
(more 1-person households)   ➡   Increase in labor cost among total census cost   ➡   Increase in total census cost

< Census Cost Trend >
(Unit: Billion Korean Won)

1995	2000	2005	2010	2015
53.9B	83.4B	129B	180.8B	271.2B (Estimated)

< Labor Cost Trend>
(Unit: Billion Korean Won)

1995	2000	2005	2010
51B	70.9B	89B	121.9B

1. Background

4 Promotion of use of administrative data at the national level

- Growing number of types and volume of administrative data that can be used for statistical purposes

  - 1,461 types of administrative data kept by 794 government agencies (Survey on the Status of Public Information, 2009)

- Implementing policies to open access to, share and utilize public information

  - "Mid-Term Strategy to utilize administrative data for advancement of official statistics" submitted to the National Statistics Committee (Sept. 2, 2011, KOSTAT)

5 National computerization of administrative data on population, households and housing

Sector	Data	Agency	Electronic Data	Shared Use
Population, Households	Resident Register	Ministry of Public Admin. & Safety	O	O
Population, Households	Family Relations Register	Supreme Court	O	O
Housing	Building Register	Ministry of Land and Maritime Affairs	O	O

1. Background

Administrative Data Based Census in Other Countries

UNECE's 55 member countries		2010 Census Method				
		Field Survey	Admin Data + Field Survey	Admin Data	Other	Total
2000 Census Method	Field Survey	29	8	1	2	40
	Admin Data + Field Survey	-	4	2	-	**6**
	Admin Data	-	-	4	-	**4**
	No Census	2	2	1	-	5
	Total	31	**14**	**8**	2	55

Source: UNECE/Eurostat Joint Expert Meeting on Population and Housing Census (May 2012)

III Action Plans

1. **Strategic Direction**

2. **Variables Obtained**

3. **2015 Population and Housing Census Model**

1. Strategic Direction

1 Burden on Respondents **2** Budget Saving **3** Feasibility taken into consideration

- Basic items asked on all persons
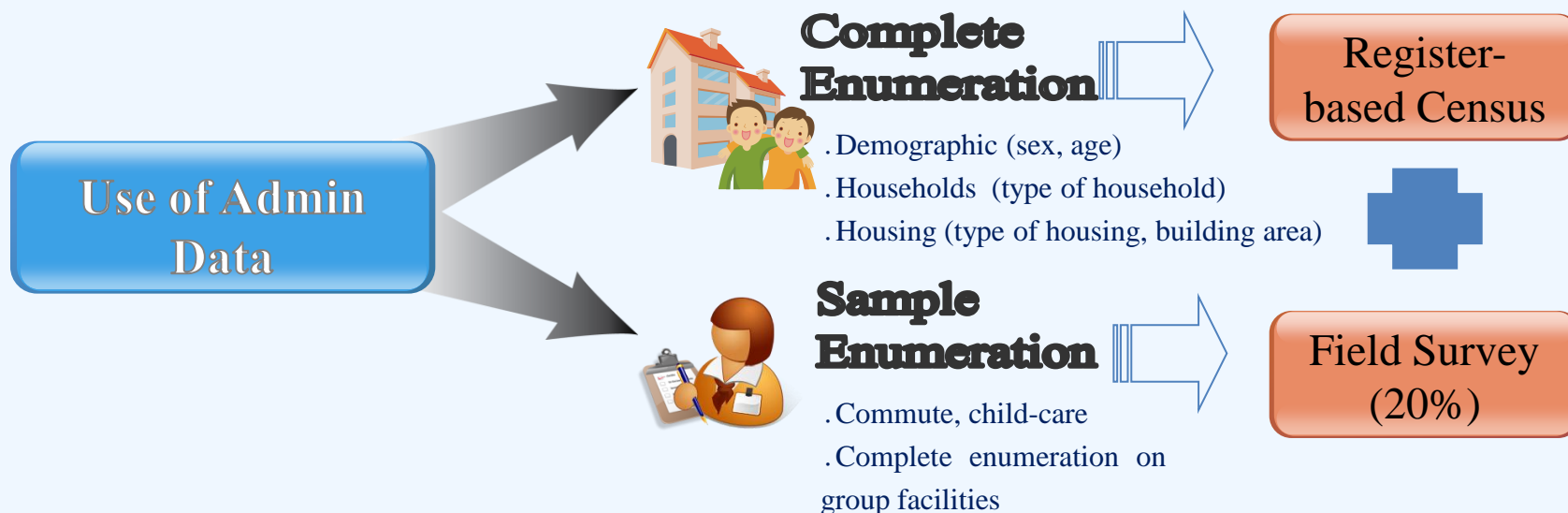- In-depth items asked on 10% sample

| Complete Enumeration | ➡ | Substitute using Admin Data |
| Sample Enumeration | ➡ | Conduct Field Survey |

- For complete numeration items unable to substitute using administrative data and to Supplement administrative data at the Eup/Myeon/Dong level, augment sample size to 20%

Use of Admin Data

Complete Enumeration ➡ **Register-based Census**
. Demographic (sex, age)
. Households (type of household)
. Housing (type of housing, building area)

Sample Enumeration ➡ **Field Survey (20%)**
. Commute, child-care
. Complete enumeration on group facilities

1. Strategic Direction

Basic admin data for register- based census

1 Core Admin Data (as of October 2012)

	Resident Register	Entry/Exit Data	Foreigner Register	Family Relations Register	Building Register
Agency	Ministry of Public Admin & Safety	Ministry of Justice	Ministry of Justice	Supreme Court	Ministry of Land and Maritime Affairs
Used for	Demography, Households	Residents abroad	Demography (Foreigner)	Households	Housing

2 Supplementary Data (as of October 2012)

	Dormitory Facilities Register	Social Institution Register	Special Enumeration Districts	4 Major Social Insurance	Publicly Announced Housing Prices
Agency	Ministry of Education, Science and Technology	Ministry of Health and Welfare	Ministry of National Defense, Ministry of Foreign Affairs and Trade	Ministry of Health and Welfare	Ministry of Land and Maritime Affairs
Used for supplementing	Place of residence and group households	Place of residence and group households	Households	Place of residence	Housing

2. Variables Obtained

Variables Obtained for Register-based Census

Variables	2010 Complete Enumeration (Traditional Method)	2015 Register-based Census			
		Resident Register	Family Relations Register	Building Register	Foreigner Register
Name	●	●			●
Sex	●	●			●
Age	●	●			●
Relation to Head of Household	●	●			
Educational Attainment	●				
Place of Residence 1 year ago		●			
Place of Residence 5 years ago		●			
Type of Household	●	●			
Years in Residence		●			
Marital Status	●		●		
Place of Birth			●		
Family Clan			●		
Nationality	●		●		●
Date of Entry	●				●
Number of Rooms in Use	●				
Type of Living Facility	●				
Type of Occupancy	●				
Number of Floors and Floor of Residence	●				
Owner Household and Other Housing Owned	●			●	

Population / Housing

2. Variables Obtained
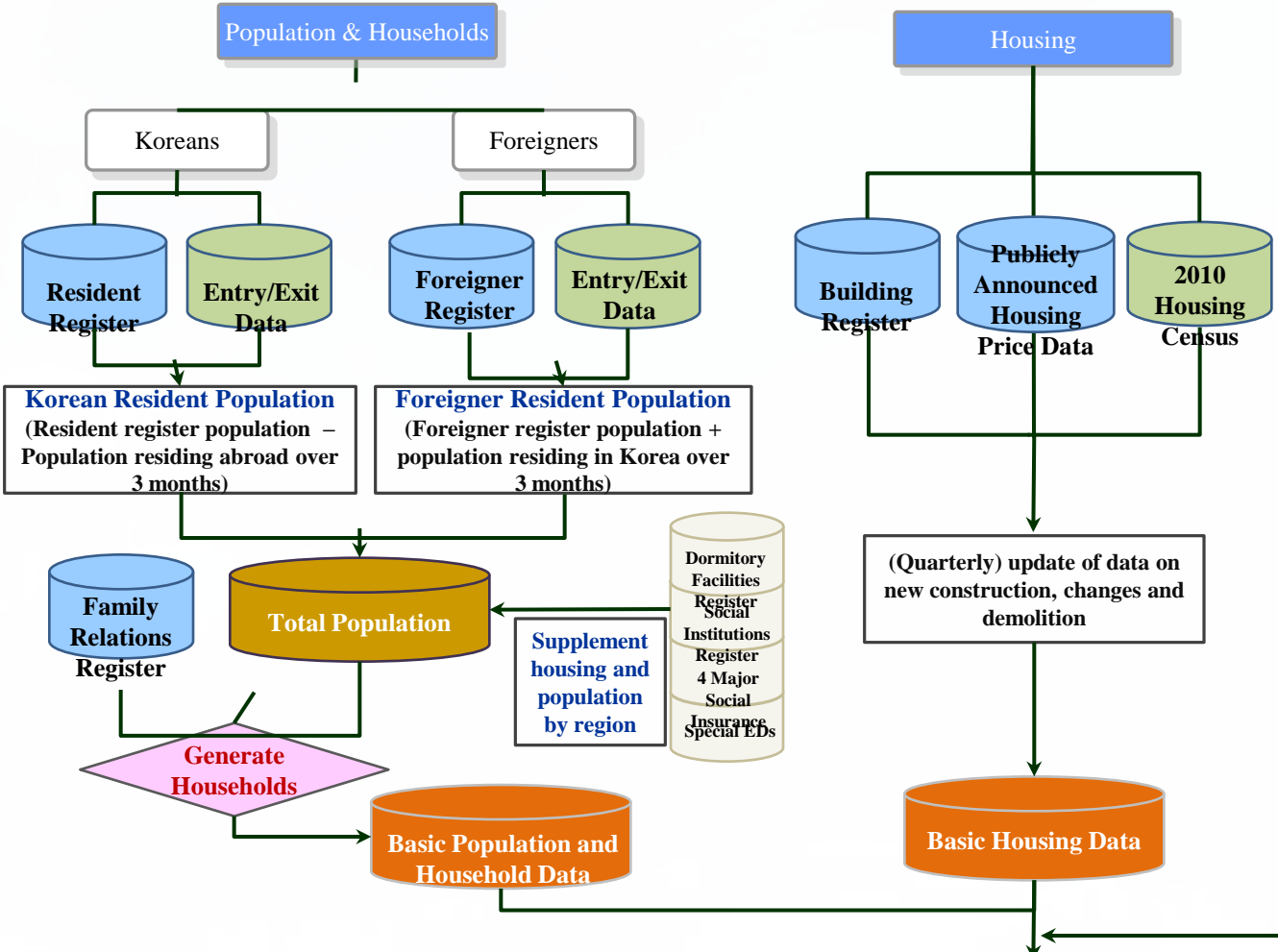
Variables Obtained for Register-based Census

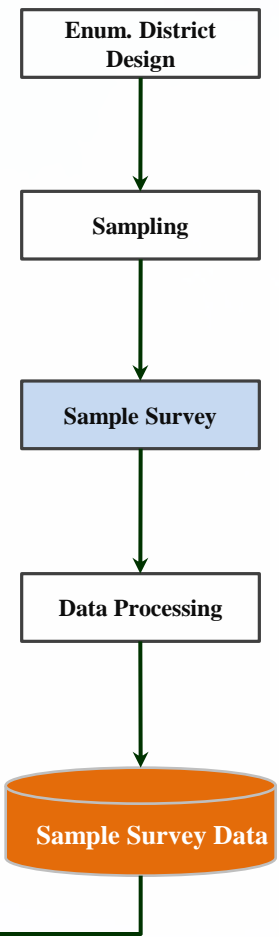| Variables	2010 Complete Enumeration (Traditional Method)	2015 Register-based Census			
		Resident Register	**Family Relations Register**	**Building Register**	**Foreigner Register**
Housing — Type of Residence	●			●	
Living Area	●			●	
Year Built	●			●	
Total Number of Rooms**(tentative)	●			▲	
Number of living facilities **(tentative)	●			▲	
Total	19	8	4	4	5

- ◉ Number of Variables

  - 19 variables for complete enumeration in 2010 Traditional Method Census

  - About 15 variables for complete enumeration in 2015 Register-based Census

Complete Enumeration Variables (Register-based Census)

Sample Variables (Field Survey)

Population & Households

Koreans

Foreigners

Resident Register

Entry/Exit Data

Foreigner Register

Entry/Exit Data

Korean Resident Population
(Resident register population – Population residing abroad over 3 months)

Foreigner Resident Population
(Foreigner register population + population residing in Korea over 3 months)

Family Relations Register

Total Population

Dormitory Facilities Register Social Institutions Register 4 Major Social Insurance Special EDs

Supplement housing and population by region

Generate Households

Basic Population and Household Data

Housing

Building Register

Publicly Announced Housing Price Data

2010 Housing Census

(Quarterly) update of data on new construction, changes and demolition

Basic Housing Data

Enum. District Design

Sampling

Sample Survey

Data Processing

Sample Survey Data

"Population and Housing Census" Micro Data

<Link admin data and sample survey data >
 ① supplement outliers and data with errors
 ② Adjust population, number of households and number of housing
    - Two-way estimation method, regression model, etc.

Transition Phase: from admin data to statistical data

Phase 1 Supplementation

- **Link between admin data**
  - Link Family Relations Register, Exit/Entry Data, Foreigner Resident Register, etc.

Phase 2 Supplementation

- **Apply 20% Sample Survey, statistical model**
  - Review Ridge Regression Model

Register-based Census

- **Compute Register-based Census Data**
- **Generate micro data**
- **Provide register-based census data**

IV Use of Administrative Data

1. Administrative Data

2. Define Identifier Keys and Link Keys

3. Linking Administrative Data

4. Field Survey

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1. Administrative Data

Resident Register

• Kept by : Ministry of Public Administration and Safety

• Contains:
  - Register data of reports by Koreans residing in Korea over 30 days
  - Resident registration number, name, address, date of birth, sex, household information, etc.
  - Does not include foreigners; the concept of residence differs from Population and Housing Census

• Used as basic data for census population and households

Foreigner Register

• Kept by : Ministry of Justice Korea Immigration Service
• Contains
  - Register data of reports by foreigners who entered Korea intending to reside over 90 days
  - Foreigner registration number, name, address, date of birth, sex, nationality, etc.

• Used as basic data for census population and households

1. Administrative Data

Family Relations Register

- Kept by: Supreme Court
- Contains
  - Register data on family relations of Koreans regardless of place of residence (birth, death, marriage and divorce)
  - Resident registration number, name, marital status, family relations, etc.

- Used to supplement census households; used in producing items related to population such as marital status

Entry/Exit Records Register

- Kept by : Ministry of Justice Korea Immigration Service

- Contains
  - Register data on Koreans and Foreigners entering and exiting Korea
  - Passport No., nationality, name, date of entry/exit, date of birth, sex, etc.

- Used as supplementary data for census population and households
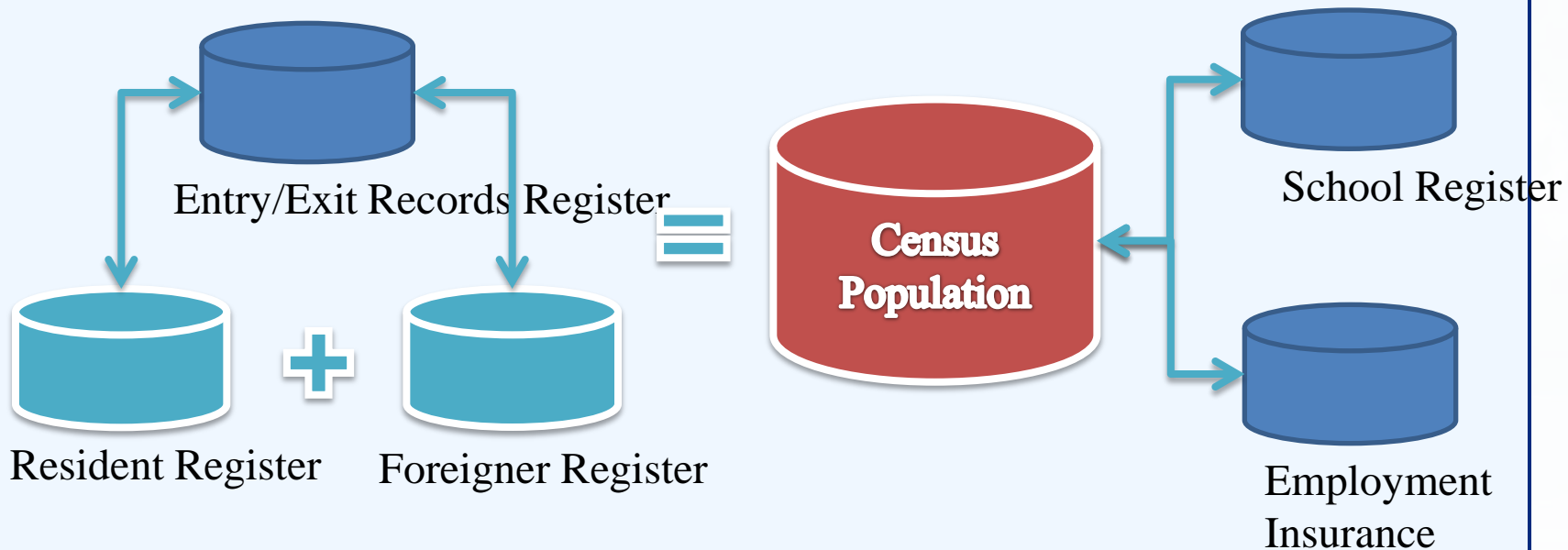
1. Administrative Data

Building Register

• Kept by : Ministry of Land and Maritime Affairs

• Contains:
  - Register data on all buildings with permits in Korea
  - Address, area, purpose of building, number of floors, date of approval for use, etc.
  - Does not include housing without permits

• Used as basic data for census housing; used to produce items related to housing such as type of housing and land area

2. Identifier Keys and Link Keys

		Main Key	Sub Key	
Population	**Koreans**	Resident Registration Number		
	Foreigners	Foreigner ID Number	Foreigner Registration Number	Passport Number + Nationality
Households		Household ID Number		
Housing		Housing ID Number	Address	

3. Linking Administrative Data

Population

Entry/Exit Records Register

Resident Register + Foreigner Register

Census Population

School Register

Employment Insurance

Link key: Resident Registration Number, Foreigner Registration Number,
Passport Number + Nationality

Households

Family Relations Register

Social Institutions

Dormitory Facilities

Military Facilities
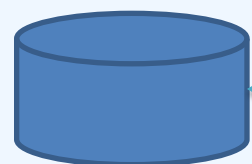
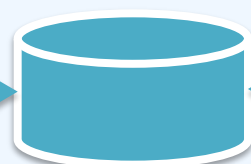Census Population
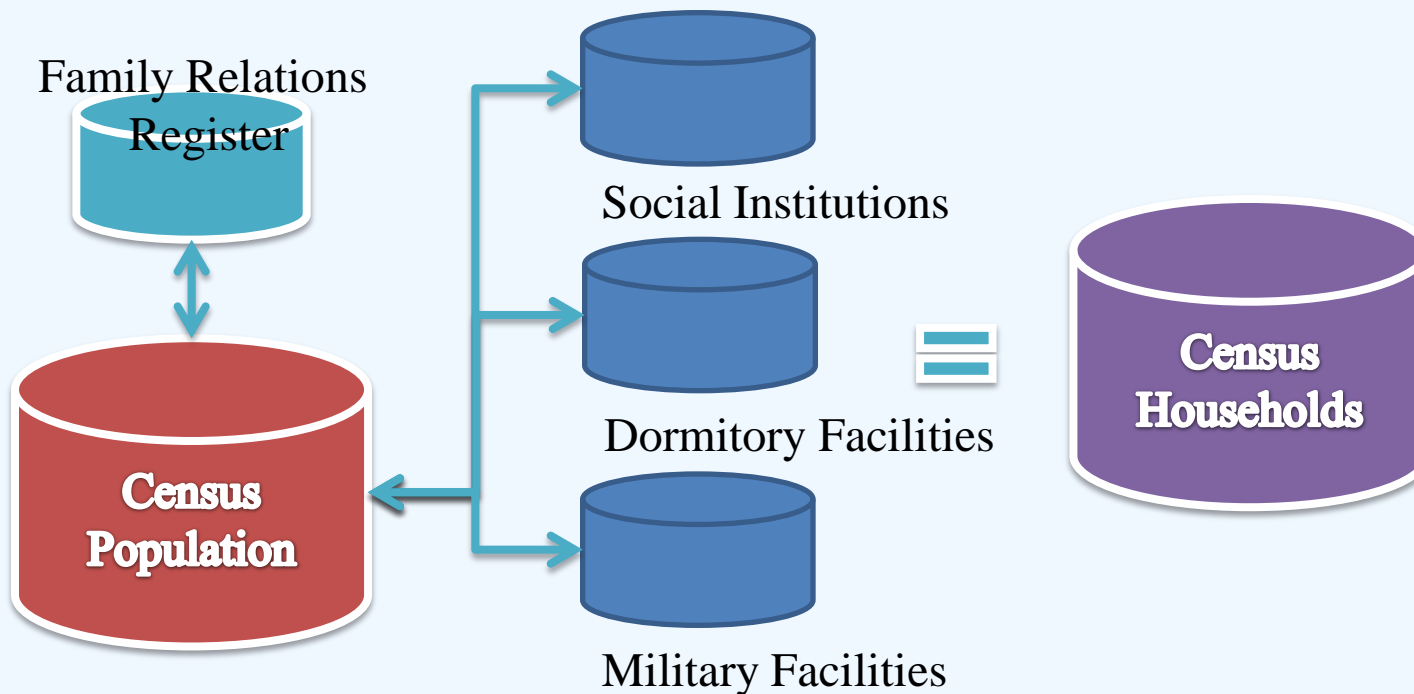
Census Households

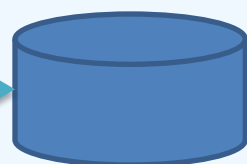Link key: Resident Registration Number
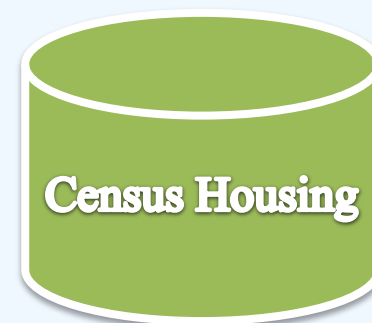
3. Linking Administrative Data

Housing

Housing Census ↔ Building Register ↔ Publicly Announced Housing Prices = Census Housing

Link key : address

2015 Household Sample Survey

- Field survey to be conducted on 20% of all households nationwide (about 3.6 million households)
- Data to be collection on about 40 variables including number of children planned to have and community activities

Facilities Complete Enumeration

- Complete enumeration to be taken on social institutions, dormitory facilities and military facilities

Field Survey Used to

- Provide data on variables hard to obtain using administrative data
- Adjust size and structure for register-based census by region using field survey data

V Future Plans

1. Future Plans

Supplement population and households by region

- Analyze register-based population and households by region and examine quality improvement measures
- Identify available admin data to link for quality enhancement of register-based census
- Obtain additional admin data and review data quality for use in register-based census

Finalize Variables to Obtain for Register-based Census
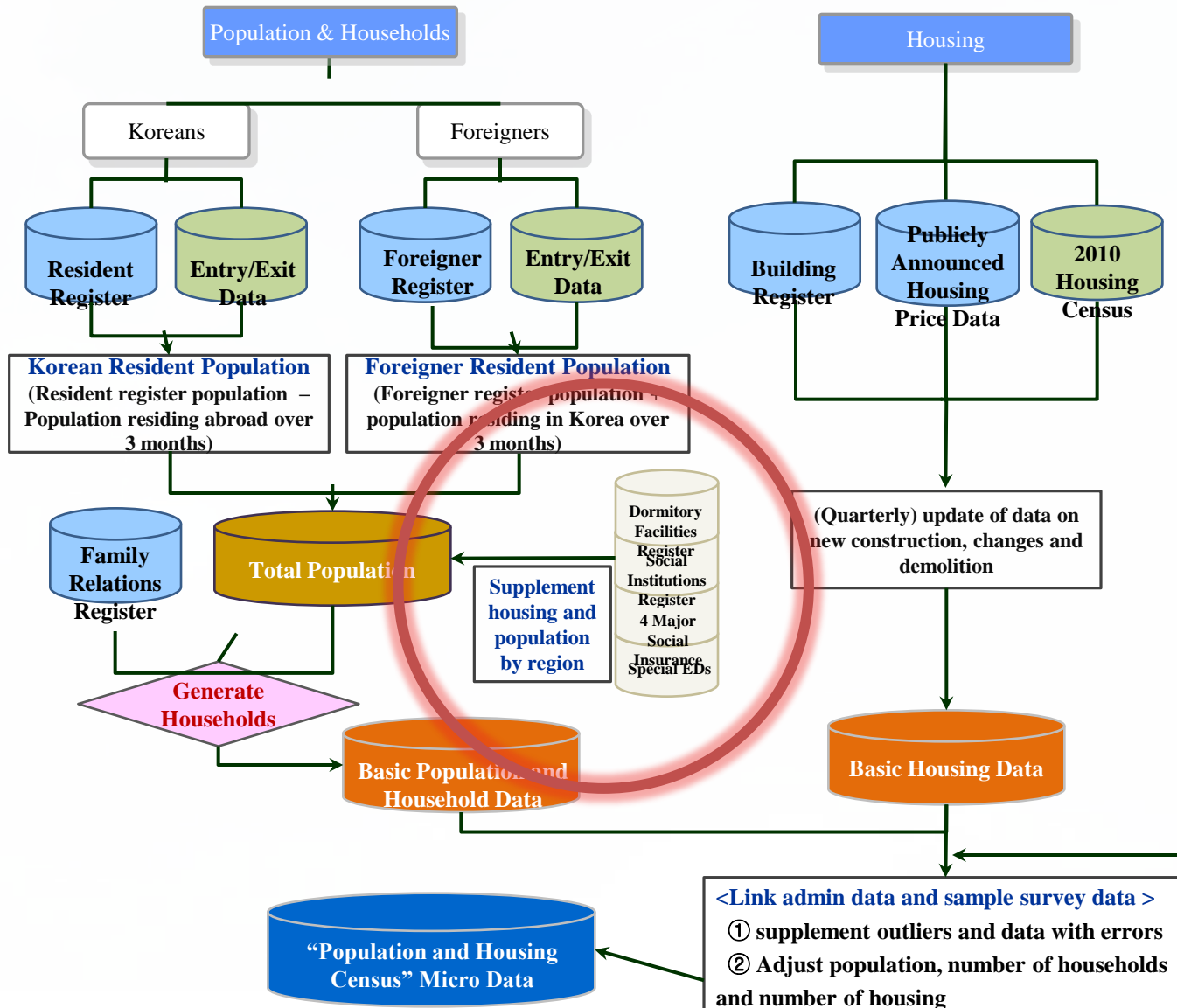
- Analyze meta data and figures for variables which can be produced using admin data
- Finalize variables to obtain for register-based census

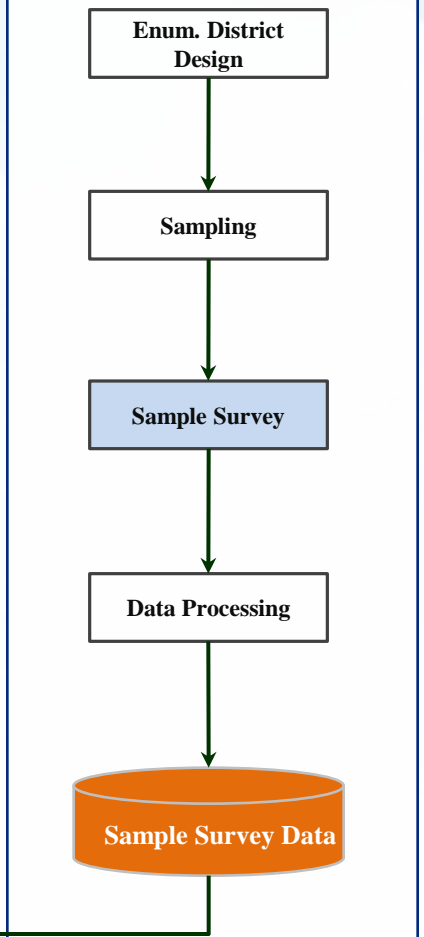## Decide on Register-based Census Methodology

- Complete development of statistical methodology to be used in Phase 2 of transition from admin data to statistical data
- Test register-based census methodology and review trial calculation results

1. Future Plans

Complete Enumeration Variables (Register-based Census)

Sample Variables (Field Survey)

Population & Households

Koreans — Foreigners

Resident Register | Entry/Exit Data | Foreigner Register | Entry/Exit Data

Korean Resident Population (Resident register population – Population residing abroad over 3 months)

Foreigner Resident Population (Foreigner register population + population residing in Korea over 3 months)

Family Relations Register

Total Population

Generate Households

Dormitory Facilities Register Social Institutions Register 4 Major Social Insurance Special EDs

Supplement housing and population by region

Basic Population and Household Data

Housing

Building Register | Publicly Announced Housing Price Data | 2010 Housing Census

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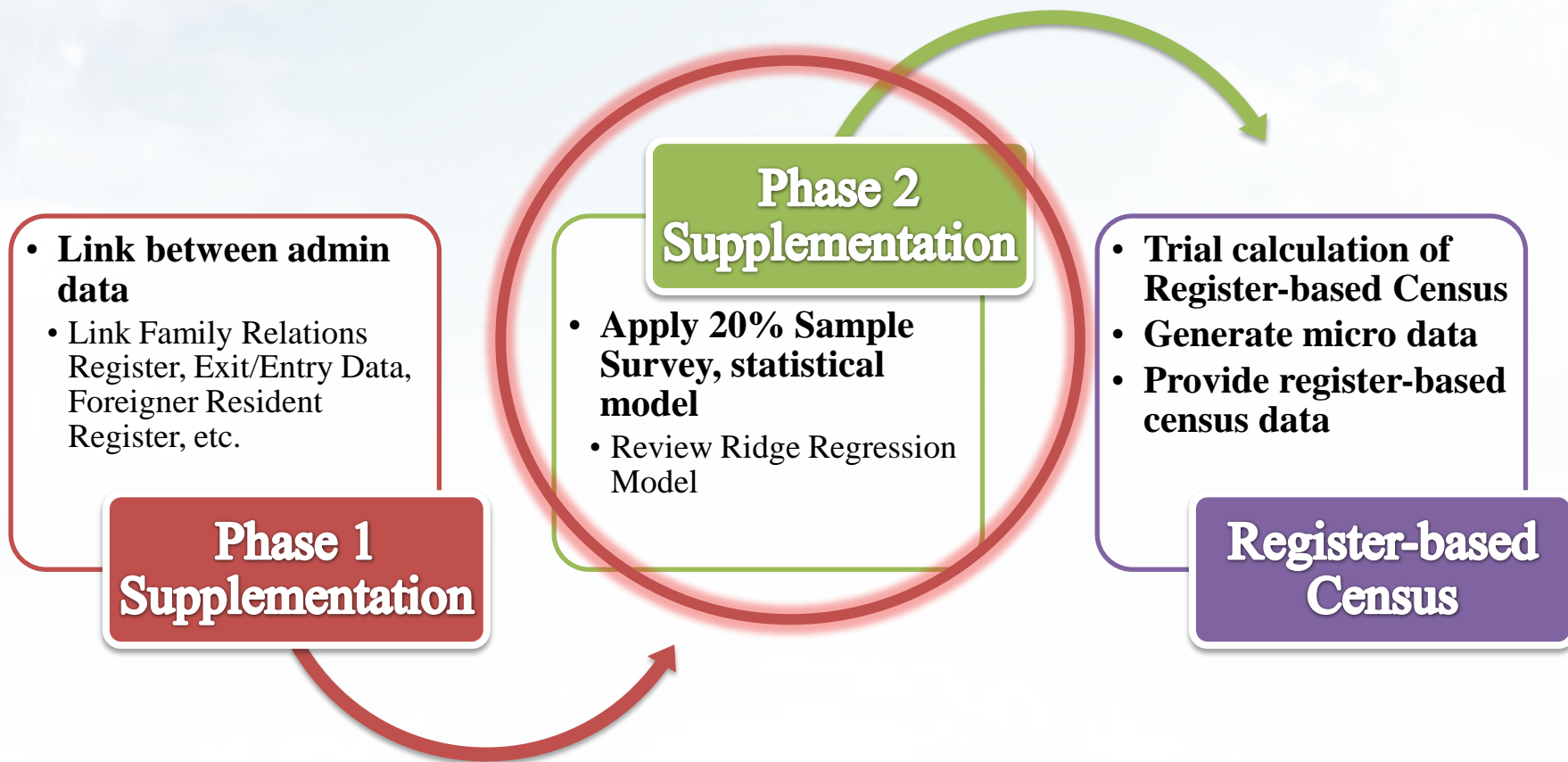
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1. Future Plans

Transition Phase: from admin data to statistical data

- **Link between admin data**
  - Link Family Relations Register, Exit/Entry Data, Foreigner Resident Register, etc.

Phase 1 Supplementation

Phase 2 Supplementation

- **Apply 20% Sample Survey, statistical model**
  - Review Ridge Regression Model

- **Trial calculation of Register-based Census**
- **Generate micro data**
- **Provide register-based census data**

Register-based Census

1. Future Plans

Importance of Relevant Legislation

- For register-based census, it is critical to obtain high quality admin data in a stable manner
- Thus, obligation for agencies to provide their admin data must be stipulated in legislation

* Requested for legal framework on using and standardizing admin data for statistical purposes (Nov. 23, 2011, National Statistics Committee)

Basis for Compiling Official Statistics based on Administrative Data

	Current	To be
Legal Basis	Statistics Act	Law on Using Administrative Data for Statistical Purposes (end of 2013)
Contents	• Comprehensive regulation on obligation to provide administrative data for statistical purposes	• Define scope of provision, procedure, maintenance, standardization and utilization related to administrative data • Rules on data security and penal provisions

VI   Advantages and Disadvantages

1. **Advantages of Register-based Census**

2. **Disadvantages of Register-based Census**

1. Advantages

1 Cost Saving: 1/2 of estimated budget (271.2 billion KRW) for 2015 expected to be saved

2 Reduced burden on respondents : Only 20% of population subject to interviews vs. 100%

- By substituting complete enumeration with administration data, we can reduce the number of survey subjects down to 1/5 of traditional method

	2010 Population and Housing Census	2015 Population and Housing Census
Reference Data	2010. 11. 1.	2015. 11. 1.
Method	Field Survey	Admin Data + Sample Survey
Basic Variables	Complete Enumeration (100%)	**Register-based Census (no field survey)**
In-depth Variables	Sample Enumeration (10%)	Sample Enumeration (20%)
Coverage	100% of all population	**20% of all population**

3 Data with improved timeliness

- With reduced periodicity between data dissemination (from 5 years to 1 year) and with yearly sampling, less concerns on the outdated population

4 Other

- Improved data quality, enhanced coverage, less non-responses, time saving (?), etc.

2. Disadvantages

1 Data offered can be limited
- Range of variables to be produced using administrative data can be limited
- Register-based Census data will be supplemented using 20% sample survey

2 Negative public perception
- Concerns on lack of public awareness on the importance of Population and Housing Census if taken without field survey
- Publicity efforts will be made to inform on the new method of 2015 Population and Housing Census and on sample survey to be taken

3 Consistency Issues on Time Series for Historic Data
- Time series analysis is need to check the consistency with past population and housing statistics

4 Difficult to management disintegrated data sources; time saving (?)
- Due to decentralization of agencies keeping administrative data, management of data sources depends on each agency
- Common keys to link between administrative data are insufficient and lack standardization

Thank you!